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## WELCOME TO WDPI 2010

Welcome to Angers for the First Scientific Conference on Work Disability Prevention and Integration – WDPI 2010. This is an historic event – the first international scientific conference entirely focused on research to prevent work disability, and to promote safe and sustained return to work. This Conference was organized in response to a recognized need for an international scientific forum, incorporating a range of disciplines, where there can be an open exchange of ideas on work disability prevention (WDP) across various conditions. As a global economy has emerged, prevention of work disability has become a concern not only for developed nations, but also for developing countries. Demographic trends in Europe and North America have led to a need to extend the duration of employment, and thus more interest in preventing work disability in vulnerable aging populations.

Our goal is to provide you with a stimulating, thought-provoking experience, where presentations and discussion will provide new knowledge, perspectives, and opportunities for future collaboration. Ultimately, the Conference is intended to improve the quality and impact of WDP research. To accomplish this, the Conference features 29 oral presentations and 47 posters, from leading scientists and emerging researchers, representing 15 countries – a truly international perspective. Presentations are organized around several themes - intervention studies, implementation challenges, predictors and outcomes, and the emerging fields of cancer and mental health WDP. The three keynote speakers were selected to provide an historical perspective and viewpoints on future frontiers for WDP research. The final session will challenge each of us to synthesize the two-day experience and identify new opportunities in WDP going forward.

As this is the first meeting of its kind, the organizers are very interested in your impressions and feedback. We will be contacting each attendee to complete a brief follow-up survey soon after the conference. We urge you to help us improve future meetings through your input. Please contact any of the organizers during the meeting if you have any questions, concerns, or suggestions.

This Conference is the main scientific activity of the International Commission on Occupational Health's Scientific Committee on Work Disability Prevention and Integration. The Committee has a unique mission to promote research and scientific exchange, in order to prevent work disability and achieve re-integration in the workplace, regardless of condition. We encourage all WDPI 2010 attendees to join ICOH and this Scientific Committee, and take an active role in future development of an electronic resource library, list-serve, and exchange of opportunities for advanced research training. Contact information is available through the ICOH web site at [http://www.icohweb.org/site\\_new/ico\\_scientific\\_committee\\_detail.asp?sc=8](http://www.icohweb.org/site_new/ico_scientific_committee_detail.asp?sc=8)

The Journal of Occupational Rehabilitation, the official journal of the WDPI Scientific Committee, is hosting a Best Paper competition for this Conference. At the end of the meeting, the judges (the session chairs) will announce the top papers, who will be invited to submit manuscripts to the Journal, for publication in a special issue.

We are indebted to many who have contributed so much to the success of this meeting. The organizers of PREMUS 2010 (listed below) were especially generous in offering to partner with WDPI 2010, sharing all of their organizational resources, and making arrangements for publicity, web site, abstract submission and publication, registration, scheduling, on-site hosting, social events, and other logistical arrangements. We are especially grateful for the efforts of Yves Roquelaure and Natacha Fouquet to make everything work smoothly, and to Jean-Baptiste Fassier, who was the primary liaison between both meetings. They were especially creative in organizing a half-day joint session with topics of overlapping interest for PREMUS and WDPI attendees. We also want to thank the supporters of the joint meeting, who provided funding and interpretation, our session chairs, keynote speakers, presenters, and the Faculties of the University of Angers who graciously hosted the Conference in their fine location. The WDPI Scientific Committee (listed below) provided thoughtful and timely reviews of all submitted abstracts, helped to shape the program, and



encouraged colleagues to attend. Each of their contributions were essential in ensuring the success of this program.

We organizers have launched a new beginning in the field of WDP, but each of you attending the Conference are responsible for expanding the growth and impact of our work. You represent the persons who are most capable of informed leadership, to enhance the application of scientific knowledge in business, labor, government, and other stakeholder institutions. We urge you to reflect on how you can contribute, through involvement in collaborative research, knowledge transfer, and mentorship, with the goal of improving safe and sustained return to work across a variety of conditions.

Best wishes for a successful and enjoyable meeting!

#### The Local Organizing Committee

Glenn Pransky, program chair

Han Anema

Patrick Loisel

Jean Baptiste Fassier

#### WDPI Scientific Organizing Committee

Han Anema

Kim Burton

Rachelle Buchbinder

Ute Bultman

Chetwyn Chan

Marc Corbiere

Katia Costa-Black

Angela De Boer

Jean-Baptiste Fassier

Mike Feuerstein

Aage Indahl

Steven Linton

Patrick Loisel

Philippe Mairiaux

Karen Nieuwinhuijsen

Glenn Pransky

Isabelle Richard

#### PREMUS 2010 Organizers

Yves Roquelaure

Catherine Ha

Agnès Aublet-Cuvelier

Virginie Bellanger

Patrick Bidron

René Brunet

Alexis Descatha

Natacha Fouquet

Florence Jegou

Audrey Petit-Le Manac'h

Isabelle Richard-Crémieux

Annie Touranchet

#### UNIVERSITY OF ANGERS



The University of Angers is in the heart of the historic Loire Valley in western France. It has three campuses in Angers (Belle-Beille, St Serge, and Santé), and branches in the nearby towns of Cholet and Saumur. Of its 17,781 students, 11% (1956) are international students. The University of Angers has 8 major faculties: the School of Law, the School of Economics and Management, in which the PREMUS 2010 conference is being held, the Faculty of Languages, Humanities and Social Sciences,

the Faculty of Science, the School of Medicine, one of the oldest in France, created in 1433, the School of Pharmacy, ESTHUA (School of Tourism and Hospitality Management), ISTIA (School for Chartered Engineers in Sciences and Technology) and IUT (Institute of Technology: professionally-oriented courses and degrees). The University of Angers is internationally and nationally renowned for research in a wide



range of fields, from pure science and technology to the social sciences and humanities. The University structures its research around three nationally accredited fields of excellence (health sciences, plant sciences and material sciences).

The Laboratory of Ergonomics and Epidemiology in Occupational Health, a research unit of the University of Angers associated with the French Institute for Public Health Surveillance, aims to study the work-related MSDs. Two main research programs using an interdisciplinary approach combining clinics, epidemiology, ergonomics, biomechanics and psychology have been developed:

- Epidemiology and surveillance of MSDs of the upper limb and back in the general and working population
- Conception and assessment of interventions for the prevention of MSDs including research on the rehabilitation and return to work strategies for workers suffering from chronic MSDs and research on the implementation and assessment of in-plant intervention programs for the prevention of MSDs and disability.

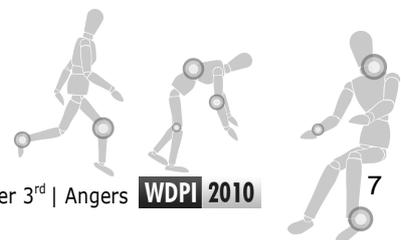
## FRENCH INSTITUTE FOR PUBLIC HEALTH SURVEILLANCE



The French Institute for Public Health Surveillance (Institut de veille sanitaire, InVS), a public administrative body placed under the Ministry of Health, is responsible for surveillance and alert in all domains of public health. Created by Law 98-535 dated 1 July 1998, to reinforce health surveillance and the safety of products intended for human use, its mandate was enlarged by the Public Health Policy Act of 2004, in order to meet the challenges highlighted by recent emerging health threats.

Its main missions are:

- Monitoring the health status of the population  
InVS contributes to the collection and analysis of population health data for epidemiological purposes. InVS contributes to the production of health indicators, in particular to assess the objectives of the Public Health Policy Act of 2004 and in several national public health plans (Cancer, Quality of Life, Health at work, HIV, rare diseases...).
- Health surveillance  
InVS coordinates surveillance networks in all areas of public health either in-house or operated by external partners. These networks gather and analyse health information data including health risk factors and social determinants. InVS is in charge of reviewing knowledge related to health risks and their determinants, of the analysis of trends and identification of vulnerable groups.  
InVS also coordinates large health surveys in all domains of surveillance (population surveys with health examination, sero-epidemiological surveys, surveys in vulnerable groups...).
- Health alert and support to decision making in the management of health crises  
InVS is in charge of the detection of health threats whatever their origin and nature. InVS has the duty to inform the Minister of Health as soon as possible of any threat to the health of the population (or any population group) and to issue recommendations regarding all appropriate measures or actions for containment, mitigation and prevention of its impact.
- Contribution to European and international networks in the area of surveillance and alert  
Since the ECDC (European Centre for Disease Control and Prevention) was created in 2004, InVS contributes to the implementation of the Centre's activities in the area of threat detection, surveillance, scientific advice, training and communication. InVS is also involved in international networks under the umbrella of WHO-HQ or WHO regional offices.





The International Commission on Occupational Health (ICOH) is an international non-governmental professional society whose aims are to foster the scientific progress, knowledge and development of occupational health and safety in all its aspects. It was founded in 1906 in Milan as the Permanent Commission on Occupational Health.

Today, the ICOH is the world's leading international scientific society in the field of occupational health, with a membership of about 2,000 professionals from almost 100 countries. The ICOH is recognized by the United Nations as a non-governmental organization (NGO) and has close working relationships with ILO, WHO, UNEP and ISSA. Its official languages are English and French.

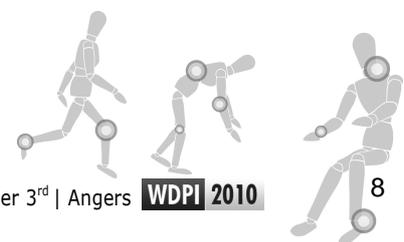
The most visible activities of ICOH are the triennial World Congresses on Occupational Health, which are usually attended by some 3,000 participants, as in Milan in 2006 and Capetown in 2009. The 2012 Congress venue will be Monterey, Mexico.

ICOH has 33 Scientific Committees, most of which have regular symposia, produce scientific monographs, and review the abstracts submitted to the International Congresses. The Scientific Committees form the sponsoring committee of the triennial PREMUS conference.

## SUPPORTERS



The Journal of Occupational Rehabilitation is an international forum for the publication of peer-reviewed original papers on the rehabilitation of the disabled worker, and is the official journal of the ICOH Work Disability Prevention and Integration Scientific Committee. The journal offers investigations of clinical and basic research; theoretical formulations; literature reviews; case studies; discussions of public policy issues and book reviews. Papers, both clinical and theoretical, derive from a broad array of fields: rehabilitation medicine, physical and occupational therapy, health psychology, orthopedics, neurology, and social work, ergonomics, biomedical and rehabilitation engineering, disability management, law and more. A single multidisciplinary source for information on work disability rehabilitation, the Journal of Occupational Rehabilitation helps to advance the scientific understanding, management, and prevention of work disability.



# PROGRAM AT A GLANCE

## Thursday, 2 September 2010

Time	BODIN (ground floor) <i>Traduit en français</i>	VOLNEY (ground floor) <i>Traduit en français</i>	LAGON (third floor)	TAMARIS (third floor)	AMANDE (third floor)
8.30 - 10.00	<b>Morning plenary</b> Two keynotes: Daniellou, Mairiaux	<b>Broadcast of the BODIN amphitheater</b> <i>(Retransmission non traduite)</i>			
10.00 - 10.30	<b>Breakfast PREMUS - WDPI</b>				
10.30 - 12.00	<b>Interventions for Reducing Work Absence for Workers with MSK Disorders Part II</b> VAN OOSTROM TOMPA LAMBEEK KILSGAARD	<b>Return to work / Tertiary prevention (2)</b> VRIES DE LINDBERG NILSING HIMMELSTEIN FASSIER	<b>International perspective on work-related health outcome measures</b> ABMA AMICK BÜLTMANN GALLASCH	<b>Gender, work activity and MSD: what are the implications for intervention?</b> AUTHIER LABERGE CAROLY DE TROYER	<b>Lower limb disorders</b> GOUTTEBARGE RIEGER DITCHEN BIELEMAN KLUSSMANN RYTTER
12.00 - 12.15	<b>Best poster Award</b> <b>Winners of the SJWEH best paper competition</b>	<b>Broadcast of the BODIN amphitheater</b> <i>(Retransmission non traduite)</i>			
12.15 - 12.40	<b>Closing Remarks</b> <b>Next Premus Presentation</b>				
12.40	<b>Lunch basket</b>				
13.30 - 13.45	<b>WDPI Opening Session</b>				
13.45 - 14.15	<b>Afternoon plenary</b> One keynote: Feuerstein				
14.15 - 15.45	<b>Promising work disability prevention interventions</b> LAMBEEK GATCHEL VAREKAMP JENSEN ILES				
15.45 - 16.15	<b>Coffee/Tea Break</b>				
16.30 - 18.00	<b>Predictors and factors related to return to work</b> DUNSTAN BRANTON LUND MUIJZER AAS WEBSTER	<b>Outcomes in work disability prevention</b> TOMPA BROUWER CLAY KOOLHAAS SMITH EKBERG			
18.30	<b>Walk to dinner</b>				



## Friday, 3 September 2010

Time	BODIN (ground floor) <i>Traduit en français</i>	VOLNEY (ground floor) <i>Traduit en français</i>
8.30 - 9.00	<b>Morning plenary</b> One keynote: Drake	
9.00 - 10.30	<b>Implementation Challenges in Work Disability Prevention</b> O'HAGAN TVEITO MACEACHEN TJULIN COSTA-BLACK KHUSHRUSAHI	
10.30 - 12.00	<b>Poster Session with Coffee/Tea Break (10.30 – 11.00)</b>	
12.00 - 13.15	<b>WDPI Business meeting and Lunch basket</b>	
13.30 - 14.00	<b>Afternoon plenary</b> One keynote: Bultmann	
14.10 - 15.40	<b>Cancer and work disability</b> GUDBERGSSON DE BOER LINDBOHM TASKILA LAWRENCE MAK	<b>Mental health aspects of work disability prevention</b> INDAHL CORBIÈRE JOOSEN LEMIEUX RENEMAN ARENDS
15.50 - 16.40	<b>Closing session</b>	





# DETAILED PROGRAM

**Thursday, 2 September 2010**

8.30 - 10.00 **Morning Plenary: Two Keynotes**

Chair(s): VÉZINA N.

François Daniellou: MSD Prevention: the Organisational Challenge

Philippe Mairiaux: Management of LBP and the working environment.

10.00 - 10.30 *Breakfast PREMUS – WDPI*

10.30 - 12.00 **Parallel sessions:**

**Symposia:**

Interventions for Reducing Work Absence for Workers with MSK Disorders Part II - Update on implementation aspects and on benefits of interventions. *Traduit en français*

Organizer(s): FRANCHE R.L., MACEACHEN E.

Cochrane review about workplace interventions for preventing work disability

VAN OOSTROM S.H., DRIESSEN M.T., DE VET H.C.W., FRANCHE R.L., SCHONSTEIN E., LOISEL P., VAN MECHELEN W., ANEMA J.R.

A systematic review of disability management interventions with economic evaluations

TOMPA E., DE OLIVEIRA C., DOLINSCHI R., IRVIN E.

Coordinated and tailored work rehabilitation: challenges of implementing a cost effective program in an interorganisational setting

KILSGAARD J., SHERSON D., OLSEN J., LYSBECK HANSEN C., LUND T., BÜLTMANN U.

International perspective on work-related health outcome measures.

Organizer(s): BÜLTMANN U., AMICK B.

The cross cultural adaptation of the work role functioning questionnaire to Dutch  
ABMA F.I., AMICK B.C., BROUWER S., VAN DER KLINK J.J.L., BÜLTMANN U.

The use of work role functioning in evaluating an ergonomic intervention  
AMICK B.C., BAZZANI L., ROBERTSON M., DE RANGO K.

Work limitations among workers in a manufacturing company in Denmark  
BÜLTMANN U., AMICK B.C., SELL L., HOLTERMANN A., SØGAARD K.

Measuring work limitations in Brazilian health care workers

GALLASCH C.H., ALEXANDRE N.M.C.

Gender, work activity and MSD: what are the implications for intervention?

Organizer(s): LABERGE M.

Women in manual materials handling: a complex question

AUTHIER M.

Results and reflections on gender based ergonomic intervention from the Quebec working group of the IEA technical committee on gender and work (QTC)

LABERGE M., MESSING K.

Emergence of the theme of gender in ergonomics: overview of the activities and reflections of the European francophone network of the IEA technical committee on gender and work  
CAROLY S.

Roundtable on gender-based ergonomic intervention to prevent MSD: issues and implications for implementing changes in the workplace

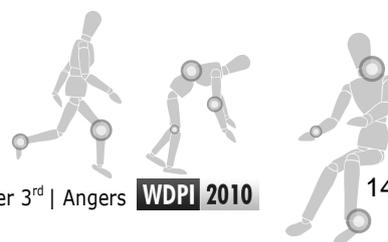
Chair: DE TROYER M. Panelists: VEZINA N., GLINA D.M.R., LEIJON O., DONIOL-SHAW G.

**Open sessions:**

Return to work / Tertiary prevention (2). *Traduit en français*

Chair(s): COGGON D., ALEXANDRE N.

Determinants for staying at work in people with chronic nonspecific musculoskeletal pain: a systematic review.



VRIES DE H.J., RENEMAN M.F., GROOTHOFF J.W., GEERTZEN J.H.B., BROUWER S.  
Factors at work acting as buffers against neck/shoulder and low back disorders  
LINDBERG P., LEIJON O., JOSEPHSON M.

Rehabilitation is seldom prescribed at the initiation of a new sick-leave period - a study on sickness certificates in Sweden

NILSING E., SÖDERBERG E., ÖBERG B.

The impact of health system coverage and benefit design on work incentives and disability prevention.

HIMMELSTEIN J.S., HENRY A.D., GETTENS J.W.

Implementing return to work interventions for workers with low back pain: a conceptual frame to identify barriers and facilitators

FASSIER J.B., DURAND M.J., LOISEL P.

#### Lower limb disorders

Chair(s): BOOCOOCK M., KIRKESKOV L.

Standing, kneeling and squatting at work associated with musculoskeletal disorders: meta-analyses.

GOUTTEBARGE V., BOUWMAN C., FRINGS-DRESEN M.H.W., VAN DIEËN J.H., VAN DER BEEK A.J., BURDORF A.

Correlation between different physical exposures and patterns of cartilage damage in the knee

RIEGER M.A., QUIROS PEREA E., GEBHARDT H., LIEBERS F., KLUSSMANN A.

Validity of self-assessed reports and measuring data on work-related knee straining activities – results of a cross sectional study

DITCHEN D.M., ELLEGAST R.P., HARTMANN B., RIEGER M.A.

Work participation, work adaptations, sick leave and self-reported health status in early osteoarthritis. a 2-year follow-up study in the cohort hip and cohort knee (check-study).

BIELEMAN H.J., RENEMAN M.F., DROSSAERS-BAKKER K.W., GROOTHOFF J.W., OOSTERVELD F.G.J.

Predictors for knee osteoarthritis - results of the case control study "ARGON"

KLUSSMANN A., GEBHARDT H., LIEBERS F., VON ENGELHARDT L.V., QUIROS E., DAVID A., BOUILLON B., RIEGER M.A.

Occupational physical activity and meniscal tears: a review of the epidemiological literature  
RYTTER S., KIRKESKOV L.

12.00 - 12.15 Best poster Award  
Winners of the SJWEH best paper competition

12.15 - 12.40 Closing Remarks  
Next Premus Presentation

12.40 Lunch basket

13.30 - 13.45 **WDPI Opening Session**

13.45 - 14.15 **Afternoon plenary: one keynote**  
Mike Feuerstein: Work disability prevention: a cross-disciplinary view

14.15 - 15.45 **Oral session: Promising work disability prevention interventions**

Chair: LOISEL P.

Integrated care for chronic back pain: a randomized controlled trial evaluating a systems approach to reduce disability in working and private life

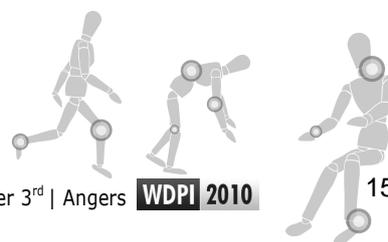
LAMBEEK L.C., VAN MECHELEN W., KNOL D.L., LOISEL P., ANEMA J.R.

Early intervention options for acute low back pain patients to prevent work disability: a prospective one-year follow-up study

GATCHEL R., WHITFILL T., HAGGARD R., BIERNER S., PRANSKY G.

Effectiveness of an empowerment-based job retention program for employees with a chronic disease; a randomised controlled trial

VAREKAMP I., VAN DIJK F.



One-year follow-up in employees sick-listed because of low back pain: Subgroup analyses in a randomised clinical trial comparing multidisciplinary and brief intervention  
JENSEN C., JENSEN O.K., CHRISTIANSEN D.H., STAPELFELDT C.M. **Erreur ! Signet non défini.**, PETERSEN K.D., NIELSEN C.V.

A randomised controlled trial of telephone coaching for return to usual activity in low back pain  
ILES R.A., TAYLOR N., DAVIDSON M., O'HALLORAN P.

15.45 – 16.15 *Coffee/Tea Break*

16.30 - 18.00 **Parallel sessions:**

Predictors and factors related to return to work

*Chair: ANEMA H.*

Development and validation of the future work participation questionnaire  
DUNSTAN D.A., COVIC T., TYSON G.A.

A short-form functional capacity evaluation predicts time to recovery but not sustained return-to-work  
BRANTON E.N., ARNOLD K.M., APPELT S.R., HODGES M.M., BATTIÉ M.C., GROSS D.P.

Explaining differences in sickness absence levels among public sector employees in Sweden and Denmark – a cross-country study  
LUND T., LABRIOLA M.

Determinants of the return-to-work process and their predictive value on disability outcome after two years of sickness absence  
MUIJZER A., GROOTHOFF J.W., GEERTZEN J.H.B., BROUWER S.

Leadership qualities in the return to work process. A content analysis  
AAS R.W., ELLINGSEN K.L., LINDØE P., MOLLER A.

Association of physical therapy with disability duration following meniscectomy for occupational knee injuries  
WEBSTER B.S., VERMA S., WILLETTS J., CIFUENTES M.

Outcomes in work disability prevention

*Chair: PRANSKY G.*

Work disability trajectories after permanent impairment from a work accident  
TOMPA E., SCOTT-MARSHALL H., FANG M., MUSTARD C.

A prospective study across different health condition subgroups: differences in association between psychosocial factors and return to work outcome  
BROUWER S., RENEMAN M., BÜLTMANN U., VAN DER KLINK J., GROOTHOFF J.

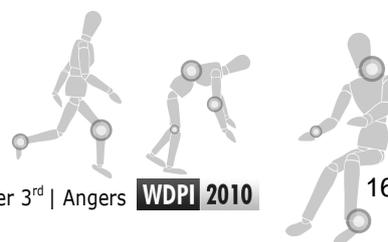
First return to work following injury: does it reflect a composite or a homogeneous outcome?  
CLAY F.J., NEWSTEAD S.V., D'ELIA A., WATSON W.L., MCCLURE R.J.

Impact of ageing problems, chronic health conditions and nature of work on a sustainable healthy working life among workers aged 45 years and older  
KOOLHAAS W., BROUWER S., GROOTHOFF J.W., VAN DER KLINK J.J.L.

Occupational demands moderate the relationship between age and length of absence following a work injury.  
SMITH P.

Is a new job the solution for sustainable work ability after sick leave?  
EKBERG K., BERNFORT L., PERSSON P., WÅHLIN NORRGREN C., ÖBERG B.

18.30 *Walk to dinner*



**Friday, 3 September 2010**

**8.30 – 9.00 Morning plenary: one keynote**

Robert Drake: Success with supported employment for serious mental disorders - translation opportunities

**9.00 - 10.30 Oral session**

**Implementation Challenges in Work Disability Prevention**

*Chair: FASSIER J.B.*

Employer perspectives on return to work communication  
*O'HAGAN F., STEENSTRA I., AMMENDOLIA C.*

Managing low back pain in the work place - problems and strategies: A focus group study  
*TVEITO T.H., SHAW W.S., HUANG Y.H., WAGNER G.*

How do workers make return-to-employment choices after a work injury? The case of constrained choices in Ontario, Canada.  
*MACEACHEN E., KOSNY A., FERRIER S., NEILSON C., LIPPEL K., FRANCHE R.L.*

The social organization of return-to-work at the workplace  
*TJULIN Å., MACEACHEN E., EKBERG K.*

How do we do it here? Lessons learned from planning and implementing three work rehabilitation programs in Brazil  
*COSTA-BLACK K.M., LOISEL P.*

Relevance and impact of the ACOEM guidance statement on preventing needless work disability for stakeholders in a Canadian jurisdiction  
*KHUSHRUSHAHI N., WHITE M., DUNN C., STRAUSS P., GUZMAN J.*

*10.30 – 12.00 Poster Session with Coffee/Tea Break (10.30 – 11.00)*

*12.00 – 13.15 WDPI Business meeting and Lunch basket*

**13.30 – 14.00 Afternoon plenary: one keynote**

Ute Bültmann: Mental health and work – towards work disability prevention and a sustainable working life

**14.10 – 15.40 Parallel sessions:**

**Cancer and work disability**

*Chair: DE BOER A.*

A comparative study of cancer patients with short and long sick-leave after primary treatment.  
*GUDBERGSSON S.B., TORP S., FLØTTEN T., FOSSÅ S.D., NILSEN R., DAHL A.A.*

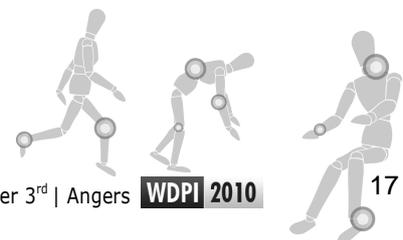
Interventions to enhance return-to-work for cancer patients: a Cochrane review  
*DE BOER A.G.E.M., TASKILA T., TAMMINGA S.J., FRINGS-DRESEN M.H.W., FEUERSTEIN M., VERBEEK J.H.A.M.*

Work ability of survivors of breast, prostate and testicular cancer in Nordic countries  
*LINDBOHM M.L., TASKILA T., KUOSMA E., HIETANEN P., CARLSEN K., GUDBERGSSON S., GUNNARSDOTTIR H.*

Fatigue and its correlates in cancer patients who had returned to work – a cohort study  
*TASKILA T., DE BOER A., VAN DIJK F., VERBEEK J.*

Exploring interventions for chemotherapy-related cognitive impairment and ability to work: from the patient and oncology health professional perspective  
*LAWRENCE C., MUNIR F., KALAWSKY K., AHMED S., YARKER J., HASLAM C.*

Evidence-based policy and initiative for cancer survivors at work: The case of Singapore  
*MAK A.K.Y.*



## Mental health aspects of work disability prevention

Chair: CORBIERE M.

Brief intervention with an educational approach for mild mental disorders; A pilot study  
INDAHL A., ANDERSEN E., WORMGOOR M.E.A.

Predictors of work outcomes in people with severe mental disorders: The evaluation of a conceptual model based on the Theory of Planned Behaviour  
CORBIÈRE M., ZANIBONI S., LECOMTE T.

Evaluating outpatient vocational rehabilitation interventions in patients with prolonged fatigue complaints on fatigue symptoms, workability and return-to-work.  
JOOSEN M.C.W., FRINGS-DRESEN M.H.W., SLUITER J.K.

Supervisors' perception of the factors influencing the return to work of workers with mental health disorders  
LEMIEUX P., DURAND M.J.

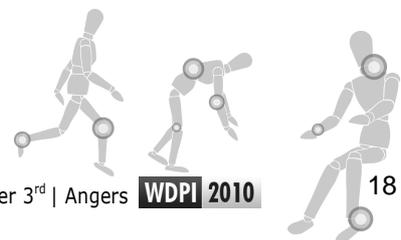
Four studies into the relationships between psychological factors and Functional Capacity in patients with chronic low back pain: consistent and remarkable outcomes  
RENEMAN M.F.

Prevention of recurrent sickness absence among employees with common mental disorders: A cluster-randomised controlled trial with cost-benefit and effectiveness evaluation  
ARENDS I., VAN DER KLINK J.J.L., BÜLTMANN U.

## 15.50 - 16.40 Closing session

**The future of WDPI research (panel of scientific organizers and keynote speakers)**

**Presentation of best papers, and next WDPI meeting**



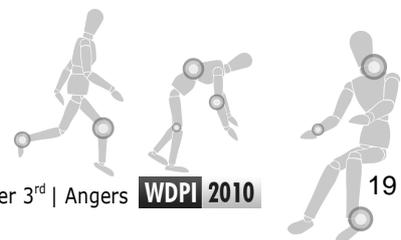
# Poster Sessions

## Cancer – various topics

- WA01 Trends in return to work of employed cancer patients  
*ROELEN C., KOOPMANS P., GROOTHOFF J., VAN DER KLINK J.J.L., BÜLTMANN U.*
- WA02 Return-to-work guidance and support for colorectal cancer patients: A feasibility study  
*BAINS M., MUNIR F., YARKER J., THOMAS A., STEWARD P.*
- WA03 The role of health professionals in the provision of work-related guidance for colorectal cancer patients  
*BAINS M., MUNIR F., YARKER J., STEWARD W., THOMAS A.*
- WA04 Characteristics of workers who keep their work activities during radiotherapy  
*GALLASCH C.H., ALEXANDRE N.M.C., FERNANDES A.C.P.*
- WA05 Return-to-work after cancer  
*WIND H., KLARENBEK A., FRINGS-DRESEN M.H.W.*
- WA06 How to improve return-to-work in cancer survivors  
*TAMMINGA S.J., DE BOER A.G.E.M., VERBEEK J., TASKILA T., FRINGS-DRESEN M.H.W.*
- WA07 A framework of cancer and work  
*FEUERSTEIN M., MOSKOWITZ M., TODD B., BRUNS G.*

## Workplace – placed interventions

- WB01 Workplace Disability Management Programs Promoting Return-to-Work, a Campbell review  
*GENSBY U., LUND T., KOWALSKI K., FILGES T., JØRGENSEN A.M.K., AMICK B., LABRIOLA M.*
- WB02 Experience of the implementation of a multi-stakeholder return-to-work programme  
*TJULIN Å., EDVARDSSON STIWNE E., EKBERG K.*
- WB03 Capitalizing on proper MSD management: from disability prevention to return to work management  
*TREMBLAY-BOUDREAULT V., VÉZINA N.*
- WB04 Employer-provided workplace interventions for reducing sick leave. A case study in twelve municipalities  
*WÅGØ AAS R., MOLLER A., MARKLUND S.*
- WB05 Implementation of a RTW program for low back pain workers in Belgium: Assessment of the workplace intervention component  
*MAIRIAUX P., SCHRIVVERS G., DELARUELLE D., CREYTENS G., POOT O., STRAUSS P.*
- WB06 Occupational tasks in the "green frame" or how work can help low back pain sufferers to stay active  
*MEYER J.P.*
- WB07 Risk factors, clinical features and outcome of treatment of work related musculoskeletal disorders in on-site occupational health clinics in indian information technology companies  
*SHARAN D., RAMESHKUMAR R., AJEESH P.S.*
- WB08 Evaluation of the effectiveness of an exercise intervention program for Australian train drivers and guards  
*SCHONSTEIN E.*
- WB09 Self-management for return to work: development of training modules  
*JOHNSTON V., STRONG J., ANDERSSON J., GARGETT S., ELLIS N.*
- WB10 Return to work program in a hospital located in São Paulo: initial results, FACILITATORS AND OBSTACLES FROM AN ADMINISTRATIVE PERSPECTIVE  
*SABRA VIEIRA G., GLINA D.M.R., PUSTIGLIONE M., ROCHA L.E.*
- WB11 Activities used to implement work disability prevention program: a scoping review  
*HONG Q.N., DURAND M.J., LEHOUX P.*
- WB12 Modalities of intervention for preventing prolonged disability in compensated workers for WRMSDs  
*NASTASIA I., TCACIUC R., COUTU M.F.*
- WB13 Return-to-work experiences of workers with prolonged fatigue complaints after attending outpatient vocational rehabilitation interventions  
*JOUSEN M.C.W., FRINGS-DRESEN M.H.W., SLUITER J.K.*



## Health care providers and WDP

WC01 The development and efficacy of a communication skills training program for physicians who assess work disability

*VAN RIJSSEN H.J., SCHELLART A.J.M., ANEMA J.R., DE BOER W.E., VAN DER BEEK A.J.*

WC02 Return-to-work in cardiac rehabilitation

*DURAND M.J., DREDELL C., COUTU M.F.*

WC03 The CESAT-Bahia work rehabilitation program: building on international research evidence and implementing in a Brazilian local setting

*LIMA M.A.G., COSTA-BLACK K.M.*

WC04 A unique approach for the prevention of work-related disabilities for employees with lower back pain: does it constitute a new model?

*JEGADEN D.*

WC05 Return to work after brain injury: the gaps between patients expectations and recommendations made after assessment

*ETCHARRY-BOUYX F., BEUGNON D., LAMBERT A., PATUREAU F., PINON K., POULIQUEN U., RICHARD I.*

WC06 Return to work interventions for patients with musculoskeletal and mental disorders - the gap between best and clinical practice

*WÄHLIN NORRGREN C., EKBERG K., PERSSON J., BERNFORT L., ÖBERG B.*

WC07 Lost in translation: new immigrants' experiences of language barriers after a work-related injury

*KOSNY A., MACEACHEN E., LIFSHEN M., NIELSON C., SMITH P., SHIELDS J.*

## Measures in work disability prevention

WD01 Defining return to work; a measurement perspective

*STEENSTRA I., DE VROOME E., HOGG-JOHNSON S., BONGERS P.*

WD02 Work disability patterns during the end-stage renal disease trajectory

*VAN DER MEI S.F., KUIPER D., VAN DEN HEUVEL W.J.A., GROOTHOFF J., BROUWER S.*

WD03 The performance of the GHQ-12, K10 and K6 screening scales to detect psychiatric disorders in a population of long-term disabled persons

*CORNELIUS L.R., VAN DER KLINK J.J.L., GROOTHOFF J., BROUWER S.*

WD04 Analysis of task demands for rehabilitation of injured soldiers

*ARMSTRONG T., BRININGER T.*

WD05 Further validation of the bdi-ii among people with chronic pain originating from musculoskeletal disorders

*CORBIÈRE M., BONNEVILLE-ROUSSY A., FRANCHE R.L., COUTU M.F., CHOINIÈRE M., DURAND M.J.*

WD06 Cross-cultural adaptation of the work disability diagnosis interview for a Brazilian context

*MININEL V.A., FELLI V.E.A., LOISEL P.*

## Factors / predictors

WE01 Illness perceptions and work participation

*HOVING J.L., VAN DER MEER M., VOLKOVA A.Y., FRINGS-DRESEN M.H.W.*

WE02 How much of the difference in sickness absence between women and men can be explained by differences in work environment?

*LABRIOLA M., LUND T.*

WE03 Prognostic factors for disability claim duration due to musculoskeletal disorders among self-employed persons

*RICHTER J.M., ANEMA J.R., HEINRICH J., DE VROOME E., BLATTER B.M.*

WE04 Characteristics of young disabled people and their opportunities for work participation

*HOLWERDA A., BROUWER S., GROOTHOFF J., VAN DER KLINK J.J.L.*

WE05 Determinants of return to work after occupational injury

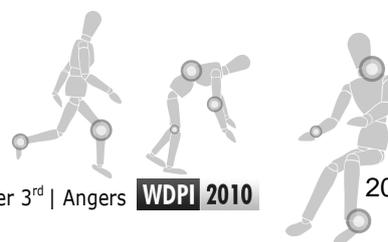
*YONGHUA HE, JIA HU, IGNATIUS TAK SUN YU, WEI GU, YOUXIN LIANG*

WE06 Work participation after acquired brain injury: experiences of inhibiting and facilitating factors

*ELLINGSEN K.L., AAS R.W.*

WE07 Employment status of patients with neuromuscular diseases

*MINIS M.A.H., KALKMAN J.S., AKKERMANS R.P., ENGELS J.A., HUIJBREGTS P.A., BLEIJENBERG G., OOSTENDORP R.A.B., ENGELEN VAN B.G.M.*



WE08 Return to work and work ability after injury: Results from the New Zealand prospective outcome of injury study.

LILLEY R., DERRETT S., AMERATUNGA S., DAVIE G.

WE09 Is social capital in the workplace associated with work-related injury and disability? A systematic review of the epidemiologic literature

KRISTMAN V.L., VAFAEI A.

WE10 Phase-specific facilitators of employment continuation following disabling occupational injury

YOUNG A.E.

WE11 Determinants of return to work and perceived disability in workers with subacute low back pain

MNGOMA N., STEVENSON J.M., MCCOLL M.A.

## RTW coordination

WF01 Return to work as secondary outcome in regular healthcare. A bridge to far?

LÖTTTERS F., BURDORF A.

WF02 Equity as a myth?! – Disability management professionals' practice in Ontario/ Canada

BERNHARD D., MACEACHEN E., LIPPEL K.

WF03 Discretion, governance and cooperative learning: Swedish rehabilitation professionals' experiences of financial cooperation

STÅHL C., SVENSSON T., PETERSSON G., EKBERG K.

WF04 The added value of Disability Case Management in occupational reintegration

VERJANS M., BRUYNINX K.





# PREMUS THURSDAY MORNING SESSIONS



## PREMUS KEYNOTES



**François Daniellou** is Professor of Ergonomics at the Institute of Technology of Bordeaux University. His research field is the introduction of ergonomics in design project management, with emphasis on musculoskeletal disorders, psychosocial risks and technological accidents prevention. The International Ergonomics Association bestowed him the 2009 Outstanding Educators Award.

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### MSD PREVENTION: THE ORGANISATIONAL CHALLENGE

DANIELLOU F.

*IPB-ENSC, Université de Bordeaux, France*

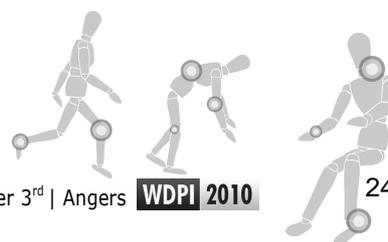
MSD risk factors that are commonly addressed, such as repetitiveness, strength, posture, have themselves higher level determinants (Bellemare et al., 2002). Those are product design, production organisation, workplace design choices, human resource management, general management style, and so on. The main prevention challenge is to tackle not only the risk factors at the workplace but their sources in the organisation. This requires a model of the relations between macro determinants and micro consequences, and models of efficient prevention interventions.

Any workplace is a place where meet: i) an anticipation of production operations, made by the designers and organisers by means of general knowledge (and beliefs); ii) an ability to cope with the real time variability of production components, that is made of individual embodied knowledge and collective rules of the trade. In most situations, the organisation underestimates the level of variability, what is required from the workers to cope with it, and the costs that the discrepancy implies. Therefore, the workers undergo a lack of room for manoeuvre to deal with what has not been anticipated. Production cycles never go as they are supposed to, and the micro reality requires a constant effort of the workers to deal with incidents. MSDs are often a consequence of organisations who aim at a high level of production flexibility with a high organisational rigidity. An assessment of biomechanical risk factors carried out on the basis of a normal standard cycle has little to do with the ongoing accelerations and stops that really occur.

A 3 year study about “sustainable MSD prevention” (Caroly et al, 2007, Coutarel et al., 2006) in middle size companies in France has highlighted the extent to which organisations are frequently overwhelmed by the discrepancy between anticipation and real operations. This results into unofficial stocks, not adapted tools, series of accelerations and breakdowns, delays, quality defects, and so on. The lack of organisational feedback and taking in account of workers’ knowledge is obvious. The approximate translation of so-called “Japanese” organisational measures leads to a combination of organisational mess and an impossibility for the workers to criticize it. Hidden costs (absenteeism and its management, quality losses, delays, loss of brand image...) have been demonstrated to be 10 to 30 times as much as the direct cost of occupational diseases.

Addressing MSD prevention requires a collective awareness of the relation between health hazards and production pitfalls (Winkel & Neumann, 2007). Therefore, a specific project management may be developed, including following ingredients:

- MSDs are not (only) a medical problem, they are a strategic issue for the organisation. Therefore upper management’s involvement and commitment are required.
- MSD are one symptom of a more general organisational syndrome, which includes difficulties for the middle management and lack of decision power for the plant management. Production limitations must be addressed simultaneously with health hazards.



- MSD prevention requires new forms of dialog between all stake holders (decision makers, designers, personnel representatives, health staff, workers including middle management), and relevant forms of participation.
- One other symptom of the MSD syndrome is the general belief that “nothing else is possible”, which is a defence built by the actors in response to their feeling of impotence. Designing and implementing collectively quick solutions are not the final response, but may be a way to make it possible for the actors to overcome this hang-up.

MSD prevention requires experimentation of daring participatory forms of redesign project management. This raises an epistemological problem, since “randomized controlled trials” are not possible when the point is to show the relevance of specific forms of participation. An alternative is qualitative research, based on monographs. A detailed description of a number of interventions, including a systematically framed description of the request, the company context, the underlying theories and models of the consultants, the planned components of the intervention, their real implementation, and the assessed effects (Baril-Gingras et al., 2006, Bellemare et al., 2007, Berthelette, 2006, Messing et al., 2005) might provide a relevant database to detect regularities and feed the professional practice and teaching.

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**Philippe Mairiaux, MD, Ph.D**

Dr Mairiaux is Professor in Public Health, Occupational Health and Ergonomics at the University of Liège Medical School, Belgium. His research main areas of interest are prevention of work related musculoskeletal disorders, return to work strategies for injured workers and participatory strategies for risk assessment in the industry. He has been consultant in disability prevention for a large steel company. He is presently chair of the Belgian Fund for Occupational Diseases scientific Council and the scientific advisor of its Task force in charge of coordinating the Belgian project for prevention of chronic low back pain.

## MANAGEMENT OF LOW BACK PAIN AND THE WORKING ENVIRONMENT

MAIRIAUX P.

*School of Public Health, University of Liège, Belgium*

How can we translate scientific evidence and knowledge about occupational back pain in effective and affordable prevention policies in the working environment? This will be the main focus of the presentation.

It is commonly acknowledged that non-specific low back pain (LBP) is a widespread health complaint among adults of working age, frequently affecting their capacity for work, causing loss of work time, putting sometimes in jeopardy the worker's employability and requesting from the OH services and professionals early recognition, adapted prevention and management strategies. Those unfavorable effects are mostly ascribed to the chronic or recurrent forms of low back pain (CLBP).

From a public health perspective, CLBP is the main reason of about 30 of the cases being granted permanent disability benefits in developed countries (the top cause being mental disorders) and this is a reason of concern when considering the continuous increase in early retirement for health reasons observed after 50 years of age. However from a business perspective, if occupational LBP may have negative impacts in terms of sickness absences rate or early retirement, the extent of those impacts is actually function of each country wage replacement system. When the system relies directly on the company budget, the managers have a stronger incentive for LBP management than when the financing of the system is indirect, through the taxpayer for instance.

In this context, management of LBP at the company level will be discussed in its wide sense, including all interventions aiming to prevent LBP in healthy workers (primary prevention), or to care for workers with sub acute LBP to prevent their transition to chronicity (secondary prevention) and to promote their return to work.

When considering early (or primary) prevention, policies have been based for 40 years or more on two axes: ergonomics interventions aiming at reducing biomechanical constraints through implementation of physical modifications or mechanical lifting equipment at the workplace, and workers training in "safe" handling techniques. Unfortunately, scientific studies have consistently failed in proving the effectiveness of those prevention policies. Two recent systematic reviews confirm this trend. In their review, Martimo et al (2008) concluded that there is no evidence to support the use of training in work techniques as a way to prevent LBP. On the other hand, Driessen et al (2010) showed that physical or organizational ergonomics interventions were not more effective on LBP than no intervention. Whereas more and more ergonomists stress the key influence that workers participation may have on effective improvements in working conditions, a randomized control trial (RCT) involving a substantial degree of participative ergonomics was not successful in preventing musculoskeletal disorders among kitchen workers (Haukka et al 2008). Hence is it time for leaving aside those widespread prevention practices? Is risk factors reduction a logical dead end as long as primary causative mechanisms of low back pain are not determined? Or should we question conclusions drawn from a limited number of RCT's type studies? Should ergonomists and other prevention practitioners reconsider the content of the interventions in order to design really multidimensional interventions? The presentation will bring its own contribution to this heated debate by introducing additional thoughts from a practitioner point of view.



Another option for LBP prevention strategies would be instead of aiming at etiologic factors, to focus on those prognostic factors that influence the duration and consequences (sick leave, disability, health care consumption,...) of low back pain. Solid scientific evidence show indeed the effectiveness on disability of various interventions designed to promote an early return to work (RTW). Since the pioneering work of Loisel and co-workers (1997), workplace based RTW interventions have shown to be effective, among sub acute LBP workers and in comparison to usual care, on return to work rate and reduction of the number of days of absence from work at short and medium terms, even if improvements in functional status or pain are not often observed (Hlobil et al 2005). There is however still some controversy concerning the optimal content of a RTW program, and the balance to ensure in those programs between the medical rehabilitation component (graded activity) and the ergonomic or occupational health component to deliver at the workplace itself (van Oostrom et al 2009). Nonetheless the evidence is now sufficient to promote those RTW policies in the working environment.

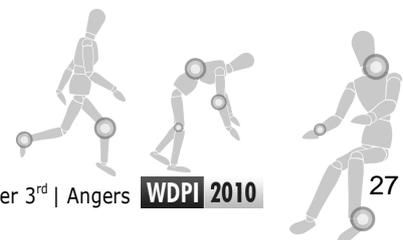
The actual implementation of RTW programs in companies and businesses raises however several challenges. First, it must be pointed out that large companies, mainly multinational companies, are traditionally prone to adopt innovations that they see as cost savings measures and in fact in many countries, large companies already make use of various forms of return to work measures or programs. This positive evolution may however enlarge in the future the gap between the workforce employed in 1st class businesses and the rest of the working population, increasing thus the inequalities in health due to the working environment. Translation of scientific knowledge into practice should thus in our view imply an universal approach giving every worker, whatever the size or type of company he/she is working for, access to measures facilitating return to work. Such an universal access could be achieved through legislation and its implementation carried out either through the social insurance system, or through the occupational health system where it exists.

Modifying legislation and implementing new practices in a social insurance system implies at least two other challenges: putting on board for such a reform all the stakeholders (social insurers, employers, trade unions, ...) and modifying the common beliefs and daily behaviours of all health professionals involved in the process (general practitioners, occupational health physicians, social insurance physicians). Taking as example the implementation process of a RTW program for low back pain workers initiated in Belgium in 2005, at the country level, we will outline several key factors that may influence success or failure of a scientifically sounded program at its implementation stage. One of the most evident difficulty is to close the gap between the "prevent" and "cure" paradigms.

In conclusion, the presentation will show the interest that companies and businesses may have in integrating secondary and primary prevention of low back pain in a broad "quality of life" at work policy.

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## PREMUS SYMPOSIA - INTERVENTIONS FOR REDUCING WORK ABSENCE FOR WORKERS WITH MUSCULOSKELETAL DISORDERS - INNOVATIONS AND NEW DEVELOPMENTS (PART II)

### **Symposium Description**

In the past decade, there has been a consolidation of knowledge around the principles of effective early return-to-work strategies and interventions for workers with musculoskeletal disorders. This symposium we will focus on emerging developments and innovations in this area. The prognostic use of an early screening measure will be presented, as well as its implications for intervention. New qualitative data regarding the experiences of workers with prolonged work absence participating in vocational rehabilitation will be presented. In addition, workplace and worker-based predictors of work accommodation offers and acceptance will be examined, and their implications for policy will be considered.

Return-to-work interventions continue to integrate a wider set of elements and of partners. As such, their effectiveness need to be considered in a new light. In this symposium, two recent systematic reviews of workplace-based return-to-work interventions will be presented, one focusing on work absence duration and health outcomes, the other on economic outcomes. The effectiveness of an integrated care program for workers with chronic back pain will then be presented, followed by a discussion of the challenges and models of interorganisational collaboration in the context of return-to-work interventions.

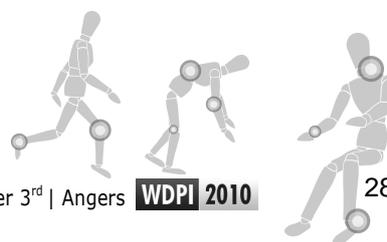
### **Symposium Author**

Dr. Renee-Louise FRANCHE

### **Authors linked to the Name of their abstract symposium**

#### **Part II**

ANEMA H.	Cochrane review about workplace interventions for preventing work disability
TOMPA E.	A systematic review of disability management interventions with economic evaluations
KILSGAARD J.	Coordinated and tailored work rehabilitation: challenges of implementing a cost effective program in an interorganisational setting



## COCHRANE REVIEW ABOUT WORKPLACE INTERVENTIONS FOR PREVENTING WORK DISABILITY

VAN OOSTROM S.H., DRIESSEN M.T., DE VET H.C.W., FRANCHE R.L., SCHONSTEIN E., LOISEL P., VAN MECHELEN W., ANEMA J.R.

EMGO Institute of Health and Care Research, Amsterdam, The Netherlands

### Aims:

To determine the effectiveness of workplace interventions compared to usual care or clinical interventions on work-related outcomes and health outcomes; and to evaluate whether the effects differ when applied to musculoskeletal disorders, mental health problems, or other health conditions.

### Methods:

We searched the Cochrane Occupational Health Field Trials Register, CENTRAL, MEDLINE and EMBASE (EMBASE.com), and PsycINFO databases (to November 2007). Randomized controlled trials of workplace interventions aimed at return to work were included. Two authors independently extracted data and assessed risk of bias of the studies. Meta-analysis and qualitative analysis (using GRADE levels of evidence) were performed.

### Results:

Six randomized controlled trials were included (749 workers): three on low back pain, one on upper-extremity disorders, one on musculoskeletal disorders, and one on adjustment disorders. Five studies were rated as having low risk of bias for the sickness absence outcome. The results of this review show that there is moderate-quality evidence to support the use of workplace interventions to reduce sickness absence among workers with musculoskeletal disorders when compared to usual care. However, workplace interventions were not effective to improve health outcomes among workers with musculoskeletal disorders. The lack of studies made it impossible to investigate the effectiveness of workplace interventions among workers with mental health problems and other health conditions.

### Conclusion:

As a result of the few available studies, no convincing conclusions can be formulated about the effectiveness of workplace interventions on work-related outcomes and health outcomes regardless of the type of work disability. The pooled data for the musculoskeletal disorders subgroup indicated that workplace interventions are effective in the reduction of sickness absence, but they are not effective in improving health outcomes. The evidence from the subgroup analysis on musculoskeletal disorders was rated as moderate-quality evidence. Unfortunately, conclusions cannot be drawn on the effectiveness of these interventions for mental health problems and other health conditions due to a lack of studies.

**Keywords:** Intervention studies, Return to work.

### References:

Van Oostrom SH, Driessen MT, de Vet HCW, Franche RL, Schonstein E, Loisel P, et al. Workplace interventions for preventing work disability [Cochrane Review]. Cochrane Library 2009;15(2 Art. No.: CD006955. DOI: 10.1002/14651858.CD006955.pub2).



## A SYSTEMATIC REVIEW OF DISABILITY MANAGEMENT INTERVENTIONS WITH ECONOMIC EVALUATIONS

TOMPA E., DE OLIVEIRA C., DOLINSCHI R., IRVIN E.L.

*Institute for Work & Health, Toronto, Canada*

### Aims:

We undertook a systematic literature review of disability management interventions to answer the question: “what is the credible evidence that incremental investment in disability management interventions is worth undertaking?” Previous reviews have confirmed the effectiveness of disability management interventions [1] and analysed their dimensions, processes and practices [2], while our review complements these with confirmation of their economic merits.

### Methods:

We identified studies through searches in journal databases and requests to content experts. After assessing the quality of studies that met content requirements, we employed a best-evidence synthesis approach. Studies were stratified across several dimensions for evidence synthesis, with industry as the core stratification criterion.

### Results:

We identified 17 disability management interventions with economic analyses, of which 8 were of high or medium quality. We found strong evidence supporting the economic merits of multi-sector disability management interventions, but could not make a positive statement about the remaining five industry clusters with studies. For stratification by intervention components, we found moderate evidence for interventions that included an education component, moderate evidence for those with physiotherapy, limited evidence for those with a behavioural component, and moderate evidence for those with a work/vocational rehabilitation component. For stratification by intervention features, we found moderate evidence for interventions that included a work accommodation offer, contact between health care provider and workplace, early contact with worker by workplace, ergonomic work site visits, and for interventions with a return-to-work coordinator.

### Conclusion:

We found credible evidence supporting the financial benefits of disability management interventions for one industry cluster and several intervention components and features. Our findings are of value to workplace parties, OHS practitioners, and policy-makers who are interested in knowing not only if disability management interventions are effective, but also if they are worth undertaking based on their financial benefits. Our review also highlights the need for more systematic consideration of the economic merits of disability management intervention studies, and further development of standardized analytic methods in order to ensure a larger and more reliable evidence base in this domain.

**Keywords:** Intervention studies, Disability prevention, Economics

### References:

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## COORDINATED AND TAILORED WORK REHABILITATION: CHALLENGES OF IMPLEMENTING A COST EFFECTIVE PROGRAM IN AN INTERORGANISATIONAL SETTING

KILSGAARD J., SHERSON D., OLSEN J., HANSEN C.L., LUND T., BÜLTMANN U.

KIApro, Gladsaxevej 342, DK-2860 Soborg, Denmark.

### Aims:

In Denmark, the magnitude and impact of work disability on the individual worker and society has prompted the development of a new “coordinated and tailored work rehabilitation” (CTWR) approach. The aims of this study were 1) to compare the effects of CTWR with conventional case management (CCM) on return to work of workers on sick leave due to musculoskeletal disorders (MSDs) and 2) to describe the challenges of implementing a new RTW program in an interorganisational setting.

### Methods:

The study was a randomized controlled trial with economic evaluation undertaken with workers on sick leave for 4–12 weeks due to MSDs. CTWR consists of a work disability screening by an interdisciplinary team followed by the collaborative development of a RTW plan. The primary outcome variable was registered cumulative sickness absence hours during 12 months follow-up. Secondary outcomes were work status as well as pain intensity and functional disability, measured at baseline, 3 and 12 months follow-up. The economic evaluation (intervention costs, productivity loss, and health care utilization costs) was based on administrative data derived from national registries.

### Results:

For the time intervals 0–6 months, 6–12 months, and the entire follow-up period, the number of sickness absence hours was significantly lower in the CTWR group as compared to the control group. The total costs saved in CTWR participants compared to controls were estimated at US \$ 1,366 per person at 6 months follow-up and US \$10,666 per person at 12 months follow-up.

### Conclusion:

The findings of this study provide suggestive evidence that CTWR employed by an interdisciplinary team is (cost-) effective compared to conventional case management. Workers on sick leave for 4–12 weeks due to MSD who underwent “CTWR” by an interdisciplinary team had fewer sickness absence hours than controls. The economic evaluation showed that—in terms of productivity loss— CTWR seems to be cost saving for the society. Different challenges of implementing RTW programs at a large scale in interorganisational settings were identified, e.g., how to refer the right patients in the appropriate timeframe. Future studies should address interorganisational aspects when implementing RTW programs in different settings, e.g., insurance-, workplace-, social- or healthcare setting.

**Keywords:** Disability prevention, Economics, Back, low back.

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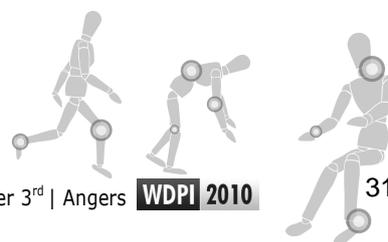
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## PREMUS SYMPOSIA - INTERNATIONAL PERSPECTIVES ON HEALTH-RELATED WORK OUTCOME MEASURES

### **Symposium Description**

There is a recognized need for economic evaluations of interventions to prevent MSDs. Recently, researchers have recognized the importance of lost productivity at work as one component of the economic evaluation. This has led to a growth of different measurement tools, often termed 'presenteeism' or work ability measures, without clear consensus on which tools are most appropriate in MSD research and for the prevention and management of work disability.

In this symposium, we will present results from studies conducted in The Netherlands, the United States, Canada and Brazil. We will identify the strengths and limitations of the tools and discuss their application in MSD research. The goal of the symposium is to provide the conference attendees with better knowledge about the tools and their use in research.

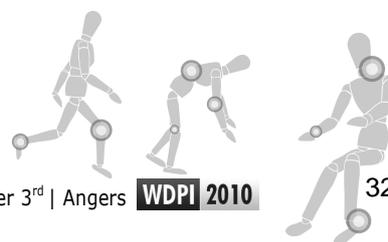
### **Symposium Author**

Benjamin C. AMICK, Institute for Work & Health, Toronto, Canada; University of Texas School of Public Health, Health Science Center at Houston, Houston, Texas, USA

Ute BÜLTMANN, Department of Health Sciences, Work & Health, University Medical Center Groningen, University of Groningen, Groningen, The Netherlands

### **Authors linked to the Name of their abstract symposium**

ABMA F.	The cross cultural adaptation of the work role functioning questionnaire to Dutch
AMICK B.	The use of work role functioning in evaluating an ergonomic intervention
BULTMANN U.	Work limitations among workers in a manufacturing company in Denmark
GALLASCH C.	Measuring work limitations in Brazilian health care workers



## THE CROSS CULTURAL ADAPTATION OF THE WORK ROLE FUNCTIONING QUESTIONNAIRE TO DUTCH

ABMA F.I., AMICK B.C., BROUWER S., VAN DER KLINK J.J.L., BÜLTMANN U.

*University Medical Center Groningen, University of Groningen, The Netherlands*

### **Aims:**

Work disability is a prevalent problem in industrialized countries. Moreover, due to the ageing workforce and advances in medical treatments, more persons will likely participate in the labor force with a health problem that might interfere with their ability to perform their job demands. Traditional outcome measures of work status, disability duration and compensation costs do not provide information on how well a person can perform her/his job. In the Netherlands, no native or cross-culturally adapted health-related work outcome measure is available and validated to assess the impact of a health problem on work functioning. The objectives of this study are 1) to conduct a cross-cultural adaptation of the Work Role Functioning Questionnaire (WRFQ), an instrument measuring the perceived impact of a health problem on the workers' ability to perform the job, to Dutch and 2) to assess the questionnaire's reliability and validity in the Dutch context.

### **Methods:**

The WRFQ translation and adaptation were conducted using a systematic approach with the following steps: forward translation, synthesis, back-translation, consolidation of translations with expert committee, and pre-testing. In the pre-test, the usability, the applicability, the comprehensibility and the completeness of the questionnaire were evaluated. Therefore, a total of 40 workers with a health problem, who are at work, were invited for participation. These workers were identified by their occupational physician and invited to participate in the pretest. Directly after completing the questionnaire, they answered several questions about the wording of the instructions and items, the lay-out, and whether they missed aspects of their functioning.

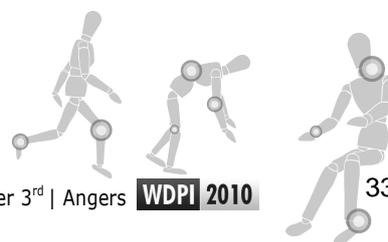
### **Results:**

The questionnaire translation was conducted without any major difficulties. During the process, questionnaire instructions were modified and 5 items reformulated based on the participants' responses. The participants were positive on the comprehensibility, usability, applicability and completeness of the questionnaire, and also made suggestions for the further development of the WRFQ-Dutch version. Furthermore, the study showed Cronbach's alpha's for the WRFQ-DV subscales between 0.70 and 0.91 and a good content validity.

### **Conclusion:**

The results indicate that the cross-cultural adaptation of the WRFQ-DV was successful and that the psychometric properties of the translated version are promising for the Dutch context.

**Keywords:** Epidemiology, Early prevention, Disability prevention.



## THE USE OF WORK ROLE FUNCTIONING IN EVALUATING AN ERGONOMIC INTERVENTION

AMICK B.C., BAZZANI L., ROBERTSON M., DE RANGO K.

*Institute for Work & Health, Toronto, Canada*

### **Aims:**

While work role functioning and other 'presenteeism' measures have been widely used in observational studies and in clinical evaluation studies, few studies report the use of 'presenteeism' measures in ergonomic interventions. We report the use of work role functioning in a non-randomized field trial of a new ergonomic chair and training. The primary hypothesis is does the ergonomic intervention significantly improve work role functioning?

### **Methods:**

Data come from 2 intervention studies in a public sector and private sector organization. Data collection occurred two months and one month prior to the intervention and two, six and twelve months post-intervention. During each round, a work environment and health questionnaire was completed via the Internet. The intervention was a highly adjustable ergonomic chair and an office ergonomics training (Amick 2004). One group received only the training and a control group received the training at the end of the study. Work role functioning (WRF) was measured following Amick (2000). It is a 27-item questionnaire with a Cronbach alpha of .92. WRF varies from 0-100 with 100 functioning well in the job and 0 unable to functioning in job for a given state of physical and emotional health. All analyses were conducted using multi-level modelling with work role functioning nested within individuals within intervention site.

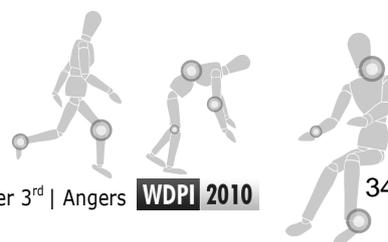
### **Results:**

The overall sample included 414 individuals. Intervention site was non-significant and thus results are reported for both sites combined. Overall, the chair-with-training intervention was marginally non-significant in improving work role functioning ( $p=0.06$ ). However, three of five subscales (physical demands, mental demands, social demands) were significantly improved while two were not (scheduling and output demands).

### **Conclusion:**

Workers who received a highly adjustable chair and office ergonomics training had improved work role functioning in meeting the physical, mental and social demands of the job. In a knowledge workforce with significant interactions with customers these demands are critical to being an effective performer. These results show the importance of using a multidimensional scale compared to a shorter scale. Future work should continue to test the usability of this type of measure in ergonomic interventions.

**Keywords:** Intervention methods, Disability prevention, Economics.



## WORK LIMITATIONS AMONG WORKERS IN A MANUFACTURING COMPANY IN DENMARK

BÜLTMANN U.<sup>1</sup>, AMICK B.C.<sup>2</sup>, SELL L.<sup>3</sup>, HOLTERMANN A.<sup>3</sup>, SØGAARD K.<sup>4</sup>

<sup>1</sup> Department of Health Sciences, University Medical Center Groningen, Groningen, The Netherlands – <sup>2</sup> Institute for Work & Health, Toronto, Canada – <sup>3</sup> National Research Centre for the Working Environment, Copenhagen, Denmark – <sup>4</sup> Institute of Sports Science and Clinical Biomechanics, University of Southern Denmark, Odense, Denmark

### Aims:

The prevention and management of work disability due to musculoskeletal disorders are high on the social and political agenda in Denmark. Moreover, the increasing awareness of the promotion of a sustainable working life has led to the recognition that there is a need for measurement tools that can describe how workers can accomplish their work roles. The aim of this study was to examine the psychometric properties of the Danish version of the 15-item Work Role Functioning Questionnaire (WRFQ) among workers of a manufacturing company in Denmark.

### Methods:

A sample of 453 workers from a Danish manufacturing company participated in the study. To assess the limitations at work, as experienced by the workers, during the past 4 weeks, the 15-item WRFQ was used, covering work scheduling demands, output demands, physical demands, and social/psychological demands. We evaluated the item performance and scale reliability of the WRFQ and related the scores to other self-reported measures, such as general health, the presence of a musculoskeletal disorder, and work ability.

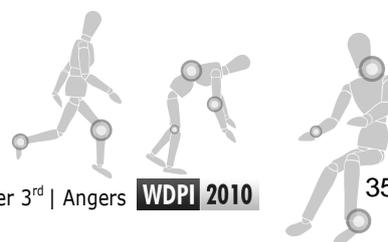
### Results:

The majority of the participants (n=375 manufacturing work, n=78 administrative work) reported a good/very good health (85%). Musculoskeletal disorders were reported by 10%, while 20% reported reduced work ability due to injury/illness to some or a large extent. WRFQ scores were skewed towards no difficulties in accomplishing the work role, with ceiling effects present in all subscales. Some difficulties in meeting the work demands were reported across all subscales, but mainly for output demands. The Cronbach's alpha's for the subscales were between 0.77 (physical demands) and 0.93 (output demands). Items with the highest scores of "Does not apply to my job" were "Keeping body in one position", "Using hand-operated tools", and "Lifting objects" of the physical demands subscale. The range of the item-to-subscale correlations per subscale were above 0.66, except for one item in the physical demands scales (0.36). Workers with a less favorable health condition or reduced work ability consistently reported more difficulties in meeting the work demands.

### Conclusion:

This study showed that the translated Danish version of the 15-item WRFQ provided valuable information on the ability to accomplish the work role among workers in a manufacturing company. Further research is needed on the test-retest reliability, validity, and responsiveness of the instrument, thereby paying specific attention to the physical demands subscale.

**Keywords:** Epidemiology, Early prevention, Disability prevention.



## MEASURING WORK LIMITATIONS IN BRAZILIAN HEALTH CARE WORKERS

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Department of Nursing, Faculty of Medical Sciences, State University of Campinas (UNICAMP), Brazil

### Aims:

In Brazil, Work-related Musculoskeletal Disorders (WRMD) have been rising over the last few decades, reaching up to 21% of workers in some Brazilian regions. In 2007, 653.090 occupational accidents and diseases were registered, representing 580.592 cases of temporally and 8504 permanent disabilities. Health care workers are commonly affected by dorsal symptoms, and low back pain is a common problem, because of handling and moving patients. Questionnaires have been considered useful to identify symptoms and to investigate correlated factors. Two studies are presented, with the objectives to investigate ergonomic risks in different hospital units from a State Hospital; and to translate and adapt the Work Role Functioning Questionnaire (WRFQ) into the Brazilian Portuguese language, evaluating its reliability in patients suffering from WRMD.

### Methods:

Data collection tool applied was the Risk Assessment Scale for Moving and Transference which is based on the ergonomic theory and has reliable psychometric properties. Cross-cultural adaptation of the WFRQ was performed according to the internationally recommended methodology. Psychometric properties were obtained by reliability – stability and homogeneity assessment – and construct validity.

### Results:

Results showed that the ICU had the largest percentage of patients presenting ergonomically high risk for health care workers. Patients from the surgical units offered average risk, while most of the clinical medicine unit patients were ergonomically of low risk. About WRFQ Brazilian version, results indicated good content validity and internal consistency. Test-retest reliability was satisfactory for mental demands and excellent for the others (Table 1).

Table 1 Cronbach's alpha coefficient for each WRFQ sub-scale (Brazilian Portuguese version)

	Number of items	Cronbach's alpha
Work scheduling demands	5	0.88
Physical demands	6	0.86
Mental demands	6	0.93
Social demands	3	0.57
Output demands	7	0.89

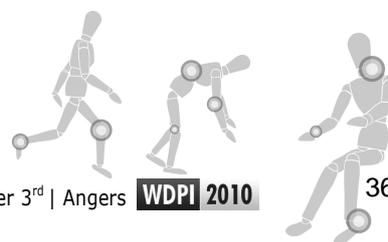
### Conclusion:

Cross-cultural adaptation process was successful and the adapted instrument has good psychometric properties to use in the Brazilian culture. According to these results, is possible to combine evaluations of the work places and the worker to acquire material and equipment according to special needs and to promote preventive programs and rehabilitation in the work place.

**Keywords:** Health care workers, Disability prevention, Back, low back.

### References:

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## PREMUS SYMPOSIA - GENDER, WORK ACTIVITY AND MSD: WHAT ARE THE IMPLICATIONS FOR INTERVENTION?

### **Symposium Description**

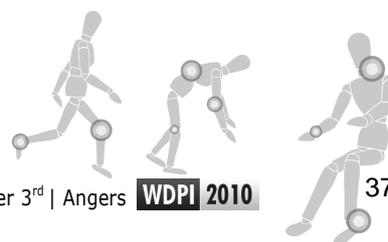
There is a growing consensus that men and women are not exposed to the same work conditions and that these differences can influence the development of musculoskeletal disorders. Consequently, in order to effectively prevent work-related musculoskeletal disorders (WMSD), it is important to take gender into account in ergonomic interventions. The objective of this symposium is to explore how gender-based ergonomic analysis of work activity can contribute to a greater understanding of the relationships between work and MSD and lead to innovations in ergonomic interventions to prevent work-related musculoskeletal disorders. The symposium will begin with reflections and reviews of the work of 2 francophone groups of researchers, one in France, the other in Quebec, both associated with the Technical Committee on Gender and Work of the International Ergonomics Association (IEA); Sandrine Caroly and Marie Laberge will each provide an overview of the studies carried out by researchers of these 2 groups and discuss the research questions and challenges associated with gender-based analysis of work activity and the potential implications for ergonomic interventions. Then Marie Authier will present a more detailed example of a study using gender-based ergonomic analysis of work activity in the context of MSD prevention. This will be followed by a round table with 5 researchers from five different countries who will comment and initiate exchanges with participants on the potential contributions and the methodological and practical challenges of gender-based ergonomic intervention studies to prevent MSD. This symposium is organised in collaboration with the Francophone Group of the Technical Committee on Gender and Work of the International Ergonomics Committee (IEA). This committee promotes the advancement of knowledge on the interactions between gender, sex and ergonomics. The Chair of the symposium will be Susan Stock.

### **Symposium Author**

Mrs. Marie LABERGE

### **Authors linked to the Name of their abstract symposium**

AUTHIER M.	Women in manual materials handling: a complex question
LABERGE M.	Results and reflections on gender based ergonomic intervention from the Quebec working group of the IEA technical committee on gender and work (QTC)
CAROLY S.	Emergence of the theme of gender in ergonomics: overview of the activities and reflections of the European francophone network of the IEA technical committee on gender and work



## WOMEN IN MANUAL MATERIALS HANDLING: A COMPLEX QUESTION

AUTHIER M.

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### **Aims:**

An ergonomic study was conducted among handlers working in a warehouse with the aim of evaluating the impact of work restructuring. A time-and-motion study approach led to a modification in the way of establishing the standards expected from the workers. Instead of a daily standard based on a thousand boxes unloaded during the work shift, the workers have now a standard time allowed to unload each container, based on its content. Moreover, a prescribed work method has been imposed on the workers with the aim of reducing all unproductive periods (eg. moving around, informal rest breaks). At the request of the union, particular attention was given to the activity of the women in order to examine whether the new standards were too high for them.

### **Methods:**

Observations were done with 23 men and 5 women in varying work situations (e.g. type of containers, type of merchandise). Moreover, 30-min interviews have been conducted with 10 men and 5 women in order to learn about their difficulties, their view of the impact of restructuring on their work activity and the impact on their well-being.

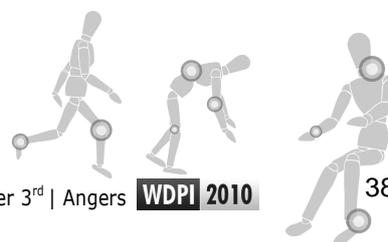
### **Results:**

Handlers unload containers filled with boxes of different shapes and weights and stack them onto a pallet. The cumulative average daily weight handled is 17,800 kg. The average weight of the boxes is 16 kg, with 7% over 20 kg. Both greatly exceed current recommendations for manual material handling for women. The observations showed that women have developed work methods that differ from those of men. Their techniques require less force and biomechanical strain and allow them to get through their work day. However, these work methods take more time, which is disadvantageous if the prescribed work organization is based on standardized times per operation. Women have reported that the workload is excessive but they say that they can meet the task requirements. Women differ amongst themselves in opinions regarding the necessity to adopt gender-specific measures in order to help women maintain employment in non-traditional jobs.

### **Conclusion:**

This intervention raises the delicate question of gender-based recommendations in a manual handling job. From an ergonomic and theoretical point of view, measures should be implemented in order to make tasks accessible for women of average size and strength. However, the question gets more complex when taking into account other dimensions of the real-life situation such as the integration of women into a male environment and the social relations between men and women in the enterprise.

**Keywords:** Work organization, Intervention studies, Gender differences.



## RESULTS AND REFLECTIONS ON GENDER BASED ERGONOMIC INTERVENTION FROM THE QUEBEC WORKING GROUP OF THE IEA TECHNICAL COMMITTEE ON GENDER AND WORK (QTC)

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*Interdisciplinary Centre for the Study of Biology, Health, Society and Environment (CINBIOSE), University of Quebec at Montreal (UQAM), Montreal (Quebec), Canada*

### Aims:

Men and women do not hold the same jobs and do not have the same working conditions. This situation leads to different risk factors and thus to different WMSD (1, 2). Some ergonomists have begun to carry out interventions with a gender-sensitive approach to better understand how sex and gender interact with work activity, its determinants and its consequences (3). In 2006, the International Ergonomics Association (IEA) created a new technical committee aiming to promote research and information sharing about gender and work issues. This communication will present an overview of the gender-based ergonomic intervention research and reflections carried out by the Quebec Working Group of this technical committee (QTC) and some suggestions for future research orientations.

### Methods:

The QTC has held three workshops so far (four by the time of the PREMUS conference), structured around interdisciplinary presentations and discussions. The agendas, minutes and other notes have been analyzed in order to degage 1) major results and issues exposed by presenters (highlights) 2) major preoccupations of participants (discussion) and 3) needs for future development.

### Results:

Fifty researchers and practitioners, primarily ergonomists, participated in at least one of the workshops. Invited communications, whose subjects were chosen by the participants, covered areas of basic biology, methodology, law, and ethics relating to the interactions between sex, gender, work activity, ergonomic interventions and health. Experts presented on such diverse topics as gender and MSDs in contemporary dance, gender and workers' compensation law, gender and rehabilitation from MSDs, etc. Three themes or questions inspired most of the discussions: biological male-female differences and their implications for job adaptation; gender, family roles and the adaptation of work schedules; difficulties in treating gender questions during interventions.

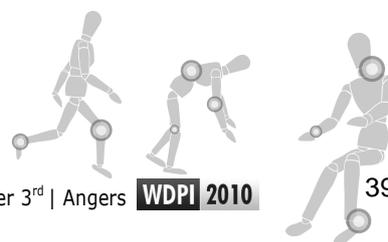
### Conclusion:

The QTC has so far stimulated interest and reflection on gender and ergonomics and is proving relevant to research and practice in ergonomics, promoting consideration of gender in the comprehension of exposure to risk factors, of occupational injuries and illnesses and of prevention. Further research should be devoted to intervention guidelines, gender-adapted ergonomic standards, gender-fair workers' compensation and rehabilitation practices and formal strategies to conciliate family role and work. Central preoccupations are: How should ergonomists address gender during research and intervention? Are the obstacles and facilitating factors in ergonomic interventions gendered? What are the methodologic challenges in measuring exposure and in evaluating interventions that will result in gender-sensitive practice?

**Keywords:** Intervention studies, Intervention methods, Gender differences.

### References:

- Messing K, Tissot F, Stock S. Should studies of risk factors for MSDs be stratified by gender? Lessons from analyses of musculoskeletal disorders among respondents to the 1998 Québec Health Survey. *Scand J of Work Environ Health*. 2009;35(2):96-112.
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## EMERGENCE OF THE THEME OF GENDER IN ERGONOMICS: OVERVIEW OF THE ACTIVITIES AND REFLECTIONS OF THE EUROPEAN FRANCOPHONE NETWORK OF THE IEA TECHNICAL COMMITTEE ON GENDER AND WORK

CAROLY S.

Laboratory PACTE, University of Grenoble, France

### Aims:

The objective of this presentation is to present reflections and activities of the network on gender and work of European section. The goal of our network is to promote the theme of gender and work among ergonomists and more generally occupational health actors. We are convinced that the gender perspective is an effective way of rethinking our models and our methodologies of intervention in ergonomics. Gender aspects were not always specified in the mandates for our interventions, but we were confronted with it, in particular during interventions relating to the prevention of MSD.

### Methods:

The network of researchers and practitioners in ergonomic and work psychology was created at the SELF 2006 congress, associated IEA technical committee Gender and Work. Since three years with seminars based on the exploration of our research projects and of published research, our network participates in scientific events during different national and international congresses of ergonomics. It also contributes to putting the gender perspective on the agenda through publications in scientific journal.

### Results:

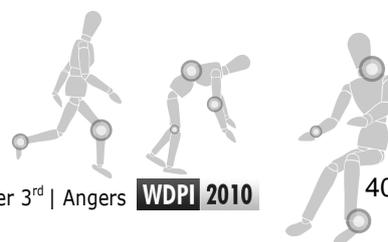
The relations between gender and design and between gender and work/life balance concern the relation to risk and the division of task according to gender:

- different factors of exposure according to gender which can generate MSD risks are ignored or underestimated by the actors in workplaces (in particular the allocation of tasks differentiated according to gender in formally identical posts). Many studies do not even control for the variable sex
- the processes of declaration and the criteria for the declaration of MSD don't recognize the women's health difficulties. The transformation of work situations and the design of work stations should take more into account the anthropometric characteristics of women and men and their activities
- MSD risk factors related to extraprofessional activities evoked by the actors in workplaces are very stereotyped according to gender.

### Conclusion:

The distinction between gender and sex is important in activity analyze. The model of activity must continue to be enriched by concept of regulation and collective activity. The possibility of developing coherence between the two spheres of activity (domestic, professional) could develop our models of activity and the construction of health. The contribution of ergonomics concern workplaces of men and women are present and collective activity. The methodologies for interviews, questionnaires and observation of activity should be improved in order to be able to obtain data on MSD differentiated according to the gender.

**Keywords:** Work organization, Intervention studies, Gender differences.



## **ROUNDTABLE ON GENDER-BASED ERGONOMIC INTERVENTION TO PREVENT MSD: ISSUES AND IMPLICATIONS FOR IMPLEMENTING CHANGES IN THE WORKPLACE**

**Chair:** Marianne De Troyer, Labour Sociologist, Ergonomist, Université Libre de Bruxelles (Belgium)

**Aim of the Roundtable:** Exchange and debate on issues posed by the implementation of changes inherent to the interventions incorporating gender-dimension.

On the basis of an MSD explanatory model (Vezina: 2001) focused on workers' activities, which includes both a comprehensive understanding of work situations and details of the activity, the identification of risk factors and their determinants. We invite the panel members to attempt to answer the following questions:

- How should one adapt ergonomic interventions to prevent MSD in order to adequately address gender issues?
- In an ergonomic intervention focused on gender-related risks, what type of changes are possible and what should we be aiming for?
- What are the obstacles and facilitating factors in ergonomic interventions focused on gender-related risks?
- What are the methodologic challenges in measuring exposure and in evaluating interventions that address gender issues?
- How should one adapt ergonomic interventions to prevent MSD in order to adequately address gender issues?
- In an ergonomic intervention focused on gender-related risks, what type of changes are possible and what should we be aiming for?

We are, however, aware that each explanatory model has its limits and that the diversity of populations (changes according to age, gender, experience, ethnicity, sector of activity, the activity itself, etc.) must be taken into account even if it is difficult to allow for those differences and avoid statistical bias. In addition, we apply the MSD's more strategic approaches, in the form of inherently participatory, integrated and multidisciplinary ergonomics in order to develop a production system that is sustainable from the human perspective in particular.

To stimulate the discussion, each panel member will speak for five minutes and will address one or two of the questions mentioned above in the context of the research he/she has done.

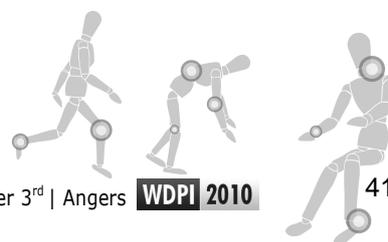
The panel members' remarks should therefore be in summary form.

### **Panelists:**

- Nicole Vézina, University of Quebec in Montréal, Canada.
- Debora Miriam Raab Glina, University of Sao Paulo, Brazil.
- Ola Leijon, Karolinska Institute, Sweden.
- Ghislaine Doniol-Shaw, National Center for Scientific Research, University of Paris-Est, France.

**Roundtable:** Each panelist will speak for 5 minutes addressing one or two of the following questions.

The panel will be followed by 20 minutes of exchanges with the audience and the panelists addressing these questions.



## PREMUS OPEN SESSIONS - RETURN TO WORK / TERTIARY PREVENTION

### DETERMINANTS FOR STAYING AT WORK IN PEOPLE WITH CHRONIC NONSPECIFIC MUSCULOSKELETAL PAIN: A SYSTEMATIC REVIEW.

VRIES DE H.J.<sup>1,2</sup>, RENEMAN M.F.<sup>1,2</sup>, GROOTHOFF J.W.<sup>2,3</sup>, GEERTZEN J.H.B.<sup>1,2</sup>, BROUWER S.<sup>2,3</sup>

<sup>1</sup> Department of Rehabilitation Medicine, University Medical Center Groningen, University of Groningen, The Netherlands – <sup>2</sup> Graduate School for Medical Sciences, University Medical Center Groningen, University of Groningen, The Netherlands – <sup>3</sup> Department of Health Sciences, Section of Social Medicine, Work & Health, University Medical Center Groningen, University of Groningen, The Netherlands

#### Aims:

Many people with chronic nonspecific musculoskeletal pain (CMP) report decreased levels in functioning, including functioning in work. Although many people with CMP have decreased workability, the majority appears to stay at work (SAW) despite CMP. It is currently unknown on which factors people who SAW differ from those who do not. The objective of this review was to identify determinants for SAW in people with CMP. The International Classification of Functioning, Disability and Health was used as a framework to classify the evidence.

#### Methods:

An electronic search of bibliographic literature databases (Pubmed, Embase, PsychInfo, Cinahl and the Cochrane Library) from the dates that these databases begin up to October 2009, was performed. Two reviewers independently performed the screening of the abstracts and finally full text of the articles, to determine whether the article met the inclusion criteria. Included were articles reporting on working subjects between 20 and 60 years of age, with chronic nonspecific musculoskeletal pain. Subjects had to perform paid work and were not sick listed more than 5% because of CMP in the year prior to participation. During the selection phase, the reviewers were blinded for authors, affiliations, journal name and publication date. Two reviewers independently assessed the methodological quality of the included studies using standard criteria for assessing quality. Levels of evidence were rated.

#### Results:

The literature search resulted in 4828 potentially relevant articles. After screening on title and abstract, 4736 articles were excluded. Finally, 25 articles (6 qualitative and 19 quantitative articles) were included for full text assessment. Quality assessment and data-analysis are currently underway (January 2010). Results will be presented during PREMUS.

#### Conclusion:

Discussion and conclusion will be presented during PREMUS.

**Keywords:** Psychosocial factors, Disability prevention, Pain, chronic pain



## FACTORS AT WORK ACTING AS BUFFERS AGAINST NECK/SHOULDER AND LOW BACK DISORDERS

LINDBERG P.<sup>1</sup>, LEIJON O.<sup>2</sup>, JOSEPHSON M.<sup>3</sup>

<sup>1</sup> University of Gävle, Gävle, Sweden - <sup>2</sup> Karolinska Institutet, Stockholm, Sweden – <sup>3</sup> Uppsala University, Uppsala, Sweden

### Aims:

The knowledge is limited about why some people with similar exposure are not affected by musculoskeletal disorders (MSDs) while others are. In an earlier study five factors, “content with number of working hours”, “low demands”, “role clarity”, “performance appreciated by superior” and “no forward bent work posture”, were identified to be uniquely promoting factors for excellent work ability, defined by the degree of sick leave(1). The aim of the present study was to test if these factors might act as buffers against developing neck/shoulder and low back disorders among employees with physically strenuous work.

### Methods:

From a Swedish cohort of public sector employees, that completed both a baseline and a 3-year follow-up questionnaire, two study groups were formed. Inclusion criteria: at baseline reporting having physically strenuous work and being free from either neck/shoulder disorders (n=335) or low back disorders (n=495) during the preceding year. The possible influence of the described promoting factors, working hours, demands, role clarity, performance appreciation and posture, was individually analysed by binary logistic regression analyses adjusted for age, sex and educational level. Those who still had no neck/shoulder or low back disorders at follow-up were compared with those who had developed such disorders.

### Results:

At follow-up the prevalence of neck/shoulder and low back disorders was the same in the two groups, 11%. Having moderate/low demands at work significantly increased the chance of not developing neck/shoulder disorders, OR 2.40 (95% CI 1.16-4.97). The chance of not developing low back disorders was significantly increased by having any of the three factors: getting one work performance appreciated by superior OR 1.85 (95% CI 1.02-3.32), having moderate/low demands, OR 2.65 (95% CI 1.47-4.80), or not having to work in a forward bent posture, OR 2.23 (95% CI 1.25-3.98). To be exposed to all three factors simultaneously increased the chance further, OR 3.44, 95% CI 1.51-7.82). The etiologic fraction for simultaneously having the three factors was 23%.

### Conclusion:

The results show that there seem to be factors at work acting as buffers against MSDs in the neck/shoulder and low back regions. Promoting these can be an additional tool for sustainable health at work.

**Keywords:** Epidemiology, Disability prevention, Prognosis of MSD

### References:

Lindberg P, Josephson M, Alfredsson L, Vingård E. Promoting excellent workability and preventing poor workability: the same determinants? Results from the Swedish HAKuL-study. *Occupational and Environmental Medicine*. 2006;63:113-120.



## REHABILITATION IS SELDOM PRESCRIBED AT THE INITIATION OF A NEW SICK-LEAVE PERIOD - A STUDY ON SICKNESS CERTIFICATES IN SWEDEN

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<sup>1</sup> Department of Physiotherapy - <sup>2</sup> Department of Community Medicine. Division of Medical and Health Sciences, Linköping University, Sweden

### Aims:

To explore if patients were prescribed rehabilitation at the initiation of a new sick-leave period, and if this differed in relation to age, gender, diagnosis, description of functioning, and affiliation of certifying physician.

### Methods:

A longitudinal study using data from sickness certificates at baseline, i.e. the first certificate in a new sick-leave period, and from incoming certificates with prolongations of the current sick-leave spell. Rehabilitation was defined as a prescribed intervention comprising physiotherapy, counselling/therapy, occupational therapy, or a referral to a rehabilitation clinic. Rehabilitation prescribed in the first certificate, or within 28 days after the start of the sick-leave period, was defined as early rehabilitation, and late rehabilitation after 28 days.

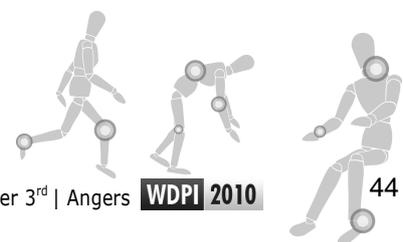
### Results:

In total, 1,312 certificates were issued to 475 patients. Each patient received in mean 2.8 certificates. Musculoskeletal diseases (MSD) were the largest diagnostic group, followed by mental disorders (MD). The majority of the certificates were issued for women. The mean number of days on sick leave was 94 (SD 139) with no differences between age intervals, gender, affiliation of certifying physician or diagnoses (ICD-10 codes). Rehabilitation was prescribed in the first certificate or within 28 days of sick leave (i.e. early rehabilitation) in about one fourth of the total certificates. Rehabilitation after 28 days of sick leave was rarely prescribed (8%). The logistic regression analysis showed that early rehabilitation was mainly prescribed for the youngest patients, MD or MSD, in certificates with a description of functioning according to the ICF components activity and participation, or certified from a primary or occupational healthcare physician. When controlling for all variables, the odds ratios remained highest for MSD and the youngest patients.

### Conclusion:

Rehabilitation is seldom prescribed early in the sick-leave period, according to information in sickness certificates. Even when the sick-leave period exceeds 28 days, prescription of rehabilitation is scarce. Whether early rehabilitation is prescribed, is determined by diagnosis and age of the patient.

**Keywords:** Health care workers, Return to work, Pain, Chronic pain



## THE IMPACT OF HEALTH SYSTEM COVERAGE AND BENEFIT DESIGN ON WORK INCENTIVES AND DISABILITY PREVENTION.

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*University of Massachusetts Medical School Center for Health Policy and Research, USA*

### **Aims:**

This paper examines the impact of health care system design on work incentives and disability prevention using the current Massachusetts health care system as a case study.

### **Methods:**

Compared to the non-disabled, a higher percentage of U.S. working-age persons with disabilities rely on public health insurance coverage, 35.3 percent versus 6.7 percent. Also, compared to the non-disabled, the work participation of persons with disabilities is low, 39.1 percent versus 77.6 percent. One possible explanation for the low work participation is the work disincentive inherent in U.S. public health insurance programs. The disincentive is due to earnings limits and requirements that participants' work limitations preclude substantial earnings ability. Thus, persons may limit employment in order to obtain or maintain health insurance.

Unique to the U.S., Massachusetts enacted health care reform in 2007 to provide universal health insurance. The near universal coverage was achieved through a combination of an individual mandate, mandatory employer contributions, expansion of public insurance, and new subsidized and unsubsidized private insurance plans. Also unique, in 1987, Massachusetts expanded its means-tested public insurance program, Medicaid, to allow working persons with disabilities to 'buy-in', via premium payments, to Medicaid (CommonHealth Working) without earnings limits.

We analyze the work incentives of the Massachusetts health care system to understand the relationship between health insurance expansion and the employment of people with disabilities. We examine program rules, costs and service coverage. In addition we examine the change in employment status, health insurance status, health care access, and use before and after health care reform. Our data source is the Massachusetts Health Reform survey, a survey of approximately 3,000 adults conducted before and after health care reform.

### **Results:**

The combination of the recent health care reform and the earlier CommonHealth Working expansion increased health insurance access for Massachusetts persons with disabilities. There are approximately 10.5 thousand CommonHealth Working participants and the current un-insurance rate among working-age adults with disabilities is only 4.8 percent. Nevertheless, the Massachusetts work participation rate among persons with disabilities (39.5 percent) is only marginally higher the national rate (39.1 percent).

### **Conclusion:**

Health care expansion has increased health insurance access and appears to be helpful in 'preventing' work disability for a sub-population of people with disabilities. However, the overall employment rate for persons with disabilities remains comparable to other states suggesting that health insurance is necessary but insufficient to substantially increase employment.

**Keywords:** Disability prevention, Return to work, Public policy



## IMPLEMENTING RETURN TO WORK INTERVENTIONS FOR WORKERS WITH LOW BACK PAIN: A CONCEPTUAL FRAME TO IDENTIFY BARRIERS AND FACILITATORS

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### Aims:

Workplace-based return-to-work (RTW) interventions for workers with subacute low back pain (LBP) are more effective than usual healthcare. Nevertheless, implementing such interventions usually faces many barriers within healthcare systems, workplaces and insurance systems [1]. The aims of this study were: 1) to build a conceptual frame to identify barriers and facilitators before implementing RTW interventions and 2) to validate empirically this conceptual frame.

### Methods:

A literature review was conducted to identify barriers and facilitators described in three domains: diffusion of innovations, implementation of healthcare programs and implementation of LBP clinical guidelines. A selection process was used to retain core dimensions identified. To validate this frame, a multiple case study with embedded levels of analysis was conducted in 2 regions of France [2]. Data were collected through semi structured interviews (22) and focus groups (7) with key-informants (63). Qualitative content analyses were performed with software Atlas.ti v5.2.

### Results:

A first frame was built from the literature, with 8 dimensions of the feasibility to be studied before implementation. This frame was eclectic as the dimensions had different theoretical backgrounds (psychology, sociology, etc.). After the phase of validation, some dimensions were modified resulting in a revised conceptual frame (figure) which was grounded theoretically and empirically.

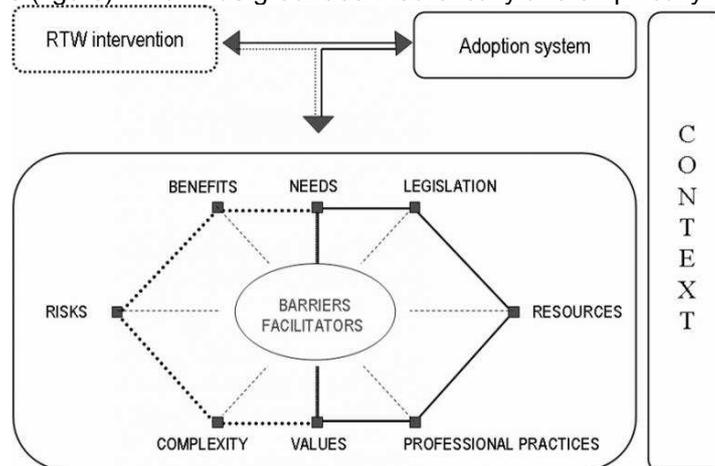


Figure: Conceptual frame to identify barriers and facilitators

### Conclusion:

This conceptual frame is an important contribution in the field of implementation science. It can be used in various settings to identify barriers and facilitators prior to implementing RTW interventions. In line with recommendations in knowledge transfer, this identification will allow building evidence-based implementation strategies improving the uptake of the interventions and thus should facilitate work disability prevention among workers with LBP. This responds to a current priority in occupational and public health in many countries [3].

**Keywords:** Disability prevention, Return to work, Back, low back

### References:

- [1] Loisel P, Buchbinder R, Hazard R, Keller R, Scheel I, van Tulder M, et al. Prevention of work disability due to musculoskeletal disorders: the challenge of implementing evidence. *J Occup Rehabil.* 2005;15(4):507–524.
- [2] Yin, RK. Enhancing the quality of case studies in health services research. *Health Serv Res.* 1999; 34(5 Pt 2): 1209–1224.
- [3] European Agency for Safety and Health at Work. Work-related musculoskeletal disorders: Back to work report. Luxembourg: Office for Official Publications of the European Communities, 2007.



## PREMUS OPEN SESSIONS - LOWER LIMB DISORDERS

### STANDING, KNEELING AND SQUATTING AT WORK ASSOCIATED WITH MUSCULOSKELETAL DISORDERS: META-ANALYSES.

GOUTTEBARGE V., BOUWMAN C., FRINGS-DRESEN M.H.W., VAN DIEËN J.H., VAN DER BEEK A.J., BURDORF A.

*Coronel Institute of Occupational Health, Academic Medical Center, Amsterdam, The Netherlands*

#### **Aims:**

Musculoskeletal disorders (MSDs) are worldwide responsible for sick leave and work disability, being associated with working conditions such as manual material handling and awkward postures. The objective of this study was to systematically review the literature evaluating through a meta-analysis of published studies the associations between standing, kneeling and squatting at work, and low back pain (LBP), knee osteoarthritis (OA) and lower limb symptoms (LLS).

#### **Methods:**

Two electronic databases were systematically searched from 1999 to September 2009. In- and exclusion criteria were assessed to gather original studies written either in English or Dutch, while reference lists were checked for missing articles. Data extraction was performed in standard format and quality was assessed through five criteria scored as +, - or? (overall quality score from 0 to 5+). To be included in the meta-analyses, studies had to be of sufficient quality ( $\geq 3+$ ), have a sufficiently similar exposure and outcome definitions, and describe adjusted associations (odds ratio [OR] and 95% confidence intervals [95%CI]) between exposure to either standing, kneeling or squatting, and LBP, knee OA and/or LLS. Pooled ORs were calculated using a random effect model.

#### **Results:**

From 2114 references obtained through our systematic search, 26 original studies and six reviews were included. The reference check delivered nine additional studies. Finally, 25 of the 35 included original studies were of sufficient quality ( $\geq 3+$ ), being then eligible for the meta-analyses. The pooled ORs for standing were 1.23 (95%CI 0.95-1.60) and 1.31 (95%CI 1.14-1.51) for LBP, based on three cohort and five cross-sectional studies respectively, and 1.77 (95%CI 1.40-2.23) for LLS based on four cross-sectional studies. The pooled ORs for kneeling were 1.95 (95%CI 1.04-3.65) and 0.89 (95%CI 0.66-1.20) for knee OA, based on two cross-sectional and three case-control studies, respectively. The pooled ORs for squatting were 1.33 (95%CI 0.94-1.89) for LBP based on two cohort studies, and 2.24 (95%CI 0.95-5.30) and 1.16 (95%CI 0.95-1.41) for knee OA, based on two cross-sectional and three case-control studies, respectively.

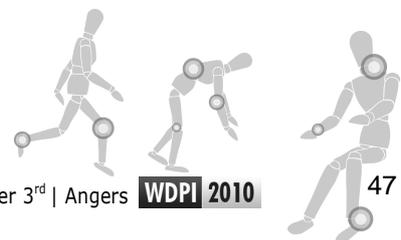
#### **Conclusion:**

Associations between standing, kneeling and squatting at work and MSD were primarily investigated in cross-sectional studies and, thus, difficult to interpret for causality. Cohort studies present some evidence for increasing risks for standing and squatting with LBP, albeit not statistically significant in the meta-analyses.

**Keywords:** Postures, physical exposure, Personal risk factors for MSD, Epidemiology

#### **References:**

Von Elm E, Altman D, Egger M, Pocock S, Gøtzsche P, Vandenbroucke J. The Strengthening the Reporting of Observational Studies in Epidemiology (STROBE) statement: guidelines for reporting observational studies. *J Clin Epidemiol.* 2008;61:344-9.  
Review Manager (RevMan), Version 5.0. Copenhagen: The Nordic Cochrane Centre, The Cochrane Collaboration, 2008.



## CORRELATION BETWEEN DIFFERENT PHYSICAL EXPOSURES AND PATTERNS OF CARTILAGE DAMAGE IN THE KNEE

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*Institute of Occupational and Social Medicine, Tübingen, Germany*

### Aims:

Knee osteoarthritis (OA) is characterised by destruction of the articular cartilage. Many factors have been described in literature as being in relation to the development and progress of knee OA. It is questionable whether physical exposures may cause specific apparent damages in the cartilage. If patterns of damage are differed e.g. between individuals with and without kneeling/squatting activities, this could be a reference for the amount of the work relatedness of knee OA.

### Methods:

A case control study among 729 cases (patients with knee OA) and 571 controls (patients without knee OA) was performed recently [Klussmann et al., 2010]. Within this ArGon study (ArGon = "Arbeit" (work) and "Gonarthrose" (knee OA)), the physical exposures obesity, kneeling/squatting, malalignment of the knee and sports were described as predictors for knee OA in both genders.

From the 729 cases mentioned above, 518 cases were included in further analysis. Within this subgroup, the condition of the knee cartilage was documented. All surfaces of the knee joint were divided in 48 quadrants according to the "International Cartilage Repair Society" - ICRS standard. Apparent patterns of cartilage damage in patients with different exposures were compared graphically and statistically with regard to the prevalence of damage in the respective quadrant.

### Results:

Among all cases, the most frequent damage was in the centre of the medial femur condyle (up to 63%) and - less frequent - in the medial surface of the tibia plateau (up to 48%). In subgroup analysis, the prevalence of damaged cartilage on the medial femur condyle and the medial surface of the tibia plateau even increased significantly in the group with genu varum ("bow leg") compared to those with no malalignment of the knee. The prevalence of damaged cartilage on the lateral femur condyle and the lateral surface of the tibia plateau increased significantly in the group with genu valgum ("knock knee") compared to those with no malalignment of the knee. In further comparisons (sports vs. no sports, obesity vs. normal weight, kneeling/squatting vs. no kneeling/squatting) no significant differences between the prevalence of damage in the individual quadrants could be determined.

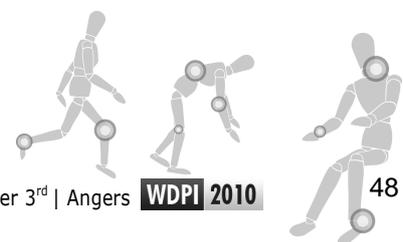
### Conclusion:

Within these examinations, specific apparent damages in cartilage could be shown only for malalignment of the knee. For the remaining physical predictors for knee OA such as kneeling/squatting, obesity and sport, no specific apparent damages could be determined.

**Keywords:** Biomechanics, Postures, physical exposure, Lower limb

### Reference:

Klussmann A, Gebhardt H, Nübling M, von Engelhardt LV, Quirós Perea E, Liebers F, Bouillon B, Rieger, MA (2010): Fall-Kontroll-Studie zur Bewertung von beruflichen Faktoren im Zusammenhang mit Gonarthrosen - die ArGon-Studie. Schriftenreihe der Bundesanstalt für Arbeitsschutz und Arbeitsmedizin, Forschung Fb 2096, Dortmund/Berlin/Dresden, BAuA Eigenverlag, Dortmund



## VALIDITY OF SELF-ASSESSED REPORTS AND MEASURING DATA ON WORK-RELATED KNEE STRAINING ACTIVITIES – RESULTS OF A CROSS SECTIONAL STUDY

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### Aims:

Work-related knee straining activities like kneeling or squatting are regarded as risk factors for diseases of the knee, e.g. osteoarthritis. Usually, in corresponding epidemiological studies exposure assessment is conducted retrospectively by interview or questionnaire, e.g. [1]. In order to verify the validity of self-reported exposure data, a cross sectional study was launched to analyse knee straining postures both by measurements and questionnaires.

### Methods:

190 male subjects (mean age 35.0, SD=11.5) working in 20 different professions participated in the study. Posture capturing was performed in field with the measuring system CUELA [2]. The mean duration of one measurement was about two hours (mean 118 min, SD=44 min). Immediately after the measurement, all study participants were asked to fill out a questionnaire to estimate the duration of time they worked in five knee straining postures. Musculoskeletal disorders were assessed by Nordic Questionnaire. Statistical analysis was performed by using Wilcoxon rank-sum test, Spearman's rank correlation and Bland-Altman-plots [3].

### Results:

The results of the self-reports differ highly from those of the measurements (mean relative difference 444,8%, SD=1121,1%), showing no significant difference between the single postures or the sum of all postures. The differences augment with increasing exposure. Though overestimation of the exposure is observed more often, underestimation occurs as-well (Figure 1). Thus, the relation between the results of both methods cannot simply be described by a mathematical equation. Concerning the validity of self-reports between subjects with or without knee disorders, no significant difference can be detected.

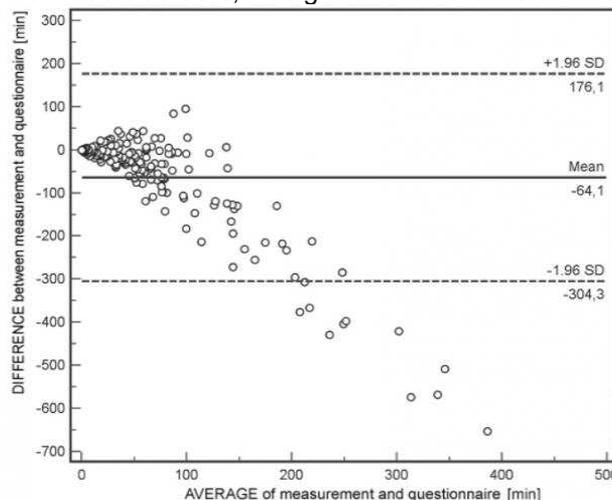


Figure 1: Comparison between measurement and questionnaire for knee straining postures in total (Bland-Altman-plot; n=183 (190 minus 7 extreme values))

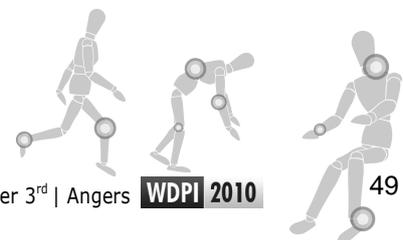
### Conclusion:

The study results show the need for using accurate exposure data in epidemiological studies because self-assessed retrospective exposure can highly differ from real conditions. Therefore it is useful to collect and process valid measurement data to build up exposure databases.

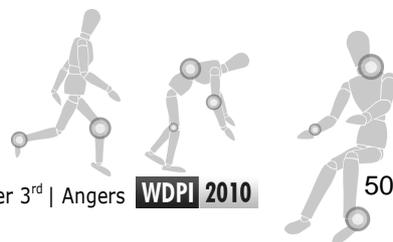
**Keywords:** Postures, physical exposure, Exposure measurement methods, Lower limb

### References:

- [1] Sandmark H, Hogstedt C, Vingard E. Primary osteoarthritis of the knee in men and women as a result of lifelong physical load from work. *Scand J Work Environ Health*. 2000;26(1):20-25.
- [2] Ellegast, RP, Hermanns I, Schiefer C. Workload Assessment in Field Using the Ambulatory CUELA System. In: Duffy, V.G. (Ed.) *Digital Human Modeling HCII*. 2009, Springer, Berlin 2009: 221-226.



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**WORK PARTICIPATION, WORK ADAPTATIONS, SICK LEAVE AND SELF-REPORTED HEALTH STATUS IN EARLY OSTEOARTHRITIS. A 2-YEAR FOLLOW-UP STUDY IN THE COHORT HIP AND COHORT KNEE (CHECK-STUDY).**

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**Aims:**

To document the longitudinal course of work participation of people with early osteoarthritis (OA) in hips or knees from baseline (T0) to 2-year follow-up (T2) in the Cohort Hip and Cohort Knee (CHECK-study) and to compare health status and personal factors of subjects who continued working and those who stopped. To compare prevalence of work adaptations at T2 and T0. To compare (cross-sectional at T2) health status and personal factors of workers reporting sick-leave ( $\geq 1$  week) and those reporting no sick-leave (or  $<1$  week).

**Methods:**

Questionnaire data from 925 subjects were analyzed. Rate ratios were calculated to compare work participation with the general Dutch population, corrected for age, sex and education. Self-reported health status (SF-36, WOMAC) was compared between groups (continued working versus stopped; sick-leave versus no sick-leave at T2) using t-tests.

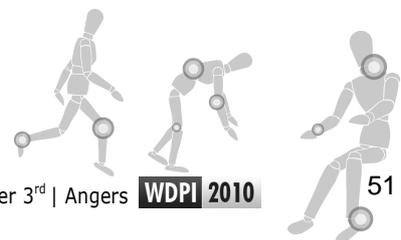
**Results:**

Participation in the cohort (mean age 58, 79% females) decreased from 51% to 46%, similar to the general population. Subjects who stopped working were older than those who continued working (mean 4.4 years), but did not differ in any other factor. Twenty percent reported work adaptations, compared to 14% at baseline. Subjects reporting sick-leave the past year because of hip/knee complaints (11%, similar to baseline) had significantly worse health and higher medical consumption than those without sick-leave.

**Conclusion:**

The course of work participation of people with early OA is similar to the general population. However, frequent work adaptations and the inferior health of subjects reporting sick-leave indicate an impact of OA on work participation.

**Keywords:** Epidemiology, Social aspects of MSD, Lower limb



## PREDICTORS FOR KNEE OSTEOARTHRITIS - RESULTS OF THE CASE CONTROL STUDY "ARGON"

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### **Aims:**

A number of occupational factors and other factors are discussed in relation to the development and progress of knee osteoarthritis (OA). The distinction between work-related factors and other factors is crucial in assessing the risk and in deriving preventive measures in occupational health. The aim of the research project "ArGon" (an acronym for "Arbeitsbedingungen" [working conditions] and "Gonarthrose" [knee OA]) was to determine the importance of different occupational factors (e.g. kneeling and squatting activities, the lifting and carrying of loads, standing, jumping) in relation to other factors of influence (e.g. age, gender, constitutional factors, sports) for the occurrence of knee OA in Germany.

### **Methods:**

In a case-control study patients with and without knee OA were questioned by means of a standardised questionnaire complemented by a semi-standardised interview. Controls were matched assigned to the cases. Conditional logistic regression was used in analysing data.

### **Results:**

739 cases and 571 controls were included in the study. In women and men several individual and occupational predictors for knee OA could be described: obesity (Odds Ratio (OR) up to 17.65 in women [w] and up to 12.56 in men [m]); kneeling/squatting (w: OR 2.52 [ $> 8,934$  hours/life], m: 2.16 [574-12,244 hours/life], 2.47 [ $> 12,244$  hours/life]); genetic predisposition (OR 2.17 [w], 2.37 [m]); and sports with a risk of unapparent trauma (w: OR 2.47 [ $\geq 1,440$  hours/life], m: 2.58 [ $\geq 3,232$  hours/life]). In women, malalignment of the knee (OR 11.54), pain in the knee already in childhood (OR 2.08), and daily lifting and carrying of loads ( $\geq 1,088$  tons/life, OR 2.13) were related to an increased, sitting and smoking led to a reduced OR.

### **Conclusion:**

A dose response relationship for kneeling/squatting and knee OA for both men and women could be proved. The results concerning general and occupational predictors for knee OA reflect the findings from the literature quite well. Yet occupational risks such as jumping or climbing stairs/ladders, discussed in the literature, did not correlate with knee OA in the present study. With regards to occupational health, prevention measures should focus on the reduction of kneeling activities and the lifting and carrying of loads as well as general risk factors, most notably the reduction of obesity. More intervention studies of the effectiveness of tools and working methods for reducing knee straining activities are needed.

**Keywords:** Postures, physical exposure, Early prevention, Lower limb



## OCCUPATIONAL PHYSICAL ACTIVITY AND MENISCAL TEARS: A REVIEW OF THE EPIDEMIOLOGICAL LITERATURE

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<sup>1</sup> Department of Orthopaedic Surgery, Hospital Unit West Herning, Denmark – <sup>2</sup> Department of Occupational and Environmental Medicine, Bispebjerg Hospital, Denmark.

### Aims:

To conduct a systematic review of the literature examining the association between occupational physical demands and meniscal tears.

### Methods:

A comprehensive literature search involving electronic databases (Medline, Embase, Cinahl, SweMed, Web of Science, and Cochrane) were searched along with the reference list of relevant publications. Peer reviewed publications published in English and concerning the incidence or prevalence of knee disorders in different occupational trade groups comprised the search criteria.

### Results:

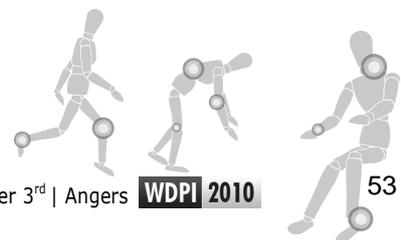
The literature search revealed only few relevant articles concerning the topic. Merging results from the databases a total number of 12 non-duplicate articles were found. The majority focused on occupational knee demands among workers in the construction and mining industry. Studies revealed a significantly increased prevalence of meniscal tears among workers with kneeling and squatting work tasks especially in floor layers and miners.

### Conclusion:

The menisci are two wedge-shaped discs of fibrocartilaginous tissue located in each tibiofemoral compartment. They are an important multifunctional component of the knee joint, and play an essential role in load transmission, shock absorption, proprioception, joint stability, and lubrication. During ambulation there is a load imbalance between medial and lateral tibiofemoral contact forces, and diversity in meniscal movements between the anterior and posterior part of the menisci. These biomechanical changes are especially marked during deep knee flexion, and may in combination with repetitive high knee loads and associated microtrauma when getting from kneeling to the upright position exceed the threshold for meniscal tearing, and explain an association between occupation-related kneeling and meniscal tears.

In conclusion epidemiological studies suggest that frequent occupational kneeling and squatting, and not only pivoting knee traumas may be an example of an environmental risk factor in the development of meniscal tears.

**Keywords:** Mechanism of pain and tissue injury, Construction, Lower limb





# WDPI OPENING





# WDPI KEYNOTES



**Mike Feuerstein**

Dr Feuerstein is a leading researcher in work disability prevention, and is the Senior Editor of the Journal of Occupational Rehabilitation, and the Journal of Cancer Survivorship. He has a background in health and clinical psychology, musculoskeletal work rehabilitation, and most recently has focused on cancer survivorship. Dr. Feuerstein is Professor of Medical & Clinical Psychology and Professor of Preventive Medicine and Biometrics at the Uniformed Services University of the Health Sciences in Bethesda, MD.

**WORK DISABILITY PREVENTION: A CROSS- DISCIPLINARY VIEW**

FEUERSTEIN M.

Musculoskeletal symptoms and disorders have a long history in the area of work disability prevention. Research and practice related to these problems have transitioned from an exclusive focus on biomedical etiologies, to workplace biomechanical exposures and their impact on physiological processes, to psychosocial factors in the workplace and the worker. An integrated multivariable view of functional outcomes rather than an exclusive focus on pain and discomfort has changed the focus of research, practice and prevention in the area of work disability. Professor Feuerstein will explore the evolution of this perspective, illustrate examples from his research and practice over the years. His recent research integrating theory and techniques in work disability prevention, regenerative medicine, neuro-ergonomics, cancer survivorship and rehabilitation to generate an evidence based approach to cognitive problems related to work will be illustrated as a new application of the cross-disciplinary view. The number of cancer survivors world wide is expected to double by 2050. Work is a priority for many cancer survivors. As tumors are detected earlier survival rates have improved dramatically. While the impact of treatment on function has also improved some continue to experience symptoms of fatigue, cognitive limitations and pain for many years post primary treatment. These symptoms have been related to poor work outcomes. Development of evidence based approaches that optimize function at work in these cancer survivors represent a major public health challenge.





**Robert Drake**

Bob is the Andrew Thomson Professor of Psychiatry and Community and Family Medicine at Dartmouth Medical School and the Director of the Dartmouth Psychiatric Research Center. He was educated at Princeton, Duke, and Harvard Universities. At Dartmouth for 26 years, he is currently Vice Chair and Director of Research in the Department of Psychiatry. He works as a community mental health doctor and researcher. His research focuses on co-occurring disorders, vocational rehabilitation, health services research, and evidence-based practices to improve outcomes. He has authored/co-authored 22 books and over 420 scientific papers.

**SUCCESS WITH SUPPORTED EMPLOYMENT FOR SERIOUS MENTAL DISORDERS - TRANSLATION OPPORTUNITIES**

DRAKE R.

Serious mental illnesses, including psychotic and mood disorders, have become the leading cause of work disability in America. This talk will review the research on preventing and reversing work disability among people with serious mental illnesses and extend these findings to people with less serious mental illnesses and other disorders.

For people with established mental health disabilities, research shows that Individual Placement and Support (IPS), or evidence-based supported employment, can enable approximately 60% to gain competitive employment within one year and that work outcomes improve over time. Research on first episode psychosis shows that IPS supported employment can return 70% or more of early-phase schizophrenia patients to competitive education or employment. Finally, research on early intervention with less severe mental illnesses suggests that a combination of evidence-based treatments and vocational supports can prevent absenteeism and poor functioning on the job.

The principles of IPS supported employment, including benefits counseling, client preferences, job matching, gradualism, and individualized supports, may apply broadly to return-to-work programs. Many people with physical disabilities in fact have mental health complications that interfere with returns to work.





**Ute Bültmann**

Dr. Bültmann is an Associate Professor at the Department of Health Sciences / Work & Health of the University Medical Center Groningen, University of Groningen, The Netherlands. Her research interests include the epidemiology of work and health, the impact of the psychosocial work environment on workers' health, measurement of health and functioning at work, and prevention of work disability. She is involved in collaborative research projects on work and health in Denmark and Canada, and is an adjunct scientist of the Institute for Work & Health in Toronto, Ontario, Canada.

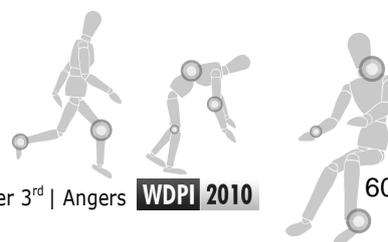
## **MENTAL HEALTH AND WORK – TOWARDS WORK DISABILITY PREVENTION AND A SUSTAINABLE WORKING LIFE**

BÜLTMANN U.

Mental health problems, such as anxiety, adjustment disorders, and depression, have emerged as global public and occupational health problems. According to the World Health Organization, by 2030 depressive disorders will be the leading cause of burden of disease and the biggest economic and social health burden on society. Mental health problems cause individual suffering, are often recurrent in nature, and have a negative impact on social relationships and functioning. Costs for the employer will rise due to work performance decrements and lost productivity. Costs for society will rise due to increases in sickness absence, work disability, or unemployment benefits. To curtail the burden it is important today to consider how to increase the evidence for preventive measures for work disability in workers with mental health problems and for the facilitation of a sustainable working life.

To date, the knowledge about effective interventions for reducing work disability and enhancing a sustained return to work in workers with mental health problems is limited. From research focusing on workers absent due to musculoskeletal disorders, we do know that return to work is a multi-faceted and complex process, involving a broad range of people/systems with a stake in the problem. Studies from different jurisdictional contexts' have provided knowledge about multilevel facilitators and barriers in the return to work process and effective intervention elements and strategies for workers with MSDs. Yet, is it possible to translate this knowledge to workers with mental health problems trying to return to work? Workers with mental health problems trying to return to work may face stigma at the workplace, encounter a lack of knowledge about mental health problems among supervisors and co-workers, experience a lack of workplace support, and may have serious problems in meeting the work demands due to their illness. Hence, mental health problems present unique challenges for work disability prevention. Certainly less is known about the facilitation of a sustained return-to-work.

In this talk, I will illustrate the unique challenges presented by mental health by focusing on: 1) the conceptualization and measurement of sustained return-to-work and, 2) the workplace as arena for interventions addressing workplace issues and support structures that facilitate a sustained return to work. To monitor sustained return to work over time and to prevent recurrences, we must address the health status, work functioning and work accommodations of workers who returned to work. The vast majority of return to work intervention studies in workers with depressive disorders or adjustment disorders are individual (i.e. worker)-oriented and focus on pharmaceutical treatment or activating interventions, based on graded activity and cognitive behavioral treatment. However, the evidence for the effectiveness of the existing worker-directed "clinical" interventions on work outcomes is limited.



# ORAL SESSIONS



## PROMISING WORK DISABILITY PREVENTION INTERVENTIONS

### INTEGRATED CARE FOR CHRONIC BACK PAIN: A RANDOMIZED CONTROLLED TRIAL EVALUATING A SYSTEMS APPROACH TO REDUCE DISABILITY IN WORKING AND PRIVATE LIFE

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#### **Aims:**

To evaluate the effectiveness of an integrated care program, combining a patient-directed and a workplace-directed intervention for patients with chronic low back pain.

#### **Methods:**

In a population-based randomized controlled trial executed in primary and secondary care, 134 patients between 18-65 years of age, sick-listed due to low back pain for at least 12 weeks, were randomly assigned to usual care or integrated care. Integrated care consisted of a workplace intervention based on participatory ergonomics involving their supervisor, and a graded activity program applying cognitive behavioural principles. Usual care was provided by general practitioners and occupational physicians according to Dutch guidelines. The primary outcome was duration of work disability due to low back pain until full sustainable return to work. Secondary outcome measures were pain intensity and functional status. All statistical analyses were performed according to the intention-to-treat principle.

#### **Results:**

The median duration until sustainable return to work was 88 days in the integrated care group and 208 days in the usual care group ( $p=0.003$ ). Integrated care was effective on return to work (hazard ratio 1.9 [95% confidence interval 1.2 to 2.8]  $p=0.004$ ). After 12 months, patients in the integrated care group improved significantly more on functional status compared to patients in the usual care group ( $p=0.01$ ). No statistically significant differences in pain improvement were found between the two groups.

#### **Conclusion:**

The integrated care program substantially reduced disability due to chronic low back pain in private and working life. Application of this promising systems approach directed to both the patient and the work environment will have major impact on the individual and societal burden of low back pain.



## EARLY INTERVENTION OPTIONS FOR ACUTE LOW BACK PAIN PATIENTS TO PREVENT WORK DISABILITY: A PROSPECTIVE ONE-YEAR FOLLOW-UP STUDY

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### **Aims:**

In a previous study, patients with acute low back pain (ALBP) at high risk for developing chronic low back work disability (CLBWD), who received a biopsychosocial early intervention treatment program, had greater symptom improvement and cost savings relative to standard care. They also had some work disability reduction, but significant opportunities for improved early work resumption were observed. The present study was designed to expand on these results by examining the additional benefit of an early work-transition component.

### **Methods:**

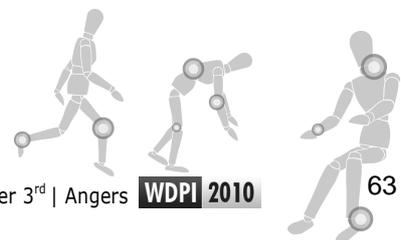
Using an existing algorithm, participants were identified as being high-risk (HR) or low-risk (LR) for developing CLBWD. 142 HR participants were randomized to receive early intervention (EI); early intervention with work transition (EI/WT); or standard care (SC). Participants provided information regarding pain, disability, work status, and psychosocial functioning at base line, periodically during treatment and again one year following completion of treatment.

### **Results:**

At one-year follow-up, no significant differences were found between the EI and EI/WT groups in terms of work status, work functioning, self-reports of pain and disability, coping ability or psychosocial functioning. However, significant differences in all of these outcomes were found comparing these groups to standard care.

### **Conclusion:**

The addition of a work transition component to an early intervention program for the treatment of ALBP did not significantly contribute to improved work outcomes, although the power of the study to detect differences was limited. Results further support the effectiveness of early intervention for high-risk ALBP patients, and suggest that, in certain circumstances with ALBP, more intensive work-specific interventions may not be necessary.



## EFFECTIVENESS OF AN EMPOWERMENT-BASED JOB RETENTION PROGRAM FOR EMPLOYEES WITH A CHRONIC DISEASE; A RANDOMISED CONTROLLED TRIAL

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### Aims:

Persons with chronic somatic diseases, such as diabetes, rheumatoid arthritis, multiple sclerosis or Crohn's disease, may be hampered in job performance. Emotional distress, fatigue, insufficient social support and lack of work accommodations may lead to unnecessary job loss. We investigated the feasibility and the effectiveness of a group training programme aimed at a) clarifying practical, social and psychological work-related problems, b) communication at work, and c) solving problems

### Methods:

Participants were randomly assigned to the intervention group (n = 64) or the control group (n = 58). Self report questionnaires were filled in at baseline, after 4, 8, 12 and 24 months. Outcome measures were work-related self-efficacy, fatigue, job dissatisfaction and job retention. Results after 24 months will be presented at the conference.

### Results:

Three participants dropped out of the training programme halfway. Loss to research follow-up was 0/122, 3/122 and 6/122 after 4, 8 and 12 months. After one year, self-efficacy had increased significantly more for the experimental group, fatigue decreased significantly for the whole study population, but not significantly more for the experimental group; job dissatisfaction decreased in the experimental group and increased in the control group, but the difference was not statistically significant. Only a few persons in both groups lost their jobs. The training programme was evaluated with a mean score of 8.1. Especially the focus on feelings and thoughts about having a chronic disease was highly valued, as were the exchange of experiences and role-playing directed at more assertive communication at work. Sixty-one percent of the control group stated that they or others had undertaken measures to solve work-related problems because they were randomised to the control group.

### Conclusion:

This study points to the importance of addressing psychosocial aspects of working with a chronic disease. An empowerment-based job retention program is feasible and is perceived to be effective by the participants. An effect of the intervention is found on some, but not all outcome measures. For vocational rehabilitation interventions, where blinding participants is not possible and participants may easily find other solutions to their problems at work, the RCT-design has serious shortcomings.



## ONE-YEAR FOLLOW-UP IN EMPLOYEES SICK-LISTED BECAUSE OF LOW BACK PAIN: SUBGROUP ANALYSES IN A RANDOMISED CLINICAL TRIAL COMPARING MULTIDISCIPLINARY AND BRIEF INTERVENTION

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### Aims:

Previous studies in sick-listed employees with low back pain (LBP) have indicated that both brief and more comprehensive multidisciplinary interventions may increase return to work (RTW). Some subgroups of LBP patients have been reported to benefit more from a multidisciplinary intervention than other subgroups. In a randomized clinical trial (RCT) of employees sick-listed due to LBP, we compared effects of a hospital-based multidisciplinary intervention with a brief intervention. Outcomes at one-year follow-up were RTW, pain and disability and we found no difference between the interventions. The aim of the present study was to study if subgroups existed, where RTW was faster in the brief intervention group than in the multidisciplinary group.

### Methods:

A total of 351 employees sick-listed 3-16 weeks due to LBP were recruited from their GP's and included. The brief intervention comprised clinical examination and advice offered by a rehabilitation doctor and a physiotherapist. In the multidisciplinary intervention a case manager was assigned, who made a rehabilitation plan in collaboration with the patient and a multidisciplinary team. One-year RTW was estimated by data from a national database of social transfer payments. RTW was defined as receiving no sickness compensation benefits or other social transfer payments, except unemployment benefits, for four continuous weeks. Questionnaires were used to obtain data on health, disability, demographic and workplace related data. Cox hazard regression analyses were used for RTW data and hazard rate ratios (HRR=HRmultidisciplinary/ HRbrief) were adjusted for demographic and health-related variables.

### Results:

An interaction effect between level of influence at ones own work and intervention group was found, indicating that employees with high influence had higher RTW rates in the brief intervention group than in the other group (HRR=0.72, CI: 0.54-0.97). A similar tendency was found for employees, who did not perceive to be at risk of losing their job (HRR=0.83, CI: 0.59-1.17). Both associations were highly significant after excluding subjects who had applied for compensation through the insurance system. No interaction effect with intervention group was found for social support at work, work ability, demographic and health-related variables.

### Conclusion:

Brief intervention seemed more effective for subgroups with high influence on their own work and no perceived risk of losing their job, whereas multidisciplinary intervention seemed more effective for those with low influence and perceived risk of losing their job.



## A RANDOMISED CONTROLLED TRIAL OF TELEPHONE COACHING FOR RETURN TO USUAL ACTIVITY IN LOW BACK PAIN

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### Aims:

Up to 90% of adults experience low back pain (LBP) at some stage in their lives. Most people recover from LBP within months; however, a small proportion experience ongoing activity limitation and work disability. If individuals at risk of poor outcomes are identified early, targeted intervention may reduce the human and economic costs associated with chronic LBP. A person's own recovery expectation has been shown to be a strong and robust predictor of poor outcome (Iles, Davidson, Taylor, & O'Halloran, 2009). The aim of this pilot project was to determine whether the addition of telephone-based health coaching to usual care in non-chronic LBP reduced activity limitation for individuals with low recovery expectations.

### Methods:

Patients were recruited from the Physiotherapy Outpatients Department of a public hospital in Melbourne, Australia. Eligible participants had non-specific LBP for less than eight weeks and had low recovery expectations according to the screening question, "How certain are you that you will return to ALL of your usual activities one month from today?" Participants were randomised into two groups. Both groups received usual physiotherapy care, while the coaching group received five half-hour telephone coaching sessions. The Patient Specific Functional Scale (PSFS) and the Oswestry Disability Index (ODI) measured return to usual activities (including primary non-leisure activity) and back-specific disability. Pain self efficacy and recovery expectation were secondary outcomes. Outcomes were measured after 12 weeks.

### Results:

Twenty participants were recruited into the study. After 12 weeks the coaching group had significantly increased recovery expectations (3.8 points, 95% CI 0.7 to 6.8). This was the only statistically significant difference between groups. In the coaching group there was an observed reduction between groups of 10.6 points (95% CI -10.6 to 31.7) on the ODI. On this scale the smallest clinically worthwhile effect has been identified as 10 points. The between groups improvement on the PSFS was 1.8 points (95% CI -1.0 to 4.7) in favour of the coaching group. The minimum detectable change on this scale has been identified as 2 points.

### Conclusion:

Only one difference was detected in this pilot study. However, the observed effect sizes suggest five sessions of telephone coaching may be useful in the prevention of ongoing disability due to LBP and should be investigated in a larger trial.



## PREDICTORS AND FACTORS RELATED TO RETURN TO WORK

### DEVELOPMENT AND VALIDATION OF THE FUTURE WORK PARTICIPATION QUESTIONNAIRE

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#### Aims:

This aim of this prospective cohort study was to develop and validate a questionnaire measuring the components in a Theory of Planned Behaviour (TPB) model of the determinants of return-to-work (RTW) in employees with a compensable musculoskeletal injury.

#### Methods:

Participants were Australian injured workers (total N = 174), mean age = 43.7 years, mean time since last worked = 9.94 months, mean pain severity (0-10) = 5.86, 53.2% male, 48.1% back injury, 34.2% unskilled workers. Standardised procedures were used to construct a questionnaire to measure a TPB model of the target behaviour "working or continuing to work in three months time". A pilot group (n = 16) served as the developmental sample to generate items for the direct and indirect (belief-based) measures of the model components Behavioural Intention, Attitude, Subjective Norm and Perceived Behavioural Control. The validation sample (n = 158) completed the questionnaire and provided information on employment status at 3-months follow-up.

#### Results:

The developed questionnaire met the psychometric requirements for a valid measure of a TBP model of behaviour change. Excellent internal consistency (alpha = .85 to .93) and good test-retest reliability (r = 0.57 to 0.89) was found. Correlations between direct and indirect measures of the model's constructs were large (r = .51 to .65). Attitude, Subjective Norm and Perceived Behavioural Control explained 75% of the variance in Behavioural Intention (R<sup>2</sup> = .75, p < .0005). Behavioural Intention explained 51.3% of the variance in work participation at follow-up (Nagelkerke R<sup>2</sup> = .513, p < .0005; sensitivity = 86.4%, specificity = 71.2%). The influencing beliefs with the highest associated factor loadings per component were Attitude: Disadvantages of working – increased pain (r = .85), fear of re-injury (r = .85), Advantages of working – social contact (r = .85), gaining respect and acceptance (r = .84); Subjective Norm: the opinion of co-workers (r = .80), friends (r = .80) and doctor (r = .79); Perceived Behavioural Control: Inhibitors of working – restricted physical capacity (r = .84), pain (r = .80), Facilitators of working – co-worker support (r = .88) and employer support (r = .86).

#### Conclusion:

The Future Work Participation Questionnaire is a reliable and valid measure of a TPB model of the determinants of RTW in employees with a compensable musculoskeletal injury. It shows promise as a tool for predicting RTW outcomes and informing intervention through the identification of key barriers and motivators of work resumption.



## A SHORT-FORM FUNCTIONAL CAPACITY EVALUATION PREDICTS TIME TO RECOVERY BUT NOT SUSTAINED RETURN-TO-WORK

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### Aims:

Functional Capacity Evaluations (FCE ) are commonly used to inform decisions about return to work, allowing a comparison between a client's demonstrated ability and the physical requirements for their specific occupation. A short-form FCE protocol has recently been developed which appears to achieve similar return-to-work outcomes as full protocols, while resulting in reduced assessment burden. We evaluated the ability of a short-form FCE to predict future timely and sustained return-to-work.

### Methods:

A prospective cohort study was conducted using data collected during a cluster RCT. The research was conducted at the Workers' Compensation Board of Alberta's (WCB) rehabilitation facility. Data were extracted from WCB administrative and clinical databases. The short-form FCE includes three regional protocols depending on injury location (upper extremity, lower extremity or trunk). Subject performance on FCE was compared to administrative recovery outcomes from a workers' compensation database (days to claim closure, days to time loss benefit suspension and future recurrence). Potential confounders included age, sex, injury duration, and job attachment status at time of FCE (i.e. a job and employer to which to return), occupation classification, salary, number of prior WCB claims, number of health care visits prior to the FCE, and scores on the Pain Disability Index and Pain Visual Analog Scale. Analysis included Cox regression for the time to event outcomes, while logistic regression was used for the dichotomous recurrence outcome. Point estimates and 95% confidence intervals (CI) were calculated along with proportion of variance explained.

### Results:

The sample included 147 compensation claimants with a variety of musculoskeletal injuries. The majority of the subjects were male (69%), employed (64%) and receiving time-loss benefits at the time of the FCE (68%). Subjects who demonstrated job demand levels on a II FCE items were more likely to have their claims closed (adjusted Hazard Ratio 5.52 (95% Confidence Interval 3.42 - 8.89), and benefits suspended (adjusted Hazard Ratio 5.45 95% Confidence Interval 2.73 – 10.85) over the follow-up year. The proportion of variance explained by the FCE ranged from 18-27%. FCE performance was not significantly associated with future recurrence.

### Conclusion:

A short-form FCE appears to provide useful information for predicting time to recovery as measured through administrative outcomes, but not injury recurrence. The short-form FCE may be an efficient option for clinicians using FCE in the management of injured workers.



## EXPLAINING DIFFERENCES IN SICKNESS ABSENCE LEVELS AMONG PUBLIC SECTOR EMPLOYEES IN SWEDEN AND DENMARK – A CROSS-COUNTRY STUDY

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### **Aims:**

To investigate potential differences in sickness absence levels among public sector employees in Sweden and Denmark, and to investigate if the differences could be explained by age and gender composition, physical and psychosocial work environment exposures, life style factors, self-rated health or work ability.

### **Methods:**

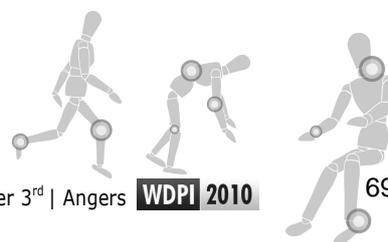
Two cross-sectional samples of 8562 public sector employees in Sweden and Denmark were surveyed by questionnaire. The study outcome, self-reported number of sick-leave days, was dichotomized into less than 7 days and more than 7 days. Chi square test was used to analyse distribution of dependent and independent variables in the two sub-cohorts. Stratified logistic regression analysis was performed and logistic regression analysis was performed in order to explain differences in sickness absence levels between the two sub-cohorts.

### **Results:**

More Swedes than Danes reported more than 7 days of sickness absence in the last 12 months. Factors associated with sickness absence were largely similar in the two countries. The difference in absence level between Sweden and Denmark could not be explained by differences in job level composition, life style factors, psychosocial or physical work environment, musculoskeletal symptoms or self-rated health, whereas taking into account differences in work ability scores caused the differences between to two countries to become statistically insignificant.

### **Conclusion:**

The results could indicate an increased retention of employees with health problems in the Swedish labour market compared to the Danish labour market. A possible explanation for the differences in sickness absence ascertained in this study could be due to differences in the sickness insurance legislation.



## DETERMINANTS OF THE RETURN-TO-WORK PROCESS AND THEIR PREDICTIVE VALUE ON DISABILITY OUTCOME AFTER TWO YEARS OF SICKNESS ABSENCE

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### Aims:

The outcome of the process designed to promote return-to-work (RTW) for workers on long-term sickness absence is influenced by several determinants. These determinants include socio-demographic variables and RTW activities intended to increase the chance to return to work. However, as the chances of RTW are reduced over time, the determinants which influence RTW after a longer period of sickness absence could also change. The purpose of this study was to investigate predictors of RTW after two years of sickness absence, including factors relevant to the RTW process, and disability outcome.

### Methods:

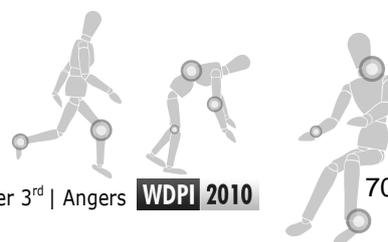
Data was gathered by means of a questionnaire, filled out by professionals (labour experts) at the Dutch Social Insurance Institute, assessing the employees' RTW process in relation to the application for disability benefits after two years of sickness absence. These employees were divided in two groups: 1) partial RTW or complete RTW in terms of wages, but with a different work setting, and 2) no RTW. The questionnaire contained questions on socio-demographic variables (e.g. age, gender), RTW activities (e.g. interventions, employer-employee relationship), and disability outcome (partial RTW, complete RTW with different setting, no RTW). Statistical analyses include correlation and logistic regression analyses

### Results:

415 questionnaires were filled in, of which 211 sick-listed employees (51%) had not returned to work (fully or partially). Of all cases, 180(43%) were male. Education level was low in 20%, medium in 60% and high in 20%. The average age was 47 years (SD 9.4). Multivariate analysis revealed that factors measured in this study explain 20% of the variance in RTW after two years of sickness absence. In the multivariate model, odds ratios (ORs) of 10.17 (95%CI 2.15-48.06) were found for employer-employee relationship. Threat of cessation of wages showed an OR of 8.73 (95%CI 1.04-73.28). With regard to training and expert's opinions ORs of 3.86 (95%CI 1.77-8.41) and 2.98 (95%CI 1.35-6.60) were found, respectively. Another factor influencing RTW were periods of no work ability, with an OR of 2.09 (95%CI 1.28-3.40).

### Conclusion:

Five factors relevant to the RTW process are significant predictors of RTW after two years. Results show that activities, rather than socio-demographic variables, are of importance to RTW after two years of sickness absence. Further analyses will be performed in early 2010.



## LEADERSHIP QUALITIES IN THE RETURN TO WORK PROCESS. A CONTENT ANALYSIS

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### Aims:

The aim of this study was to elucidate leadership qualities that are valued in the RTW process of employees.

### Methods:

The study formed part of the Rogaland RTW study, and was designed as a qualitative case study that included interviews with subordinates (n=30) on long-term sick leave (>8 weeks) and their supervisors (n=28) from 19 companies. The informants represented a heterogeneous sample regarding diagnoses, types of occupations, positions, company sector, branches, and sizes. Qualitative and quantitative content analysis of the transcripts obtained during interviews identified leadership qualities.

### Results:

Three hundred and forty-five descriptions of leadership qualities were identified, which were categorized into 78 distinct leadership qualities and 7 leadership types. The five most valued leadership qualities were "ability to make contact", "being considerate", "being understanding", "being empathic", and "being appreciative". The three most valued leadership types were the Protector, Problem-Solver, and Contact-Maker. While the subordinates gave more descriptions to the Encourager, Recognizer and Protector types, the supervisors described the Responsibility-Maker and Problem-Solver most often. The most often reported combination of types was the Protector and Problem-Solver, reported by 54% of the informants, while the most common three-types-combination was the Protector, Problem-Solver & Contact-Maker reported by 37% of the informants.

### Conclusion:

This study revealed that there is a wide spectrum of valued leadership qualities, with those reported as being valuable differing between employees and supervisors.



## ASSOCIATION OF PHYSICAL THERAPY WITH DISABILITY DURATION FOLLOWING MENISCECTOMY FOR OCCUPATIONAL KNEE INJURIES

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### Aims:

Passive physical therapy (PT) is intended to decrease pain and inflammation and active PT is intended to increase range of motion, strength, and motor control. Evidence is conflicting regarding the benefit of PT to improve disability outcomes following knee meniscectomy (1-3). The study purpose was to describe the association between the amount (number of services) and PT type (passive versus active) received 30 days post-meniscectomy with disability duration.

### Methods:

A homogeneous sample was selected from U.S. workers compensation claims data with a new knee injury, without other injuries or co-morbidities, that underwent a meniscectomy within six months after injury. The exposure variable was PT received within 30 days post-meniscectomy and was identified using CPT codes from paid bills. Univariate analysis was performed to describe disability duration among those who received no PT and those who received  $\geq 1$  PT service 30 days post-meniscectomy. Multivariate linear regression analysis examined the association among those who received  $\geq 1$  PT service based on PT type (grouped by active PT: 0-33%, 34-66%, 67-100%) and disability duration; while controlling for age, gender, job tenure, state, PT amount and type pre-meniscectomy, and knee-related occupational physical demands.

### Results:

Of the 4541 people fitting the study inclusion criteria, 82.1% were male, mean age was 44.0, and mean time to surgery was 76 days. In the 30 days post-meniscectomy, 32.9% received no PT. Among those who received  $\geq 1$  PT service, 7.2% received  $\leq 33\%$  active, 36.2% received 34-66% active; and 23.7% received  $\geq 67\%$  active PT. Mean disability duration for those who had no PT (43.49 days) and for those with  $\geq 1$  PT service by PT type (85.24 days for  $\leq 33\%$  active, 68.97 days 34-66% active, and 52.52 days  $\geq 67\%$  active) were all significantly different from one another. After controlling for the covariates, among those with  $\geq 1$  PT service by PT type, disability duration decreased monotonically as the percentage of active PT increased. PT amount pre-meniscectomy (0.25 days/bill) and knee-related occupational physical demands (0.4 days/percentage point of exposure) had a significant positive association with disability duration.

### Conclusion:

The findings lend support that receipt of either no PT or a greater use of active PT services result in improved disability outcomes. More PT service utilization before meniscectomy, but not after, was associated with longer disability. Patients in occupations with higher knee-related physical demands have longer disability.



## OUTCOMES IN WORK DISABILITY PREVENTION

### WORK DISABILITY TRAJECTORIES AFTER PERMANENT IMPAIRMENT FROM A WORK ACCIDENT

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#### **Aims:**

We exploit a novel data linkage to determine the labor-market earnings success over a period of ten years post accident of workers' compensation claimants who received benefits from three distinct workers' compensation programs.

#### **Methods:**

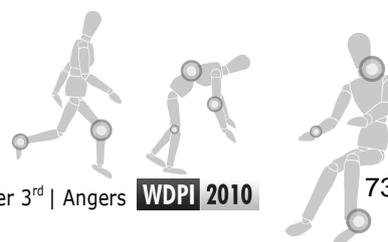
The study is based on a linkage of data from three Canadian workers' compensation programs with the Longitudinal Administrative Databank, a 20% longitudinal sample of Canadian tax filers. The three programs under investigation are: 1) An impairment-based program; 2) A loss of earnings capacity program; and 3) A bifurcated program that provides the higher of an impairment-based benefit or a loss of earnings capacity benefit. We use a robust cohort-control matching process to identify controls with similar socio-demographic and labor-market earnings characteristics. The key matching characteristic is an individual's earnings trajectory in the four years prior to the accident year. We develop graphs that depict the proportion of claimants within each impairment bracket that had labor-market earnings in four quartiles, relative to controls: 1) less than 25% of control earnings, 2) between 25-50%, 3) 50-75%, and 4) greater than 75%.

#### **Results:**

We find that the distribution of earnings recovery is quite variable within each impairment bracket. Within the 1-5% impairment bracket, approximately a quarter of the sample recovered less than 25% of their matched control earnings and approximately half recovered more than 75%. Interestingly, only a small proportion is in the middle ranges, i.e., recovering between 25-75% of their control earnings. A similar pattern of polarized income recovery is found for all impairment brackets. The pattern is present across all three programs

#### **Conclusion:**

The findings suggests that most claimants are either able to fully engage in the labor force and recover a substantial amount of income, or end up being only loosely engaged and recover a modest amount. Experiences are polarized, with the middle ground being experienced by few. One possible explanation of the findings is that the nature of the labour market is such that fractional recoveries are not common because well paying jobs are not divisible, i.e., one either can return to pre-injury occupation or become marginalized in contingent type work arrangements. The study findings have important implications for disability policy and for workers' compensation programs that attempt to depict work disability and labour-market engagement as divisible.



## A PROSPECTIVE STUDY ACROSS DIFFERENT HEALTH CONDITION SUBGROUPS: DIFFERENCES IN ASSOCIATION BETWEEN PSYCHOSOCIAL FACTORS AND RETURN TO WORK OUTCOME

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### Aims:

Work attitude, self-efficacy and perceived social support are associated with the time to Return-to-Work (RTW). The aim of the study was to investigate whether associations between work attitude, self-efficacy and perceived social support and time to Return-To-Work (RTW) differ across different health condition subgroups.

### Methods:

The study was based on a sample of 926 workers on sickness absence (6-12 weeks). The participants filled out a baseline questionnaire with items about demographic characteristics, work attitude, self-efficacy and perceived social support and were subsequently followed until the tenth month after listing sick. The sample was divided into three subgroups: musculoskeletal, other physical, and mental health conditions. Anova analyses and Cox proportional hazards regression analyses were used to identify differences in association between the three factors and the time to RTW between different subgroups.

### Results:

Significant differences were found on the mean scores of the three psychosocial factors between the health condition subgroups, with the highest mean scores in the musculoskeletal subgroup. Moreover, differences were observed with respect to the strength of the associations (HR) in both the uni- and multivariate model between work attitude and perceived social support and time to RTW. In the two physical health condition subgroups better work attitude and more perceived social support are facilitators to RTW (adjusted HR ranging from 1.26-1.51). However, in the subgroup with mental health problems, better work attitude and more perceived social support were actually a barrier to RTW (HR=0.94 respectively HR=0.80). Only self-efficacy remained in the multivariate model in all subgroups (adjusted HR ranging from 1.49 to 1.60).

### Conclusion:

The results of this study show that work attitude, self-efficacy and perceived social support are relevant psychosocial predictors with regard to the time to RTW in all types of health conditions, but that important differences are observed in type of factor and strengths of the relationships between physical and mental health conditions.



## FIRST RETURN TO WORK FOLLOWING INJURY: DOES IT REFLECT A COMPOSITE OR A HOMOGENEOUS OUTCOME?

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### Aims:

Most studies of determinants of first return to work following injury assume that the factors predicting return to full duties are the same as the factors affecting first return to modified work and group both modes of RTW together as a binary outcome. The aim of this study was to examine whether return to work as a binary outcome reflects a composite or a homogeneous outcome in a cohort of workers who have sustained acute orthopaedic trauma resulting in hospitalization.

### Methods:

In a prospective cohort study, 168 participants were recruited and followed for six months. Baseline data was obtained at recruitment and participants were further surveyed at three time-points during the study. Polytomous logistic regression was used to simultaneously examine the association between potential predictors and different modes of first RTW. A test of the equality of the odds ratios associated with the independent predictor variables was also undertaken.

### Results:

Of the 152 participants with full follow-up, 30% returned to full duties and 38% returned first to modified work during the study period. Significant determinants of return to full duties were different from the significant determinants of first return to modified work. A test of the equality of odds ratios indicated that the majority of these differences were statistically significant raising the likelihood that first RTW reflects a composite rather than a homogeneous outcome. These findings have been validated in an independent study sample.

### Conclusion:

The predictive factors appear to exert different mechanisms of action depending on the mode of RTW. The findings suggest that the different modes of RTW may need to be considered independently. The results of the study have potential implications for research and insurance practice.



## IMPACT OF AGEING PROBLEMS, CHRONIC HEALTH CONDITIONS AND NATURE OF WORK ON A SUSTAINABLE HEALTHY WORKING LIFE AMONG WORKERS AGED 45 YEARS AND OLDER

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### Aims:

Although the proportion of the population diagnosed with chronic health conditions increases with age, little is known about the share of the effect of ageing problems, chronic health conditions and nature of work on a sustainable working life. Therefore, the aim of this study is to examine the association of the presence of ageing problems and/or chronic health conditions on a healthy working life as measured by self-reported health status and work ability. The second aim is to compare health status and work ability in ageing workers stratified by nature of work.

### Methods:

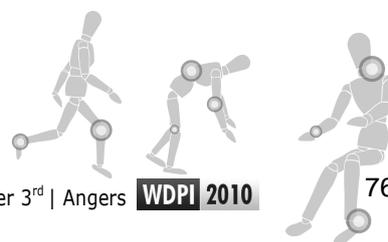
A cross-sectional survey was conducted among 3008 workers of 45 years and older in four different branches. Health status was measured with five subscales of the SF36: physical and social functioning, mental health, vitality and general health; work ability was measured by the Work Ability Index. Nature of work was divided into four groups: executive, secretarial, consulting and management. Linear multiple regression analyses were used to identify differences in associations.

### Results:

Ageing problems and chronic health conditions were negatively related to health status and work ability ( $p < 0.05$  for all by multiple linear regression analysis) after adjustment for gender and age group (45-54 and 55-64). Ageing problems had the strongest association with vitality ( $\beta = -0.16$ ,  $p < 0.001$ ); a chronic health condition most influenced general health ( $\beta = -0.30$ ,  $p < 0.001$ ). The presence of both ageing problems and a chronic health condition was found the strongest association for decreased physical ( $\beta = -0.391$ ;  $p < 0.001$ ) and social functioning ( $\beta = -0.393$ ;  $p < 0.001$ ), mental health ( $\beta = -0.292$ ,  $p < 0.001$ ), vitality ( $\beta = -0.419$ ,  $p < 0.001$ ), general health ( $\beta = -0.465$ ;  $p < 0.001$ ) and work ability ( $\beta = -0.57$ ,  $p < 0.001$ ). No significant differences were found on health status and work ability of workers with secretarial or consulting functions, except for social functioning ( $\beta = 0.05$ ,  $p < 0.05$ ) for secretary workers and mental health ( $\beta = 0.05$ ,  $p < 0.05$ ) and vitality ( $\beta = 0.06$ ,  $p < 0.05$ ) for workers with a consulting function, compared to executive workers. The association of workers with a management function is positively related to health and work ability ( $p < 0.05$  for all by multiple linear regression analysis).

### Conclusion:

Ageing problems and the presence of a chronic health condition were associated with decreased self-reported health status and work ability; co-occurrence of ageing problems and a chronic disease strengthens this association. With respect to executive workers, no trivial differences were found for workers with secretarial and consulting work on health status and work ability. Small significant positive associations were demonstrated between workers in management functions and workers with executive jobs.



## OCCUPATIONAL DEMANDS MODERATE THE RELATIONSHIP BETWEEN AGE AND LENGTH OF ABSENCE FOLLOWING A WORK INJURY.

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### **Aims:**

Older workers are an increasingly important part of the Canadian labour market. Older age has been consistently associated with longer time away from work after work injury. This relationship is primarily explained by the higher prevalence of chronic conditions and ill health conditions among older workers compared to younger workers (i.e. lower physical capacity). However, the relationship between physical capacity and occupational demands will differ by occupational group, with some occupations having higher demands than others. As such it is possible that differences in length of absence across age groups will be moderated by the physical demands of the occupation which the worker is trying to return to. The objective of this paper was to examine the relationship between older age and absences from work, and to examine if this relationship was moderated by occupational physical demands.

### **Methods:**

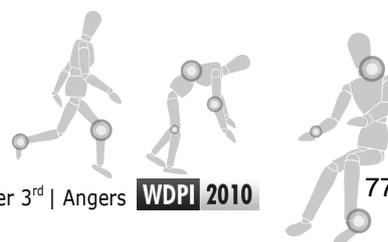
This study utilised secondary data from the Survey of Labour and Income Dynamics (SLID) (1993 to 2006). Respondents to the SLID are asked if they have had an absence from work lasting for seven days or longer and if this absence was work-related. They are also asked to report the start date and end date for the absence. The physical demands of each respondent's occupation were classified using a system developed by The Occupational Health and Safety Research Institute Robert-Sauvé (IRSST) using standard occupational codes. Other variables included in this analysis were age group, gender, unionization status, workplace size, year of absence and province of residence.

### **Results:**

A total of 6,340 absences from work occurred between 1993 and 2006. Older age and higher occupational demands were associated with longer days away from work. A significant interaction was found between occupational physical demands (manual, mixed and non-manual) with age group, with age group differences in length of absence greatest among non-manual occupations compared to manual occupations. However, this difference was not due to longer time off work among older workers in more demanding occupations, relative to younger workers, but was due to increased days of absence among younger workers as occupational demands increased.

### **Conclusion:**

In this large sample of absences among Canadian workers we found that the relationship between older age and longer days of absence following a work injury was moderated by occupational demands, with greater age group differences found in occupations with lower physical demands. Further analyses and policy implications of this work will be presented.



## IS A NEW JOB THE SOLUTION FOR SUSTAINABLE WORK ABILITY AFTER SICK LEAVE?

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### Aims:

In Sweden women have considerably higher sick leave rates than men, and mental disorders are common, in particular among young women. In spite of health risks, employees are eager to keep their present employment. Knowledge about incentives for willingness to seek a new job is limited. The aim is to analyze if there are differences between people on sick leave due to musculoskeletal disorders and/or stress-related mental disorders in turnover intentions and, further, if there are gender differences.

### Methods:

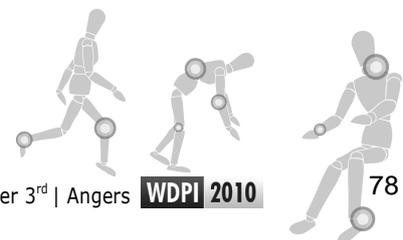
In a prospective cohort study, all individuals who sought primary care or occupational health care for musculoskeletal and/or mental disorders during slightly more than a year were contacted. Those who agreed to participate in the study (>90%) filled in a questionnaire within 3 weeks from their first day on sick leave. The questionnaire comprised the Hagedoorn Exit scale to measure turnover intentions, the EQ-5D health related quality of life measure, the Melamed Burnout scale, and the WAI Work Ability Index, in addition to demographic variables. A total of 1300 individuals are included in the cohort, the preliminary analyses are based on the first 773 of these cases.

### Results:

Based on the preliminary analyses, the cohort comprised 1/3 men and 2/3 women. A total of 63% had musculoskeletal disorders (65% women) and 37% had stress-related mental disorders (81% women). The group with mental disorders was slightly younger than the group with musculoskeletal disorders and they rated effort-reward imbalance at work as worse. In the health measures, they rated their health as lower (EQ 5D), they had higher scores in the Melamed Burnout scale, but the two groups did not differ in self-rated work ability (WAI). In a regression analysis, turnover intention was associated with younger age, a higher effort-reward imbalance at work, higher educational level, and those with stress-related mental disorders were more prone for turnover than individuals with musculoskeletal disorders. Sex, worries about economy, degree of sick leave, burnout, health-related quality of life and work ability were not associated with turnover intentions.

### Conclusion:

Interventions to promote return to work often aim to facilitate return to the same work which contributed to or caused sick leave. The findings suggest that, in particular, for men and women with stress-related mental disorders, many interventions gain from incorporating discussions of mobility into new jobs.



## IMPLEMENTATION CHALLENGES IN WORK DISABILITY PREVENTION

### EMPLOYER PERSPECTIVES ON RETURN TO WORK COMMUNICATION

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#### **Aims:**

Assumptions are made in insurer-funded programs of care for injured workers (IWs) about communication between employers and health care providers (HCPs) during the return to work (RTW) process without understanding communication practices in the field. This study aimed to explore employers' views on the nature of their communication with health care providers during RTW and its influence on the process.

#### **Methods:**

Owing to the exploratory aims of the study a qualitative method was employed. Informants from a range of industry sectors were sought for focus groups and individual interviews. Data were analysed using constant comparative methods.

#### **Results:**

Nine individuals with responsibility for RTW coordination participated in two focus groups and individual interviews. These individuals relied on information from HCPs to identify physical accommodation but also felt it played an important role in orienting the IW to the functional aspect of recovery and facilitating negotiation of work accommodation with IWs. Employers valued the "objectivity" of information; information solely based on patient report provided a questionable foundation for negotiating accommodation. Communication with HCPs was characterized primarily as information exchange. Forms were the primary channel used to convey information owing to time constraints and response burden on HCPs. With quality information, in most cases employers could work independently with the IW to progress RTW plans. Physiotherapists were the preferred source of information for RTW. Being accessible and providing objective detail on functional impairments that could be related to job demands and potential modified work, physiotherapy practice was felt to provide the best venue for obtaining such information. Information from physicians was viewed as vague or "overstepping" their bounds in defining specific jobs or work situations that were not suitable for the worker. For their part, employers provided information to HCPs regarding available work accommodation and supports in the workplace. Employers in health care and large institutional settings had the advantage of a dedicated RTW coordinator, while those in other industry sectors juggled RTW coordination with other job demands.

#### **Conclusion:**

Employer notions of objectivity form the basis for their evaluation of the quality of information from HCPs, regardless of its form. Practice settings that provide the perception that functional information is objectively determined give employers greater confidence in establishing accommodation. Overly prescriptive recommendations for accommodation by HCPs may be an impediment to negotiation of creative solutions for accommodation. HCPs should be educated on the qualities of information that enable and obstruct RTW.



## MANAGING LOW BACK PAIN IN THE WORK PLACE - PROBLEMS AND STRATEGIES: A FOCUS GROUP STUDY

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### Aims:

Self-management group interventions have been shown to improve function for patients with chronic pain and illness, but existing intervention programs include little, if any, attention to pain management in the workplace. Most working-age adults with chronic pain continue to work despite pain, and 20 to 30% of the workforce has a recurrent pain problem affecting their ability to work. Thus, managing pain effectively in the workplace may be an important strategy to prevent long-term disability. The aim of this study was to understand typical workplace problems and pain-related coping strategies of working adults with chronic low back pain (LBP). The results are to be used in the subsequent design of an experimental group intervention.

### Methods:

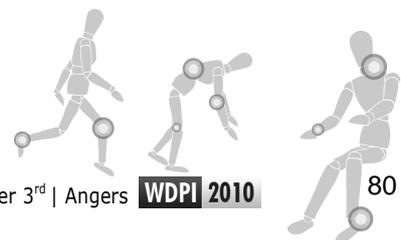
Workers with LBP (n = 38) participated in 5 focus groups, and audio recordings of sessions were analyzed to assemble lists of common problems and coping strategies. A separate analysis provided a general categorization of major themes.

### Results:

Workplace pain problems fell within 4 domains: activity interference; negative self-perceptions; interpersonal challenges; and inflexibility of work. Confining work, work places with a poor safety climate, and solitary work were considered disadvantages. Self-management strategies consisted of: modifying work activities and routines; reducing pain symptoms; using cognitive strategies; and communicating pain effectively. Taking small breaks and getting up and moving around were identified as important pain management strategies in the workplace. Communicating their specific needs to the employer was a helpful strategy for some workers to solve challenges in the physical work environment and employers were usually accommodating and initiated helpful changes. However, other workers strongly advised against this from fear of losing their jobs. Theme extraction identified 6 overarching themes: knowing your work setting; talking about pain; being prepared for a bad day; thoughts and emotions; keeping moving; and finding leeway. The workers wanted, and many had, enough leeway at work to organise job tasks in a way that enabled them to function as normally as possible. Overall, manual jobs provided the best opportunities for moving around and the most leeway to modify job tasks. Employers and co-workers in these settings were also more understanding and more helpful in overcoming pain-related problems.

### Conclusion:

To retain workers with LBP, this qualitative investigation suggests future intervention efforts should focus on worker communication and cognitions related to pain, pacing of work, and employer efforts to provide leeway for altered job routines.



## HOW DO WORKERS MAKE RETURN-TO-EMPLOYMENT CHOICES AFTER A WORK INJURY? THE CASE OF CONSTRAINED CHOICES IN ONTARIO, CANADA.

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### **Aims:**

Workers are not expected by workers' compensation authorities to be passive players in the RTW process. Studies show that worker motivation and expectations are key determinants of success. However, it has been recognized that workers are not always in a position to grasp the range of choices or to navigate workers' compensation systems, hence a growing focus on role of RTW coordinators. This presentation focuses on findings from a study of vocational retraining for workers who, following a work injury, are unable to return to their original employment. This program emphasises the involvement of workers in planning for their new career. In particular, we focus on worker choice-making with the assistance of specialised counselling

### **Methods:**

In-depth interviews and focus groups were conducted with 71 participants engaged in the labour market re-entry program in Ontario, Canada. These included workers in the program as well employers, insurers, contracted program coordinators and subcontracted providers of education services. A modified grounded theory analysis and discourse analysis led to the identification of key issues, including the theme about 'choice'.

### **Results:**

The results focus on problems relating to the issue of choice. Providers mentioned that workers often failed to 'buy in' to the program. Workers expressed concerns about being forced to pursue certain vocational goals. Although workers were invited to choose new vocations that might suit them, both providers and workers had difficulty with the practical execution of this choice. Providers were obliged to direct workers to a constrained range of choices based on cost and income recovery. Workers did not always feel sufficiently recovered to make choices, informed about the consequences of their choices, or that they were given the time and range to consider a choice.

### **Conclusion:**

Although the labour market re-entry program was designed to give workers choices about vocational retraining, it is premised on a model that does not fit the situation of the workers in the program. Workers are expected to be literate, healthy, well informed about choices and able to clearly articulate their needs and concerns to providers. The for-profit contracted providers are expected to be sensitive to workers' needs. However, providers are instead oriented to answer priorities of their payer - the insurer, while workers typically have low education, chronic pain, and medication use, all affecting their ability to learn and effectively manage their vocational possibilities.



## THE SOCIAL ORGANIZATION OF RETURN-TO-WORK AT THE WORKPLACE

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### Aims:

There is a limited body of research on how the actual social exchange among workplace actors influences the practice of return-to-work. The objective of this study was to explore how workplace actors experience social relations at the workplace and how organizational dynamics in workplace-based return-to-work extend before and beyond the initial return of the sick listed worker to the workplace.

### Methods:

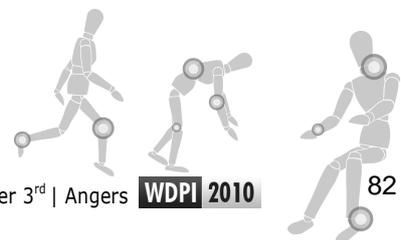
An exploratory qualitative method was used, consisting of individual open-ended interviews with thirty-three workplace actors (re-entering workers, supervisors, co-workers, and human resource managers) at seven worksites that had re-entering workers. In addition, the organizational policies regarding return-to-work were collected.

### Results:

The analysis identified 3 distinct phases in the return-to-work process: while the worker is off work, when the worker returns back to work, and once back at work during the phase of sustainability of work ability. The two prominent themes that emerged across these phases include the theme of invisibility in relation to return-to-work effort and uncertainty, particularly, about how and when to enact return-to-work.

### Conclusion:

The findings strengthen the notion that workplace-based return-to-work interventions need to take social relations amongst workplace actors into account. They also highlight the importance and relevance of the varied roles of different workplace actors during two relatively grey areas of return-to-work: the pre-return and the post-return sustainability phase. Attention to the invisibility of return-to-work efforts of some actors and uncertainty about how to enact return-to-work between workplace actors can promote successful and sustainable work ability for the re-entering worker.



## HOW DO WE DO IT HERE? LESSONS LEARNED FROM PLANNING AND IMPLEMENTING THREE WORK REHABILITATION PROGRAMS IN BRAZIL

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### Aims:

To compare the planning and implementation experience from three work rehabilitation programs in Brazil designed for workers presenting with musculoskeletal problems. The programs are state government-led public health initiatives, developed independently one from another. They use a biopsychosocial perspective and were built from the need to reduce and prevent work disability in specific workplaces.

### Methods:

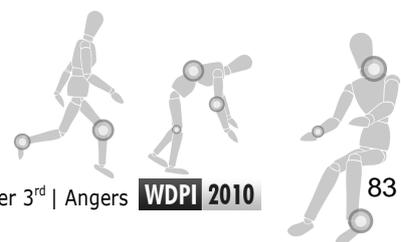
In order to present a logical and consistent comparison across the programs, a list of key evaluation criteria were applied based on the CDC Framework for Program Evaluation. In particular, two of the guiding principles of this framework were applied and a comparison grid was built upon them. Data was retrieved from published and unpublished documents associated with each program, as well as from informal meetings with the respective program developers and implementing agencies. These actors were consulted for validation of the accuracy of information content gathered, and for provision of additional information not found in the documents analyzed.

### Results:

The comparison between the programs reveals a number of common as well as differentiated challenges and opportunities for implementing these innovations in Brazil. A fundamental commonality between the programs is that they all invoked in their planning phase a conscious attempt to promote innovative return-to-work efforts within their respective geographic jurisdiction in a less fragmented fashion. More specifically, the work rehabilitation program in Bahia has put forward a multi-faceted strategy that not only emphasizes the importance of developing partnerships between workers, labor unions, scientists, employers, health care and compensation agents, but also articulates proactive inter-institutional actions (including workplace interventions) designed to generate potential effects as new public health actions.

### Conclusion:

A few innovative public health strategies have recently emerged in Brazil in the scope of work disability prevention and attention should be given to how they are being planned and the conditions in which they are implemented. When faced with the challenge of implementing something new and complex, such as these programs, the typical approach is to engage large numbers of community members and organizations in a vast coalition so as to achieve collective buy-in. Although this study is context-focused, the comparative analysis of these programs offers a unique opportunity to understand the complexity of implementation methods and activities on a broader level and may prove to be useful in the design of new programs elsewhere, or for identifying strengths, weaknesses, and areas for improvement in existing programs.



## RELEVANCE AND IMPACT OF THE ACOEM GUIDANCE STATEMENT ON PREVENTING NEEDLESS WORK DISABILITY FOR STAKEHOLDERS IN A CANADIAN JURISDICTION

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### Aims:

We examined stakeholder perspectives about best practices in work disability prevention in BC, Canada to (1) describe the perceived relevance of the ACOEM recommendations to Prevent Needless Disability, (2) describe the impact of the BC Summit to Prevent Needless Work Disability on local disability prevention beliefs and practices, and (3) determine which recommendations participating stakeholders would support and act on.

### Methods:

Stakeholders answers provided to pre- and post-summit surveys, their written personal commitments-to-change provided at the summit and researchers' participant observation during the summit were analyzed using a mixed-methods (quantitative, qualitative) approach.

### Results:

81 of 116 summit participants consented to the study. All 16 ACOEM guidance statements were considered relevant. The three statements rated as highest priority were: addressing psychiatric conditions among employees; increasing the availability of on-the-job recovery programs; and educating physicians on "why" and "how" to play a role in preventing disability. 67 participants documented personal commitments during the BC Summit. These detailed specific internal and external opportunities as well as immediate actions they intended to take to improve work disability prevention practices in their organization/workplace. Common themes discussed throughout the day included raising the profile of work disability as a serious concern for society as well as clarifying the challenges that employers, managers, and unions have to contend with. Effective leadership, collaboration, communication, and understanding were cited as key variables for improving the outcomes for injured and ill workers.

### Conclusion:

Besides the endorsement of specific guidance statements, our findings suggest an increased commitment of participants to understand and address the social and workplace realities facing workers who are trying to return to work. Participants were also more personally committed to improving information exchange methods between employers, payers, insurers, and medical offices and increasing the study and knowledge about SAW/RTW in general.



## CANCER AND WORK DISABILITY

### A COMPARATIVE STUDY OF CANCER PATIENTS WITH SHORT AND LONG SICK-LEAVE AFTER PRIMARY TREATMENT.

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#### **Aims:**

Sick-leave after primary cancer treatment has hardly been studied. This study investigates and compares Norwegian cancer patients with shorter ( $\leq 8$  months) and longer ( $> 8$  months) sick-leave after primary cancer treatment.

#### **Methods:**

A mailed questionnaire was completed by a sample of Norwegian cancer patients (CPs) 15 to 39 months after primary treatment. The groups with shorter (N=359) and longer (N=481) sick-leaves (STG vs. LTG) were compared as to socio-demographic and cancer-related variables, current self-rated health, overall quality of life, self-rated work ability, change in their work situation, and social support at work.

#### **Results:**

The LTG consisted of 78% females, and 76% of them had breast or gynaecological cancer. A higher proportion of patients with lower levels of education and more economical problems belonged to LTG compared to STG, and so did patients treated with chemotherapy, hormones and multimodal treatment. LTG also had significantly more recurrences, co-morbidity, regular use of medication, and poorer health and quality of life, poorer work ability, and they had more offers and reported more needs of physiotherapy, physical activities and psychosocial support. A multivariate regression analysis showed that work ability, changes in employment due to cancer, supervisors lack of support at work, and combined treatment were significantly associated with belonging to LTG.

#### **Conclusion:**

The study provides new information on factors associated with short and long sick-leave during two to three years after diagnosis and treatment. Long sick-leave is associated with many difficulties related to work and poorer health. Repeated evaluation of work ability could identify survivors at risk for long-term sick-leave as a basis for counselling and interventions.



## INTERVENTIONS TO ENHANCE RETURN-TO-WORK FOR CANCER PATIENTS: A COCHRANE REVIEW

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### Aims:

The number of cancer survivors of working age is rapidly growing. However, return-to-work presents a problem in many cancer survivors. The aim of this review is to assess the effectiveness of interventions aimed at enhancing return-to-work in cancer patients

### Methods:

A literature search was conducted using eight electronic databases including PubMed, with no restriction on publication year or language. Inclusion criteria were: 1) randomised controlled trial (RCT), quasi RCT, cluster RCT, or controlled before-after study, 2) adults  $\geq 18$  years diagnosed with cancer, working at the time of diagnosis, 3) time to return-to-work or work retention rates measured. All abstracts were examined by two independent assessors. Reference lists of all included articles and reviews were checked to identify additional eligible studies. Two assessors independently extracted data.

### Results:

A total of 3,433 abstracts were retrieved from the electronic databases. Ten original articles were identified that reported results on eleven different cancer diagnosis groups. There were five studies on breast cancer, two on prostate cancer and one each on melanoma, thyroid, laryngeal and gynecological cancer. All interventions were performed in a hospital setting. Six studies were designed as RCTs, four as controlled before-after studies and one as a cluster RCT. The follow-up times were 6 months (three studies), 12 months (six studies) and 24 months (two studies). Of the four studies on medical interventions, i.e. hormone treatment, endocrine therapy, mastectomy, or surgery versus chemotherapy, only the study on hormone treatment in thyroid patients reduced the length of sick leave. One intervention was a mix of psychological, physical and vocational rehabilitation provided by a specialist nurse which enhanced the return-to-work rate in breast cancer patients. Four interventions were based on psychological and educational counseling of which one was effective in improving the employment rate in men with prostate cancer. Three studies focused on physical rehabilitation and one intervention was a mix of psychological and physical rehabilitation, none of which were effective.

### Conclusion:

Few interventions are effective in enhancing return-to-work and work retention in cancer patients. A mixed approach of vocational, psychological and physical rehabilitation aiming at return-to-work might be effective in enhancing occupational health outcomes in cancer patients. Interventions based on correlates and/or risk factors of return-to-work in cancer survivors need to be developed and tested using RCTs with appropriate follow-up intervals.



## WORK ABILITY OF SURVIVORS OF BREAST, PROSTATE AND TESTICULAR CANCER IN NORDIC COUNTRIES

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### **Aims:**

The aim of the study was to compare the work ability of cancer survivors to persons without cancer and to investigate the association of disease-related and socio-demographic factors and job-related resources (social climate, support, avoidance behaviour and commitment to the work organization) with work ability.

### **Methods:**

Working-aged patients with breast, testicular or prostate cancer diagnosed between 1997 and 2002 were identified from a hospital or cancer registry in Denmark, Finland, Iceland and Norway. All patients had been treated with curative intent. A cancer-free reference group with the same age and gender distribution as the survivors was selected from population registries. Information on work ability (range 0-10), demographic factors and job-related resources was collected via a questionnaire. The sample included 1490 employed survivors and 2796 subjects without cancer. We assessed the effects of various variables on work ability using covariance analysis.

### **Results:**

The adjusted mean value of work ability was slightly lower among the breast cancer survivors compared to other working women (7.19 versus 7.89) and among the prostate and testicular cancer survivors compared to other working men (7.11 and 7.44 versus 7.94). In all, 30% of breast cancer, 27% of prostate cancer and 12% of testicular cancer survivors reported that their physical work ability had decreased due to cancer. Suffering from a chronic disease was strongly associated with reduced work ability both in the survivor and reference group. Among the men, high age, low education, and unmarried status were related to low work ability, whereas among the women, the associated factor was low occupational status. Chemotherapy reduced the work ability of the breast cancer survivors. Low support from supervisors or colleagues and low organizational commitment were associated with low work ability in both the survivor and reference groups. However, avoidance behaviour from supervisors or colleagues only reduced the level of work ability among cancer survivors.

### **Conclusion:**

On average, the work ability of the cancer survivors who returned to work life was only slightly lower than that of the cancer-free population, although a subgroup of the survivors suffered from reduced work ability attributable to cancer. Attention should be paid to survivors who have chronic diseases or have undergone chemotherapy. The results also suggest that supervisors' and colleagues' support plays an equally important role in the survivor and reference group, whereas avoidance of isolating behaviour at the workplace is particularly important for survivors' work ability.



## FATIGUE AND ITS CORRELATES IN CANCER PATIENTS WHO HAD RETURNED TO WORK – A COHORT STUDY

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### **Aims:**

The majority of cancer patients suffer from a range of symptoms during their treatment of which fatigue is the most commonly reported, unmanaged symptom. Impact of cancer-related fatigue on work is widely unknown. The aim of this study was, therefore, to investigate how different symptoms (cognitive dysfunction, depression, pain, and sleep disturbance) are associated with fatigue and also which of the disease-related factors (treatment and diagnosis), and work-related factors (workload, work pressure, relationship to supervisor and colleagues, size of the company and workplace accommodations) are related to higher levels of fatigue in cancer survivors who had returned to work 6 months and 18 months after diagnosis.

### **Methods:**

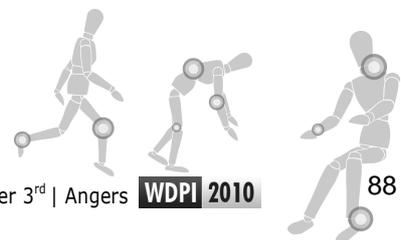
Data was collected by questionnaire at 6 months (baseline) and 18 months (end of the follow-up) after cancer diagnosis from 135 people with different types of cancer who had returned to work. Fatigue was measured with a four-item sub-scale of MFI. Scores ranged from 4 to 20, with higher scores indicating more fatigue.

### **Results:**

The mean rate of general fatigue was 11.9 at baseline decreasing to 10.4 at the end of the follow-up ( $p < 0.0001$ ). At 6 months, higher work pressure ( $p = 0.02$ ), physical workload ( $p < 0.05$ ) and less workplace accommodations ( $p = 0.03$ ) were related to higher levels of fatigue. From disease-related factors, depression was associated with fatigue ( $p < 0.0001$ ) at baseline. Lack of workplace accommodations was the only factor affecting higher levels of fatigue at 18 months ( $p < 0.001$ ) and was also related to higher levels of depression at 6 months ( $p = 0.02$ ) and at 18 months ( $p < 0.001$ ).

### **Conclusion:**

Workplace accommodations, such as reducing number of working hours and shifting to physically less demanding tasks when returning to work, was significantly related to fatigue at the end of the follow-up, which suggests that accommodations for illness can help to reduce fatigue and other cancer-related symptoms.



## EXPLORING INTERVENTIONS FOR CHEMOTHERAPY-RELATED COGNITIVE IMPAIRMENT AND ABILITY TO WORK: FROM THE PATIENT AND ONCOLOGY HEALTH PROFESSIONAL PERSPECTIVE

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### Aims:

Evidence suggests that breast cancer patients undergoing chemotherapy experience cognitive problems. Although these tend to be subtle deficits in attention, working memory and executive function, they can have a negative impact upon a patient's work ability and may hinder return to work. Interventions have been developed, such as information, training to improve cognitive function, and compensatory strategies. However, mixed findings have been reported and the effects of the interventions on the impact on cognitive functioning at work have not been adequately evaluated. This pilot study examined the need for cognitive interventions from the perspective of patients and oncology health professionals. This study explored what healthcare information and support is available to help women understand the effects of chemotherapy on cognitive functioning and the effects it may have on work ability. It also explored the type of information and support they would find useful as interventions.

### Methods:

This was a mixed-method study consisting of three phases: 1) semi-structured interviews with breast cancer patients (n = 33) attending an NHS breast cancer clinic; 2) semi-structured interviews with oncology health professionals (n = 5), and 3) questionnaires sent to phase 1 participants (n = 15) to rate the feasibility of interventions.

### Results:

Interview data from phases 1 and 2 were analysed using quantitative and qualitative content analysis. Nearly all women (n = 28) reported cognitive problems following chemotherapy. Problems with remembering tasks at work were the most common. A third of patients felt that advice on working during treatment was not clear. All oncology health professionals were aware of cognitive impairments occurring in breast cancer patients and they discussed the need for more information and support for patients on managing cognitive problems, particularly at work. Descriptive statistics were used to summarise findings from the intervention phase. Six interventions and delivery modes were identified and validated. The most preferred interventions were: assessment of cognitive function during and after treatment, leaflets and web-based information on cognitive strategies, and advice for families and employers.

### Conclusion:

Despite the awareness from patients and health care professions of chemotherapy-related cognitive impairment and its impact on work ability, there is little information and advice available. The suggested content for interventions and the preferred mechanism for them were surprisingly simple and in practice are likely to require limited resources to develop. It is hoped that these findings provide a platform for need-driven intervention studies in the future.



## EVIDENCE-BASED POLICY AND INITIATIVE FOR CANCER SURVIVORS AT WORK: THE CASE OF SINGAPORE

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### **Aims:**

Both governmental and non-governmental organizations are currently working individually and mostly as stand-alone entities on improving the employability of people with disabilities (PWDs). Stakeholders should be jointly involved as a form of “policy community” in the conceptualization and conduct of research that can truly inform policy. This paper describes a nation-wide effort to develop an evidence-based approach to policy reform related to cancer and work. In view of setting up a new national office on disability to centralize the resources and communication effort by the Singapore government, it is timely to examine whether cancer patients and survivors should be reconsidered as PWDs. The evidence-based health policy model will serve as a framework to guide the information gathering, team building, and reform effort. Specifically, internal vs. external decision-making context, policy objectives (effectiveness, appropriateness, and implementation), evidence utilization, and decision support tools will be investigated.

### **Methods:**

Two groups of stakeholder interviews will be completed: 1) national office board members (secretariats of ministries, government agencies, and NGO representatives) and 2) employment agencies, cancer survivors, employers, cancer advocates, health practitioners, and journalists. Individual interviews will be conducted to avoid bias related to the use of politically-correct responses. Document analysis from primary sources (e.g., final reports, meeting minutes, and agendas) and secondary sources (e.g. online discussion, letters to the editor, feature stories and other correspondences) will also be analyzed.

### **Results:**

Detailed results of the stakeholder interviews and associated information on the concerns and responses to cancer survivors in Singapore will be presented.

### **Conclusion:**

This presentation will provide an ongoing effort to generate the type of reform that can increase access of cancer survivors to the workplace in Singapore.



## MENTAL HEALTH ASPECTS OF WORK DISABILITY PREVENTION

### BRIEF INTERVENTION WITH AN EDUCATIONAL APPROACH FOR MILD MENTAL DISORDERS; A PILOT STUDY

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#### **Aims:**

In Norway common mental disorders are responsible for more than 20% of all sick-listing. A brief intervention based on an educational approach has proven to be successful for low back pain. Aim of this study was to find out if a similar approach could be beneficial for individuals with mild mental disorders.

#### **Methods:**

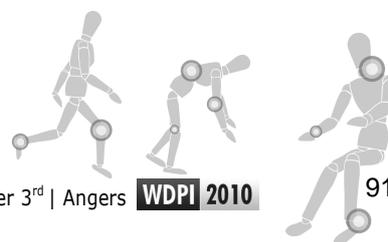
Subjects on sick listing, or on risk to be, with mild mental disorders (mainly depression or anxiety) who were referred to an outpatient psychiatric clinic co-localized with a similar clinic for musculoskeletal complaints were included in the pilot study. They were informed about the intervention, filled out a questionnaire before, at discharge and postal questionnaire 3 months later. They went through a two day educational course prior to individual sessions with a psychologist. The teaching focused on mild mental disorders and musculoskeletal pain as part of everyday complaints. The teaching was designed to give insight and understanding, remove uncertainty and misconceptions, and create confidence in one's own coping ability.

#### **Results:**

119 patients were included. In addition to the educational course, they participated in a mean of 3.4 individual sessions. Around 60% had mild mental complaints and 40% had comorbid musculoskeletal complaints. Depression alone counted for 45% of the cases. Problems at work and/or at home were reported as the main causes. At inclusion 89% stated that an important aim was better coping of the complaints, especially at work (79%) or at home (57%). 84% wanted to gain a more robust mental health and 73% a better understanding of the disorder. At inclusion 78% scored moderate or serious on the Beck depression index (BDI-2) and 36% scored moderate or serious on the Beck anxiety index (BAI). At discharge, 42 patients had filled in the questionnaires and showed a significant reduction ( $p=0.01$ ) in both depression and anxiety measures. At follow-up, (partial) work participation increased from 56%-81%, 66% were (very) satisfied with the treatment.

#### **Conclusion:**

Patients with mild mental complaints may be successfully treated with a brief intervention based on a model used for low back pain. Musculoskeletal and mild mental complaints are common in everyday life, the exact causes are not known and there is a lack of effective treatments. Focus of coping strategies by insight and understanding through an educational approach have proven beneficial for low back pain and seems to be promising for mild mental disorders as well.



## **PREDICTORS OF WORK OUTCOMES IN PEOPLE WITH SEVERE MENTAL DISORDERS: THE EVALUATION OF A CONCEPTUAL MODEL BASED ON THE THEORY OF PLANNED BEHAVIOUR**

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### **Aims:**

Vocational outcomes of people with severe mental illness registered in supported employment programs can vary greatly from one individual to the next. Investigators have consequently tried to identify the individual characteristics that could best predict obtaining employment in such programs. To date, there is a paucity of information regarding how psychosocial factors such as self-esteem or self-efficacy influence the work integration process of people with severe mental disorders, or how these factors interplay along with perceptions of barriers to employment for instance, to explain obtaining competitive employment. The purpose of the study is to develop from the literature, and to test empirically, a model of work integration of people with severe mental disorders participating in supported employment programs.

### **Methods:**

Based on the Theory of Planned Behaviour (TPB), data were collected from 281 people with severe mental disorders registered in supported employment programs located in Canada. The longitudinal study consisted of two phases. At the time of the participants' entry into the program, the data gathered from participants included several dimensions (i.e. background, psychosocial, work-related, and clinical variables). At the nine-month follow-up telephone interview, all participants were contacted in order to describe their vocational path. Path analyses with LISREL 8.7 were used to test the hypotheses regarding the conceptual model adapted to the work integration of people with severe mental disorders

### **Results:**

Based on the TPB, the model integrating significant variables (e.g., self-esteem, perceived barriers to employment, motivation to obtain employment ) to predict the work integration showed a reasonable fit, and all indices were acceptable after including additional paths ( $\chi^2 = (60, N = 281) = 75.52, p = .08; \chi^2/df = 1.26; RMSEA = .03; NNFI = .99; CFI = .99; IFI = .99$ ).

### **Conclusion:**

The development of such a model is needed in order to better understand the combination of individual factors explaining the work integration of this population (e.g., negative self-esteem significantly predicts perceived barriers to employment, which predict motivation to obtain employment) and consequently to offer appropriate vocational or clinical interventions, as well as to develop new research avenues in the vocational rehabilitation field.



## EVALUATING OUTPATIENT VOCATIONAL REHABILITATION INTERVENTIONS IN PATIENTS WITH PROLONGED FATIGUE COMPLAINTS ON FATIGUE SYMPTOMS, WORKABILITY AND RETURN-TO-WORK.

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### Aims:

Fatigue complaints can range from mild complaints of tiredness to severe disabling fatigue that is not task-specific or easily reversible. Prolonged fatigue can cause physical, mental and occupational disability and often persists by biopsychosocial factors. Vocational rehabilitation interventions (VRI) exist to increase workability and facilitate work participation. Three existing multi-modal VRIs were evaluated.

### Methods:

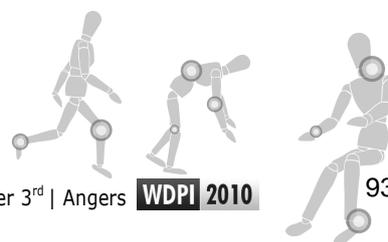
A pre-post design was carried out with repeated measurements before treatment (t0), after treatment (t1), three (t2) and six months follow-up (t3). Degree of fatigue (using the CIS) and work participation in terms of workability (i.e., current workability compared with lifetime best) using the WAI and return-to-work (i.e., percentage return to original working hours at t0) were assessed over time with linear mixed models analysis and post-hoc analysis between measurements.

### Results:

A hundred patients participated in three VRIs. Mean duration of fatigue complaints was 4.1 years and functional impairments existed for 3.3 years on average. At baseline, 90% of the patients suffered from chronic fatigue (indicated by CIS scores above 76). After completing the VRI, fatigue complaints decreased significantly. After treatment (t1), 41% of the patients were identified with chronic fatigue, at t3 this decreased to 31%. Perceived workability increased significantly over time and return-to-work increased significantly from 40% at baseline to 84% at t3.

### Conclusion:

Multi-modal outpatient VRIs, using a biopsychosocial approach, showed significant and clinically relevant effects in symptoms and work participation in disabled workers with prolonged fatigue complaints. On the short and longer term, fatigue symptoms decreased and workability and return-to-work improved compared to baseline. After six months post treatment, on average, no relapses in the assessed outcomes were identified. These results are of importance for the occupational health field in treating fatigued workers.



## **SUPERVISORS' PERCEPTION OF THE FACTORS INFLUENCING THE RETURN TO WORK OF WORKERS WITH MENTAL HEALTH DISORDERS**

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### **Aims:**

Over the last decade, mental disorders have become a major area of concern in the field of work disability prevention due to the rising claims, costs, and impact on quality of life. It has been shown that supervisory behavior influences the return to work outcome. This study aimed to investigate the perception of supervisors involved in the management of work disability on the factors facilitating or hindering the return to work of workers with mental disorders.

### **Methods:**

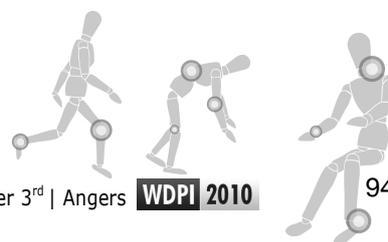
The study consisted of secondary analyses on data gathered for a larger study on the development of an assessment tool on work disability factors for patients with common mental disorders. Parts of this study, semi-structured interviews with supervisors or managers from human resources were conducted. All subjects had experience with the return to work of at least one worker absent from work due to common mental disorders (i.e., anxiety, depressive, and adjustment disorders). Content analysis of the transcripts was performed.

### **Results:**

A total of eight supervisors and managers participated in this project. They were from large and medium-sized companies. Twenty-nine factors classified in three general categories were found: 1) personal factors (e.g., workers' motivation to return to work, age, and stigma towards mental disorders), 2) work-related factors (e.g., professional dissatisfaction, lack of training of supervisors on mental disorders, and work performance demands), and 3) medico-administrative management factors (e.g., lack of communication between parties, no contact between the worker and employer during work absence, and small insurance coverage for medical expenses).

### **Conclusion:**

This study on the perception of supervisors and managers on the return to work process identified 29 factors that could hinder or facilitate this process. Of these, several can be found in the scientific literature such as the importance of communication and the insurance coverage, the lack of supervisors' training on mental disorders, and the severity of symptoms. On the other hand, other factors have been identified and should be further explored. In particular, these factors are linked with concerns related with the stabilization of a worker's condition, the readiness of workers and work teams for return to work, the planning of the return to work process, the work performance demands, and the impact of replacement workers on the return to work process.



## FOUR STUDIES INTO THE RELATIONSHIPS BETWEEN PSYCHOLOGICAL FACTORS AND FUNCTIONAL CAPACITY IN PATIENTS WITH CHRONIC LOW BACK PAIN: CONSISTENT AND REMARKABLE OUTCOMES

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### Aims:

Aspects of work-related disability can be assessed via self-report and performance-based methods. A performance-based method is called Functional Capacity Evaluation (FCE). According to the biopsychosocial model, patient's disability is influenced by biological, psychological and social factors. Psychosocial factors are suggested to have a large impact on work-related disability in patients with chronic pain. Four studies were performed to assess relationships between psychological factors and FCE in patients with chronic low back pain (CLBP).

### Methods:

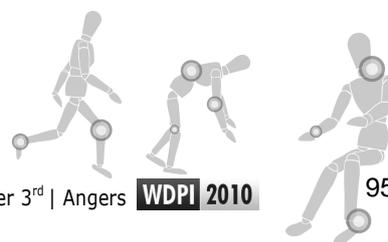
All studies were cross-sectional and included 4 different samples of patients with CLBP admitted to multidisciplinary rehabilitation. Pain intensity was assessed with an 11-point Numeric Rating Scale (NRS). In study 1 (n=64) the relationship between kinesiophobia (Tampa Scale for Kinesiophobia; TSK) and lifting capacity. In study 2 (n=79 and n=58) relationships between TSK and fear-avoidance beliefs questionnaire (FABQ) and 3 FCE tests were assessed. In study 3 (n=92) psychological factors were assessed by a broader set of questionnaires: SCL-90-R, Beck Depression Inventory, General Self Efficacy Scale-Short Form, Rosenberg Self Esteem Scale, TSK, Pain Cognition List, and Utrecht's Coping List. Disability was assessed via a Functional Capacity Evaluation (FCE). In study 4 (n=92) the relationship between self-efficacy, both general and specific, and lifting and carrying capacity was assessed. Pearson or Spearman correlation coefficients were used to express the relationship between psychological factors and disability. Interpretation of correlation coefficients:  $r \leq 0.24$ : no or negligible;  $0.25 \leq r \leq 0.49$ : weak relationship,  $0.50 \leq r \leq 0.74$ : moderate relationship. Significant when  $\alpha = 0.05$ . In all studies, multivariate analyses were performed where appropriate.

### Results:

Study 1: correlations were non-significant (NS). Study 2: TSK and FABQ correlated NS or weak to FCE. Study 3: 20 relations were NS, 1 was weak. Study 4: moderate relation between specific SE and lifting, all other correlations NS.

### Conclusion:

The strength of the relationships between psychological factors and disability in patients with CLBP was moderate in one instance, but weak or NS in most instances. The suggested strong relationships were not confirmed. Possible explanations and suggestions for further research will be discussed.



## **PREVENTION OF RECURRENT SICKNESS ABSENCE AMONG EMPLOYEES WITH COMMON MENTAL DISORDERS: A CLUSTER-RANDOMISED CONTROLLED TRIAL WITH COST-BENEFIT AND EFFECTIVENESS EVALUATION**

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### **Aims:**

Common mental disorders (CMDs) have emerged as a major public and occupational health problem in many countries. Different interventions have been developed to improve return-to-work of employees with CMDs, but still a large proportion of employees relapse because of health and work functioning problems after their return-to-work. For this reason, we aim to examine the effectiveness of an intervention in preventing recurrent sickness absence in employees who have returned to work after a period of sickness absence because of CMDs.

### **Methods:**

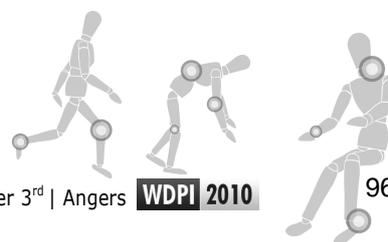
The study is designed as a cluster-randomised controlled trial with randomisation at the level of the occupational physician (OP). OPs are randomised in the intervention group or control group. Employees of these OPs who return to work after a period of sickness absence because of a CMD are included in the study. The intervention focuses on the active guidance of employees by OPs. The aim of the intervention is to improve problem-solving at work during the first weeks of return-to-work and it builds upon the Dutch guideline for OPs. Employees in the control group will receive care as usual from their OP. Outcomes will be assessed at baseline and at 3, 6, and 12 months follow-up. The primary outcome is recurrent sickness absence days registered by the Occupational Health Service. Secondary outcome measures are mental health, work functioning, and coping. Process measures such as adherence to the protocol, communication between the employee, supervisor, and OP, and satisfaction with the intervention are assessed. Cost-benefit is calculated from a societal perspective. Finally, prognostic factors for recurrent sickness absence are investigated.

### **Results:**

First results of the process evaluation of the training for OPs in the intervention will be presented. The results of the cost-benefit and effectiveness analyses are expected in 2011.

### **Conclusion:**

This study goes beyond return-to-work by focussing on the prevention of recurrent sickness absence. The study incorporates not only outcomes on sickness absence and mental health but also on health-related work functioning. The results of this study can contribute to a further development of practice guidelines and the promotion of sustainable work participation.



# POSTER SESSIONS

## CANCER – VARIOUS TOPICS

### TRENDS IN RETURN TO WORK OF EMPLOYED CANCER PATIENTS

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#### **Aims:**

Improvements in diagnosis and treatment have increased cancer survival. Employment rates of cancer patients have increased from 62% (range 30–93%) in studies between 1986 and 1999 to 71% (range 41–84%) between 2000 and 2006. The aim of this study was to investigate trends in the proportion of cancer patients who return to work and the time to onset of their return to work.

#### **Methods:**

Employed patients diagnosed with breast cancer, genital cancer, gastro-intestinal cancer, lung cancer, skin cancer or blood malignancies were selected from an occupational health register. Sickness absence was followed for one year after diagnosis in 2002 (n=1955), 2005 (n=2668), and 2008 (n=2770) using survival analyses with return to work  $\geq 50\%$  of the earnings before sickness absence (RTW $\geq 50$ ) as event. The period of one year was chosen because Dutch regulations with regard to the first year of sickness absence have not changed since 2002. The proportions of patients with RTW $\geq 50$  one year after cancer diagnosed in 2005 and 2008 were compared to the proportion of RTW $\geq 50$  of patients diagnosed with cancer in 2002 using Chi-square analysis; the linear trend was investigated by Chi-square trend analysis. The time to RTW $\geq 50$  in 2005-2006 and 2008-2009 was assessed relative to 2002-2003 using Cox regression analysis.

#### **Results:**

The proportion of patients with RTW $\geq 50$  one year after diagnosis was 63% in 2002-2003, 62% in 2005-2006 and 56% in 2008-2009. The proportion of patients with RTW $\geq 50$  one year after diagnosis was lower in 2008-2009 relative to 2002-2003 for all cancer sites. We found a linear decreasing proportion of RTW $\geq 50$  after breast cancer, genital cancer, and gastro-intestinal cancer. The time to RTW $\geq 50$  was longer in 2008-2009 compared to 2002-2003 in women aged  $< 40$  years (HR=0.76; 95% CI=0.62–0.94), especially those who survived breast cancer (HR=0.68; 95% CI=0.49–0.95).

#### **Conclusion:**

In contrast to the increased cancer survival, a lower proportion of cancer patients returned to work in 2008-2009 compared to 2002-2003. This finding may be explained by the increase of the incidence of cancer among men and women aged  $\geq 50$  years. The time to return to work was longer in 2008-2009 than in 2002-2003 among young women who survived breast cancer. These trends in return to work and time to return to work warrant further research and monitoring of return to work among employed cancer patients.



## RETURN-TO-WORK GUIDANCE AND SUPPORT FOR COLORECTAL CANCER PATIENTS: A FEASIBILITY STUDY

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### **Aims:**

Evidence suggests that some cancer patients and survivors experience impairments in their ability to work. However, there is a lack of intervention studies that have sought to enhance re-employment and return-to-work outcomes of those affected by cancer. The purpose of this study was to test the feasibility of an intervention designed to offer brief tailored information to colorectal cancer patients undergoing treatment on managing symptoms at work, communication with employer, and work ability during and after treatment.

### **Methods:**

Thirteen patients diagnosed with colorectal cancer were recruited from an NHS Trust (UK). Participants were provided with a return-to-work consultation and an educational leaflet that aimed to enhance understanding regarding the impact of colorectal cancer treatment upon work ability. Participants completed two questionnaires (pre- and post-intervention) that assessed the feasibility of the consultation, current sickness leave status, return-to-work intentions and perception of work ability (self-assessment on fitness to work). Participants also completed an evaluation form that assessed the feasibility of the intervention design, the materials and procedure.

### **Results:**

The majority of participants found key aspects of the intervention very useful. The impact of treatment upon work ability was considered most valuable. Encouragingly, some participants reported that they used the information to assess their work ability. Levels of work ability and well-being were not affected by the intervention. However, results from the evaluation showed that the usefulness of the intervention could have been enhanced by providing it to participants prior to the commencement of treatment.

### **Conclusion:**

This feasibility study demonstrated that the content of this intervention could aid return-to-work. The research team will develop the intervention and test its effectiveness by employing a larger randomised control design.



## THE ROLE OF HEALTH PROFESSIONALS IN THE PROVISION OF WORK-RELATED GUIDANCE FOR COLORECTAL CANCER PATIENTS

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### **Aims:**

It is not known to what extent patients with colorectal cancer receive guidance and appropriate advice from health professionals on the effect of cancer treatment on job retention, work ability and return to work. This study aimed to explore the nature and extent to which health professionals provide work-related guidance to colorectal cancer patients, and to identify factors that may influence the type of information given.

### **Methods:**

Eighteen health professionals from oncology, occupational health and general practice were interviewed. Interviews were transcribed and analysed using thematic analysis.

### **Results:**

The analysis generated four higher-order themes: the nature of current practice; factors impacting the provision of work-related guidance; barriers to providing work-related support, and the need for a multi-faceted approach. The results revealed that the majority of health professionals provided some sort of guidance to working-aged patients diagnosed with colorectal cancer. All participants took into account treatment type and symptoms when providing work-related advice. The order of importance in taking into account factors such as a patient's diagnosis and prognosis, and type of employment varied according to the health professionals' field. However, health professionals lacked sufficient evidence-based knowledge on how cancer impacts work and work ability. This prevented them from providing more tailored guidance and advice. Consequently, the majority of participants discussed that this was an aspect of patient care that falls short. To address the issue, most participants felt that a concerted multi-disciplinary effort was required. Encouragingly, most participants described that a two-stage process consisting of generic guidance that is subsequently tailored to meet each patient's needs would be most appropriate. However, most health professionals were unsure if it was their role to provide work-related guidance and advice.

### **Conclusion:**

This study provides a rich understanding on the role of health professionals in providing work-related guidance for those affected by colorectal cancer. To successfully deliver work-related support to patients, future research is required to identify the needs of health professionals and to determine who is best suited to providing work-related advice to patients.



## CHARACTERISTICS OF WORKERS WHO KEEP THEIR WORK ACTIVITIES DURING RADIOTHERAPY

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### Aims:

Chronic diseases, like musculoskeletal disorders, represent a serious public health problem because they are some of the most important causes of disabilities and absenteeism. Because of the possibility of early detection and effective treatments, there are currently more people living with various types of chronic diseases such as cancer, arthritis, heart disease or neurological impairment. These also cause functional and psychosocial limitations. Research involving work limitations related to treatment and cancer survival is new. In this context, this study mainly aims to describe social, demographic and clinical characteristics of workers with cancer who keep their work activities, identify which of them maintain their work activities even during treatment, and the diseases that are responsible for the majority of absenteeism and loss of medical licenses.

### Methods:

This study follows methodological steps recommended by scientific papers to retrospective and documentary research.

### Results:

Data collected has been realized from 2009 September to 2010 March in an outpatient private radiotherapy facility located in the state of Sao Paulo, Brazil, and will be analyzed in descriptive statistics method.

### Conclusion:

Professionals in occupational health need more information and skills to investigate needed changes in the workplace, in order to develop actions to facilitate return to work.



## RETURN-TO-WORK AFTER CANCER

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### **Aims:**

Development of an intervention program to promote return-to-work of cancer patients. The number of patients sicklisted with malignant disorders remains high in the developed world and many of these patients lose their jobs because of the disorder. Return to work appears to be problematic. Unemployment among cancer survivors is high. Complaints like severe fatigue and psychological handling of the course of the disease interfere with return to work. However, there are scarce effective interventions available that facilitate the return-to-work process of cancer patients. In this study the feasibility of a high potential intervention with respect to return to work for cancer patients was investigated.

### **Methods:**

The intervention was based on an existing intervention for cancer patients ('Recovery and Balance'). The first part of the intervention was performed in a rehabilitation centre during a 12 week program. In this part of the intervention, reactivation and cognitive/behavioural counselling on the theme of work stand central, as well as training of labour skills. After this 12 week program, a labour expert intensively accompanies the patients towards return-to-work by searching employers willing to give work to the patients. Subjective experienced work ability was measured through the first three items of the Work Ability Index (WAI), and fatigue was measured through the CIS at four times during the intervention, at the beginning, after six weeks, after the intervention, and three months after the intervention.

### **Results:**

The first group consisted of five patients. Two of the patients completed the whole intervention, and both are working now. The second group (six patients) is in the second phase. The third group (nine patients) recently finished the first intervention period. There is a small but positive result of both the WAI and CIS scores.

### **Conclusion:**

The first results of the intervention are positive, based on the results of the WAI and CIS. Positive is also the fact that the first two participants are working and the prospect of more patients returning to work. Interviews with the patients about the intervention will be carried out in the coming months, but the feedback of the patients at the end of the rehabilitation period is positive. The results of this pilot study are positive enough to promote this intervention on greater scale and in more centres.



## HOW TO IMPROVE RETURN-TO-WORK IN CANCER SURVIVORS

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### **Aims:**

Cancer survivors have a higher risk of becoming unemployed in comparison to healthy controls, which has a negative social and economic impact on cancer survivors and on the society at large. Therefore, return-to-work of cancer survivors needs to be improved. There is, however, a lack of effective interventions especially targeted for cancer survivors to enhance their return-to-work. This study describes the development and content of a return-to-work intervention for cancer survivors. Furthermore, the study design to determine the (cost)effectiveness on return-to-work and quality of life and the feasibility of the intervention will be described.

### **Methods:**

The return-to-work intervention has been developed based on: 1) the shared care model of cancer survivor health care, 2) a systematic literature review concerning return-to-work interventions for cancer survivors, 3) focus group and interview data of stakeholders, and 4) the vocational rehabilitation literature. For the description of the design of our evaluation study, we used the items of the CONSORT statement for improving the quality of reporting randomised trials

### **Results:**

The developed return-to-work intervention involves: 1) four meetings between the nurse or social worker and the patient at the hospital to start early vocational rehabilitation, 2) one meeting with the cancer survivor, the patient's occupational physician, and the patient's manager to make a return-to-work plan, and 3) the sending of letters from the treating physician to the occupational physician to enhance the communication. The study is designed as a randomised controlled trial. All patients are recruited before the medical treatment. Patients are eligible to participate if they are treated with curative intent, are employed at time of diagnosis, are sick listed, and are between 18 and 60 years old. Patients are randomised and receive either care as usual or the return-to-work intervention. Primary outcome parameters are return-to-work and quality of life. In addition, (cost)effectiveness and feasibility of the implementation of the intervention will be determined. Outcomes will be assessed by questionnaires at baseline and at 6, 12, 18, and 24 months after baseline.

### **Conclusion:**

By developing the return-to-work intervention based on a cancer care model, the vocational rehabilitation literature and in collaboration with stakeholders, the needs of the stakeholders and the feasibility of the intervention are taken into account. Therefore, the return-to-work intervention is more likely to succeed.



## A FRAMEWORK OF CANCER AND WORK

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### **Aims:**

Returning to work is one of the major goals of many cancer survivors during or following primary treatment for cancer. The aim of this paper is to provide a tentative framework based on current empirical research that identifies factors that influence work outcomes in people who have been diagnosed with cancer.

### **Methods:**

The conceptual framework was based upon a search of the English literature from 2000-2010 using PubMed and current models of work rehabilitation and disability. Key search terms used included: return to work, work retention, and cancer.

### **Results:**

The framework illustrated in Figure 1 is designed to predict work outcomes. Health status, physical and psychological, includes comorbidities as well as medical and psychosocial risk factors and can interact with late effects of cancer and its treatment. Health status and symptoms can influence levels of functional capacity in a variety of domains: cognitive (e.g., attention), physical (e.g., mobility), emotional (e.g., ability to manage anger), and interpersonal (e.g., communication). The framework also considers work demands placed upon the individual: cognitive (e.g., multi-tasking), physical (e.g., sitting or standing for long periods), emotional (e.g., job stress), and interpersonal (e.g., working in teams) levels. The discrepancy between functional capacity and work demands plays an important role in predicting outcomes. The model includes both individual-related and workplace-related outcomes. Policies and procedures, which may be organizational or legal, can influence the framework.

### **Conclusion:**

This model considers both traditional medical and public health perspectives in order to identify factors within the individual as well as in the environment, workplace, and society. This model can be used as a heuristic to facilitate research, improve our understanding of the interplay between cancer and work, and assist in the development of evidence based interventions and accommodations.



## WORKPLACE – PLACED INTERVENTIONS

### WORKPLACE DISABILITY MANAGEMENT PROGRAMS PROMOTING RETURN-TO-WORK, A CAMPBELL REVIEW

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#### **Aims:**

In spite of the growth in the literature on workplace-based interventions on Return to work (RTW), Workplace Disability Management Programs (WPDM-Programs) are only implicitly highlighted, and WPDM-Programs that promote RTW have to our knowledge not been analysed separately in a systematic way. Recent research has highlighted the potential of a closer linkage between Disability Management-practices and the workplace-level, and the workplace-level is put forward as a decisive arena for successful RTW. The aim of this review is to assess the effectiveness of employer initiated Workplace Disability Management Programmes promoting RTW.

#### **Methods:**

This review focus on WPDM-programmes that are: 1. Addressing the duration or extent of an inability to work due to physical injury or mental illness; 2. Initiated by the employer or initiated by the employer in collaboration with key-players in the workplace; 3. Characterised as an “onsite” employer established WPDM or RTW-program; 4. Implemented within the workplace setting. The study designs included in the review are: 1. Randomised controlled trials (RCTs) including cluster randomisation and quasi randomised study designs (i.e. participants are allocated by means such as alternate allocation, person’s birth date, the date of the week or month, case number or alphabetical order). 2. Non randomised control study designs such as natural experiments, and observational data, where statistical methods such as modelling or differences in differences are used to establish a counterfactual and estimate an effect. The primary outcomes are: First return to work, duration of return to work and days lost from work 1. Return to work measured dichotomously as first return to work (This measure is relevant but treated with caution as it neglects episodic nature of work disability) 2. Duration of sickness absence measured continuously via time-to-event data (e.g. periods of sickness absence followed by return to work). 3. Reduction in lost days from work (e.g. defined cumulatively as the duration of all days lost from work beginning with the date of injury)

#### **Results:**

Will be presented at the conference

#### **Conclusion:**

Will be presented at the conference

#### **Reference:**

Van Oostrom SH, Driessen MT, de Vet HCW, Franche RL, Schonstein E, Loisel P, van Mechelen W, Anema JR. Workplace interventions for preventing work disability Cochrane Database of Systematic Reviews 2009 Issue 2

Pransky G, Gatchel R, Linton SJ, Loisel P. Improving return to work research Jour. of Occup. Rehab. 2005; 15: 453-457

Williams RM & Westmorland M. Perspectives on workplace disability management: A review of the literature Work 2002; 19: 87-93



## EXPERIENCE OF THE IMPLEMENTATION OF A MULTI-STAKEHOLDER RETURN-TO-WORK PROGRAMME

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### Aims:

Employers can use several strategies to facilitate return-to-work for workers on sick leave, but there seems to be limited knowledge of how workplace-based interventions are actually implemented in organisations. The overall purpose of the study is to analyse how the programme was implemented and experienced in the organisation, from the perspective of involved stakeholders, i.e. supervisors, occupational health consultants and a project coordinator. The objective is to identify and analyse how these stakeholders perceived that the programme had been implemented in relation to its intentions.

### Methods:

A qualitative method was used, consisting of individual interviews with eight supervisors and the project leader. Two group interviews with five occupational health service consultants were also conducted.

### Results:

The study revealed barriers to the implementation of return-to-work interventions. Not all of the intended interventions had been implemented as expected in policy. One explanation is that the key stakeholders expressed a more biomedical, individual view of work ability, while the programme was based on a more holistic, biopsychosocial view.

### Conclusion:

The biomedical actions taken by key stakeholders in the programme were due to a lack of communication, support, coaching and training activities in biopsychosocial measures for return-to-work. Implementation of a return-to-work programme is an ongoing, long-term multi-level strategy, requiring time for reflection, stakeholder participation, openness to change of intervention activities, and continuous communication.



## CAPITALIZING ON PROPER MSD MANAGEMENT: FROM DISABILITY PREVENTION TO RETURN TO WORK MANAGEMENT

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### Aims:

A study was realized in Quebec (Canada) to develop a training program designed to improve prevention of MSD and related return to work management in a specific rubber plant. We also identified facilitators and barriers to its implementation.

### Methods:

This case study was realized, over a period of ten months, in a plant characterized by high level of constraints, limited financial resources and aging employees at high risk of MSD. Based on a participatory ergonomics approach, the training program was developed by an ergonomist student within the course of a master's degree. Semi-structured interviews with the eleven main health and safety actors (production directors (n=2), a human resources counselor, supervisors (n=4) and prevention representatives (union, n=4)), followed by the active observation of the prevention activities already in place, allowed the ergonomist to identify the training needs of the actors. Thus, content of the training program was inspired from different tools available in the literature, taking into consideration the characteristics of the plant and the actors' training needs. Two two-hour meetings with the main health and safety actors were held to develop a new return to work management procedure. The ergonomist conducted semi-structured interviews (n=11) to identify the facilitators and barriers to implementation of the program.

### Results:

The proposed program represents an innovative combination of topics on disability prevention and return to work management addressed by group sessions, individual bi-monthly support, and through a participatory analysis of a work station. The program also included integration of workers through global management of MSD. The ultimate outcome for the actors was a better understanding of MSD and of their own impact, allowing them to better use the task analysis to propose modified work within the new return to work management procedure. Thus, a more structured and coherent management of MSD by the enterprise could be provided. Facilitators and barriers mainly focused on organizational context, knowledge and ability level of the actors and proposed tools.

### Conclusion:

The main contribution of our intervention was to combine disability prevention with return to work management to propose a continuum of MSD management adapted to the needs of a rubber plant. The latter combination seems to be essential in order to capitalize on proper MSD management.



## EMPLOYER-PROVIDED WORKPLACE INTERVENTIONS FOR REDUCING SICK LEAVE. A CASE STUDY IN TWELVE MUNICIPALITIES

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### **Aims:**

This study, initiated by a tripartite committee lead by the prime minister of Norway, aimed to identify which interventions twelve municipalities planned and/or implemented to reduce their sick leave rates.

### **Methods:**

Documents (n=69) and group interviews (n=12) constituted the material. Qualitative and quantitative content analyses were applied.

### **Results:**

A wide spectrum of workplace interventions descriptions (n=310) were revealed, separated into three groups according to their target in the organization: Basic-Workplace-Solutions targeted structures, processes and culture, Personal-Workplace-Solutions persons/employees and Project-Workplace-Solutions problem/prioritized groups/areas. Basic-Workplace-Solutions involved running a process from assessing to evaluating, but also efforts with developing routines, cooperation/collaboration, information/education, building culture/anchoring and recruitment/work force management. Personal-Workplace-Solutions contained interventions promoting well being, physical activity/exercise, redeployment, adaptation, follow-up of sick listed and RTW-programs. The intervention profile for each municipality varied considerably.

### **Conclusion:**

To reduce sick leave, the twelve municipalities were most often choosing workplace interventions targeting organizational systems, processes and culture.



## IMPLEMENTATION OF A RTW PROGRAM FOR LOW BACK PAIN WORKERS IN BELGIUM: ASSESSMENT OF THE WORKPLACE INTERVENTION COMPONENT

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### Aims:

Based on a new policy for managing work-related diseases, the Belgian government has launched, starting March 1st 2005, an evidence-based program to promote an early return to work and to prevent chronic low back pain (LBP). Target workers must be off work due to LBP for at least 4 weeks and maximum 3 months, and are offered a standardised multidisciplinary back rehabilitation program in more than 50 rehabilitation centres across the country, and an ergonomics intervention to be carried out in the worker company by the OH prevention service (see [www.fmp-fbz.fgov.be](http://www.fmp-fbz.fgov.be)). In 2008, more than 600 workers took part to the program, but a request for supporting the workplace intervention was addressed to the Fund for Occupational Diseases (FOD) in less than 5% of those cases. A study was thus initiated to identify the factors underlying such a major imbalance between the program's two main components.

### Methods:

A questionnaire survey (23 questions) was distributed in October 2008 to the OH physicians participating in the annual congress of their association. The same questionnaire was also sent by e-mail to all Belgian OHS. Besides some demographic information, the OH physician was asked to describe his/her personal activities in relation to the program, the contacts established with the rehabilitation centres, and the perceived barriers in carrying out an ergonomic intervention. A total of 188 valid questionnaires was collected through these survey procedures (estimated response rate: about 25% of the population of OH physicians).

### Results:

Companies are more often informed about the program by Dutch speaking physicians ( $p < 0.001$ ) and more experienced physicians ( $p < 0.019$ ). Dutch-speaking and female OH physicians are more prone to suggest program participation to the workers than their French-speaking or male colleagues ( $p < 0.02$ ). Inclusion of workers in the program is more often performed by the Dutch-speaking physicians ( $p < 0.01$ ). Ergonomic interventions are carried out in about 40% of the cases and often involve small workplace adaptations for which the FOD subsidy was not asked. Results show several significant interrelationships between the OH physicians' representations about the management of LBP, the usefulness of such a program, their own role and their actual behavior in supporting participation in the program.

### Conclusion:

Despite some obvious limitations this survey has highlighted several factors that could partly explain the underuse of the ergonomic intervention within the program. A series of corrective actions are now planned and carried out by the task force in charge of the program.



## OCCUPATIONAL TASKS IN THE "GREEN FRAME" OR HOW WORK CAN HELP LOW BACK PAIN SUFFERERS TO STAY ACTIVE

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### Aims:

Classical prevention has significantly reduced duration, frequency and severity of low back pain (LBP). However, this prevention seems to be ineffective to abate the remaining most serious LBP cases. Our purpose is to propose a tool to improve i) working conditions and ii) relationship between work and care giver.

### Methods:

Consensus all over the world agrees that staying active and limiting rest after an episode of LBP is essential for optimal recovery. Workplaces must participate in care giving by proposing tools to make working conditions acceptable for workers with LBP and creating contacts between the worlds of work and care givers. Our process is based on a "green frame" (GF) work situation. The "GF" lists and gives limits for the most frequent risk factors of LBP and describes how to apply them. To implement "GF", the factory needs multidisciplinary competencies including active participation of its human resources management. Indeed, workers' and their representatives' acceptance is of paramount importance. The factory, or its health or security office, must communicate their objectives to the worker's care givers. Then, care givers know that their patient's work can keep them acceptably active and they can explain why it is important to stay active, which is the basis of recent consensus.

### Results:

INRS has a central place in the French prevention system. This proposal has been published and promoted by the institute and put on its website in 2009. At the moment, the principle of the "green frame" work situation has been communicated in many meetings in France. Contacts have been made with companies which want to implement the process. The principle of follow-up is accepted and necessary to cover different approaches of the "GF" application in order to improve it.

### Conclusion:

GF workplaces must exist continuously in the company to be instantly available to low back sufferers. One of the lesser known parts of the process, still necessary, is the inclusion of the general physicians in it. To encourage workers to stay active, they must know the occupational risk factors and their improvement illustrated by the "GF" process. By improving contacts between work, care givers and employees, the process will illustrate the necessary multidisciplinary approach of LBP prevention. Finally, the construction of "GF" workplaces imposes a general reflection on health to the company and encourages more effective prevention.



## RISK FACTORS, CLINICAL FEATURES AND OUTCOME OF TREATMENT OF WORK RELATED MUSCULOSKELETAL DISORDERS IN ON-SITE OCCUPATIONAL HEALTH CLINICS IN INDIAN INFORMATION TECHNOLOGY COMPANIES

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### **Aims:**

To determine the outcome of on-site employee health clinics in the early detection, treatment, risk factor identification and follow up of work related musculoskeletal disorders (WRMSD) in Indian IT companies.

### **Methods:**

The prospective study covered 1307 consecutive IT Professionals with a median age of  $29 \pm 5.15$  years (79% males) who attended on-site employee health clinics in various companies in Bangalore and Hyderabad (India) over a period of 4 years (2005-09). Risk factors based on assessment by a Rehabilitation Physician, Physical Therapist and Ergonomist, clinical features, diagnosis, treatment and eventual outcome were recorded.

### **Results:**

The common clinical features were pain (81%), stiffness of neck and shoulder (62%), fatigue (52%), numbness (37%), burning or tingling (35%), eye strain (34%), clumsiness of hand (29%), loss of grip strength (24%), sleeplessness (19%), weakness (17%), swelling (1.2%), headache (1.14%), catching or snapping with movement (0.92%), temperature changes (0.38%) and skin discoloration (0.22%). Common Physician's diagnoses were Myofascial Pain Syndrome (61%), Thoracic Outlet Syndrome (38%), Fibromyalgia (5%), Wrist Tendinitis (1.37%), Cubital Tunnel Syndrome (0.92%) and Complex Regional Pain Syndrome (0.31%). 95% of workers recovered completely, while 5% recovered partially and still had mild discomfort and pain though able to work full time. Ergonomic workplace analysis showed that the commonest ergonomic risk factors were lack of appropriate breaks (64%), poor office ergonomics (54%), and high organizational stress (38%). The commonest personal risk factors included hypermobile joints, hypothyroidism, hyperuricemia, inflammatory arthritis and osteopenia/ osteoporosis.

### **Conclusion:**

The advantages of on-site clinics includes convenience of employees in saving time, earlier reporting of symptoms, better follow up regarding recovery and work, on-site workstation assessment for risk factor identification and modifications, monitoring posture, breaks and exercises, more effective coordination with members of Human Resources, Facilities, Health and Safety team and improved awareness levels regarding Ergonomics among Management and Employees. On-site employee health clinics are recommended for the effective prevention and management of WRMSD in view of the high prevalence of successful outcomes seen in this study.



## EVALUATION OF THE EFFECTIVENESS OF AN EXERCISE INTERVENTION PROGRAM FOR AUSTRALIAN TRAIN DRIVERS AND GUARDS

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### **Aims:**

In 2006 RailCorp NSW management initiated the design and pilot of the “On the Move” (OTM) program. The aims of the OTM program are to increase understanding of injury risk factors in the workplace, improve core strength, flexibility balance and manual handling skills as well as reduce injury rates and number of sick days lost.

### **Methods:**

The methodology for this study was a quasi-experimental design as well as qualitative (descriptive) using before and after measures. Workers consenting to participate were divided into two groups, one experimental and the other a control. The experimental group were rostered to participate in the OTM program shortly after consenting and the control group was invited to participate at the conclusion of the study.

### **Results:**

The majority (93%) of participants considered the training relevant to their work and that the training delivery was effective (98%). Due to large drop out rates, it is unclear the extent to which workers have improved their strength and endurance following the OTM and, most importantly, the extent to which any gains that may have been measured have been sustained for any length of time. With respect to injury data, RailCorp data obtained from February 2007 to January 2009 indicate that the rate of injury has significantly decreased in the experimental group (13%) compared to the control group (19.3%) over this period. The average number of days lost in the experimental OTM group was 7.8, which compares favourably with a median of 16.4 days in the control group, which, as expected, is similar to the workers who did not participate in the OTM evaluation program.

### **Conclusion:**

Despite the large drop out rates and other possible sources of bias, this study points towards the OTM program being potentially effective in improving workers’ understanding of risks of injury in the workplace and reducing RailCorp’s workers compensation burden.



## SELF-MANAGEMENT FOR RETURN TO WORK: DEVELOPMENT OF TRAINING MODULES

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### **Aims:**

To outline the development of two health education modules for self-management to promote positive vocational outcomes for those chronically disabled by a musculoskeletal disorder.

### **Methods:**

The Stanford model for self-management of chronic conditions was selected as the framework for the development of two new modules to add to the original six modules. Guidelines were determined by the research team in consultation with an industry partner for the development of the modules, to: a) ensure consistency with the principles of the Stanford model; b) use self-management principles to address the barriers for return to work (RTW) for those chronically disabled by a musculoskeletal disorder; c) ensure concepts and tasks used were based on current evidence for disability prevention; d) ensure generalizability of the training irrespective of the funding agency and jurisdiction in Australia; and e) ensure participants with low literacy were not disadvantaged.

### **Results:**

The two new modules developed were: 'Navigating the system' and 'Managing a return to work'. Three activities were incorporated in each module. The activities in the first module were designed to: a) assist the client in understanding the system funding their rehabilitation (i.e., insurance or social benefits), its function and, services offered, b) encourage the client to use problem-solving skills to deal with 'system' issues such as technical language and complex information, and c) provide the client with knowledge of the various individuals in the 'system', who they are, and the role they fulfill. The activities in the second module were designed to: a) assist the client in understanding the implications of an injury for the employer and their co-workers; b) enable the client to understand the role, they, the injured party, have in the RTW process; and, c) help the client understand the barriers and facilitators for successful RTW.

### **Conclusion:**

Two health education modules have been developed to promote self-management for RTW using the Stanford model as the framework. The modules were designed to address the barriers for RTW, promote effective interactions with the stakeholders involved, and develop skills necessary to foster positive vocational outcomes for those chronically disabled by a musculoskeletal injury. It is possible to develop an intervention that meets the needs of the individual, rehabilitation provider and industry, while maintaining consistency with policies of funding agencies. The effectiveness of a self efficacy program, which includes these new modules, is currently being tested in a randomized controlled trial.



## RETURN TO WORK PROGRAM IN A HOSPITAL LOCATED IN SÃO PAULO: INITIAL RESULTS, FACILITATORS AND OBSTACLES FROM AN ADMINISTRATIVE PERSPECTIVE

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### **Aims:**

Analyse the initial results of an Occupational Health and Return to Work Program (PROSORT), the facilitators and obstacles.

### **Methods:**

Case study held between May 2007 and January 2009 in a cardiologic hospital located in São Paulo, involving 71 employees (53%) with work disability; constituted of a qualitative synthesis of an intervention of return to work (RTW) and descriptive analysis of the data.

### **Results:**

The program was composed of five phases: occupational disease work history and social economical evaluation; preparation of RTW; trainee phase; evaluation of trainee phase; success evaluation. Absence period was over 101 days for 64.7% of employees. The most frequent diseases were musculoskeletal and mental diseases (84.2%). Depression was the most frequent diagnosis (22.4%). Ergonomic and psychosocial risks predominated. The program was considered successful or partially successful in 81.3% of the cases. Facilitators included: top management support, multi-professional team, location of sector, and support from supervisors and workers' participation. The obstacles were: incomplete multi-professional team, difficulties in the integration of employee under modified work, employee's resistance to gradual increase in tasks, lack of planning of intermediate stages, lack of intervention on occupational risks, productivity aims and the compensation system.

### **Conclusion:**

PROSORT represented a relatively successful attempt in the adoption of a bio-psychosocial and wide perspective, basing itself in multi-professional teams, involving various stakeholders and proposing modified work. Challenges and obstacles still remain given the complexity of the return to work process.



## ACTIVITIES USED TO IMPLEMENT WORK DISABILITY PREVENTION PROGRAM: A SCOPING REVIEW

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### Aims:

Work disability is a prevalent problem that imposes a heavy socioeconomic burden on society. Over the past decades, several work disability prevention (WDP) programs have been developed and found to be effective and cost-effective. Despite these positive results, little uptake has been observed in the current practice. This study aimed to map the existing literature regarding implementation of WDP programs.

### Methods:

The study was designed as a scoping review. Eleven databases were searched: AMED, CINAHL, Current Content, EMBASE, EBMR, ERIC, HealthSTAR, MANTIS, MEDLINE, PsycINFO, and Sociological Abstract. A database search combining terms related to “implementation” and “work disability prevention” was performed. It was limited to papers published in English or French between 1985 and 2008. Study selection was based on the following criteria: programs aimed at reducing work time loss; activities used to implement these programs described; and population was adults absent from work or on modified work due to a health condition.

### Results:

The search yielded 1532 titles, of which 132 full-text papers were retrieved, and 30 were retained. Several gaps were identified: a variety of implementation activities were identified, activities were described with little detail, few papers studied the effectiveness of implementation activities used, few papers documented barriers to knowledge use in their settings, and no common model was found to structure the program implementation.

### Conclusion:

There is currently a black box phenomenon of WDP program implementation. Further implementation studies are needed to provide more evidence on the best way to put WDP program into practice and optimized their potential benefit.



## MODALITIES OF INTERVENTION FOR PREVENTING PROLONGED DISABILITY IN COMPENSATED WORKERS FOR WRMSDS

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### **Aims:**

The proliferation of concepts and theoretical models in the field of disability, the diversity of modalities of intervention or of the contexts of their implementation, and the multiple interests of stakeholders involved in the process of rehabilitation and the return to work (RTW) of workers suffering from work related musculoskeletal disorders' (WRMSDs), constitute all important challenges into the decision-making process. The main purpose of this communication will be to present results from a review of the recent literature in order to overview the main preoccupations and trends throughout the current research in the field of intervention aiming at disability prevention.

### **Methods:**

A systematic search of the literature published in English or French between January 2000 and October 2007 was performed in ten databases, using descriptors and groups of key words and with a main focus on compensated workers for WRMSDs. The selection was carried out by two independent reviewers using inclusion and exclusion criteria and a procedure of inter-rater agreement. A total of 1785 references were obtained. After reviewing titles, 44 abstracts of scientific articles were further screened in order to point out successful modalities of intervention and to describe the favourable conditions and context of their implementation.

### **Results:**

Analysis revealed four different possible levels of intervention suggested by the authors as potentially successful in preventing prolonged disability in workers with WRMSDs. Firstly, the early screening of the injured workers at risk to evolve toward prolonged disability, and the concerted action among actors to establish the more appropriate targeted intervention seems to be the most effective way to prevent the development of prolonged disability. Secondly, early intervention on physical workplace and biopsychosocial factors appears to be central in terms of both prevention of prolonged disability and effective safe RTW. Third, improvement of communication between key stakeholders and enhancement of the coordination between the different actors' interventions in the rehabilitation and RTW process are essential strategies in preventing prolonged disability. Additionally, providing adequate information to the multiple stakeholders and actors involved in the process of rehabilitation and RTW seems to be critical in the achievement of a safe and effective RTW in workers with compensated WRMSD.

### **Conclusion:**

Even though reviewed studies were so diverse in regard to the domains and the perspectives of the intervention, and implied different views and concerns of the stakeholders and actors' involved, some common modalities of intervention could be pinpointed as potentially successful.



## RETURN-TO-WORK EXPERIENCES OF WORKERS WITH PROLONGED FATIGUE COMPLAINTS AFTER ATTENDING OUTPATIENT VOCATIONAL REHABILITATION INTERVENTIONS

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### Aims:

Prolonged fatigue can affect personal functioning and, consequently, the ability to participate at work. Vocational rehabilitation interventions (VRI) exist to increase workability and facilitate work participation. In this study, RTW experiences from fatigued workers who attended outpatient VRIs were explored. These VRIs included physical, psychological or cognitive-behavioural and return-to-work components.

### Methods:

A qualitative survey, using semi-structured face-to-face interviews six months after completing the VRI, was conducted. We used a subsample of patients participating in an intervention study (where three VRIs were evaluated) who were working in a paid job prior to the intervention. Out of 100, 21 participants were purposively selected per intervention. The data was transcribed and analyzed using MaxQDA software. Analyses were independently performed by two researchers to identify topics within the transcripts. These topics were discussed in the project team and organized into themes and broad categories.

### Results:

Patients' RTW experiences that affected work participation were personal challenges, improved activities at work, job accommodations and unresolved problems. Personal challenges, reflecting on and learning to cope with personal cognitions, emotions and behavior towards work (including exploring own abilities and pitfalls), were mentioned to affect work participation. In addition, activities at work were improved by using progressive staged RTW schemes initiated by VRI and tailored to the patient's work capacity. Further, job accommodations were experienced as helpful in increasing participation at work. Unresolved limitations were mentioned by those still having fatigue symptoms, difficulties coping with limitations and not yet able to work full-time.

### Conclusion:

Fatigued workers, who attended VRI, learned that reflecting on personal characteristics and life- and work-style, learning coping strategies, and carrying out staged RTW affected work participation positively. These results are useful for employers, occupational physicians and other caregivers in the development of vocational rehabilitation strategies that better meet patients' needs.



## HEALTH CARE PROVIDERS AND WDP

### THE DEVELOPMENT AND EFFICACY OF A COMMUNICATION SKILLS TRAINING PROGRAM FOR PHYSICIANS WHO ASSESS WORK DISABILITY

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#### **Aims:**

Work disability assessments require that physicians have specific communication skills. Good communication may have several advantages, such as more satisfied patients and a higher likelihood of return to work. However, no specialised, evidence-based communication skills training program is available at the moment for Dutch social insurance physicians who perform disability assessments. Therefore, this study aimed to systematically develop a communication skills training program to improve social insurance physicians' communication skills and communication behaviour during medical disability assessments with claimants, and to evaluate the efficacy of this program.

#### **Methods:**

A training program was developed according to the six steps of the intervention mapping protocol. Data for this development were collected from several questionnaire studies, a focus group study, and a literature review. Social insurance physicians completed questionnaires about their views with regard to communication with claimants (n=146) and about the communication in 10 medical disability assessments (n=304). Claimants completed a questionnaire about their views with regard to communication with physicians (n=56) and about their opinions with regard to the communication during a recently attended disability assessment (n=53). Firstly, these four questionnaires were analysed separately and secondly, the available sets of four questionnaires were analysed combined (n=51). We discussed the results with several experts to establish the training program. Additionally, three focus group interviews were performed with 22 physicians in total. In the literature review, we examined 12 systematic reviews concerning preferred strategies for the adoption of communication skills by physicians.

#### **Results:**

A two-day training program was developed. This program is aimed at teaching physicians to: (1) be aware of their own assumptions in the preparation and introduction of the disability assessment; (2) efficiently collect information by improving communication skills (e.g. asking open-ended questions, adequately showing empathy, summarising in plain simple language); and (3) properly finish the assessment by sharing the conclusion while staying in contact with the claimant. Especially active teaching strategies are used, such as practising skills in role play and discussion in small groups

#### **Conclusion:**

A two-day communication skills training program might improve social insurance physicians' knowledge of communication and their communication skills in disability assessments. Because of the systematic development of this training program with the Intervention Mapping protocol, its practical relevance seems promising. The efficacy of the training program will be evaluated in a randomised controlled trial in which 48 physicians will participate.



## RETURN-TO-WORK IN CARDIAC REHABILITATION

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### Aims:

The increasing prevalence of heart disease in working age populations contributes to a decline in employees' fitness for work and enterprises' productivity. There is also an increase of cardiac rehabilitation programs. The aim of this study was to explore how health professionals address return-to-work and their perception of factors that hinder or facilitate the return-to-work process.

### Methods:

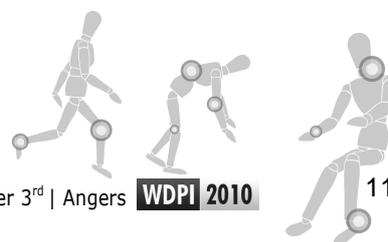
Semi-structured interviews were conducted with health professionals that were directly involved in cardiac rehabilitation in Québec (Canada). Questions were related with tools use to measure patients' readiness to return to work as well as facilitators and barriers to return-to-work.

### Results:

16 professionals were interviewed by phone (n=11) or face-to-face (n=5). They were cardiologists (n=3), general practitioners (n=3), kinesiologists (n=4), physiotherapists (n=3), and nurses (n=3). Participants had a mean experience of 14.4 years (SD=8.2 years). The factors mentioned by three professionals and more were mainly related with the patients (i.e., patients' motivation to return to work, job satisfaction, level of stress and anxiety, severity of heart diseases, self-confidence, and level of improvement of functional capacity). Also, some factors were related with the intervention (i.e., using a progressive approach to return to work) and the workplace (i.e., attitude of employer, pressure by employer or insurer to return to work, and type of work). Tools used measured mainly submaximal effort capacity, heart rate, and heart condition. Some mentioned asking questions on work tasks and demands.

### Conclusion:

Factors found in this study are similar with those found for other health problems such as musculoskeletal disorders and mental disorders. This supports the use of the work disability paradigm in cardiac rehabilitation. However, results from this study show that professionals in cardiac rehabilitation do not often address return-to-work. Also, they base their evaluation mainly on the patients' heart condition to decide if he/she is ready to return to work. To evaluate work demands, they rely solely on informal discussion with workers and no contact with the workplace is planned. There is thus a need to close the gap between evidence in work disability and current practice. Feasibility studies on return-to-work interventions for patients with heart disease are needed.



## THE CESAT-BAHIA WORK REHABILITATION PROGRAM: BUILDING ON INTERNATIONAL RESEARCH EVIDENCE AND IMPLEMENTING IN A BRAZILIAN LOCAL SETTING

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### Aims:

To describe the implementation process of a work rehabilitation program for musculoskeletal disorders developed in Bahia, Brazil.

### Methods:

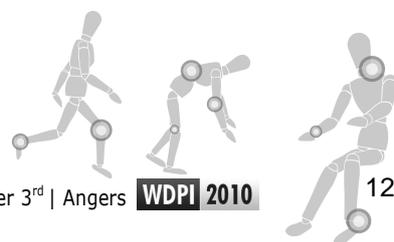
First, a qualitative multiple case study was conducted to identify key return-to-work (RTW) interventions proposed by this program. The verbatim of all official documents of 10 cases were inductively analyzed. Second, two focus groups were formed to discuss these cases and their respective interventions with attention to the essential elements of their implementation (i.e. facilitators). The local setting of the interventions and socio-political context of Bahia during 2008-2009 were considered in the discussion. The theoretical basis for analysis came from the literature about RTW strategies and models adopted worldwide as well as from implementation research of various occupational health actions in Brazil.

### Results:

A major facilitator in the implementation process has been the implementation agency itself, i.e. the CESAT-Bahia, a state government agency that within their geographic jurisdiction has taken a vital role in negotiations with many social actors when it comes to RTW issues. Another facilitator is the fact that, although CESAT's initiative to build a new model for work rehabilitation in Bahia is a timid one (for now it only responds to RTW actions involving a specific workplace setting), it is strongly supported by international scientific evidence. It has been conceptualized using a biopsychosocial approach and it follows well-structured phases: 1) preliminary negotiations with stakeholders and setting up a welcoming atmosphere for the RTW process; 2) evaluation of disability indicators using a formal protocol based on worker's narrative, well-known psychometric instruments and a Functioning Evaluation tool developed based on the ICF's core set for musculoskeletal problems; and 3) the implementation of the RTW intervention (workplace centered) with a follow-up phase.

### Conclusion:

Because this program departs from a public health initiative, its centered attention has been on open dialogues with many agents of changes in the occupational health field in the state of Bahia, namely the workers themselves (and unions), employers, compensation agents, academics and health care professionals. The on-going refinements and implementation planning of this particular work rehabilitation program in Bahia has strengthened the possibility of a dialogue on the urgent need to adopt a work rehabilitation model based on integrative actions within the National Network for Comprehensive Workers' Health Care (RENAST) and the Brazilian National Health System (SUS).



## A UNIQUE APPROACH FOR THE PREVENTION OF WORK-RELATED DISABILITIES FOR EMPLOYEES WITH LOWER BACK PAIN: DOES IT CONSTITUTE A NEW MODEL?

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### Aims:

A quarter of all permanent work-related physical disabilities are related to chronic lower back pain (LBP). The collaboration of a Rehabilitation Centre and an Occupational Health Service (OHS) has allowed us to develop an approach for better retention of employees with LBP in work or work stoppage. The aim of this work is to communicate our approach and its originality and to wonder if this process can constitute a new model.

### Methods:

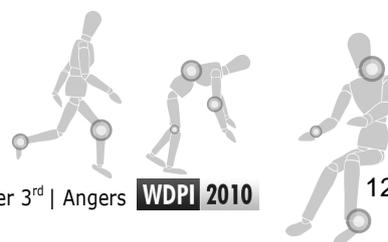
Our approach is based on the interactivity and complementarities between the two medical expertises, their missions and their respective resources. The expertise of Physical and Rehabilitation Medicine (PRM) take into account the physical conditions singularities. The expertise of OHS lies in identifying workers with difficulty, still active, and initiating an adjustment of the workstation. The program contains three steps. Initially, an early detection phase, shared by the two medical services PRM and OHS, is a protocol-based meeting of rehabilitation and Occupational Health doctors followed by an evaluation of the patient workplace by an occupational therapist and an ergonomist. Then, a rehabilitation phase is programmed, taking into account the physical particularities and the professional constraints. Finally, after return to work, there is close and regular medical review. All types of care are evaluated with the same tools.

### Results:

The results have been related by the two medical services. The PRM doctors noticed an increase of the contacts with the OHS, an increase of the pre-admission assessment which helps to reduce the waiting period before admission in the rehabilitation centre. The OHS doctors stress one-third of patients with potential work inability were able to stay at work. They noticed a decrease in the number of work incapacibilities.

### Conclusion:

This new medical approach shows that early collaboration optimises decision-making around return to work. The mutual recognition of the specific expertise of PRM and OHS, coupled with the interactivity and complementarities, gives meaning to the process and its originality. This approach constitutes a new model which is reproducible, transposable and measurable.



## RETURN TO WORK AFTER BRAIN INJURY: THE GAPS BETWEEN PATIENTS EXPECTATIONS AND RECOMMENDATIONS MADE AFTER ASSESSMENT

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### Aims:

To compare the goals of brain injured patients entering an ambulatory vocational assessment program, and the end-of-program recommendations.

### Methods:

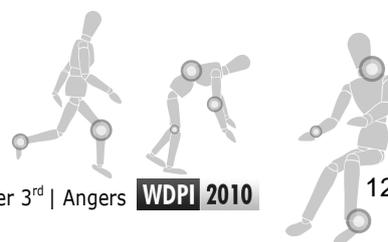
All patients attending the program between 1997 and 2008 were included. The program was run as a 9-week ambulatory program for a group of 6 to 9 patients and included assessment of physical and cognitive disabilities, independence in activities of daily living, work abilities. The conclusion of the program included written advice as to the abilities to work in either normal or sheltered environment. When return to work was not possible, recommendations were made as to possible social activities. All client files were analysed retrospectively.

### Results:

240 patients participated. Mean age was 31+/-10. 80% are males. 70% had sustained severe TBI, the others had brain lesions of medical origin. The mean delay between injury and participation was 8 years. The main objective of 86% of the clients was return to work; 62% expected a normal work environment, 2% considered a sheltered environment, 22% were seeking help in order to define their project; and 4% entered the program with the objective of improving social abilities and community integration. The end-of-program recommendations included return to work in 69% of the cases, in a normal environment for 37% and in a sheltered environment for 20%, and advice for contacts with social services in order to achieve better social integration in 36%.

### Conclusion:

Return to work remains the main objective of brain injured patients. Two main obstacles are encountered. Disabilities may be such that return to work appears unrealistic and this requires the development of alternative services providing community integration. In most cases, comprehensive assessment shows that at least sheltered employment is possible and the development of such facilities is required.



## RETURN TO WORK INTERVENTIONS FOR PATIENTS WITH MUSCULOSKELETAL AND MENTAL DISORDERS - THE GAP BETWEEN BEST AND CLINICAL PRACTICE

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### **Aims:**

Interventions enhancing return to work (RTW) should, according to present knowledge, be offered early and encompass multiprofessional rehabilitation, a biopsychosocial approach, a combination of individual and workplace intervention and contact with stakeholders. The aim of this study is to analyse the RTW process in terms of how recommendations are followed by different stakeholders, and if diagnosis, gender or education influence what interventions are given. Secondly, information about patients' perception of given interventions, and degree of discrepancy with desired intervention is studied.

### **Methods:**

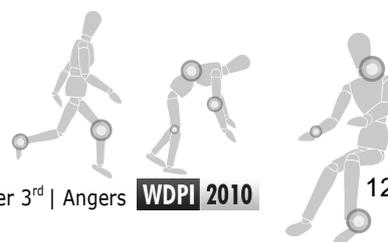
In a prospective cohort study all individuals on recent sick leave, who sought primary care or occupational health service for musculoskeletal disorders (MSD) and/or mental disorders (MD) were included. Data collection was based on 1) a baseline questionnaire including demographic variables, health measures, and work conditions, 2) a three months' follow up questionnaire including self-reported health care utilization regarding type of contact with stakeholders, type and usefulness of interventions, desired RTW intervention.

### **Results:**

Preliminary results are based on 352 patients, 2/3 women and 1/3 men. 38% had MD and 62% had MSD. Almost one third had a higher education. About 70% had returned to work within three months. The majority of the patients were given individual interventions, one third got a combination of individual and workplace-based interventions. About half of the patients had a meeting with the employer. Few of these meetings focused on the rehabilitation process. Few had a meeting with the Social Insurance Agency. Only one third got interventions involving more than two professional groups. Two thirds perceived that given interventions improved their work ability. Patients with MD were more often given a combination of individual and workplace-based interventions than patients with MSD. Also, MD patients perceived the interventions as more useful than patients with MSD. There was a discrepancy between given and desired intervention for 63% of the patients. The discrepancy was larger for women and among high educated.

### **Conclusion:**

The results indicate a huge gap between recommended and performed rehabilitation interventions. The RTW process is dominated by individual interventions. Involvement of the workplace and the Social Insurance Agency is scarce. Only one-third of the patients felt that interventions agreed with their own view on best interventions. There is still a need for implementation of knowledge based RTW interventions and inclusion of the patients' own view of their needs. This can probably help in developing more tailored interventions.



## LOST IN TRANSLATION: NEW IMMIGRANTS' EXPERIENCES OF LANGUAGE BARRIERS AFTER A WORK-RELATED INJURY

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### **Aims:**

Immigrants now make up nearly half of Toronto's population and are very important to the Canadian workforce. Between 1991 and 1996 immigrant workers accounted for 70 percent of all labour force growth and are expected to account for almost all net labour force growth by 2011. This study examined what happened to immigrant workers who were injured at work, as well as their experiences with service providers and community organizations that they encountered.

### **Methods:**

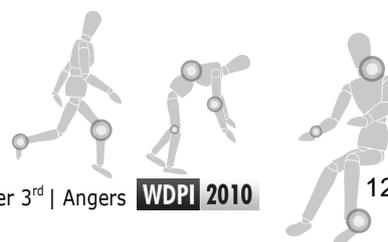
We conducted in-depth interviews with service providers who work with injured immigrant workers (health care providers, settlement agency workers, union representatives, etc.) and injured immigrant workers who had and had not filed a workers claim.

### **Results:**

This study details new immigrant workers' knowledge of their rights at the time of injury, their willingness and ability to file a workers' compensation claim, contact and experience with workers' compensation and health care providers, the effect of the injury on the family and the financial consequences of the injury or illness. The focus of this presentation will be specifically on how language barriers and the quality of language services shaped workers' experiences after an injury.

### **Conclusion:**

This study points to ways that workplace practices, health-care services, and compensation policies can be improved in order to keep workers safe and healthy and to help new immigrants who have suffered an injury at work.



## MEASURES IN WORK DISABILITY PREVENTION

### DEFINING RETURN TO WORK; A MEASUREMENT PERSPECTIVE

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#### **Aims:**

Return-to-work (RTW) status is an often used outcome measure in prognostic and intervention research in work and health. In low back pain research, RTW is regarded to be one of the usual activities a worker has to resume in order to fully recover. In recent years a debate has started among researchers discussing experiences of those off-work due to musculoskeletal disorders (MSDs) to determine best ways to measure “successful” or “sustained” return to work. A definition of an episode of (occupational) LBP has been proposed that mainly deals with the quantity of days in an episode, it does not deal extensively with issues like recurrences or with the quality of return to work. A study by Goertz reported different results when using different definitions for return to work (return to the workplace vs. return to previous job). In our systematic review, we questioned the validity of comparing studies using different definitions. Some define RTW as a measure of recovery, but the validity of this assumption is unknown. In this study we examine the measurement properties of RTW outcomes.

#### **Methods:**

We examined outcomes of RTW in low back pain (LBP) in the Canadian Early Claimant Cohort (ECC) study, since workers compensation databases are often used. And in data from the Dutch Amsterdam Sherbrooke Evaluation (ASE) study: a RCT on RTW in sick leave due to LBP. We used a measurement approach to examine these outcomes. We examined correlations, differences in predictive validity and construct validity by means of ROC curves when compared to a functional status outcome.

#### **Results:**

In the ASE study all definitions were highly correlated and performed similarly in predictive validity. The RJS definition however performed poorly when compared to functional status (AUC= 0.670, 95% CI [0.435, 0.906]) in contrast to the other definitions (AUC: 0.73 [0.63-0.82]). In the ECC all definitions were highly correlated and performed similarly in predictive validity. The > 28 days off benefits definition had an AUC: =0.816 [ 95% CI=0.762, 0.870]. The definition of 1 day off benefits had an AUC= 0.798, 95% CI= 0.728, 0.869] when compared to functional status.

#### **Conclusion:**

Different definitions will result in similar results in high quality studies. However, being back at work is not necessarily associated with complete recovery. The 28 days back at work/off benefits is recommended to be used in future studies.



## WORK DISABILITY PATTERNS DURING THE END-STAGE RENAL DISEASE TRAJECTORY

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### Aims:

To examine work disability and work status in kidney transplant recipients, and work disability patterns during preceding end-stage renal disease (ESRD) trajectory. Kidney transplantation closely replicates normal renal function but does not equal complete normalization of health. Knowledge about work disability before and after transplantation is limited.

### Methods:

In a prospective cohort study kidney transplant recipients completed interviews at 3 months (T1; n=61), 13 months (T2; n=58) and 6 years post-transplantation (T3; n=34). Work disability (i.e. receiving disability benefits (partial or full) according to legislation in the Netherlands) and work status (i.e. 12 hrs/week or more) were assessed. At T1, work disability trajectory was examined retrospectively (i.e. at diagnosis of ESRD, start of dialysis, at transplantation [Tx]).

### Results:

Follow-up showed a decrease in work disability after transplantation: 53% work disability at transplantation, 44% at T2, and 37% at T3 (45% full; 55% partial). Decreased work disability was paralleled by increased work status (50% at transplantation; 53% at T2; 67% at T3). At T3, only 50% worked fulltime (>32 hrs/week) and 30% of working recipients received additional partial disability benefits. Retrospective data showed an increase in work disability during (pre)dialysis: 4% work disabled at diagnosis of ESRD, 22% at start of dialysis and 53% at transplantation. During dialysis, work status decreased (72% start of dialysis; 50% at transplantation). Work disability was preceded by full sick leave as 26% of the employed at start of dialysis and 19% of the employed at transplantation were already on full sick leave.

### Conclusion:

Despite successful kidney transplantation, the prevalence of work disability is high. ESRD contributes to sickness absence and work disability, even before dialysis has started. These results indicate that a 'new' kidney does not necessarily lead to a 'normal' work status.



## THE PERFORMANCE OF THE GHQ-12, K10 AND K6 SCREENING SCALES TO DETECT PSYCHIATRIC DISORDERS IN A POPULATION OF LONG-TERM DISABLED PERSONS

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### Aims:

First, to assess sensitivity and specificity of a short version of the General Health Questionnaire with 12 items (GHQ-12), the Kessler Psychological Distress Scale with 10 items (K10) and a subset of the K10 with 6 items (K6) to detect 12-month and 30-day psychiatric disorders in a population of persons claiming disability benefits after 2-year sickness absences. Second, to determine the optimal cutoff score of the best performing scale.

### Methods:

A sample of 90 persons claiming disability benefits after a 2-year sickness absence was administered all scales followed by the Composite International Diagnostic Interview (CIDI, version 3.0). The discriminatory power of the GHQ-12 (Likert scoring method 0-1-2-3 and dichotomized 0-0-1-1), K10 and K6 (1-2-3-4-5) to detect any 12-month and 30-day DSM-IV disorder was assessed by calculating the sensitivity and 1-specificity for every possible cutoff and calculating areas under the Receiver Operating Characteristic curve (AUCs) with 95% confidence intervals.

### Results:

The AUCs of 12-month cases for the GHQ-12 (Likert) was 0.636, for the GHQ-12 (dichotomized) 0.628, for the K10 0.714 and for the K6 0.709. The AUCs for 30-day cases for the GHQ-12 (Likert) was 0.660, for the GHQ-12 (dichotomized) 0.633, for K10 0.821 and for K6 0.809. The optimal cutoff score to detect any 30-day case for the K10 is 24 (sensitivity 0.810 and 1-specificity 0.286) and for the K6 15 (sensitivity 0.619 and 1-specificity 0.143).

### Conclusion:

The K10 and K6 are sensitive and specific scales to predict any 12-month and especially 30-day CIDI/DSM-IV disorder in a population of persons claiming a disability benefit after a 2-year sickness absence. Both scales outperform the GHQ-12. The K10 and K6 are attractive screening instruments to screen for prevalence of any DSM-IV disorder in disability research focusing on mental health problems. The K10 with cutoff score 24 can be used to screen for present state psychiatric disorders in individual disability assessments.



## ANALYSIS OF TASK DEMANDS FOR REHABILITATION OF INJURED SOLDIERS

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### *Aims:*

We examined the hypothesis that concise knowledge of duty demands is needed for evaluation of injured personnel and to identify possible gaps between individual capacities and task demands.

### *Methods:*

We developed a software tool to facilitate identifying and recording task demands using event-based and time-based analysis of sample video recordings of selected tasks that are required for active duty. The software was implemented using Microsoft Visual Basic for Applications, VBA and Excel® as described by Armstrong et al. The software enabled the user to perform either a time- or event-based analysis of a task video and to link observed demands to video recording for future reference. The tool was evaluated 1) by experienced Army occupational therapists, OTs, 2) by Army OT interns and 3) from observations of Army OTs treating patients.

### *Results:*

Although the OTs and OT interns were initially excited about the software, they did not use it for patient care. This was largely due to the heavy caseload of the OTs selected to evaluate the software. Additionally, only a small percentage of the OT caseload was concerned specifically with return to active duty and, typically, the needs of the wounded warriors were so conspicuous that the OTs did not feel that a detailed analysis was needed. The observed cases can be placed into two categories; 1) severe injuries and return to active duty is highly unlikely 2) injuries with good prognosis and return to duty without restrictions is expected. It is assumed in the later cases that basic functional measurements, such as strength, range-of-motion, motor skills and sensory function, are predictive of the patients ability to perform duty-specific tasks. However, there is a portion of patients between these two extremes who may benefit from detailed task information.

### *Conclusion:*

- 1) There appears to be a small group of patients between two injury extremes who would benefit most from detailed task information.
- 2) Demanding clinical schedules require efficient analysis tools that provide concise task information relevant to the case at hand.
- 3) It is widely assumed that the ability to perform specific tasks is predictable from generic functional assessments. Studies are needed to evaluate this assumption.



## FURTHER VALIDATION OF THE BDI-II AMONG PEOPLE WITH CHRONIC PAIN ORIGINATING FROM MUSCULOSKELETAL DISORDERS

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### Aims:

The prevalence of depressive symptoms in people experiencing chronic pain is high, and the most widely used tool measuring depression in pain patients is the Beck Depression Inventory (BDI). However, one criticism of the BDI-II has been the potential overlap between the origins of some of the symptoms. Furthermore, previous studies have reported both two-factor and three-factor solutions, so that the factor solution of the instrument in this population remains unclear. The main objective of the present study was to validate the BDI-II with a chronic pain population experiencing musculoskeletal disorders (N=196). The three specific objectives were: 1) to modify the BDI-II for people with musculoskeletal disorders by adding sub-questions to better identify the perceived cause of the depressive symptoms, 2) to assess the validity and reliability of this modified version of the BDI-II, and 3) to explore the perceptions of the causes/origins of symptoms reported on the BDI-II.

### Methods:

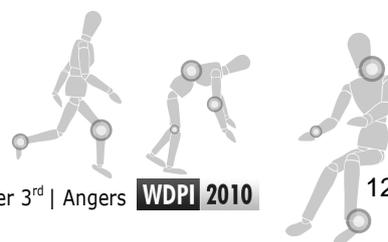
A total of 196 participants with chronic pain were recruited in three large university-affiliated health care centers located in the greater Montreal area (Quebec, Canada). Based on the results of Beck et al. (1996) and Harris et al. (2008), Confirmatory Factor Analyses (CFAs) were carried out on the BDI-II to verify which model best fit the data. Finally, answers to sub-questions for each symptom of the BDI-II were analyzed (percentage of responses) by considering the best model retained by CFAs.

### Results:

Results of the confirmatory factor analysis supported the presence of three dimensions within the BDI-II: Cognitive, Affective and Somatic. Overall, participants experienced higher levels of somatic symptoms compared to symptoms belonging to other dimensions. The percentages of answers to the sub-questions were also similarly distributed between “pain,” and “pain and state of mind,” regardless of the dimension.

### Conclusion:

Overall, the three-factor BDI-II model, which differentiates the three dimensions of depressive symptoms for people with chronic pain, was the best model for evaluating depressive symptoms in people with chronic pain. Furthermore, the somatic dimension score contributed greatly to the overall depression scores. With this population, the answers to the somatic sub-questions could be of great importance in helping to discriminate between symptoms caused by a depressed state of mind and those caused by pain or pain-related symptoms.



## CROSS-CULTURAL ADAPTATION OF THE WORK DISABILITY DIAGNOSIS INTERVIEW FOR A BRAZILIAN CONTEXT

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### **Aims:**

This study aims to show the results of the cross-cultural adaptation process of Work Disability Diagnosis Interview (WoDDI), an interview guide developed by University of Sherbrooke to help clinicians to detect the most important disability predictors' work-related musculoskeletal disorders and to identify one or more causes of prolonged absenteeism from work.

### **Methods:**

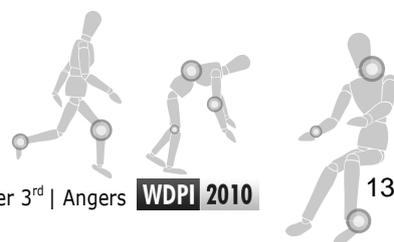
Due the challenges of adapting qualitative approach tools, this research followed the guidelines proposed by the cross-cultural adaptation of health questionnaires that insures proper cultural adaptation and allows the aggregation of data of several cultures. In the first step, this study was approved by the Ethical Committee of Research in Brazil and all participants voluntarily signed the Informed Consent Form. The original version of WoDDI in French was individually translated to Brazilian Portuguese by two bilingual translators whose mother tongue is Brazilian Portuguese. Both versions were discussed among translators and researchers and they reached consensus about the discrepancies on the first Brazilian Portuguese version. This version was also individually back-translated to the original language by two bilingual translators who mother tongue is French and the results of this process were discussed by Canadian and Brazilian researchers. The consolidated version, after this translating process, was submitted to an expert committee composed by one orthopedic physician, one general practitioner, two occupational nurses, two physiotherapists and two occupational therapists. These professionals had already received a specific one-week training session about the proper use of WoDDI by the Canadian research team and they became qualified to discuss the content validity through an equivalences analysis. The three expert committee meetings were led by focus group and consensus was reached considering agreement of 80% for each item. The pre-test was composed of 30 workers absent from work due to health problems related to work, regardless of diagnosis, causes or time of absence [random sample]. The interviews were done by an orthopedist and occupational nurse responsible for research and focused on the best understanding of questions and content of WoDDI by subjects.

### **Results:**

During the data collect the cultural barriers were identified and both interviewers concluded that it would be pertinent to create similar meaning questions as an alternative to questions not comprehended, through a utilization guide [flexibility allowed on qualitative approach tools].

### **Conclusion:**

Despite cultural differences we can observe that determinants of work disability and the workers suffering are similar across countries - a fact that allows the knowledge multiplication.



## FACTORS / PREDICTORS

### ILLNESS PERCEPTIONS AND WORK PARTICIPATION

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#### **Aims:**

This systematic review aims to explore the relationship between illness perceptions and work participation in patients with somatic diseases and complaints.

#### **Methods:**

The bibliographic databases Medline, PsycINFO and Embase were searched from inception to march 2008. Included were cross-sectional or longitudinal studies, patients with somatic diseases or complaints, illness perceptions based on at least four dimensions of the common sense model of self-regulation, and work participation.

#### **Results:**

Two longitudinal and two cross-sectional studies selected for this review report statistically significant findings for one or more illness perception dimensions in patients with various complaints and illnesses, although some dimensions are significant in one study but not in another. Overall, non-working patients perceived more serious consequences, expected their illness to last a longer time, and reported more symptoms and more emotional responses as a result of their illness. Alternatively, working patients had a stronger belief in the controllability of their condition and a better understanding of their disease.

#### **Conclusion:**

The limited number of studies in this review suggest that illness perceptions play a role in the work participation of patients with somatic diseases or complaints, although it is not clear how strong this relationship is and which illness perception dimensions are most useful. Identifying individuals with maladaptive illness perceptions and targeting interventions towards changing these perceptions are promising developments in improving work participation.



## HOW MUCH OF THE DIFFERENCE IN SICKNESS ABSENCE BETWEEN WOMEN AND MEN CAN BE EXPLAINED BY DIFFERENCES IN WORK ENVIRONMENT?

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### **Aims:**

A difference between men and woman's long-term sickness absence is well demonstrated, but only a few studies have examined the work environment in relation to this difference. The aim of this study: To identify differences in risk of sickness absence between men and woman and to examine to what extent differences could be explained by work environment.

### **Methods:**

Prospective cohort study. A random sample of 5083 Danish employees aged 18-69 was interviewed in 2000 as part of the Danish Work Environment Cohort Study (DWECS). Data on sickness absence were obtained by a linkage to a national register of social transfer payments (DREAM). The Cox proportional hazards model was used to calculate Hazard Ratios.

### **Results:**

5083 persons without missing data were included in the study: 2599 men (mean age 40.1, sd=11.4) and 2484 women (mean age 40.4, sd=11.0). Women have a 38% higher risk of long term sickness absence of more than 8 weeks. Taking in to account work environment factors caused woman's excess risk to decrease to 30%.

### **Conclusion:**

Differences in work environment explains 21% of woman's excess risk of long-term sickness absence.



## PROGNOSTIC FACTORS FOR DISABILITY CLAIM DURATION DUE TO MUSCULOSKELETAL DISORDERS AMONG SELF-EMPLOYED PERSONS

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### Aims:

The population of self-employed persons in the Netherlands and most of Europe is large and still growing. There are important differences between employees and self-employed persons which may influence both the onset and prognosis of sick leave and disability claim duration. While information on prognostic factors can help in identifying groups at risk of long claim duration, only a few studies are available concerning self-employed persons. The purpose of the current study is to identify prognostic factors for the duration of a disability claim due to musculoskeletal disorders (MSD) among all kinds of self-employed persons in the Netherlands.

### Methods:

The study population consisted of 276 self-employed persons (61% agricultural workers) insured by a large Dutch insurance company, who all had a claim episode due to nonspecific MSD with at least 75% work disability (for more information, see Heinrich et al. 2009). The study had a follow-up of 12 months, and the end of the claim period was defined as less than 25% work disability for at least 4 weeks. At baseline, participants filled in a questionnaire with possible individual, work-related and disease-related prognostic factors. Data on claim duration and level of work disability were continuously collected by means of the electronic records of the insurance company.

### Results:

The median duration of a disability claim during the 12 month follow up was 140 days (IQR 261). The following prognostic factors at baseline statistically significantly increased claim duration (preliminary results): older age (HR 0.54), willingness to participate in a RCT during the follow up (HR 0.71), no similar complaints in the past (HR 0.46), complaints at baseline for more than six months (0.60), self-predicted return to work in more than one month/never (HR 0.24) or no idea (HR 0.23) and job dissatisfaction (HR 0.54).

### Conclusion:

Most of the prognostic factors for claim duration in self-employed persons were similar to the factors known from previous literature in employees. This indicates that the research on prognostic factors for work disability or time to return to work may also be used for self-employed persons. The factor 'duration of current complaint episode' (at baseline) indicates that treatment of MSD should start as soon as possible after the onset of sick leave or even when persons who experience MSD are still at work.



## CHARACTERISTICS OF YOUNG DISABLED PEOPLE AND THEIR OPPORTUNITIES FOR WORK PARTICIPATION

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### Aims:

Young disabled people with limited abilities to work have a vulnerable position in society and especially in the labour market. Although there are several opportunities for work for young disabled people, finding and retaining a regular job is not easy for them. Characteristics of young disabled and their social environment in relation to their abilities for work participation have not yet been studied extensively. Therefore, the aim of the study is to examine the personal characteristics of young disabled people, their social environment and their opportunities for work participation.

### Methods:

A questionnaire for young disabled has been developed based on a literature study and expert meetings with regard to sociodemographic data, personal and social factors. Moreover, social security physicians filled out a questionnaire after the assessment of the physical and mental work (dis)ability of the young disabled. Both the young disabled applying for a social security benefit (n=917) and their social security physician completed a questionnaire.

### Results:

Of the respondents 83% were 27 years or younger and almost 40% of the young disabled had received special education. Only 7% had received higher education. Of the young disabled, 37% were mentally retarded and almost 27% suffered from another developmental disorder, e.g. autism or Attention Deficiency Disorder. Besides, 19% of the respondents suffered from psychiatric disorders. Of the young disabled, 70% experienced a high level of parental social support with regard to discovering interests and skills and support in difficult situations and in solving problems. However, 18% experienced problems in their family or social environment. Almost 60% of the young disabled assumed they cannot adequately assess their own abilities. Although 38% of the young disabled need support to find employment and more than 37% of them need intensive support on the job (e.g. by a colleague or another kind of supervision), the majority of the young disabled (78%; n=726) was assessed by the social security physician as being able to participate in work.

### Conclusion:

Despite their disability and their low educational level, the majority of the young disabled in our study have opportunities to participate in work. However, most of them need support to find work and many of them also need intensive support on the job, partly because they seem to have difficulties perceiving their own abilities adequately. Further research will focus on the opportunities for work participation of young disabled by means of a 2-year follow-up study.



## DETERMINANTS OF RETURN TO WORK AFTER OCCUPATIONAL INJURY

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### **Aims:**

The aim of the study was to identify the potential determinants of return-to-work (RTW) following work-related injury.

### **Methods:**

A historical cohort of workers with occupational injury in a state-owned locomotive vehicles company in central China was followed up on the outcomes of RTW. Demographic, employment and medical information was retrieved from the company archival documents; post-injury information was interviewed by structured questionnaires. Univariate analysis and Cox Regression Model were used to examine the associations between potential determinants and outcomes of RTW.

### **Results:**

Three hundred of the 323 cases (92.9%) eventually returned to work after the median absence of 43 days. Factors from socio-demographic, clinical, economic and psychological domains affected RTW in the univariate analyses. The multivariate analysis indicated that age, injury severity, injury locus, injury nature, pain in the injury locus, self-report health status and pre-injury monthly salary were significant determinants of RTW. There were multidimensional factors affecting RTW after occupational injury.

### **Conclusion:**

Proper clinical treatment and rehabilitation, as well as economic and social support to facilitate workers' RTW, would be the priorities upon intervention. Future studies should be conducted in larger representative samples to confirm the findings and to develop a multidisciplinary intervention strategy towards promoting RTW.



## WORK PARTICIPATION AFTER ACQUIRED BRAIN INJURY: EXPERIENCES OF INHIBITING AND FACILITATING FACTORS

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### **Aims:**

The aim of this study was to provide new insight into the factors that affect work participation by those with cognitive deficits following an acquired brain injury.

### **Methods:**

The study had a qualitative exploratory design with three focus-group interviews used to collect data. The first group comprised workers with experience of cognitive deficits after a traumatic brain injury (TBI), anoxic brain damage and stroke, the second group was composed of professionals from specialist levels of social security service and the third was professionals from specialised health care services. Transcribed interviews were analysed using a conventional approach to content analysis.

### **Results:**

A broad range of factors affected work participation. Personal factors, the psychosocial adaptation process, injury-related consequences as well as factors in the working environment were found to inhibit work participation. Acceptance of a different level of functioning and a new role in working life was an important but time-consuming process. Significant working-environment barriers were workplace demands, the attitudes of employers and colleagues, complicated information, excessive bureaucracy, too little practice before going back to work and physical barriers. Optimism and being determined were found to be particularly important facilitating personal factors. Important resources provided by the working environment were social support, time-related flexibility, relevant tasks and accommodations.

### **Conclusion:**

Five findings are discussed: The complexity of self awareness, the need for changing not only lowering demands, employers and colleagues adjustment process, different needs and extent of social support and the importance of predictable conditions.



## EMPLOYMENT STATUS OF PATIENTS WITH NEUROMUSCULAR DISEASES

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### Aims:

To determine the employment rate in a group of patients with neuromuscular diseases (NMD) and in three NMD subgroups (facioscapulo-humeral-dystrophy (FSHD), hereditary-motor-and-sensory-neuropathy (HMSN), myotonic-dystrophy (MD) and to identify factors related to employment status.

### Methods:

591 NMD patients were included: 138 patients with FSHD, 135 with HMSN, and 318 with MD. Measurement instruments were selected that were associated with employment status: a patient questionnaire describing general personal factors, the Checklist Individual Strength (CIS) measuring fatigue, four subscales of the SF-36 (physical functioning, social functioning, vitality, and bodily pain) and data on employment status. Employment was defined as gainful employment.

### Results:

In the total NMD group, 56.7% of patients were gainfully employed. Employment status differed significantly from the total group for the FSHD (70.3% employed;  $p=0.000$ ) and the HMSN (63.7%;  $p=0.001$ ) subgroups but not the MD subgroup (47.8%;  $p=0.432$ ). Between-group analyses for differences in baseline factors revealed 11 significant factors related to employment. Six of these contributed significantly to employment status for the total NMD patient group: age, gender, educational level, CIS-concentration score, CIS-activity score, and SF-36 physical functioning score. Together, these factors explained 37.2% of variance with regard to employment status. Four factors were also identified in a systematic review: NMD type, age, gender and educational level.

### Conclusion:

Education has a strong relation to future opportunities in the labour market for FSHD and MD patients. Due to the limitations with regard to data selected, not all relevant factors influencing employment were taken into account, e.g. environmental factors, motivation, work demands, and terms of employment. This study stresses the importance of specific qualitative research to identify further modifiable variables related to employment.



## RETURN TO WORK AND WORK ABILITY AFTER INJURY: RESULTS FROM THE NEW ZEALAND PROSPECTIVE OUTCOME OF INJURY STUDY.

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### **Aims:**

Return to work and work ability are considered major markers of rehabilitation following injury. Prolonged work absence and work disability result in significant personal and social costs; therefore, improvements in return to work and work ability will have benefits for injured workers and society. The Prospective Outcomes of Injury Study (POIS) is a cohort study following the outcomes of injured New Zealanders. POIS is the first New Zealand study aiming to quantitatively determine the injury, rehabilitation, personal, social and economic factors leading to disability outcomes following injury. This component of the study aims to determine pre-injury predictors of return to work and work ability for 2850 New Zealanders recruited into the POIS cohort.

### **Methods:**

The 2850 participants for this study comprise a sample of individuals aged 18-65 years referred to the national injury compensation scheme (ACC) for an entitlement claim (i.e. injury severe enough to warrant one week off work or home/transportation assistance) during the period December 2007 to August 2009. ACC is New Zealand's universal injury compensation scheme covering all New Zealand residents in all injury settings, including sports, recreational, home, motor vehicle and work related injuries. Quantitative data is collected by questionnaire at 3, 5, 12 & 24 months after injury.

### **Results:**

This presentation will discuss results from the 3 and 5 month interviews describing the injury outcomes relevant to return to work and return to work ability for those cohort participants who were workforce active at the time of injury. Of the 2850 participants, 2618 were workforce active (employees, self-employed or employers). Presentation of analyses examining the impact of pre-injury work factors, including psychosocial and physical working conditions and employment conditions on prospective return to work and work ability following injury will be made.

### **Conclusion:**

Conclusions will be presented on the predictors of return to work and return to work ability following injury for the POIS cohort.



## IS SOCIAL CAPITAL IN THE WORKPLACE ASSOCIATED WITH WORK-RELATED INJURY AND DISABILITY? A SYSTEMATIC REVIEW OF THE EPIDEMIOLOGIC LITERATURE

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### **Aims:**

Social capital is defined as resources embedded in social relationships. Aspects of social capital in the workplace may include social support, interpersonal trust, respect, and reciprocity. The primary objective of this study was to determine if aspects of workplace social capital are associated with work-related injury and disability.

### **Methods:**

A systematic review of the epidemiologic literature was conducted. Studies were identified from 1990 onward that were relevant to social capital in the workplace and work-related injury or disability. Identified studies were critically appraised for methodological quality by two qualified independent reviewers. Preliminary findings are presented in evidence tables and represent a best evidence synthesis of the literature.

### **Results:**

Thirty-one studies were identified from 6878 abstracts reviewed. Fifteen were excluded due to poor methodological quality. The remaining 16 studies consisted of 1 review, 6 cross-sectional, 3 case-control, and 6 cohort studies. Nine studies examined the association between social capital and injury, six focused on disability, and 1 studied both injury and disability. All but one cohort study focusing on disability reported an association between an aspect of social capital and disability. The evidence for an association between workplace social capital and the occurrence of work-related injury is inconsistent.

### **Conclusion:**

Aspects of workplace social capital were consistently associated with work-related disability. Future research should investigate the nature of the social capital relationship in order to develop return-to-work interventions. This review provided limited evidence for an association between workplace social capital and work-related injury. Most of the studies examining the association between workplace social capital and work-related injury were cross-sectional in nature and, hence, do not provide evidence for a causal link. Future work needs to examine this association prospectively.



## PHASE-SPECIFIC FACILITATORS OF EMPLOYMENT CONTINUATION FOLLOWING DISABLING OCCUPATIONAL INJURY

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### **Aims:**

Return to work following occupational injury is an important rehabilitation milestone; however, it does not mark the end of the return-to-work process. Following a return to the workplace, workers can experience difficulties that compromise their rehabilitation gains. Although there has been investigation of factors related to a return to the workplace, little attention has been paid to understanding what facilitates continued return-to-work success. This project was conducted with the aim furthering the understanding of what facilitates continued return-to-work success and explores the idea that different influences are important during different phases of the return-to-work process.

### **Methods:**

While a qualitative approach was considered appropriate for the exploration of participants' return-to-work experiences, in order to address the second part of the aim (i.e. an exploration of the idea that different influences are important during different phases of the RTW process) there was also the desire to test for between-group differences and answer questions relating to experience commonality. Given that this could not be achieved using a purely qualitative approach, a design was chosen that involved the blending of qualitative and quantitative data collection and analytical techniques. Data were gathered during one-on-one telephone interviews with 146 people who experienced a work-related injury that resulted in their being unable to return to their pre-injury job, but who returned to work following an extended period of absence and the receipt of vocational services.

### **Results:**

Numerous facilitators were reported, including features of the workers' environmental and personal contexts, as well as body function, tasks and actions. Influences that stand out included a perception that the work was appropriate, supportive workplace relationships, and a sense of satisfaction/achievement associated with being at work. Tentative support was found for the contention that certain facilitatory influences were more important at different times during the return-to-work process.

### **Conclusion:**

Findings support the contention that initiatives aimed at improving return-to-work outcomes can go beyond the removal of barriers to include interventions to circumvent difficulties before they are encountered. Together with providing ideas for interventions, study findings afford insight into research and theoretical development that might be undertaken to further the understanding of the return-to-work process and the factors that impact upon it.



## DETERMINANTS OF RETURN TO WORK AND PERCEIVED DISABILITY IN WORKERS WITH SUBACUTE LOW BACK PAIN

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### Aims:

To determine factors associated with three program outcomes: return to any work, return to prior work, and perceived disability at discharge. To identify the characteristics of low back pain patients who returned to work versus those who failed to return to work at program completion.

### Methods:

One hundred and forty seven patients with work-related low back pain participated in this study. They ranged in age from 18 to 64 years with the mean age of 39.7 ( $\pm 9.7$ ) years; 47.6% were in the 30-44 years age group. The median time since onset of back pain was 30.5 days. The average length of stay in the program was 2.5 ( $\pm 2$ ) months. A model consisting of demographic, work, psychosocial, physical, and injury-related factors, was used to explore relationships among variables and to determine factors associated with program outcomes (return-to-work and perceived disability). Logistic regression was used to determine factors predictive of return to work. Linear regression was used to determine factors predictive of perceived disability at discharge.

### Results:

Return to any level work was determined by gender, LOS in weeks, days worked on admission, and SF-36 Mental Component Score (admission). Return to pre-injury work status was determined by gender, LOS, days worked on admission, and psychosocial distress. The model correctly predicted those who returned to pre-injury work 66% of the time, and those who did not, 74% of the time, with the overall prediction rate of 70%. The variables that best predicted perceived disability at discharge were LOS, baseline pain, and SF-36 MCS. These variables accounted for 41% of the variance in discharge perceived disability in the final model.

### Conclusion:

Gender, LOS, and number of days worked on admission, a SF-36 MCS were predictive of return to any work, whereas, gender, LOS, and number of days worked on admission, and psychosocial distress (BSI-GSI) were predictive of return to prior level of work. Perceived disability at discharge was predicted by LOS, Pain and SF-36 MCS. While most participants reported challenges in the physical domains of the SF-36, it was the Mental Component Score that consistently emerged as one of the predictors in the models. Those who failed to RTW tended to have higher psychosocial distress, pain severity, perceived disability and quality of life. As well, the latter group remained a month longer in the program compared to their RTW counterparts.



## RTW COORDINATION

### RETURN TO WORK AS SECONDARY OUTCOME IN REGULAR HEALTHCARE. A BRIDGE TO FAR?

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#### **Aims:**

Most workers with musculoskeletal disorders on sickleave start with regular health care before entering a specific work rehabilitation program. However, it remains unclear to what extent the regular health care contributes to the outcome of return to work (RTW). Moreover, several studies indicate that it might postpone RTW. Therefore, there is a need to establish the efficacy of regular health care towards RTW as outcome; “Does visiting a regular healthcare provider influence duration of sickness absence and recurrent sickleave due to musculoskeletal disorders?”

#### **Methods:**

A cohort of workers on sickleave for 2-6 weeks due to a-specific musculoskeletal disorders was followed for 12 months. The main outcomes for present analysis were: duration of sickness absence until 100% RTW, and until 50-75% RTW. Cox PH regression analyses were conducted, with visiting a general health practitioner, (physio)therapist or medical specialist during the sickleave period as independent variables. The models were adjusted for variables known to influence medical consumption like age, sex, diagnosis group, pain intensity, functional disability, general health perception, severity of complaints, job control and physical workload.

#### **Results:**

Patients visiting a specialist showed more pain, functional limitations and worse health perception at the beginning of the sickleave period compared to those not visiting a specialist. Between those visiting a specialist, a therapist or both, there was no significant difference in health status at start of the sickleave. Visiting a specialist delayed RTW significantly throughout time (HR=1,49; 95%CI 1,09-2,05). After approximately 2 months of sickleave, visiting another therapist then a physiotherapist delayed full RTW significantly (HR=1,61; 95%CI 1,07- 2,43; p=0,02). Sickness absence duration between no therapist and visiting a physiotherapist did not differ significantly. When taking partial RTW as outcome, the foregoing effects of visiting a health care provider on duration of sickness absence could not be shown. A recurrent episode of sickleave was initiated by a higher pain level and functional limitations at the moment of full RTW, and not by visiting a regular health care provider during the sickness absence period.

#### **Conclusion:**

Despite the adjustment for the severity of the musculoskeletal disorder, visiting a medical specialist still postpones full RTW. More attention to the factor 'labour' in regular health care might be warranted, especially for those patients experiencing more functional limitations due to musculoskeletal disorders.



## EQUITY AS A MYTH?! – DISABILITY MANAGEMENT PROFESSIONALS’ PRACTICE IN ONTARIO/ CANADA

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### **Aims:**

Over the last decade and in the context of return to work, disability management professionals (DM), their role, tasks and competencies have gained attention in the research community. However, the socio-legal context in which DMs work and how this impacts their daily practice has been neglected. This omission is problematic given that international training programs of disability management operate across different jurisdictions. In particular, there is little research that provides empirical evidence for curricula development for these rehab professionals.

### **Methods:**

This paper presents findings from a study set in Ontario/ Canada. It is based on interviews and a focus group with 12 persons, who are either certified disability management professionals or who are involved with DM's training. The results were analyzed in light of the legal context in which these practitioners were working.

### **Results:**

The study results show how DM practice is affected by local jurisdiction-specific elements: Ontario has no universal sickness insurance as in place in other jurisdictions. Furthermore, workers' compensation applies to work-related injuries only, which means that non work-related cases are only covered provided that a sickness insurance is in place. This specific legal context leads DMs to distinguish between occupational and non-occupational cases, leading to a practice of meeting the economic, insurance-related needs of employers. This is in contrast to DM's training which emphasizes equal treatment of all people with disabilities.

### **Conclusion:**

We note that disability management practices vary and, therefore, there is a need to consider socio-political aspects in DM's practice, training programs and cross-jurisdictional research. Since DM experts also operate in Germany, and Germany has applied the Canadian-based training program of disability management, the results of this study are also being compared with the practice of German disability management experts according to their specific jurisdictional framework.



## DISCRETION, GOVERNANCE AND COOPERATIVE LEARNING: SWEDISH REHABILITATION PROFESSIONALS' EXPERIENCES OF FINANCIAL COOPERATION

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### Aims:

The aim of this study was to describe and analyse the experiences of Swedish rehabilitation professionals in interorganizational cooperation in return-to-work and labour market reintegration.

### Methods:

Two groups (n=15) from different organizations met recurrently to discuss their practice from a cooperation perspective. The participants had experience of cooperation in the organizational setting of Coordination Associations (CAs). The groups worked with a tutor according to a problem-based methodology to discuss how their practice is influenced by new structures for cooperation. The material was analysed inductively using qualitative content analysis.

### Results:

The results show that CAs were successful in creating cooperative work forms at a local level by ensuring financial support for interorganizational work. This experience was considered positive by the participants. However, the different developments in the two CAs (one attained a sustainable cooperation, the other did not) show the importance of local strategies for maintaining the positive effects of cooperation.

### Conclusion:

Work forms initiated by Coordination Associations have been perceived and used as learning environments in which the participants use the learning opportunities provided by the formal cooperation structures. However, the level of trust between managers and officials is low, implying that officials have limited support to learn from their cooperation.



## THE ADDED VALUE OF DISABILITY CASE MANAGEMENT IN OCCUPATIONAL REINTEGRATION

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### **Aims:**

Long-standing health problems and disabilities are pointed out as the main causes of unemployment and exclusion from the labour market. Very often, these workers receive benefits for extended periods, and are consequently excluded from the job market. 'Disability Management' on an international level is recognised to increase the employability of these employees, taking into account their possible work restrictions. In order to introduce the methodology of Disability Management in Belgium and to adapt it to the specific context, the Intro\_DM project (Introduction in Disability Management) was launched. One of the goals of this project was the implementation and evaluation of the methodology of Disability Case Management.

### **Methods:**

A field study was set up to investigate the perceptions of employees and other related actors regarding the role of the Disability Case Manager (DCM) in occupational reintegration routes. The project Intro\_DM was financed by the European Social Fund. A first step was the development and organisation of Disability Case Managers (DCMs) training: 17 professionals out of various professions took part in a training. After the training, the return to work pathways of 43 employees who were absent or threatened by a prolonged absence from the job market due to longstanding health problems or disabilities were coordinated by these trained DCMs on the basis of the methodology taught. The different actors involved in the reintegration routes were interviewed (telephone interviews and in-depth interviews). They were asked their opinions about the ways in which the DCMs could support reintegration processes both in terms of content and procedure.

### **Results:**

The qualitative results of 43 cases show the added value of the DCM through its role in translating the legal framework into concrete reintegration advice, in stimulating collaboration within the network, and in synchronizing employees' competences and work demands.

### **Conclusion:**

This field study can be considered as an important contribution to the introduction of Disability (Case) Management in the Belgian context. However, more research is needed in order to give an answer to the following questions: What are the factors driving or hindering the success of Disability Case Management (e.g. the role of the management, the labour unions)? Which employee with a longstanding health problem/disability needs the support of a DCM? Is there sufficient support among employers to hire a DCM? Who will finance this service? A new project is set up, DM@Work (April 2009-November 2010) in order to formulate answers to the above questions.





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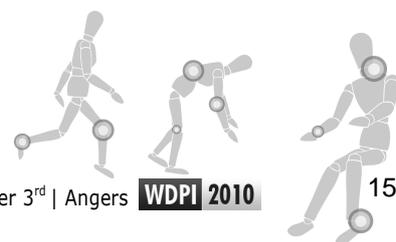
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- Two-week June sessions during three consecutive years

- Optional activities with mentor supervision (article, scientific or knowledge translation presentation, practicum)

- **Learning experience:** Small groups of trainees; various educational methods promoting discussion between peers and with mentors; international participation; stakeholders' perspective and mixed disciplines and methodologies

- **Disciplines Involved:** Anthropology, biomechanics, education and rehabilitation, epidemiology, ergonomics, ethics, kinesiology/exercise science/human movement sciences, medicine, nursing, occupational therapy, physiotherapy, psychology, public health, sociology, etc.

**Language of instruction:** English

**Next session: June 2011      Application Deadline: January 15, 2011**

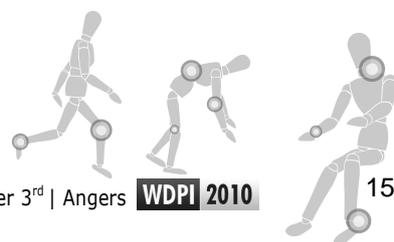
Web: [www.wdpcommunity.org](http://www.wdpcommunity.org)

**References:**

- Loisel P, Cote P, Durand MJ, Franche RL, Sullivan MJ, Baril R, Gagnon D, Lacroix A, Lariviere C, Marchand S, Bombardier C, Cole D, Guzman J, Hogg-Johnson S, Arsenault B, Dutil E, Berthelette D, Lippel K, Vezina N, Brun JP, Dionne C, Moffet H, Cooper J, Imbeau D, Wells R and Yassi A. (2005). Training the next generation of researchers in work disability prevention: the Canadian Work Disability Prevention CIHR Strategic Training Program. Journal of Occupational Rehabilitation, 15(3): 273-284.

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**For more information: Karine Genest, program coordinator at: [wdp.cihr@utoronto.ca](mailto:wdp.cihr@utoronto.ca)**





## **LIBERTY MUTUAL-HARVARD SCHOOL OF PUBLIC HEALTH POST-DOCTORAL FELLOWSHIP IN OCCUPATIONAL INJURY AND DISABILITY RESEARCH**

The Harvard Education and Research Center for Occupational Health and Safety offers a post-doctoral fellowship in occupational injury and disability research. This is a full-time position for an initial period of one year, with potential for up to two additional years.

The post-doctoral researcher will conduct occupational injury and disability research in close collaboration with injury and disability research scientists at the Liberty Mutual Research Institute for Safety in Hopkinton, MA and with the Harvard ERC faculty in the Harvard School of Public Health. Duties will include data collection and analysis, publishing in the peer-reviewed scientific literature, participating in seminars and work groups, and collaborating on research grant applications.

The successful applicant will have doctoral degree in epidemiology, medicine, psychology, kinesiology, physical therapy, health services research, ergonomics, behavioral science, medicine or a related field. The candidate will have less than five years experience post-doctorate, a demonstrated record of individual initiative in research, strong analytic skills, and potential to become an independent academic researcher within two to three years. Preference will be given to applicants whose training, skills and research interests best align with those of mentors at the ERC and LMRIS. Potential applicants are encouraged to view the ERC and LMRIS web sites and contact faculty/research scientists with common interests:

<http://www.hsph.harvard.edu/erc/> and <http://www.libertymutual.com/researchinstitute>.

Those interested in work disability prevention research should contact Glenn Pransky, Director of the Liberty Mutual Center for Disability Research at [glenn.pransky@libertymutual.com](mailto:glenn.pransky@libertymutual.com)

The annual salary is set according to the experience of the candidate, plus a generous benefits package. This position is contingent upon funding. Applications are accepted until September 1 of each year, or until the position is filled. Applicants should apply to: Professor David C. Christiani c/o Ms. Starr Sumpter, Department of Environmental Health, 665 Huntington Avenue. Boston, MA. 02115. Please send a resume, statement of research interests and the names of three references.

Email: [ssumpter@hsph.harvard.edu](mailto:ssumpter@hsph.harvard.edu), [Dchris@hsph.harvard.edu](mailto:Dchris@hsph.harvard.edu)

