

ACTIVE AGEING  
AT WORK

CONFERENCE ABSTRACTS

# Work, Well-being and Wealth

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## Early retirement and loss of production in different age groups

by Ahonen GS, DSc (Econ)

**Objectives** In Finland, the length of work careers has been greatly discussed during the past years. This paper demonstrates how - compared to “traditional” approaches - an economic, “cost-of-illness” approach affects the policy conclusions about extending work careers, and that it is important to look at different age groups when planning actions in this respect.

**Method** We use retirement and disability pension statistics in Finland during 2003–2011 to assess how different approaches change policy conclusions. We call the approach that is based on the number of cases in various groups the “traditional” approach. We compare this approach to a “cost-of-illness” approach, where we calculate the number of lost working years. We particularly look at the age and diagnosis distribution of cases.

**Results** For the moment in Finland, more than is the case with traditional analysis, an economic analysis seems to lead to greater emphasis being placed on mental disorders of young people. Traditional analysis tends to place an emphasis on musculoskeletal disorders of elderly workers.

**Conclusions** Looking at aggregate, absolute figures may give misleading advice on how to direct efforts to extend work careers. If we only look at the number of cases within different age groups, we come to one set of conclusions about relevant action. On the other hand, if we also take into account the loss of work years as a result of early retirement, we come to quite a different set of policy conclusions.

**Key terms** age management; cost of illness; productivity.

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## An audit of cardiovascular diseases detected during service extension medical assessment of employees reaching retirement age

by Akhter A, MBBS, DTMH, LFOM

**Objectives** This study aims to estimate the prevalence of cardiovascular diseases (CVD) among employees of Qatar Petroleum reaching retirement age, which may render them medically unfit for service extension. The paper also recommends strategies for management of CVD in the workplace and prevention of risk factors to improve the overall health of elderly employees for retention of expertise and to prolong working life.

**Method** A comprehensive review of medical examinations conducted as part of the service extension process was undertaken January–September 2011. Over nine months, the health data recorded during medical assessment was transferred to a electronic database (N=212) and analysis was done using simple descriptive statistics.

**Result** Of 212 employees who underwent the service extension medical, 96% (204) had  $\geq 1$  metabolic cardiovascular risk factor, 58% (122) had 2, and 21% (46) had  $\geq 3$  metabolic cardiovascular risk factors; 26 (12%) employees had abnormal ECG findings with cardiac symptoms. The review identified that CVD are the main cause of repatriation among Qatar Petroleum employees reaching retirement age.

**Conclusion** This paper calls attention to the judicious management and prevention of CVD and their risk factors among the aging workforce, particularly those  $>55$  years, in order to avert medical complications resulting in loss of valuable expertise and to prolong the healthy years of life. Customized health promotion and risk-based medical surveillance is the key to improving the health and wellness of older employees who might otherwise retire prematurely. This study suggests that occupational health intervention can help reduce the degree of work impairment and disability arising from chronic diseases among older employees.

**Key terms** cardio risk factor; elderly health; health promotion; health surveillance; older worker; sustainable health.

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## The long arch of workplace development in Finland – past experiences, future challenges

*by Alasoini T, PhD*

This paper examines the rise and consolidation of workplace development in Finland during the last three decades and also looks at new challenges workplace development is currently facing in the rapid change of working life.

The paper starts with a description of underlying factors that led to launch of the first national programs to develop working life in Finland in the 1990s. This is followed by a characterization of the “Finnish model for workplace development”, based mainly on principles that guided the design and implementation of the Workplace Development Programmes TYKE and TYKES between 1996 and 2010. Thereafter, the paper discusses workplace development in Finland as a showcase of “Nordic exceptionalism” and, from a comparative perspective, refers to the concept of “enabling welfare state”. To conclude, the paper makes a summary of outcomes of Finnish workplace development programs on different levels so far and outlines major challenges facing the Finnish model in an environment of ongoing technological and organizational change.

**Key terms** productivity; quality of working life; workplace development.

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## Experiences of active cooperation among labor market organizations to foster productivity and quality of working life in Finland

by Antila J, Lic Soc Sc, Hakonen N

Finnish labor market organizations have a long history of cooperation (>40 years) to foster productivity and quality of working life. Society and working life have undergone several changes during this period, but, through it all, labor market organizations have shared a joint vision on developing working life.

During the last two decades, all governments have initiated and maintained working life programs. All major political parties have, together with the labor market organizations, drawn up these programs and activities. The present Government is no exception and aims at an even more ambitious goal. Together with Finnish labor market organizations, the Government has prepared a national working life development strategy that aims to make Finnish working life the best in Europe by 2020.

To propel Finnish working life to the top, focus is needed in the areas of trust and cooperation, health and well-being at work, competent workforce, and innovation, and productivity. Improvements are needed despite the fact that the initial situation is fairly good when compared to global standards.

In this presentation, the labor market organizations point out the need for the versatile development of working life and introduce measures that could assist in meeting the Government's ambitious goal. We also share some good examples of working places which illustrate that change for better is possible.

**Key terms** work life program

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## Work organization and the health and well-being of older workers

by Bohle P, PhD, Quinlan MG, PhD, Mc Namara M, PhD, Pitts C, MPs, Willaby H, PhD

**Objectives** Work organization has well-established effects on health. This study compares the pressure, disorganization and regulatory failure (PDR) and effort–reward imbalance (ERI) models as predictors of the health and well-being of older workers.

**Methods** Computer-aided telephone interviewing was used to collect data from 714 Australian workers aged 45–65 years [402 (56.3%) female]. Participants' mean age was 54.6 years [standard deviation (SD) 5.0] and mean weekly working hours were 34.7 (SD 13.9).

**Results** Hierarchical regression analyses were used to test the relative efficacy of ERI and PDR as predictors of work–life conflict and mental health. Predictors were entered in blocks: demographic characteristics (age, gender), working hours, and ERI or PDR. ERI ( $\beta=0.26$ ,  $P<0.001$ ) was a slightly stronger predictor of work-life conflict than PDR ( $\beta=0.22$ ,  $P<0.001$ ). ERI ( $\beta=-0.15$ ,  $P<0.001$ ) and PDR ( $\beta=-0.15$ ,  $P<0.001$ ) predicted mental health equally effectively.

**Conclusions** These findings indicate that PDR is a promising work organization variable that is significantly associated with work-life conflict and health. An important contribution of the PDR model is that it encompasses aspects of work organization not included in other models that explain the impact of work on health.

**Key terms** disorganization failure; effort–reward imbalance; pressure failure; regulatory failure; work–life conflict.

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## Predictors of having paid work among older workers with and without chronic disease: a 3-year prospective cohort study

by Boot CRL, PhD, Deeg D, PhD, Abma T, PhD, Rijs KJ, MSc, Van Tilburg T, PhD, Van der Beek AJ, PhD

**Objectives** The aim of this study was to investigate differences and similarities in predictors of having paid work after three years follow-up among workers aged  $\geq 55$  years, with and without chronic disease.

**Methods** Workers aged 55–62 years were selected from the 2002–2003 cohort of the Longitudinal Aging Study Amsterdam (N=333). Potential predictors included health, personality, work characteristics, and demographics. Per potential predictor, a logistic regression coefficient for the dependent variable “having paid work” in 2005/2006 was calculated, separately for workers with and without chronic disease. A pooled estimate was constructed and differences between the pooled estimates and the coefficients were tested.

**Results** The prevalence of chronic disease was 59% in 2002/2003. Follow-up data was available for 316 persons (95%). Physical work demands ( $X^2: 5.37; DF=1$ ) and psychosocial resources at work ( $X^2: 5.94; DF=1$ ) differed between those with and without chronic disease. More psychosocial resources (OR=3.57; 95% CI 1.33–10.0) were predictive for having paid work among workers with chronic disease only. Lower age, more weekly working hours, no functional limitations, fewer depressive symptoms, lower neuroticism scores, and more sense of mastery were significantly associated with having paid work among workers with and without chronic disease.

**Conclusions** With the exception of physical workload and psychosocial resources at work, predictors of having paid work were similar for workers with and without chronic diseases. Some differences regarding predictors of having paid work between workers with and without chronic disease exist; these should be taken into account when aiming to prevent early exit from the workforce.

**Key terms** ageing; employment; longitudinal study; social participation.

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## Government Program for Social Participation of Senior Citizens (2012–2013) as the basis of the long-term active ageing policy in Poland

by Breza MB, PhD

**Objective** The aim of this paper was to initiate a national debate among a wide range of stakeholders in designing a scheme for Poland's active and healthy ageing policy.

**Methods** The Polish Ministry of Labor and Social Policy coordinated the adoption of the Government Program for Social Participation of Senior Citizens (2012–2013) in August 2012. The program consists of two components. The first relates to co-financing of the projects under the program, which carried out by NGO (often in cooperation with local authorities) in the four most important areas supporting social activity of older people: (i) education services (supporting lifelong learning), (ii) supporting integration among and between generations, (iii) promoting voluntary work and social participation, and (iv) developing high-quality social services by supporting self-help and self-organization. The second component constitutes the basis for a long-term active ageing policy.

**Results** In the first stage of the project component, 1400 offers were submitted and more than 400 projects were co-financed under the Program. So far, 26 000 older people have benefited from those projects. The second stage has just started and more than 2500 offers are expected. The national discussion on the demographic challenges is ongoing. The Ministry set up the Council for Senior Policy, which consists of main stakeholders who are involved in designing pathways for further policy actions for seniors. The first draft of the long-term policy for seniors and active ageing is expected by October 2013.

**Conclusions** The success of the Program and the active involvement of various stakeholders in projects targeted at older people are key reasons for continuing the Program.

**Key terms** active and healthy ageing; public social partnership; senior citizen; social activity.

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## Working with a chronic disease

by Brouwer S, PhD, Koolhaas W, MSc, van Rijn RM, PhD, de Vries HJ, PhD

**Objective** As the workforce ages, the prevalence of workers with chronic diseases increases. The aim of this study is to provide insight into the characteristics of those workers and present the consequences of chronic diseases on work participation. Potential personal and societal implications will be discussed.

**Method** Data gathered in several studies will be used: a systematic literature review about the influence of poor health on exit from paid employment and data from two cross-sectional studies about working with chronic diseases.

**Results** Self-perceived health status is a risk factor for leaving the labor force and is strongly associated with work ability. Psychosocial factors based on individual resources (such as coping behavior, self-efficacy, work attitude, and perceived support) influence the level of work ability among workers with chronic diseases. Poor-to-moderate work ability levels were found among workers with chronic diseases, which indicate a higher risk of long-term sickness absence and work disability.

**Conclusion** To increase sustainable employability of workers with chronic diseases, good health should be promoted and psychosocial factors should be addressed in strategies and interventions at the workplace.

**Key terms** perceived health; psychosocial.

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## The importance of work for health

by Burdorf A, PhD, Schuring M, PhD

**Objectives** The causation mechanism stipulates that involuntary loss of paid employment has a negative influence on health, whereas gaining paid employment should positively influence health. The objective of the current study was to evaluate the latter part of this hypothesis by determining the impact of work on health.

**Methods** A cohort study among long-term unemployed persons was conducted with repeated measurements of health and employment status over a six-month period (N=965). Health-related quality of life was measured with 8 dimensions in the 36-item Short-Form Health Survey (SF-36). Cox proportional hazard analysis was conducted to determine the influence of starting with paid employment on change in health status.

**Results** Participants who started with paid employment during the six months follow-up period improved in all aspects of health with effect sizes varying from 0.11–0.66, which compares very well with effect sizes reported in health promotion programs. The largest improvements were observed for mental health, social functioning, and role limitations due to emotional or physical problems. Other important changes, such as starting vocational rehabilitation, did not influence health.

**Conclusions** These results provide evidence that work is indeed good for your health and, thus, a timely return to paid work should be considered as an important part of health promotion programs targeted at unemployed persons as well as vocational rehabilitation programs.

**Key terms** causation; health inequality; paid employment; unemployment.

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## Effects of return-to-work interventions in an international perspective

by Bültmann U, PhD

During the past decade, mental health problems, such as anxiety, adjustment disorders, and depression, have emerged as major public and occupational health issues in many countries.

To curtail the burden of mental health problems, it is important to increase the evidence base for the effective prevention of work disability among workers with such problems and the facilitation of a sustainable working life. To date, knowledge about effective interventions for reducing work disability and enhancing sustained return to work among 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 and 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 as well as effective return-to-work intervention elements and strategies for workers with musculoskeletal disorders. Yet, is it possible to translate this knowledge to workers with mental health problems?

The unique challenges presented by mental health problems will be illustrated by focusing on: (i) the current evidence from return-to-work interventions and (ii) the workplace as an arena for interventions addressing workplace issues and support structures that facilitate return to work, prevent recurrences, and enable a sustainable working life.

**Key terms** mental health; systematic reviews; trial.

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## General health, coping, and job-search cognitions influence job-search behavior and re-employment: a longitudinal study of unemployed persons in the Netherlands

by Carlier BE, MS, Schuring M, PhD, Burdorf A, PhD

**Objective** Unemployed persons with poor health are less likely to find paid employment. The study aimed to investigate the influence of coping resources and job-search cognitions on health-related differences in search behavior and re-employment.

**Methods** We measured self-rated health, self-esteem, mastery, job-search cognitions and the intention to search for a job among unemployed persons receiving social security benefits (N=510) at baseline. Logistic regression was performed to define predictors of search behavior, measured at follow-up after 6 months. Cox proportional hazards analyses were used to identify determinants of re-employment (follow-up period of 34 months).

**Results** Persons with a positive attitude toward job search (OR 3.55, 95% CI 2.42–5.21), high perception of social pressure (subjective norm) to look for a job (OR 2.59, 95% CI 1.77–3.79), high job-search self-efficacy (OR 2.17, 95% CI 1.50–3.14), and high job-search intention (OR 4.54, 95% CI 1.77–6.97) were more likely to search actively for employment. Persons with good health were more likely to perform active search behavior (OR 1.82, 95% CI 1.25–2.67) and were also more likely to find employment (HR 1.66, 95% CI 1.12–2.46). Adjustment for job-search cognitions and coping resources reduced the influence of health on active search behavior by 73% (OR 1.30, 95% CI 0.83–2.04) and re-employment by 58% (HR 1.28, 95% CI 0.85–1.93).

**Conclusions** Health-related differences in job-search behavior and re-employment can be partly explained by differences in coping, job-search attitude, self-efficacy, and subjective norms towards job search behavior. Employment specialists can be guided in their work by these modifiable cognitions.

**Key terms** labor market participation; prospective study; self-rated health.

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## When law intends to boost collective bargaining for employment of older workers in French companies

*by Caser F, MBA, Jolivet A, PhD, Lochard Y, PhD, Mailliot S, PhD, Parlier M, Executive Master, Pernot JM, PhD, Trouiller G, Executive Master, Vincent C, PhD*

Our research contributes to the assessment of the effects on French companies of a new type of public action aiming to keep seniors at work. A December 2008 law introduced a tax for companies with >50 employees failing to set up an agreement or action plan in favor of older workers. The legal text provided a framework for the documents. However, it left some room for maneuver for the key stakeholders of collective bargaining in the workplace. At the end of 2010, more than 34 000 agreements and action plans had been drawn up.

We examined the design, content, and implementation of these agreements or action plans within 11 companies in the 12–36-month period following signing.

We found that the law had an impact on the design and content of the agreements and plans. Time constraints to avoid penalty and content requirements had the greatest impact. The analysis also highlighted some effects on corporate practices even if it was difficult to isolate the role of the legal impetus. Indeed, if the law could be a triggering factor, other conditions are usually needed to set up new practices. The study finally points out the fact that stakeholders can learn from the experience, whether it is about the type of approaches that are most likely to keep seniors at work or the process to implement them.

**Key terms** assessment; collective bargaining; company practice; public action.

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## A comparative study using the social ecology theory of older adults' exercise policy and programs in Taiwan and Finland

by Cheng EH-P, PhD, Fang I-Y, PhD candidate, Chang S-H, PhD, Chow, H-W, PhD

**Objectives** The principle objectives of this study were to (i) compare the exercise policies and programs for older adults in Taiwan and Finland, based on the social ecology theory, (ii) analyze their strengths and weaknesses, and (iii) provide suggestions of a feasible national exercise strategy for older people in Taiwan.

**Method** A combination of policy analysis and focus group interviews was used to analyze the current older adults' exercise policy and implementation in Taiwan. Short-term study visits were also undertaken in August 2011 and October 2012 in Jyväskylä, Finland, to learn about successful experiences in carrying out an older adult health exercise program: Strength in Old Age.

**Results** Our study found that the exercise policy for older adults in Taiwan was at the beginning stages of development, and therefore a proper direction for policy-making was needed. A comprehensive combination of legislation, government strategies, and exercise programs in Finland has successfully promoted older people's physical activities. Examining this program, we make the following recommendations to the Taiwanese government: (i) promptly draw up legislation on an exercise policy for older Taiwanese people; (ii) ensure interdisciplinary and cross-sectorial cooperation to foster national exercise programs; (iii) set up a professional research and development institute as the responsible authority; (iv) build-up an accessible and age-friendly exercise environment; and (v) increase services on exercise recognition, skills, exercise instructors, and information.

**Conclusion** Difference were found between Finland and Taiwan in terms of the recognition of "sports as a human right" and the strategy of "exercise promotion". A more comprehensive and supportive system is needed in Taiwan for the government to develop an effective exercise programs for older adults and improve the quality of their exercise experience.

**Key terms** exercise program for older people; policy for older adults' exercise.

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## A study on the comprehensiveness of workplace safety and health services in Singapore

*by Chia SE, MD, Wah-Lim J, MBBS, Sng J, MBBS, Lai A, MBBS, Chia A, PhD, Cheng YP, BSc, Chia KS, MD*

Comprehensive and integrated workplace safety and health (WSH) services require the implementation of safety, occupational health, and health promotion elements in the workplace. It is only when these three components are in place, can true integration of workplace safety and health services be effectively carried out.

The aims of this study are to determine (i) the comprehensiveness of workplace safety and health management in Singapore, (ii) the value of intervention health programs, and (iii) the usefulness of having comprehensive workplace safety and health management among the studied workplaces in Singapore. Thirty workplaces (ten manufacturing, seven construction firms; five marines; four hotels; four pest control services) and more than 9000 workers participated in the study. We assessed current workplace safety and health services and basic health needs using three tools: WSH services questionnaire; WSH 360° interview, and a basic health survey. Based on the results, tailored targeted intervention programs (which could involve smoking cessation, weight management and ergonomic programs) were implemented and the outcomes were evaluated.

Generally, comprehensive workplace safety and health services are not prevalent among the 30 workplaces studied. Some of the intervention programs were successful. Among the workplaces that managed workplace safety and health comprehensively, the workers were likely to be proud to work for their company and more likely to be satisfied with current job.

**Key terms** BOHS; health status; integration; tWSH; WSH360.

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## Comparing work ability and psychosocial factors among workers from municipal services and a control center

by Cotrim TP, PhD, Cardoso C, MsD, Rebelo F, PhD, Silva CF, PhD

**Objectives** The main purpose of this study was to understand the relations between work ability and psychosocial factors among workers from municipal services and a control center and to compare the results obtained in the two workplaces.

**Methods** The Portuguese versions of the Work Ability Index (WAI) and the Copenhagen Psychosocial Questionnaire (COPSOQ) were used to evaluate employees' work ability and characterize psychosocial factors. Our sample included 288 workers, 186 from municipal services and 102 from a control center.

**Results** Participants had a mean age of 42.64 years (SD 8,99) and 67.9% were men. On average, the workers had a good work ability [41.23±5.05] and there were no statistically significant differences between the two organizations. The WAI correlated negatively with age for all the workers ( $r=-0.16$ ;  $P=0.008$ ) but, by organization, this correlation was only found in the municipal services ( $r=-0.20$ ;  $P=0.009$ ). The COPSOQ subscales with critical results were the cognitive demands and job insecurity. In the control center, the scores were the worst and the differences between the two organizations were statistically significant ( $P<0.05$ ). The subscales "work pace" and "meaning of work" had lower values for those <45 years old, and there were differences between the two age groups ( $P<0.05$ ).

**Conclusions** Work ability is influenced by psychosocial factors and age in the workplace. So, strategies for promoting work ability during the work life are very important.

**Key terms** ageing; COPSOQ; WAI.

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## Workplace technologies and older workers: opportunities and challenges

*by Czaja SJ, PhD*

Two major demographic trends underscore the importance of considering technology adoption by older adults: the aging of the population and the rapid dissemination of technology within most societal contexts. In the past decade, developments in computer and information technologies have occurred at an unprecedented rate, and technology has become an integral component of work, education, healthcare, communication, and entertainment.

At the same time that we are witnessing explosive developments in technology, the population is aging. The number of people over the age of 65 worldwide is projected to be around 1.3 billion by 2040. For a variety of reasons, older adults comprise a growing proportion of today's workplace with an increasing number of workers exceeding the age of 55.

To be successful in today's work environment workers of all ages need to learn and interact with a variety of technologies. Ongoing developments in technology are reshaping work processes, the content of jobs, where work is performed, communication strategies, and the delivery of education and training. The introduction of automation and computing technologies into the workplace will continue to change the nature of many jobs and work situations for most workers including older workers.

These changes in job demands will continue as technology evolves and we continue to move toward a service-sector economy. This presentation discusses current research efforts that address the role of older workers in their workplace and how they perceive and adapt to new technologies. Emphasis will be given to the topics such as use of workplace communication technologies such as e-mail, video conferencing and instant messaging; telework; and recent findings regarding older worker training.

**Key terms** job training; older worker; workplace technologies

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## Are financial factors more important than health in early retirement? A longitudinal study

by de Wind A, MSc, Geuskens GA, Dr, Ybema JF, Dr, Blatter BM, Dr, Burdorf A, PhD, Bongers PM, Prof, van der Beek AJ, Prof

**Objectives** The aim of this study was to investigate the relative contribution of health, job characteristics, skills and knowledge, social factors, and financial factors to the transition from work to early retirement.

**Methods** Employees aged 59–63 years (N=2317) were selected from the Study on Transitions in Employment, Ability and Motivation (STREAM). Participants completed an online questionnaire at baseline and after one year of follow-up. Logistic regression analyses were used to identify predictors of retirement before the age of 65m, and population Attributable Fractions (PAF) were calculated.

**Results** Older age (OR 1.79), poor physical health (OR 1.78), a positive attitude of the partner with respect to stopping work (OR 3.85), and the financial possibility to stop working before the age of 65 (OR 10.2) predicted early retirement, whereas employees that reported higher appreciation at work (OR 0.58) and higher focus on the development of skills and knowledge (OR 0.54) were less likely to retire early. PAF was 0.75 for the financial possibility to stop working, 0.43 for a positive attitude of the partner with respect to early retirement, 0.27 for low appreciation at work, 0.23 for a low focus on development, and 0.21 for poor health.

**Conclusions** The financial possibility to stop working before the age of 65 significantly contributes to early retirement. In addition to financial incentives, the prolongation of working life might be promoted by health promotion programs in the workplace and work-related interventions focusing on appreciation and the learning environment.

**Key terms** determinant; older worker.

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## Educating healthcare professionals in transfer and lifting techniques through serious exer-gaming

by Dijkstra A, PhD, Dijkstra B, BBA, Kuipers DA, MSc

**Objective** For healthcare professionals, the correct and consistent application of lifting and transfer techniques is key to lowering the risk of developing complaints of mainly the lower back, neck and shoulder. In an innovative Dutch project, we aim for results on two main lines: the development of a serious exer-game (video games that are also a form of exercise) and user-centered research to answer the research question “how can serious exer-games help healthcare professionals to reduce work related physical complaints by developing the necessary skills in applying lifting and transfer techniques?”

**Methods** In a qualitative design, research data has been collected about (i) the existence of back/neck/shoulder problems (digital questionnaire), (ii) the learning mechanisms of serious games (expert report), and (iii) the gaming experience of the players (questionnaire).

**Results** Outcomes from the digital questionnaire on the experienced workload of healthcare professionals (N=119) gave information about the occurrence and experienced seriousness of complaints related to transfer and lifting activities. Two experts in the field of lifting and transfer techniques assessed six movies – in which six different healthcare professionals play the game– and evaluated the quality of the movements carried out by the players to improve the game mechanics. On playing the game, healthcare professionals (N=11) reported their experience regarding acceptability and usefulness of the game.

**Conclusion** Outcomes of the abovementioned studies gave building blocks to improve the game in a way that healthcare professionals can use the game in home based – time/place independent learning of lifting and transfer skills in a really fun way.

**Key terms** physical complaint.

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## Longitudinal study on health risk factors and work life among older construction workers in the United States

by Dong XS, PhD, Largay J, MPH, Wang X, PhD

**Objective** This longitudinal study explores the relationships between health risk factors and work life among older US construction workers.

**Method** This study analyzed seven waves of longitudinal data from the US Health and Retirement Study (HRS) 1998–2010, a nationally representative sample of Americans over age 50. The HRS provides data on demographics, employment history, job exposure, health behaviors, health status, and retirement among older Americans every two years. Using the 1998 wave as the baseline year with follow-up to 2010, about 1000 workers whose longest job was in construction were identified, with nearly 7000 observations during the study period. Job history, health behaviors, preventive healthcare utilization, health status, employment, and retirement were examined among this cohort. Univariate and multivariate analyses were conducted using SAS, version 9.2 (SAS Institute, Cary, NC, USA).

**Results** Preliminary findings show that construction workers' health declined as age increased. Compared to non-construction workers, construction workers were more likely to be cigarette smokers and heavy alcohol drinkers, but use less preventive healthcare. Older construction workers were also more likely to retire earlier than workers in other industries or switch to a non-construction job later in their working life. Further analyses will explore interactions between occupational exposures and health behaviors early in life and their impact on health and work life in later years.

**Conclusion** This study suggests that health promotion programs and interventions should target older construction workers given the trend in an aging workforce and high risks and physical demands at construction worksites.

**Key terms** employment; health behavior; health status; job history; retirement.

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## Are individual feedback letters a useful supplement in employee surveys?

by Ebener M, Dipl Psych

**Objectives** Knowing about one's work ability status may be an incentive to take individual measures for its promotion. This seems especially necessary if work ability is low. We established a process for anonymous individual feedback letters as part of surveys on work ability in companies and examined the participation.

**Methods** Employees from a German communal service took part in an survey about psychosocial work conditions, work ability, and commitment to the employer (N=219). All age groups took part, 57% of participants were women. Participants could indicate a code on the questionnaire to receive an individual work ability feedback letter. We checked who picked up the letter during a 4-week-interval after the end of survey, then use Chi-square tests to analyze which factors influenced indicating the code and getting feedback.

**Results** Of all participants, 85% indicated a code (step 1), 54% of this group finally picked up the feedback letter (step 2). In step 1, participation was significantly reduced by low work ability, physically demanding work, and low general job satisfaction. For step 2, the factors had no further influence. There were no effects of age, gender, or of self-reported physician's diagnosis of mental impairment.

**Conclusions** Nearly every second participant was reached by the individual feedback letter, which can be viewed as a success. But employees with poor work ability only participated half as much. The first step of the process (indicating a code on questionnaire) seems to be especially crucial. Reasons for refraining from receiving individual work ability feedback and possible consequences for the further development of the feedback process have to be discussed.

**Key terms** work ability.

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## Work ability index – from a scientific questionnaire to a family of tools

by Ebener M, Dipl Psych

The Work Ability Index (WAI) has been established in Germany for more than ten years. Different WAI-related tools have been developed and enhanced by the German WAI network (funded by the German Ministry of Employment) or cooperating institutions. An overview of these tools and insights from their use are set out in this paper.

Firstly the WAI-based interview (led by occupational physicians) was derived from the WAI as a scientific questionnaire. The next development was work ability coaching, combining individual interviews and group-wise aggregated feedback to companies. In parallel, employee surveys using the WAI became widespread. How to integrate this into existing routine employee surveys in companies still has to be discussed as well as how to combine it with other scales and data sources (eg, age-structure analyses). Other developments include the individual feedback offered to participants of WAI surveys to give them an incentive to promote their work ability. Besides that, the correlated “house of work ability” as a framework concept has become highly popular in Germany. It is easy to understand and memorable for different groups of employees, so workshop games have been developed from it and successfully tested.

The free-of-charge advisory telephone service offered by the network agency was a valuable tool for companies in their efforts to promote work ability. However, even if well-documented, tools should not be used without the support of occupational safety and health (OSH) professionals. We lack knowledge about (i) the direct effects of such tools on the individual and (ii) the incremental benefit versus other OSH (and Human Resources) instruments. Further research should examine the whole cycle of OSH processes and not solely focus on instruments.

**Key terms** employee survey; house of work ability; work ability coaching.

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## lidA study on work, age, and health – a promising approach to the identification of factors influencing the prolongation of working life

by Ebener M, Dipl Psych

The structure of demography and working life is undergoing considerable change in Europe. Researchers have been examining these issues for several years. A lot of cross-sectional studies have revealed *age differences* in health, work ability, and motivational factors. At the same time, longitudinal studies have shown *age changes* over time, finding predictors of disability and long-time sickness.

However, change of work and life conditions is not only a recent phenomenon. Therefore, tomorrow's "older employees" may be different from today's in several ways. Because single-cohort studies cannot detect these cohort effects, the lidA (*Leben in der Arbeit*) study was set up with a cohort-sequence design (cf. Schaie's "most efficient design"), interviewing employees born in 1959 and 1965 in 3-year intervals from 2011. Two further cohorts are planned in 2017 and 2020.

The lidA study is conducted by a national consortium and coordinated by the Institute of Safety Engineering (Wuppertal). A representative sample of employees was obtained from register data of the Federal Employment Agency (IAB). Personal interviews (CAPI) explore work, life conditions, health, and hand-grip strength. CAPI data will be linked to health insurance claims data and employment history from IAB, providing a complex data set.

Wave 1 was successfully realized with 6585 participants. Cohorts differed significantly in socio demographics, health and hand-grip strength as expected. The significant associations between work stress and depression were stronger among the younger cohort. Only low discrimination due to higher age was reported in both cohorts. Wave 2 will take place in 2014, enabling us to disentangle cohort and age effects.

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**Key terms** demographic change; psychosocial factor.

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## Older Chinese nationals in the United Kingdom: strategies for maintaining employability

by Flynn M, PhD, Wong L

In the UK, as in most parts of Europe, government is seeking to increase real retirement ages by raising pension ages, restricting social benefits, and encouraging employers to provide work opportunities for older workers. This agenda presents three major challenges for the Chinese community, particularly first generation Cantonese. First, many within the community are employed in the catering sector in physically demanding and stressful work, where the expectation is for very early retirement (before 55 years). Second, a large proportion have spent most of their careers self-employed, usually owning and running family businesses. Consequently, they cannot rely on employers to provide access to retraining, flexible working, and phased retirement which could help workers delay retirement. Third, first generation Chinese often lack sufficient English skills either to find re-employment or participate in government-sponsored training.

As part of a collaborative project, Wai-Yin, a community centered organization in Manchester, and the Centre for Research into the Older Workforce collaborated on an action research-based project to learn what kind of work opportunities would persuade older Chinese nationals to delay retirement; what obstacles they face in gaining employment; and specifically the support which they would need to pursue second careers in care giving. In this paper, we discuss our findings and what recommendations older Chinese themselves come up with for supporting extended working life within their community.

**Key terms** action research; BME; older worker.

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## A proposed method for risk assessment of manual handling of patients in the emergency medical services

by Forzano F, Dr, Baracco A, Dr, Fantini S, MD, Badellino E, Dr, Silveti A, Dr, Ranavolo A, Dr Eng, Ranaldi E, MD, Draicchio F, MD, PhD

**Objectives** The most-used quantitative methods for biomechanical risk assessment of manual patient handling cannot be used in the emergency medical sector (EMS). For this purpose, we decided to adapt a well-known qualitative tool developed by the Royal College of Nursing (RCN).

**Methods** Patient weight and clinical condition, environment, and intervention characteristics were grouped in specific categories. The tool was administered directly by medical staff working on ambulances. Healthcare workers completed the form at the end of each shift. All data from different units were gathered in a database.

**Results** Collected data from 230 forms has raised some critical issues. Teams were composed of only two (21%), three (75%) or four workers (4%); mean worker age and service's years were respectively 50 (SD±6.6) and 21 (SD±8.8) years because of reduced turnover and pension rules. Lifting aids were considered mostly inadequate with regard to quantitative and qualitative availability and maintenance. In some cases, only two operators had to lift heavy patients without lifting aids or in critical conditions (reduced space, postural, and clinical constraints).

**Conclusions** The proposed method provides useful data for the risk assessment of manual handling of EMS patients. After this pilot study, our tool will be further modified.

**Key terms** manual patient handling.

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## Design of the study on transitions in employment, ability and motivation (STREAM)

by Geuskens GG, PhD, Ybema JF, PhD, van den Heuvel SG, PhD, de Wind A, MSc, Leijten FRM, MSc, Joling CI, PhD, Blatter BM, PhD, Burdorf A, PhD, van der Beek AJ, Prof, Bongers PM, Prof

The objective of the Study on Transitions in Employment, Ability and Motivation (STREAM) is to acquire knowledge on determinants of healthy and productive work participation among persons aged 45–64 years.

A research framework was developed with main outcomes of productivity and transitions in employment (eg, leaving the workforce, entering the workforce, job change). These outcomes are influenced by the following determinants: health, job characteristics, skills and knowledge, and social and financial factors. The determinants influence productivity and transitions in employment through the ability, motivation, and opportunity to work. Demographic variables and initial employment status may influence all variables in the framework and their interrelations.

STREAM is a Dutch prospective cohort study among 12 055 employees, 1029 self-employed persons, and 2034 non-working persons aged 45–64 years. The study sample was stratified by age and employment status, and was drawn from an existing Intomart GfK internet panel. Measurements were carried out in 2010 (N=15 118), 2011 (N=12 430, response 82%), and 2012 (N=12 057, response 80%). The fourth measurement will take place in 2013. Participants complete an extensive yearly online questionnaire covering all aspects of the research framework. Questionnaire answers can be linked to register data of Statistics Netherlands for 89% of the participants. Moreover, qualitative data are collected.

Findings from STREAM will contribute to the development of effective policies and work-related interventions promoting sustainable employability among older persons.

**Key terms** cohort; motivation; productivity; retirement; workability.

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## Mental retirement and its relations with skills obsolescence, training, and job enrichment

by Geuskens GA, PhD, Sanders JMAF, MSc, Kraan KO, MSc, Liebrechts WJ, MSc

**Objectives** Mental retirement may occur when workers approach the end of their career and stop investing in new knowledge and social relationships at work. If workers stop investing in new knowledge, their skills may lose economic value and become obsolete. The processes of mental retirement itself and mental retirement that results in skills obsolescence might be countered by training and job enrichment. This is especially important because of the ageing of the population and the need to prolong working life while maintaining high productivity and good health. Therefore, the present study aims to investigate the concept of mental retirement and its relationships with skills obsolescence, training, and job enrichment.

**Methods** Based on a literature study and mind maps of scholars and employees in a large Dutch company, a conceptual model of mental retirement was constructed. Data of 12 055 employees aged 45–64 years included in the longitudinal Study on Transitions in Employment, Ability and Motivation (STREAM) were used to investigate this model. Factor analysis was applied. Besides, regression analyses were conducted to study the relationships between mental retirement, skills obsolescence, training and (the richness of) working tasks.

**Results** Preliminary findings suggest that mental retirement is a multidimensional concept consisting of three constructs, ie, lower proactive developmental behavior, lower work engagement and lower willingness to continue working in the present job during the next year.

**Conclusion** Additional findings and conclusions will be available in the coming months.

**Key terms** older worker.

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## Return to work after vocational rehabilitation

by Gould RK, LicSocSci, Härkäpää K, PhD, Järvikoski A, PhD, Laaksonen M, PhD

**Objectives** Vocational rehabilitation aims to promote the employment of people with health problems. We examined factors associated with work resumption and its sustainability among rehabilitees within the earnings-related pension system in Finland.

**Methods** The study included employees whose rehabilitation was granted in 2004–2005 (N=1260). The data were collected through a mail survey and from rehabilitation documents and pension registers. The follow-up period extended to the end of 2011. Logistic regression models were applied to examine factors related to work resumption.

**Results** Two thirds of those having been granted vocational rehabilitation actually completed their rehabilitation programs. For others, rehabilitation was discontinued or did not start at all. Of those having completed the rehabilitation, 88% returned to work in three years (54% stayed in employment for all three years and 34% for a part of the time), and 12% did not return to work at all. Fairly good work ability, non-manual occupation and no spells of unemployment prior to the rehabilitation were associated with the completion of rehabilitation and sustainable return to work. Also a well-timed, smoothly progressing, supportive and empowering rehabilitation process increased long-term employment.

**Conclusions** Sustainable return to work after vocational rehabilitation calls for supportive and consumer-oriented practices in all phases of the rehabilitation process, in particular for those unemployed prior to rehabilitation.

**Key terms** sustainability; work ability; work resumption

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## The demographic challenge: work, age, and ... health?

by Hasselhorn HM, Prof

**Objectives** Research into the field “work, age, health and employment” has very much focused on health as a core determinant of staying on the job. Is this focus still justified, particularly in times of demographic ageing and an increasingly ageing work force? Already today, a substantial proportion of workers of an older working age report poor health while a considerable proportion of retirees of the same age are healthy. So if it is not “health” that (directly) determines working or not working at an older age – what are the influential factors? And what are the implications of an extended focus (beyond health) when trying to keep more older people working?

**Methods** A model will be presented that explains work participation of older workers as a result of associations of work, socioeconomic status, lifestyle, and health with work ability (“Can I work?”) and work motivation (“Do I want to work”). Finally, a financial factor (“Do I need to work”) is added.

**Results** According to the model “health” only indirectly influences leaving employment; the immediate decision to leave employment is due to work ability and work motivation. These two factors may require interventive action different from that needed to improve the health of older workers.

**Conclusions** Political, organizational, and scientific focus on the topic “work participation of older workers” should consider the complexity of this field and strategies should be adapted to reach the aim of including more older people in working life.

**Key terms** aging worker; motivation to work; work ability; work participation.

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## From competence management to building human capabilities for learning at work – towards sustainable meta-competences of the innovation era

by Hasu M, PhD

Innovation has been one of the most influential and penetrating concepts of the 20<sup>th</sup> century, first in economics and technology management, and later also increasingly in organizational learning and competence management. However, for many employees the notion of innovation and related management practices are empty and meaningless, or associated with accelerated social, economic and environmental destruction. Some may find innovation empowering, providing a means for recognizing the hidden practice- and process-bound capabilities of employees and citizens (eg, bricolage) and accelerating the emerging sustainable, responsible competences in the economy and at work.

How could innovation become a “concept-in-action for practice”, which escapes the obvious challenges and builds new ways of organizing and developing more sustainable competencies in work-life? In this paper, I propose *generalization in innovation at work* as a key to approaching this problem. Drawing from the practice-based theorizing of innovation and learning, I ask: if innovation only takes place when the daily changes at work, in the form of bricolage or tinkering, are raised to a higher level of abstraction to be repeated and diffused, then how do the multiple participants in the complex organizational practice of innovation make the abstraction (ie, generalize) and act upon it? I will discuss the vertical reciprocal dynamics of concept development, based on Vygotsky’s view of concept formation, as an alternative and potentially fruitful framework for generalization in innovation at work as a potential new framework for competence management.

**Key terms** generalization; work organization.

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## Elderly workers and flexible working time: the relationship with employee well-being

by Hayman JR, PhD

**Objectives** The purpose of this paper is to investigate the impact of flexible work hours on employee well-being. Specifically, this paper examines the influence of flexible working time arrangements on the ability of elderly employees to balance work and personal life responsibilities.

**Method** A mixed method quantitative and qualitative approach was employed to investigate the research objectives. Survey data was collected from 240 employees in six divisions of a large Australian organization followed by a series of semi-structured focus group interviews. In order to test the research hypotheses, structural equation modeling (SEM) was employed. In addition, content analyses were conducted to gain insights into why certain patterns in the quantitative results may have emerged.

**Results** The statistical results indicate that flexible work arrangements generally had a positive impact on elderly employee's ability to balance work and personal life. However, the qualitative findings indicate that many flexible work schedules tend to favor employers more than employees and this can lead to increased stress in managing personal and home life for elderly employees and consequently reduce their well-being.

**Conclusions** As with all cross-sectional research, causality cannot be confirmed however, the research makes a significant contribution to the work/life literature as it is likely that flexible working time is imperative for elderly employees nearing retirement. Consequently, the findings suggest that organizational leaders should be compelled to include elderly employees in all flexible work initiatives designed to enhance employee well-being.

**Key terms** work–life balance.

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## Changes in the work ability and effector in a four-year follow-up study

by Higuchi Y, PhD, Shazuki S, Sugimura H, PhD, Izumi H, PhD, Fujiki N, PhD, Kumashiro M, PhD

**Objective** By law as of April 2013, companies in Japan must retain employees until they are 65 years old. Work ability is therefore important for a productive aging society. We used job stress and personality to explain changes in work ability with a four-year follow-up design.

**Method** Data from 678 male workers, including a Work Ability Index (WAI), National Institute for Occupational Safety and Health (NIOSH) job stress questionnaire, and self-esteem scale, were obtained in a four-year follow-up study (2009–2012). Changes in work ability, stratified by ten-year age groups, were analyzed with paired t-test and correlation analysis. In addition, a general linear model (GLM) was used to examine the effect of job stress and personality against a baseline.

**Result** The WAI score declined from the baseline, particularly for those in their 20s (t-test  $P=0.010$ ). We observed a strong correlation of WAI scores between 2009–2012 for those in their 40s, 50s or older ( $r=0.651-0.657$ ). The GLM results were as follows: In the 20-year age group, “self-esteem” was significant (partial eta squared=0.075,  $P=0.009$ ). In the 40-year age group, “job satisfaction” was significant (partial eta squared=0.037,  $P=0.008$ ). Except for the 20-year age group, the “WAI score at baseline” was significant in all groups. In addition, “self-esteem” was significant for those in their 30s and “job satisfaction” for those in their 50s or older ( $P<0.1$ ).

**Conclusion** “Self-esteem” among young adults and “job satisfaction” in the middle-aged group had a significant effect on the WAI score after three years. Age characteristics are thus important when considering the WAI.

**Key terms** job satisfaction; self-esteem.

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## Evaluation by older employees of activities undertaken by Polish enterprises to maintain their employment

by Hildt-Ciupińska K, PhD, Bugajska J, PhD

**Objective** Different actions are undertaken to minimize effects of the progressive ageing of societies. Among them is age management, defined as an element of human resource management or a management component of diversity (eg, anti-discrimination on grounds of age, gender, race, religion). The aim of this study was to assess how older workers ( $\geq 50$  years) evaluate activities undertaken on their behalf by their companies.

**Method** A questionnaire survey was conducted among older employees (250 women and 250 men).

**Results** Only a quarter of employees declared that special training is available in their companies and 40% of respondents indicated there are courses allowing for a deepening/updating of knowledge. Only one-fifth of workers were encouraged to pursue further education. The fewest actions were aimed at health promotion. Only about 6% of employees have excellent work ability. Most of them had only moderate ability to work. Health self-assessment of older employees is not too bad. The energy sector scored lowest with 28.06 points on a scale of 0–100.

**Conclusions** Activities related to age management in Poland are still limited. It is disturbing that so few respondents acknowledged their companies provide activities related to healthcare. Taking into account working capacity and extension of retirement age, such initiatives should be carried out on a larger scale, with particular emphasis on elderly employees.

**Key terms** age management; health promotion; work organization.

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## Employment trajectories beyond retirement in modern societies

by Hochfellner DE, MSc, Burkert C, PhD

**Objectives** Extending employment careers of individuals to older ages is one way of dealing with the impacts of demographic aging. Thus, the development of efficient public policy reforms requires the understanding of labor-force patterns among older workers. But the different concepts and driving forces of bridge and post-retirement employment are not understood in their complexity so far. Our study examines to what extent employment histories, individual attributes, and firm characteristics influence the likelihood of pursuing different employment patterns beyond retirement.

**Methods** We estimate proportional sub hazard models accounting for competing risks using German social security data linked to pension accounts, which contain biographies on a day-to-day basis of 15 000 retirees of birth cohorts 1940–1942.

**Results** We find that retirees transition to post-retirement employment much faster when working in the same environment as prior to retirement. Transition probabilities into a different work environment differ significantly by cohort and gender. The cumulative incidence of entering the same work environments decreases with increasing wages in the career job. Retirees with lower labor market attachment show a higher cumulative incidence of transitioning to different work environments. In addition, we confirm the influence of firm characteristics.

**Conclusions** Financial situation, labor-market attachment, health, and firm characteristics influence the transition to different post retirement job trajectories. Knowing these factors helps to align public policy specifically to the older workforce: efficient ways to extend working lives within their prospects and constrains can be implemented.

**Key terms** administrative data; post-retirement employment; working longer.

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## Promoting older workers' job retention and health by working hour patterns

by Härmä M, MD, PhD

Working hours contribute to well-being at work in many ways: they influence health, safety, and performance but also work motivation through possibilities to influence work–life balance and select different (eg, part-time or flexible) working hour arrangements. Working hours are among the most significant factors influencing general job satisfaction. This presentation reviews the current evidence and possibilities to promote older workers' job retention and health by working-hour patterns.

According to Scandinavian studies, working hours influence attitudes to extend individual work careers after the normal retirement age. Individually flexible working hours are often seen as a positive way to improve work attractiveness and control individual workload. Intervention studies among ageing shift workers show that improvements in shift ergonomics and possibilities to influence working hours support wellbeing. Older people with disabilities or those with decreased work ability can often utilize part-time work or partial sick leave to maintain their work ability. Epidemiological studies indicate that shift work, poor possibilities to influence working hours, and exceptionally long working hours (>55–60 hours) increase sickness absence, morbidity, and disability pensions. However, the literature is often inconsistent due to insufficient or crude exposure assessment related to the specific features of working hours.

Working hours consist of several characteristics related to their length, timing, recovery, social, and regularity aspects, as well as possibilities to influence them. A new research approach is discussed utilizing large-scale objective, company-based prospective working hour exposure data to study the possibilities to promote older workers' job retention and health by working hours.

**Key terms** age; health; shift work; well-being at work.

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## Good work – longer career: work well-being in the Finnish technology industry

by Ilmarinen J, PhD, Ilmarinen V, MA, Huuhtanen P, PhD, Louhevaara V, PhD, Näsman O, MD

**Objectives** The study aims to assess and promote work well-being and work ability to improve and prolong working life in the Finnish technology industry.

**Methods** The Good Work – Longer Career program (2010–2013) is based on the collective agreement between the social partners of the Finnish technology industries. A new instrument called Work Ability-Personal Radar (WA-PR) was developed to assess the work ability and work well-being as depicted in the Work Ability House Model. The WA-PR is a questionnaire with 16 items comprising five scales measuring (i) health, (ii) competence, (iii) values and attitudes, (iv) work and management, as well as (v) work, family, and close community. The validity of WA-PR has achieved support from confirmatory factor analysis and structural equation models.

**Results** This report includes the cross-sectional mean-levels of work well-being constructs from 5275 people of 37 companies representing different age- and personnel-groups. In the whole sample, the highest mean level was found for health and functional capacity. Substantially lower mean levels were measured for other factors of well-being. The lowest mean level was measured for work arrangements, work community, and management. For personnel groups, blue-collar workers showed the lowest results throughout all dimensions. The largest age-group differences were found between the youngest (under 35) and oldest (over 54) age groups. For all but health and functional capacities, the oldest age group showed the highest levels of well-being.

**Conclusion** To improve work well-being, a special emphasis should be placed on both younger generations and blue-collar workers in the Finnish technology industry.

**Key terms** house model; personal radar; work ability.

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## Development of a tool for evaluating employability

by Izumi H, PhD, Higuchi Y, PhD, Eguchi Y, Med, Fujiki N, PhD, Kumashiro M, PhD

**Objective** Elderly workers who have reached the mandatory retirement age in Japan often change to a different line of work if seeking reemployment. Although the Work Ability Index (WAI) is a useful means to evaluate workers' work ability for their current jobs, it is not effective for evaluating work ability for jobs that the workers have never done before. Employability (portable work ability) evaluation is needed to check the basic ability of elderly workers to take on a new job. Thus, the purpose of this study was to develop a tool for evaluating employability.

**Method** We administered a self-report WAI questionnaire including items related to mental and physical capacity, cognitive function, presence of acute or chronic fatigue, interest in own health, and the physical and mental demands in their current work to a total of 5580 workers. We evaluated physical capacity, cognitive function, and presence of fatigue in a total of 94 workers at their workplace. We then assessed the relationship between the results of these items and WAI score, and the items that had significant relationships to WAI score were selected. Finally, we created a model for employability that included concepts such as active aging for continuing a healthy working life and then formulated the questionnaire according to this model and the previously selected items.

**Results** We proposed a tool, based on the concept of active aging, for evaluating employability. The final questionnaire consisted of 32 items, and the validity and reliability of the tool were determined using data from 1800 workers.

**Conclusion** A questionnaire for the evaluation of employability is now available.

**Key terms** active aging; new job; reemployment.

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## Effectiveness of ergonomics programs in addressing work-related musculoskeletal disorders among acute-care hospital workers

by Ker PTS, MSc Tech (Ergonomics), Kam WK, BSc

**Objectives** The aims of this study were to explore (i) the prevalence of work-related musculoskeletal disorders (WRMSD) among healthcare workers in an acute-care hospital in Singapore, (ii) the effectiveness of having ergonomics programs to reduce WRMSD, and (iii) whether age was a factor that increased the risk of WRMSD.

**Methods** Demographic profiles of workers who sustained workplace injuries were available from custom software. Data were collected and analyzed according to financial year (from April to March of the following year). The ergonomics program included ergonomics evaluation, awareness training, manual handling training (where appropriate), and early reporting of work incidences.

**Results** All WRMSD cases (N=67) from 2011–2012 were extracted and categorized according to contributing risk factors and workplace type. In 2011, 37 cases of WRMSD were reported (prevalence rate of 4.51 per 1000 employees). Following the implementation of targeted ergonomics programs in 2011 to address WRMSD, the prevalence rate dropped to 3.45 per 1000 employees the following financial year, a 24% improvement. Age did not appear to be a significant risk factor for WRMSD from this retrospective study.

**Conclusions** Having targeted ergonomics program appeared to be effective in reducing WRMSD and was an important component in the overall workplace safety and health management in the hospital. Manual handling appeared to be the main risk factor for WRMSD and that was a consideration to ensure that ergonomics programs included specific components of manual handling for workers of all age groups.

**Key terms** manual handling.

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## Retirement of 90-year old Finns: a qualitative biographical perspective

by Kirsi T, PhD, Lumme-Sandt K, PhD

**Objectives** Longitudinal studies have shown that people with good work ability in midlife have better functional capacity in their older years than their age counterparts with former problems of work ability. In our study, we address this topic retrospectively by asking what do nonagenarians with good functional capacity tell about the time and causes of their retirement.

**Methods** Our data were drawn from 45 biographical interviews of 90-year old people living in Tampere. The interviewees' accounts of the time and causes of their retirement were analyzed with qualitative thematic analysis.

**Results** The time of and reasons for quitting paid work were mentioned by 21 interviewees. Most of them had retired before the official retirement age of 65 years for men and 63 years for women. Only five men and one woman had reached the old-age pension. Of the early retirees, six had lost their jobs as a result of the shutdown of big metal and textile plants during the early 80s. Six had resigned for declined health status, either their own or that of a spouse.

**Conclusions** Quitting work due to redundancy with good physical work ability or for declined health status before retirement age may partly explain why the interviewees of our data belong to the lucky group of survivors with good functional capacity as nonagenarians.

**Key terms** biography; functional capacity; qualitative analysis; work ability.

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## Organizational social capital: a role in maintaining work ability? A cross-sectional study in nursing homes

by Kiss P, MD, De Meester M, MD, Kristensen TS, PhD, Braeckman L, PhD

**Objective** This study aimed to explore the associations of organizational social capital (OSC) with the presence of poor work ability in front-line working personnel of nursing homes.

**Methods** This cross-sectional questionnaire study comprised 239 subjects (81% participation), working in 11 different nursing homes / work units. OSC was assessed by an OSC scale (0–100) derived from relevant dimensions of the second version of the Copenhagen Psychosocial Questionnaire. Work ability was assessed by the short version of the Work Ability Index (WAI). Associations of OSC with the prevalence of poor work ability (WAI<37) were explored at individual level (multivariate logistic regression analysis; correcting for age, gender, physical workload, emotional work demands, job insecurity, full/part time work, shift work and job task) and on work-unit level [correlation coefficient ( $r$ ), coefficient of determination ( $R^2$ ) and P-value].

**Results** In the logistic regression model, evaluating the risk on the individual level, OSC turned out to be a significant factor for the presence of poor work ability (OR 0.94; 95% CI 0.90–0.98). In the group level analyses, strongly significant correlations were found between mean OSC and prevalence rates of poor work ability at the nursing home / work unit level ( $r=-0.818$ ;  $R^2$  linear=0.669,  $P=0.002$ ).

**Conclusions** The strong association of OSC with work ability is suggestive of the important role of OSC in maintaining work ability: a high level of OSC could be a preventive factor for poor work ability. Follow-up studies are needed to confirm these first findings.

**Key terms** WAI; work unit.

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## Exploring the relationship of organizational social capital and need for recovery after work with the presence of good work ability of employees working in the public sector

by Kiss P, MD, De Meester M, MD, Braeckman L, PhD

**Objective** This study aimed to explore the relationship of organizational social capital (OSC) and need for recovery (NFR) after work with the presence of good work ability of employees working in the public sector.

**Methods** Employed in different public institutions, 1238 subjects (81.0% response) participated in a cross-sectional questionnaire study. OSC was assessed by an OSC scale (0–100) derived from relevant dimensions of the second version of the Copenhagen psychosocial questionnaire. NFR was assessed by the NFR scale questionnaire (0–11 scale). Work ability was assessed by the short version of the Work Ability Index (WAI; 7–49 scale). Associations of OSC and NFR with the prevalence of good work ability ( $WAI \geq 37$ ) were explored by multivariate logistic regression analysis, correcting for age, gender, and job task. In a second series of regression analyses, OSC and NFR were categorized to estimate thresholds of effect.

**Results** In the logistic regression model, both OSC (OR 1.02; 95% CI 1.01–1.04) and NFR (OR 0.75; 95% CI 0.71–0.79) were significant factors for the presence of a good work ability (87.8% predicted correctly;  $R^2=0.228$ ). Significant effects on presence of good WAI were apparent for an OSC level of  $\geq 60$  and a NFR level of  $\geq 2$  (reversed relationship).

**Conclusions** The strong associations of OSC and NFR with good work ability is suggestive of the important role of OSC and NFR in maintaining work ability: OSC levels  $>60$  and NFR levels  $<3$  were significantly associated with good work ability.

**Key terms** others than in title

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## Systematizing interventions to maintain and promote work ability in order to prolong work life

by Kloimüller I, Dr, MBA, Czeskleba R, Mag

**Objectives** In the Austrian Pension Retirement Insurance and Austrian Workers' Compensation Board's five-year program "Fit for the Future", we registered over 450 interventions in companies to promote work ability. The aim of this registration ("the House of Work Ability") was to systematize the interventions, prove their effects on work ability, and then transfer interventions to other companies.

**Methods** The House of Work Ability is a good model to anchor interventions on different "floors" (ie, health, competence, values, and work) and systematically examine interventions. In addition to this clustering, we distinguished the measures by organizational/structural and individual approach.

**Results** After a analysis in the companies, including the Work Ability Index plus model, we build up an intervention matrix along the House of Work Ability for different target groups (professions, age groups etc). In the interventions, we tried to focus on the organizational level. Each company had its own specific matrix. The measures themselves were specified with the SMART model (specific, measurable, action orientated, realizable, timely fixed).

**Conclusions** Interventions were measured twice on their effects on different dimensions of work ability. Interventions that proved to be successful were transferred to a tool box. The matrix model itself prove tod be a good model for structuring the interventions. For the future, it is planned to create an international intervention data bank to share good practice. This presentation shows examples of intervention matrices and highlight successful interventions.

**Key terms** House of Work Ability; intervention matrix.

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## Systematic critical review of the contribution of organizational, psychological, and social factors at work to disability pension

by Knardahl S, MD, PhD, Johannessen H, PhD, Borg V, PhD, Härmä M, MD, PhD, Regulies R, PhD, Seitsamo J, PhD, Sterud T, PhD

**Objectives** The workplace is an arena where individuals face challenges from work tasks and social interactions. At the same time, work provides opportunities for achievement, fulfillment, and friendship. The objective of the present systematic critical review was to determine the contribution of organizational, psychological, and social factors at work to disability retirement.

**Methods** Systematic searches of Medline, Embase, and PsychInfo databases identified primary articles. Inclusion criteria were: (i) address disability pension awards or related outcomes; (ii) measure organizational, psychological, or social exposures at work; and (iii) study design: prospective cohort, case-control (longitudinal), historic control, or experimental. Two reviewers independently screened the abstracts. The methodological quality of included primary studies was assessed with a comprehensive quality-assessment checklist. Internal and external validity were assessed separately. Each article was first evaluated by two reviewers independently, then discussed and a final score was agreed on.

**Results** Of 14 277 studies identified by March 2012, 50 were eligible for inclusion. Of these, 26 were found to be of high or acceptable quality. The search will be updated with articles published until May 2013. Most studies investigated a small set of factors. Aspects of low job control were the most consistent predictors.

**Conclusions** Aspects of low job control were the most consistent predictors of disability pension awards. However, this is rather general concept, encompassing both control of work time and decision authority.

**Key terms** disability retirement

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## Chronic health conditions and work ability in the ageing workforce: the impact of work conditions, psychosocial factors, and perceived health

by Koolhaas W, MSc, Van der Klink JJJ, PhD, de Boer MR, PhD, Groothoff JW, PhD, Brouwer S, PhD

**Objective** This study aimed to determine the influence of work conditions, psychosocial factors and perceived health on the association between the presence of a chronic health condition and work ability among workers aged  $\geq 45$  years. In addition, we aimed to examine variables associated with work ability for workers with and without a chronic health condition separately.

**Methods** The data for this cross-sectional study were obtained from 5247 workers in 5 different work sectors. Work ability was assessed with the first item of the Work Ability Index. Self-report was used to assess the presence of a chronic health condition.

**Results** The presence of a chronic health condition was negatively associated with work ability ( $B=-0.848$ ). The strength of this association slightly attenuated after subsequently adding individual characteristics ( $B=-0.824$ ), work conditions ( $B=-0.805$ ), and more so after adding psychosocial factors ( $B=-0.704$ ) and especially perceived health variables ( $B=-0.049$ ) to the model. Variables associated with work ability for workers with and without a chronic health condition were similar.

**Conclusion** Perceived health and psychosocial factors, rather than work conditions, explained the association between the presence of a chronic health condition and work ability. Substantial differences of variables associated with work ability for workers with and without a chronic health condition were not found. Based on the lower mean scores for workers with a chronic health condition for work ability as well for predictors, these workers might have the most benefit by a policy focusing on enhancing these associated variables.

**Key terms** ageing worker.

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## Effectiveness of Staying Healthy at Work, a problem-solving-based intervention to improve sustainable employability of ageing workers

by Koolhaas W, MSc, Groothoff JW, PhD, De Boer MR, PhD, Van der Klink JJJ, PhD, Brouwer S, PhD

**Objective** The aim of the current study is to evaluate the effectiveness of the problem-solving-based intervention “Staying Healthy at Work” compared to usual practice.

**Methods** This study was designed as a quasi-experimental trial with a 1-year follow-up. Measurements were performed at baseline and 3 and 12 months. The primary outcomes were work ability, vitality, and productivity. Secondary outcomes were perceived fatigue, psychosocial work characteristics, work attitude, self-efficacy, and work engagement.

**Results** Analyses were performed for 64 workers and 61 workers in the intervention and usual practice group, respectively. An adverse effect on work ability ( $B=-1.33$ , 95% CI -2.45--0.20) and vitality ( $OR=0.10$ , 95% CI 0.02–0.46) was found compared to workers in the usual practice. Positive results were found for the secondary outcomes work attitude ( $B=5.29$ , 95% CI -9.59–0.99), the self-efficacy persistence subscale ( $B=1.45$ , 95% CI 0.43–2.48) and skill discretion ( $B=1.78$ , 95% CI 0.74–2.83) compared to usual practice.

**Conclusion** The results of the problem-solving-based Staying Healthy at Work intervention showed no superior effect on productivity and a negative effect on work ability and vitality compared to usual practice. We presume that the lack of positive primary outcomes is due to program failure and not to theory failure.

**Key terms** ageing workforce; intervention study; older workers; problem solving approach; work ability.

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## Determinants of return to work after temporary disability retirement

by Laaksonen M, PhD, Gould R, PhD

**Objectives** If the employee's work capacity can be expected to be restored through treatment or rehabilitation, disability pensions in Finland are first granted for a fixed period. However, previous studies have shown that most of these pensions turn permanent and only few employees return to work. We examined which factors are associated with return to work after temporary disability retirement.

**Methods** The study included all Finnish residents whose temporary disability retirement (formally "cash rehabilitation benefit") from the earnings-related pensions system started in 2007 (N=10 837). Competing risk regression models were applied to examine factors related to return to work using register data from the Finnish Centre for Pensions.

**Results** The cumulative incidence of return to work by the end of 2011 was 27.5%. Return to work was more common after temporary disability retirement due to musculoskeletal and other physical diseases than due to mental disorders. Having a valid employment contract [sub hazard ratio (SHR) 2.45, 95% CI 2.28–2.64] and participating in vocational rehabilitation (SHR 2.09, 95% CI 1.91–2.29) increased the probability of return to work. Return to work was also more common among women, younger employees, white-collar employees, the more highly educated, and the married. There were no differences between private and public sector employees or between residents of more urban and rural areas.

**Conclusions** Job security and being targeted active rehabilitation measures promote return to work after temporary disability retirement.

**Key terms** fixed-term.

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## Young and strong: looking for work

by Langelaan S, PhD, Boneschansker O, MSc

**Objective** The first aim of this study was to examine the relationship between health complaints experienced by youth on social welfare and their self-efficacy with regard to job search. Second, the role of proactive coping behavior and social support as moderators in this relationship was studied.

**Method** We used a diagnostic questionnaire developed by Dariuz. This questionnaire was filled completed by 731 youth (age 18–27 years) on social welfare. Physical and psychological health complaints, depression, anxiety, social support, proactive coping, and job search self-efficacy were the main scales.

**Results** In this special population sample, the degree of self-efficacy with regard to job search appears to be negatively related with the level of health complaints. Especially experiencing psychological complaints (general psychological complaints and depressive complaints) or experiencing a combination of psychological and physical complaints, affects the degree of self-efficacy with regard to job search of youth on social welfare. Additionally, this negative relationship is weaker for those who show proactive coping behavior than for youth with less proactive coping behavior.

**Conclusion** Among youth with health complaints, interventions should be aimed at enhancing proactive coping behavior. That way, job search self-efficacy may improve. We know from earlier studies that this is a crucial predictor of actually finding a job.

**Key terms** job-search behavior; pro-active coping; self-efficacy; social welfare; young employee.

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## Return to work – work community factors supporting employment of people recovering from mental health problems

by Latostenmaa K, MSocSc, Boelius S, MSc, Laitinen N, BSc, Sallinen M, PhD, Myllymaa T, Med, Aarola N, MA

Increased work-related disability and demographic changes will lead to a reduced labor force in Europe. One solution is to consider persons with disabilities, especially workers recovering from mental health problems, as a potential labor.

SAMK has developed a model for employers and work communities to support comprehensive return to work or new employment of people after rehabilitation processes. Structured phone interviews (N=120) were used to support and counsel employers and work communities in small and medium-sized firms from industry, trade, and services in Satakunta, Finland.

According to the results, 56% of respondents were willing to employ a mental health rehabilitee providing that necessary support was available. Additionally, supplementary interviews of employers (N=5) were conducted and individual thematic interviews of rehabilitees (N=4) were used to collect data. The data were analyzed using content analysis and categorized into themes: (i) individual and social factors in the work community; (ii) management and work organization/ intra-community and trans-organisational information procedures; and (iii) work community communication. The last point proved to be more important than expected.

The best practices were collected in a practical booklet “Guide for work community to support the employment of a rehabilitee” (available in print and PDF [www.tyomieli.fi/english/php](http://www.tyomieli.fi/english/php)). The checklist can be applied also for other worker groups.

To conclude, the employer counseling model decreases social exclusion of disadvantaged groups by offering comprehensive support to employers and work communities, thus helping to answer financial and societal challenges of an ageing Europe.

**Key terms** employer counseling; psychosocial factor; work organization.

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## Production loss due to health and work environment problems in companies

*by Lohela Karlsson M, PhD*

Health-related production loss is commonly investigated and attempts to calculate costs associated with the phenomenon have been done. However, other factors besides employee health, such as work environment and worker attitudes, may also affect employees' ability to perform. Only measuring the contribution of ill-health might underestimate the actual production loss. This presentation will address findings from a study investigating the frequency of health- and work-environment-related production loss of workers in different age-groups.

The frequency of health- and work-environment-related production loss among the working population were assessed at different workplaces in Sweden during 2011–2013. Data was collected through a validated questionnaire consisting of questions related to the psychosocial work environment, employee health, and production loss.

Having health problems seem to be more common than experiencing work environment problems. However, work environment problems affect employees' ability to perform to a larger extent than health problems do. The level of health-related production loss differs between the different age groups with higher levels of production loss among the younger employees whereas there is no significant difference in the level of work-environment-related production loss among the different age groups.

A poor work environment affects employees' ability to perform to a larger extent than health problems do and is associated with conceivably high costs for companies. By investing in workplace interventions companies have the potential to reduce production loss due to that problem and also prevent future ill-health among the employees.

**Key terms** employee health; productivity loss.

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## Learning in late adulthood – is information communication technology a special challenge?

by *Luppi E, PhD*

The aim of this paper is to investigate the influence that information and communication technologies (ICT) bear on the purposes and practices associated with learning processes involving older adults; the initial results of a qualitative research on this topic will also be presented.

The decline in the birth rate and a longer life span are progressively changing the demographic profile of our society. Not only is today's elderly population more numerous than ever before, but it is also undergoing substantial changes. The "baby boomers growing old" phenomenon is producing an important rise in the group usually labeled "young elderly", but which could more appropriately be defined "older adults", since it includes individuals who are almost as active as adults, in the private as well as in the public sphere.

This phenomenon requires us to focus on the learning needs of this population in order to allow them to be active citizens. This is particularly important because the set of competences involved with the idea of citizenship are experiencing a transformation due to the massive importance of ICT in everyone's life. New technologies are creating new demands coming from a society experiencing changes, where individuals are continuously asked to adapt and transform themselves. The main challenge for education is putting into place the conditions that can provide older adults with all the means necessary to access ICT and transform it into tools for citizenship, to acquire new knowledge and skills, and also to increase their opportunities for relationship-building communication and interaction.

**Key terms** active citizenship; lifelong learning; older adult.

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## Sleep disturbances predict long-term changes in musculoskeletal pain among firefighters

by Lusa S, PhD, Miranda H, PhD, Luukkonen R, PhD, Punakallio A, PhD

**Objective** Because of long work shifts in fire-fighting, sleep problems may be a significant risk factor in the development of pain symptoms and may lead to work ability problems. The aim of this 13-year follow-up study was to identify the different pathways of musculoskeletal pain and investigate whether sleep problems predict these pathways among firefighters.

**Methods** Three hundred and sixty Finnish firefighters (mean age at baseline 36 years) replied to a questionnaire in 1996 (T0), 1999 (T1) and 2009 (T2). The outcome variable was musculoskeletal pain in different body parts. The likelihood of belonging to a pain pathway was predicted by sleep disturbances at baseline using logistic regression modeling.

**Results** The following pathways were identified: pain-free; recovering; worsening; fluctuating; and chronic. Chronic pain (pain in T0, T1 and T2) occurred most frequently in the neck (among 15% of firefighters) and shoulders (14%). Almost one third of the subjects had worsening pain in the knees and about every fourth in the low-back, neck, and shoulders. Those with sleep disturbances at baseline had a 2.5-fold risk (adjusted OR 2.5, 95% CI 1.3–4.9) of belonging to the worsening or chronic sciatic pain pathway (when compared to pain-free), and more than a 2-fold risk of that of neck pain (OR 2.3, 95% CI 1.2–4.4) and shoulder pain (OR 2.1, 95% CI 1.1–4.1).

**Conclusions** Musculoskeletal pain symptoms are frequent among firefighters. Sleep disturbances strongly predict belonging to the pain pathways. Occupational health and safety personnel, as well as firefighters themselves, should recognize sleeping problems sufficiently early in order to prevent musculoskeletal pain and work disability.

**Key terms** firefighting; rescue work.

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## Surveying the quality of ageing at work: tools and findings to support human resource management processes in Italy

by Marcaletti F, PhD, Garavaglia E, PhD

**Objectives** Recent pension reforms in Italy raised the need for human resources (HR) policies able to meet the challenges of an ageing labor force. A new research tool (the quality of ageing at work questionnaire – QAW-q) aiming at analyzing the diverse influence of age (chronological age, job seniority, and years of payments to social security schemes) on the perceived quality of work within defined work organizations has been tested.

**Methods** The testing study included employees from three private companies (two banks and one cooperative company) in northern Italy. The questionnaire was administered to all employees; 254 cases were collected.

**Results** The average value of the overall QAW-index (range 4–30) was 16.83 points. The analysis of the overall index by age classes and seniority classes showed that the youngest and least-senior classes register higher scores in all the cases (eg, up to 34 years: 17.52 points, up to four years of seniority: 18.09 points). Principal component analysis shows the prominence of instrumentality dimensions of the work experience above expressive dimensions, concrete work arrangements, and health.

**Conclusions** Age, and in particular the ageing process, influence the perceived quality of work following a negative trend: as workers grow older their perception of the quality of their work life deteriorates. Age in terms of payments to social security schemes exerts the strongest influence: the more individuals are socialized to the work experience, the more negative their perception of the quality of work.

**Key terms** age meaning; individual perceptions; organizational performance; passage of time.

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## An exercise program decreases low-back symptoms of warehouse workers

by Mesquita CC, PhD, Ribeiro JC, PhD, Moreira P, PhD

**Objectives** The purpose of this study was to evaluate the effect of following a 21-month exercise program on the musculoskeletal symptoms of warehouse workers.

**Methods** The population included 557 warehouse male workers. After selection criteria, 249 workers were deemed eligible and were randomized in two groups (125 and 124 in the intervention and control groups, respectively). Subjects were then asked to volunteer for the study, forming a sample of 229 workers (112 and 117 in the intervention and control groups, respectively). All subjects completed the Portuguese version of the Nordic Musculoskeletal Questionnaire at baseline (M1) and at 11 (M2) and 22 (M3) months of follow-up. The exercises were executed in the company facilities once a day for eight minutes.

**Results** In both groups prior to the intervention, the most common symptoms were in the low-back region, followed by the neck. In the intervention group, improvements were statistically significant in the low back for the variable “troubles in the last 12 months”, at M1/M2 ( $P=0.000$ ) and M1/M3 ( $P=0.000$ ); for the variable “limitations in the last 12 months”, at M1/M2 ( $P=0.001$ ) and M1/M3 ( $P=0.000$ ); and for the variable “troubles in the last 7 days”, at M1/M3 ( $P=0.01$ ). In the control group, there were statistically significant differences at M1/M3 ( $P=0.029$ ), although these differences resulted from increased symptoms.

**Conclusions** It can be concluded that the implementation of a 21-month low-back-specific exercise program decreased low back pain symptoms of warehouse workers.

**Key terms** musculoskeletal symptom; occupational health; specific exercise.

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## Exploring the relationship between work ability and financial well-being

by Miller R, BA, Rolland LR, MA

**Objectives** Securing financial well-being is a key motivation for workforce participation. We examine the factors that contribute to financial well-being, assess the financial well-being of working Australians, and explore the relationship between financial well-being, broader well-being at work factors, and work ability.

**Methods** The study included a nationally representative sample (N=4966), post-stratification weights to account for non-response bias, common factor analysis to develop factor-based scales, and logistical regression to develop the predictive financial well-being index (scale 1–11) and link to work ability. The financial well-being predictive index was then applied to a sample of the Westpac Banking Corporation workforce (N=8486). Segmentation analysis was used to group employees and develop an employee lifecycle framework to understand the stages an employee transitions across work life. Each lifecycle was profiled in detail and assessed across the key dimensions to inform specific intervention strategies aimed at targeting the areas of well-being in which groups of employees may be deficient. Finally, the relationship of the Work Ability Index and work, health, values, finance, and family and community factors were explored across a range of demographic variables to provide a fact base that identifies the drivers of well-being for the Westpac Banking Corporation workforce.

**Results** Five items were found to influence financial well-being: managing finances; saving and spending; investments; life after work; and protection for the unexpected.

**Conclusion** Of the five contextual well-being at work factors tested, financial well-being was found to be the most significant predictor of work ability.

**Key terms** work-based well-being; workforce participation.

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## Return to work of women survivors of breast cancer: 5-years follow-up

by Monteiro I, PhD, Peressim LB, MSc

**Objective** The aim of this study was to identify the prevalence of return to work among women treated for breast cancer and intervening factors.

**Method** A 5-year follow-up study was conducted at a university hospital, comprising women undergoing surgery for treatment of breast cancer, in the period from January–December 2007. They were contacted by telephone interview in 2012 and answered a questionnaire about sociodemographic, work, and treatment characteristics.

**Results** The sample comprised 104 women, and the average age at surgery was 54.2 years. Of these women, 81% returned to work and 76% remained working. Part of the women reported changes in the workplace (14%), work activities (28%), and number of hours worked (50%). Factors negatively associated with return to work were: being retired before receiving a diagnosis of cancer; planning to retire after treatment; and having medical clearance after treatment. The factors related to retirement and medical clearance also influenced the permanence of work. Self-reported health was correlated with return to work and work permanence. Pain in the ipsilateral upper-limb, surgery, and musculo-skeletal abnormalities had a negative influence on return to work.

**Conclusion** Well-being and understanding work as a part of life had a positive association with return to work and maintenance of work. It is necessary to create measures of intervention and education for employers, workers, and health professionals to enable them to reintegrate breast cancer survivors into the labor market.

**Key terms** employment supported; job satisfaction.

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## Quality of life, job satisfaction, and organizational issues in the workplace

by Monteiro I, PhD, Silva TR, PhD candidate

**Objective** The objective was to identify the correlation between quality of life, job satisfaction, current work ability, and absenteeism.

**Methods** A cross-sectional study was conducted among 560 workers from a manufacturing industry, using the following instruments: the World Health Organization Quality of Life project (WHOQOL-Bref), the satisfaction scale of the Occupational Stress Indicator (OSI), and one question about current work ability. The sample was divided into three groups, those with: >10, 5–9, and 0 absences in the year in the past year. The associations between variables were analyzed using the Chi-square analysis of variance, the Fisher test, and covariance analysis and logistic regression.

**Results** The comparative study among employee groups showed that the group with >10 absences had a lower overall quality of life and lower job satisfaction. Significant differences were found between groups concerning gender, employees with a second job, and those working a third shift. The overall analysis of employees' perception about quality of life indicates that physical, psychological, and social factors were crucial to the high scores of WHOQOL Bref, clearly contrasting with the lowest scores for environmental factors. The job satisfaction scale has shown dissatisfaction with aspects of recognition and feedback, career opportunities, skills development, and the work environment.

**Conclusion** The company's recent restructuring and weakening of human resource tools can be a contributing factor to this result. The company has demonstrated a proactive attitude in implementing actions that contribute to raising the morale and motivation of employees.

**Key terms** absenteeism; industrial worker.

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## Short-term disease absenteeism of nursing staff in a Brazilian university public hospital

by Monteiro I, PhD, Bargas EB, MA student

**Objective** The study aimed to determine the characteristics of nursing staff absenteeism and analyze the correlation of short-term disease absenteeism with gender, age and educational level of the worker, on the one hand, and with department, shiftwork and professional title (registered nurse, licensed practical nurse and nursing assistant), on the other hand.

**Method** The cohort study comprised 994 nursing staff of a public university hospital in Brazil. Participants were followed through hospital administrative data files from 1 January–31 December 2011. Short-term disease absenteeism was considered  $\leq 14$  consecutive days based on medical certificates.

**Results** There was a strong positive correlation between age and total days of absence (Spearman's coefficient = 0.1306). The nursing staff working at night shift showed the highest percentage of workers with medical certificates and those on afternoon shift the lowest (OR=1.73, 95% CI 1.21–2.49). The nursing assistant staff showed the highest percentage of workers with medical certificates and the registered nurse staff the lowest (OR=3.65, 95% CI 1.72–7.75). The nursing staff working in the outpatient clinic showed the highest percentage of workers with medical certificates and those at the emergency unit the lowest (OR=2.55, 95% CI 1.31–4.96).

**Conclusions** Short-term disease absenteeism has complex and multifactorial determinants that need to be analyzed from the perspective of the working process, institutional culture, health, and well-being of nursing staff.

**Key terms** nursing administration; shiftwork; research.

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## Valuing healthcare professionals' well-being to foster performing organizations

by Morando V, PhD, Marcaletti F, PhD

The Italian national healthcare agency promoted a program to value the performance of healthcare organizations through a multidimensional perspective which included: (i) performance management cycle; (ii) employees' well-being; (iii) general directors' leadership; and (iv) patients' satisfaction. This paper presents the theories, methods, and results of the organizational well-being evaluation. It focuses on researching well-being and its relevant implications within the performance management cycle.

The sample was drawn up nationally by a judgment stratification to identify the cases suitable to the research design. Of 178 healthcare units in the first step, 56 moved to the second stage where their their management performance was rated on a 3-point scale. Finally, 15 enrolled for the well-being evaluation. Through a realistic literature review, a well-being questionnaire was created to connect the performance cycle with valid scales to investigate well-being and engagement. A proportionally stratified population census was carried out in each organization: the statistical unities were 16 homogenous populations identified by the professionals' families (on average 400 employee per case out of a medium size firm of 3500 employees).

The sample size was important when researching connections between the organization's performance cycle and well-being: whether organizations were successful in meeting targets and control and whether they preserve and foster well-being, or vice versa. Moreover, due to the sample consistency, the questionnaire tool will be validated as a toolkit for public healthcare organizations and as a dashboard of indicators to monitor performing organizations.

**Key terms** healthcare organization; performance management; well-being evaluation.

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## Maintaining the work ability of an aging nursing workforce: the interplay between successful aging strategies and work conditions

by Müller A, Dr, Weigl M, Dr, Heiden B, Dr, Angerer P, Prof

**Objectives** Lifespan research shows that action strategies in terms of selective optimization with compensation (SOC) (Baltes & Baltes, 1990) help to maintain functioning and well-being in older age. The present study refers to some open questions regarding SOC in the context of nursing: (i) Are there job specific manifestations of SOC in nursing? (ii) Does SOC help to maintain the work ability of older nurses and nurses with musculoskeletal impairments? (iii) Can working conditions support the application and effectiveness of SOC?

**Methods** To address research question 1, we conducted semi-structured interviews with 17 nurses (>45 years). For research questions 2–3, we conducted cross-sectional quantitative studies with a total of 611 nurses (age range: 21–63 years) using employee self-reports, medical examinations, and supervisor ratings.

**Results** The interviews indicated that nurses use job-specific SOC strategies to a great extent to cope with their job demands. Moderated multiple regressions showed that SOC helps to maintain the work ability of older nurses and those with musculoskeletal impairments. Job control substantially enhanced the effectiveness of SOC.

**Conclusions** The use of SOC together with job control can help to maintain the work ability especially of older nurses and those with musculoskeletal impairments. This finding is relevant for the understanding of nurses' active aging and the development of measures that promote sustainable work in the nursing profession.

**Key terms** job design.

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## Multi-site pain and work environmental factors as predictors of poor work ability among younger and older employees

by Neupane S, PhD, Virtanen V, PhD, Leino-Arjas P, PhD, Miranda H, PhD, Siukola A, MSc, Nygård C-H, PhD

**Objective** The aim of this study was to investigate whether the presence of psychosocial or physical exposures at work modify the effect of multi-site pain on future work ability among younger and older employees.

**Methods** A four-year follow-up survey was conducted among all employees (N=734) of a large food manufacturing company in 2005 and 2009. The information on self-perceived work ability, musculoskeletal pain, physical and psychosocial work environment were elicited through a structural questionnaire. The risk of poor work ability related to baseline multi-site musculoskeletal pain in combination with physical and psychosocial factors was assessed by logistic regression.

**Results** Multi-site musculoskeletal pain multiplied the risk of future work ability among all subjects, and the presence of the exposure increased the risk even further. The risk of poor future work ability due to multi-site pain in combination with psychosocial factors such as job satisfaction, leadership, team spirit, and possibilities to exert influences was higher especially among younger employees. Of the physical factors, high exposure to awkward work posture and repetitive movements combined with multi-site pain increased the risk mostly among older employees.

**Conclusion** This study indicates that both among younger and older employees without multi-site pain symptoms, work exposures are associated with an increased risk of future poor work ability.

**Key terms** musculoskeletal pain; work ability; work exposure; working condition.

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## To work or not to work in an extended working life? Factors in working and retirement decisions

by Nilsson K, PhD

This presentation is based on a recent dissertation in Sweden with the overall aim to obtain knowledge about older workers' work and life situation in association with their planning and decision to retire.

Good mental and physical work environment, moderate working pace and working time, and the right competence and possibility for skills development were factors determining whether older workers believe they *can* extend their working life. Attitude to older workers in the organization, motivation and work satisfaction were factors determining whether older workers *want to* extend working life. Health, personal economic incentives, family/leisure pursuits and attitude to pension in society affected both whether people believed they *can* and *wanted to* extend their working life.

In their final retirement decision, older workers considered: (i) their possibility to balance and adapt functional ageing and health to a sustainable work situation; (ii) their economic situation; (iii) possibilities for social inclusion and coherence; and (iv) possibilities for meaningful activities. Whether these requirements were best fulfilled in or outside working life determined the decision to continue working or to retire.

If it is desirable for society that people extend their working life, both the “can work” and the “want to work” factors need to be met. This requires a focus not only on older workers, but also on organizations and managers in order to provide incentives to an extended working life.

**Key terms** health; motivation; retirement planning; work environment.

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## Job autonomy, work intensity, and late exit from work

by Nätti JT, PhD, Anttila TE, PhD, Oinas T, PhD

**Objectives** Job autonomy and work intensity are key indicators of how work is organized. Furthermore, their combination (job demand–control model) is a widely used theory to explain the effects of work organization in terms of health and well-being. In this study, we examine the associations of job autonomy and work intensity with employees' employment situation at the age of 62.

**Methods** Empirical analyses were based on the pooled data of the three waves of the representative Finnish Quality of Work Life survey (1990, 1997, and 2003) carried out by Statistics Finland. In order to study later work career, the cross-sectional Quality of Work Life surveys was merged with register-based follow-up data held and maintained by Statistics Finland. The register data includes information on employment situation (employed or not employed) at the age of 62 during the follow-up period (1991–2008). The analysis was restricted to employees who were 44–60 years old during the original survey year and who, during the follow-up period, reached the age of 62 (N=1390).

**Results** Job autonomy and work intensity were associated with a career later in life. Those in high-strain jobs (low autonomy, high intensity) had a lower employment rate (OR=0.654, 95% CI 0.454–0.941) compared to those in low-strain jobs (high autonomy, low intensity) after controlling for various background, health, and work-related factors.

**Conclusions** The combination of low job autonomy and high work intensity seems to be associated with lower employment rate at the age of 62.

**Key terms** follow-up study; register data.

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## Job stress, coping ability, mental health status, and work ability among Japanese information technology workers: a one-year follow-up study

by Ohta M, PhD, Higuchi Y, PhD, Sugimura H, PhD

**Objectives** Using a one-year follow-up design, we aimed to explain changes in work ability through changes in factors including job stress, coping ability, and mental health status.

**Methods** Participants were 1558 Japanese information technology (IT) workers. Each completed the General Health Questionnaire [(GHQ) 28-item version, index for mental health status], Brief Job Stress Questionnaire (BJSQ), Work Ability Index (WAI), and Sense of Coherence (SOC) Questionnaire (3-item version, index for coping ability) in 2011 and 2012. Job strain scores were calculated as job demand scores divided by job control scores. Job support scores were the sum of supervisor and coworker support scales. A total of 1408 respondents completed both questionnaires. Improvement and decline in work ability were analyzed with logistic regression models using changes in factors of job stress, coping ability, and mental health status.

**Results** WAI score was increased and job support score was decreased as of the 1-year follow-up. The model for improved work ability included amelioration in job strain (OR=1.94, 95% CI 1.07–3.72), job support (OR=1.85, 95% CI 1.12–3.09), and mental health status (OR=4.37, 95% CI: 2.40–8.56). Deterioration in work ability was explained by a model that included deterioration in mental health status (OR=1.81, 95% CI 1.36–2.44), job support (OR=1.43, 95% CI 1.07–1.91), and coping ability (OR=1.90, 95% CI 1.42–2.57).

**Conclusion** Our data demonstrate the association of changes in work ability with changes in job stress, coping ability, and mental status.

**Key terms** job stress; sense of coherence; work ability index.

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## Leadership competencies for sustainable productivity

by Olbert S, PhD

In light of global competition and rapid technological advances, companies remain competitive by means of flexibility, technical and social innovation, as well as productivity gains and cost reductions. A highly skilled, creative, and resilient working population, on the one hand, and organizational adaptations like outsourcing, network economy, and multi-located working sites, on the other hand, are simultaneous requirements. (Olbert-Bock et al 2013). Changing working situations demand employees' flexibility, capacity for innovation, and self-management of career and employability. Beyond that, demographic changes may cause expanded employment of ageing workforces. How companies are going to use the potential of the workforce and promote it sustainably is one key to master demographic challenges (Olbert-Bock et al 2013). Little is known about how and what type of company culture and leadership contributes to a sustainable use of human and social resources.

This paper highlights the new conditions and requirements for social and human sustainable leadership in "modern" working situations. After a short discussion of sustainable corporate development, modern working situations are sketched. As functions in information communication technologies (ICT) are considered as being their prototypes, they serve as an example to illustrate associated challenges. The requisite behavior of career self-management is pointed out and characterized by empirical findings (based on a study about the "conceptions of career" of 83 persons by narrative interviews). Accordingly, leadership tasks are demonstrated and illustrated based on a case study of a human resources development network of ICT companies in Switzerland. Individual competencies and characteristics of corporate culture for sustained use of human and social potentials are elaborated.

**Key terms** management; sustainability; work.

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## How to measure well-being, health, and capability of 4-agers

*by Paronen E, MA, Ropponen K, MA, Saari J, PhD, Kinnunen J, PhD*

Due to demographic transformation, a new age group of so called “4-agers” has emerged between retirement (around 60 years) and old age (starting from 75 or so). Those in-between years seem to be crucial for maintaining and strengthening well-being, health, and capabilities of an ageing population. In addition, it can be argued that any public and social investments aimed at changing lifestyles may have some positive consequences in capabilities, and consequently, lower demand for public services of various kinds. However, in order to generate some evidence-based policies to support this claim, one must be able to measure well-being, health, and capabilities of 4-agers.

As part of the project, a population survey was carried out by the University of Eastern Finland among all inhabitants turning 60 years (in 2012) in North Savo. This survey looks into the current situation of the ageing as well as future expectations and needs of the ageing population. The survey results will serve as a starting point for planning the operational model to be developed in the project that promotes functioning capacity and benefits those >60 years: the aim of the model is to support the ageing to lead their daily lives more actively.

The survey's response rate was 44% and the first results were due in May 2013.

**Key terms** ageing; health; lifestyle; well-being

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## Work intensity: the new leading health risk factor at work

by Perez-Zapata O, MA, Alvarez-Hernandez G, MA, Perez-Zapata M, MA, Garrido-Luque A, PhD, Castaño-Collado C, PhD, Lahera-Sanchez A, PhD

**Objectives** European Working Conditions Surveys (EWCS) show that work intensification has more recently arrived to Spain, remaining below the European Union (EU15) average (2010) but climbing in the last decade (before the economic crisis, together with Portugal). Work intensification threatens sustainable work and health but is still a very underplayed factor in public health across in Europe. We study the emergence of work intensity as a health risk factor for Spanish workers.

**Methods** We used micro data from the last four waves of official national surveys of working conditions in Spain. We split the data into periods [1999–2003 (N=8938) and 2006–2011 (N=19 946)] and also use matched employer-employee data to reduce exposure to common method variance. Work intensity changes as a health risk factor were calculated using logistic regression and population attributable fractions (PAF) as suggested by Rothman and Greenland.

**Results** Spanish workers' health has deteriorated during last decade, both in terms of general health indicators (psychosomatic symptoms, physician visits, drug consumption, perceived risk of disease) and work-related diseases (mental and gastrointestinal disorders had the highest growth). Deteriorating health is especially relevant for young workers (25–40 years), the educated, and women. Work intensity has evolved from being the sixth biggest risk factor for psychosomatic symptoms in 1999 (PAF=6.6%) to the leading one since 2006 (PAF=17.6% in 2006 and 15.8% in 2010), overcoming traditional work risk factors like physical postures (PAF=16.5% in 2006 and 15.2% in 2010).

**Conclusions** Work intensity has become the leading health risk factor at work in Spain. Knowledge work linked to younger workers, the educated, and women emerge as specific risk groups.

**Key terms** job demand; knowledge work; population attributable fraction; work intensification.

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## Finnish workers' opinions on continuing work and retirement

by Perkiö-Mäkelä MM, PhD, Hirvonen M, MSc

**Objective** The aim of this study is to present Finnish workers' opinions on continuing work until retirement pension and after the age of 63 years.

**Methods** This study is part of the Finnish National Work and Health survey, which has been conducted via telephone interview every three years by the Finnish Institute of Occupational Health since 1997. The subjects were a random sample of the Finnish population, aged 25–64 years. In this paper, we use the data from years 2006, 2009, and 2012. The study group consisted of 3550 currently working Finns aged 45 to 63 years.

**Results** Opinions on continuing work have changed during the last six years. In 2012, about half of the workers (49%) aged 45–63 had never thought of early retirement because of health or other reasons. This proportion has increased since 2006 (38%) and 2009 (40%). In 2012, three out of four (74%) named some prerequisite for continuing working after the age of 63. This proportion has increased from 2006 (58%) and 2009 (64%). The main stated factors affecting the decision to continue working after the age of 63 were: (i) own health; (ii) financial gain such as salary and better pension; and (iii) meaningful, interesting and challenging work.

**Conclusion** Nowadays Finnish workers are more positive about continuing work until old age retirement and also past the age of 63 years. Those who had not thought of early retirement were more likely to expect that they would continue working also after the age of 63. So it is important to take seriously also early thought of retirement.

**Key terms** postponing retirement; retirement intention.

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## Elements of sustainable work: older workers, flexibility, and health

by Pitts CC, MA Psychol, Bohle P, PhD

**Objective** The aim of this study was to investigate the relationship between two dimensions of flexible work (irregular hours and casual employment status) and workload, work-life conflict, and mental health among older workers. The moderating roles of control over work schedules and control over employment status were also examined.

**Method** A representative sample of older Australians (aged 45–64 years) was used. Participants were selected if they worked for pay, were not studying full-time, and were not self-employed (N=590; 61% male). Irregular hours and control over work schedules were measured using Likert-type scales. Employment status control was operationalized as a match between actual and preferred employment status. All data were self-report. Partial least squares structural equation modeling was used, and analyses were split by gender to examine differential effects for males and females.

**Results** The final model explained 12% and 11% of variance in females' and males' mental health, respectively. Casual employment status and irregular hours had opposing effects on wellbeing, and the strength and direction of effects differed by gender. Irregular hours were especially harmful for females' mental health, because they increased work demands and work-life conflict. Schedule control ameliorated the effect of temporal flexibility for both genders, though less so for females. For older males, employment status control was only important when combined with high work demands.

**Conclusions** Interventions to improve older workers' health and wellbeing should focus on decreasing working hours irregularity, increasing schedule control, and ensuring fit between actual and preferred employment status.

**Key terms** flexible work; gender; irregular hour; mental health.

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## The contribution of major medical causes to socioeconomic differences in disability retirement

by Polvinen A, MSocSc, Gould R, LSocSc, Laaksonen M, PhD, Lahelma E, PhD, Martikainen P, PhD

**Objectives** The main aim of this study was to investigate socioeconomic differences in disability retirement due to major diseases. A secondary aim was to find out which diseases contribute most to the overall socioeconomic differences in disability retirement.

**Methods** The data were longitudinal register data (a 10% sample of Finns) from Statistics Finland. These data included 258 428 participants aged 35–64 years who were non-retired before the follow-up time period of 1997–2010. Of all participants, 14 303 men and 13 188 women ended up in disability retirement during the follow-up. Socioeconomic status was classified as “upper non-manual” and “lower non-manual” employees, manual worker, and self-employed.

**Results** Disability retirement was especially common among manual workers who retired due to psychoactive substance use, musculoskeletal diseases, or cardiovascular diseases. Socioeconomic differences in disability retirement were larger for men than women and in younger age groups. For female and male manual workers, the largest part of the excess in disability retirement compared to upper non-manual employees was due to musculoskeletal diseases. Its proportion of the total excess was >50% among 54–64-year olds. Excess disability retirement due to mental disorders was only noticeable in the age group 35–54 years.

**Conclusion** Decreasing the number of musculoskeletal diseases among manual workers would reduce socioeconomic differences in disability retirement.

**Key terms** Cox proportional hazard model.

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## Changes in postural and dynamic balance among firefighters after ten years follow-up

by Punakallio A, PhD, Lusa S, PhD, Luukkonen R, PhD, Lindholm H, MD

**Objective** Roof work, working in moving emergency vehicles, and rescuing victims are typical tasks in fire and rescue work, where good balance control is critical for safe and efficient work performance. We examined the changes in balance abilities among firefighters after ten years follow-up.

**Methods** The subjects comprised 39 male firefighters in the age groups of 34–38 (N=26) and 44–48 (N=13) years in 1999. Postural sway was measured with force plate and dynamic balance with functional test in 1999 and 2009. The regularity and type of the exercise were inquired. T-tests and regression analysis were used.

**Results** The means and SD of the functional balance test in 1999 and 2009 in the age groups of 34–38 and 44–48 years were  $11.7 \pm 2.8$  and  $12.1 \pm 3.2$  s and  $13.1 \pm 3.7$  and  $15.0 \pm 5.6$  s, respectively. The significant ( $P < 0.05$ – $0.001$ ) decline during 10-year follow-up in the age groups were 0.4 and 1.9 s. The deterioration of anteroposterior velocity of postural sway in the age groups was 0.33 and 1.04 mm/s, respectively. Changes in mediolateral velocity were minor. The exercise habits did not predict the changes in balance.

**Conclusion** Postural and especially dynamic balance decreased more among the older than younger firefighters. Measures to promote health and work ability of firefighters as well as injury prevention, the balance demands of work, and deterioration with age should be taken into account. To prolong the operative career of firefighters, there is obvious need to add balance and coordination-enhancing exercise for ageing firefighters especially.

**Key terms** ageing; balance abilities; postural control; work ability.

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## Employment status and depressive symptoms among middle-aged German employees

by Rauch A, Dipl Sozw, Tophoven S, MA, Tisch A, Dipl Soz, Rose U, Dr, Burr H, Dr

**Objectives** In Germany, as in most industrialized societies, the prevalence of depressive symptoms is increasing. Especially in older working age, depressive symptoms can lead to decreasing labor market participation. It is therefore necessary to identify work-related factors in close association with depressive symptoms among employees of older working age.

**Methods** We use data of the lidA study (German Cohort Study on Work, Age and Health) which includes employees of two birth cohorts born in 1965 and 1959 and survey as well as administrative data of the German Federal Employment Agency (N=4921). Based on the administrative data, we controlled for past employment experiences. Depressive symptoms were assessed by the simplified version of the Beck Depression Inventory. We use stepwise multiple linear regression analysis to examine the relationship between work factors and health.

**Results** Women have higher rates of depressive symptoms, which is consistent with other findings. On a scale scored from 0–100, the mean is 21.9 for women and 17.9 for men. The results of the regression analysis show that depressive symptoms are related to perceived job insecurity, job influence, and quality of leadership. The results suggest that persons with depressive symptoms work less often in full-time jobs.

**Conclusions** Current perceived organizational stress increases depressive symptoms in older working age. The work environment therefore is of special importance for employment and mental health in older working age.

**Key terms** ageing work force.

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## The predictive value of work ability for absenteeism among white-collar workers

by Reeuwijk KG, MSc, Niessen MAJ, MA, Kraaijenhagen RA, PhD, Peek N, PhD, Robroek SJW, PhD, Burdorf A, PhD

**Objectives** This study aims to investigate the predictive value of the Work Ability Index (WAI) for sick leave during one-year follow-up, and the relative contribution of work ability, lifestyle, health, and work-related factors in predicting sickness absence.

**Methods** The study comprised 1351 employees from a Dutch financial services company. Data on demographics, work ability, health, and lifestyle were collected at baseline, and information on sickness absence was derived from register data, maintained by the occupational health service, during a one-year period after baseline. Multinomial regression analysis was performed to analyze the effect of lifestyle, health, and work ability on sickness absence (1–5 days, 5–15 days,  $\geq 15$  days). Receiver operating characteristic (ROC) curves were created to analyze the predictive value of the WAI for sickness absence.

**Results** Results from the univariate analysis showed that poor (OR=18.3, 95% CI 5.25–63.7) or moderate (OR=11.7, 95% CI 5.7–24.0) work ability was related to having  $\geq 15$  sickness absence days during the next year. Older age, low educational level, unhealthy lifestyle, and stress were all associated with reduced work ability. After adjustment for these factors, the relation between work ability and  $\geq 15$  sickness absence days remained. The area under the curve (AUC) was highest for  $\geq 15$  sickness absence days (0.70, 95% CI 0.66–0.74). The AUC was 0.62 (95% CI 0.58–0.65) for 5–15 sickness absence days, and 0.59 (95% CI 0.56–0.62) for 1–5 sickness absence days.

**Conclusion** Poor work ability predicts long-term sickness absence. To improve the predictive value of the WAI on sickness absence, it is recommended to include questions on psychosocial health and lifestyle factors.

**Key terms** sickness absence; work ability index.

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## Services vouchers: an answer to stress prevention and a tool for work–life balance

*by Renaudin N, Manager, Chilese-Lemarinier D, Manager*

In the current context of high unemployment rates and stretched budget, job insecurity and pressure on employees is rising. This situation is compounded by structural factors such as the ageing population or the increasing number of women in the workforce. An increasing number of employees are facing stressful situations while they are shouldering the responsibility of one or more dependents. Access to quality and affordable services (ie, childcare, elderly care, home services) constitutes an important determinant of citizens' employment opportunities, health, and workplace productivity.

Based on studies from international organizations or national institutes, some innovative and practical solutions have been designed to meet employees' needs. Among them, services vouchers have proven to be efficient tools facilitating the implementation of social policy.

Vouchers enable employers to contribute to their employees' domestic services costs in a transparent way. The system operates on the basis of very simple principles and is built on shared responsibility between companies, employees, services providers, and public authorities.

Once introduced by a legal framework, this system has proven to be very effective and successful: public institutions grant social subsidies with better fund control and no additional administrative burden, it guarantees the allocation's destination, and creates jobs within the formal economy. The vouchers improve employees' quality of life by offering greater purchasing power and an access to household services. Workers from all ages can benefit from this scheme to cope with their familial responsibilities. It is also very easy to manage whatever the size of the company.

**Key terms** care service; domestic service; efficiency; shared responsibility.

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## The unrecognized and untapped potential of workers aged $\geq 50$ years: myth or fact, a study of the situation of the elderly workers in Poland

by Richert-Kaźmierska A, PhD, Stankiewicz K, PhD

**Objectives** Poles aged  $\geq 50$  years are characterized by the lowest professional activity among the societies of the Baltic Sea Region and the earliest permanent withdrawal from the labor market through retirement (statistically at the age of 59 years). The aim of this paper is the discussion of stereotypes and facts related to Polish employers' perception of elderly workers, on the one hand, and the potential of employees aged  $\geq 50$  years, on the other.

**Methods** The authors carried out a comparative analysis and quantitative synthesis of the results of primary research from Polish research centers during 2005–2012 on Polish employers' assessment of workers aged  $\geq 50$  years and the possibilities and conditions of using the potential of this group in enterprises.

**Results** Polish employers state that they know the potential which lies in workers aged  $\geq 50$  years, but they do not know how to apply it to their enterprises. Despite the high ratings of the knowledge and experience of this group of workers, when faced with the need to reduce employment for economic reasons, employers decide to lay off older workers first. Employers do not see barriers to the employment of older people, but only one-third said that in the next decade they will be increasing employment in the  $\geq 50$ -year-old group.

**Conclusions** The main reasons for the early professional deactivation of Poles are: the stereotyping of older workers as having low potential and the lack of knowledge on the ways to avail of the potential of workers aged  $\geq 50$  years among Polish employers.

**Key terms** older worker; stereotype

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## Development and validation of a physical and psychosocial job-exposure matrix among older workers

by Rijs KJ, MSc, Van der Pas S, PhD, Geuskens GA, PhD, Cozijnsen R, PhD, Koppes LLJ, PhD, Van der Beek AJ, PhD, Deeg DJH, PhD

**Objectives** We developed a general population job-exposure matrix (GPJEM), including physical and psychosocial demands as well as psychosocial resources, applicable to older and retired workers and evaluated its validity by examining associations with health.

**Methods** Physical and psychosocial work exposures reported by 55–64-year-olds were derived from the Netherlands Working Conditions Survey and linked to the Netherlands Standard Classification of Occupations 1992. A GPJEM with low, moderate, and high probability of exposure to demands and resources was developed. To examine associations with health, two groups of the Longitudinal Aging Study Amsterdam were selected; current (N=551; 55–64 years) and former workers (N=1676; 55–84 years). Linear and logistic regression models were applied.

**Results** Use of force and work in uncomfortable positions were significantly associated with functional limitations and self-perceived health (SPH), but not hip or knee osteoarthritis (OA), among current and former workers. A moderate probability of repetitive movements was associated with functional limitations among former workers. A high probability of repetitive movements was associated with functional limitations among current and former workers as well as with SPH and OA among former workers. Respondents formerly exposed to iso-strain (ie, high psychosocial demands and low psychosocial resources) had significantly higher diastolic blood pressure and more often hypertension. No such associations were found among current workers. No association was found with cardiovascular disease.

**Conclusions** The results suggest the GPJEM accurately classifies jobs according to physical demands and, although less clearly, iso-strain.

**Key terms** ageing worker; job-exposure matrix; Karasek model of job stress; psychosocial work demand; psychosocial work resource; physical demand; retiree.

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## Stability and change of physical workload and psychological stress of daily activities as predictors for disability pension due to musculoskeletal disorders

by Ropponen A, PhD, Svedberg P, PhD, Koskenvuo M, PhD, Silventoinen K, PhD, Kaprio J, PhD

**Objective** Physical workloading and psychological stress commonly co-occur in working life, hence a potential interrelationship may affect work incapacity. This prospective cohort study investigated the effect of stability and/or change in physical workloading and stress of daily activities on the risk of disability pension (DP) due to musculoskeletal diagnoses (MSD), while accounting for familial confounding in these associations.

**Methods** Data on 12 455 twins born before 1958 were surveyed through questionnaires about their physical workloading and psychological stress of daily activities in 1975 and 1981. The follow-up data was collected from pension registers until 2004. Cox proportional hazards regression models were used.

**Results** During the follow-up, 893 participants were granted DP due to MSD. Stable high, but also increased physical workloading and high psychological stress of daily activities were associated with increased risk for DP. The associations were confirmed when accounting for several confounding factors including familial effects. Stable levels of physical workloading and stress exerted a significant interaction with DP.

**Conclusions** Stable high but also increased physical workloading and psychological stress of daily activities between two time-points six years apart confirms their direct effect on risk of DP. Both physical workloading and psychological stress seem to be independent from various confounding factors hence suggesting direct effect on risk for DP.

**Key terms** sick leave; stress; work.

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## Organizational and individual effects of poor working environments at companies: methods, examples, and why we should care

*by Rose LM, PhD*

A poor working environment can result in negative consequences at the individual, organizational, as well as societal level, for instance as a negative financial consequence. The driving force for many who are working within the occupational safety and health (OSH) field is to achieve improvements in the working environment, but it can be challenging to motivate investments in this area.

It is fairly easy to calculate the direct, visible costs of a poor working environment, but difficult to estimate the hidden costs and the benefits of improvements. This presentation will give examples of visible and hidden effects and types of costs due to a poor working environment and will provide a survey of methods available for estimating financial effects.

The demographic changes societies face lead both to challenges and opportunities. One of the challenges is how to design jobs so that even an ageing population can remain healthy and productive at work. The presentation will also give some examples on the state of the art of what we know in the area of an ageing workforce and where some of the knowledge gaps are that require research and development to meet the two objectives of ergonomics: human well-being and overall system performance.

**Key terms** ageing work force; financial consequence.

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## Psychosocial workplace factors, depression, and work participation: results from Danish follow-up studies

by Rugulies R, PhD

**Objectives** Depression is a major cause for reduced work participation. In 2008, two comprehensive reviews reported that the components of the demand–control–support model predicted risk of depression in prospective studies. The reviews recommended that future studies on psychosocial workplace factors and depression should assess psychosocial workplace factors other than those defined by the demand–control–support model and should take better precautions against reporting bias. In the Danish National Research Centre for the Working Environment’s research group “Psychological Health and Well-being at Work” (PIWA), we initiated studies to address these recommendations.

**Methods** We examined the associations of psychosocial workplace factors with onset of depression in large prospective cohort studies, including representative samples of the Danish workforce. Depression was measured by established self-rating scales and register data on the purchase of anti-depressants.

**Results** Effort–reward imbalance, job insecurity, emotional demands, bullying, and violence at work emerged as predictors of depression in the multivariable analyses. When adjusted for indicators of reporting bias, estimates were attenuated but remained statistically significant. Contextual factors, defined as occupational grade and history of prolonged unemployment, substantially modified associations in some analyses. Results are published in leading epidemiological, public health, psychiatric, and occupational health journals.

**Conclusions** Exposure to adverse psychosocial workplace factors predicted risk of depression in Danish cohort studies. We are currently further examining this association in a large European research consortium, with a specific focus on effect modification by non-work-related factors.

**Key terms** mental health; prospective study; psychosocial work environment; stress.

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## Short- and long-term effects of a physical exercise intervention on work ability and work strain in symptomatic menopausal women – a randomized controlled trial

by Rutanen RH, MSc, Nygård CH, PhD, Mansikkamäki K, MSc, Raitanen J, MSc, Tomás E, MD, PhD, Luoto R, MD, PhD

**Objectives** Physical exercise during leisure time is known to increase physical capacity; however the effects on work ability and work strain are inconclusive. The aim of the present study was to investigate the longitudinal effects of a physical exercise intervention on work ability and work strain among women with menopausal symptoms.

**Methods** Occupationally active symptomatic menopausal women (N=85) were randomized into 24-week aerobic exercise intervention (N=42) and control (N=43) groups. Work ability and work strain were asked at baseline, after the exercise intervention (6 months), and at follow-up (30 months). In all, 85 women aged 47–62 years who worked full- or part-time participated in the study.

**Results** The increase in work ability was higher in the intervention than control group, between baseline and 6 months (regression coefficient 2.19, 95% CI 0.82–3.56, P=0.002). However, the estimated difference in the slopes between the groups was statistically not significant when all three time points were considered (OR 1.03, 95% CI 0.96–1.10, P=0.36). There were no statistically significant changes in work strain between the groups.

**Conclusion** A 6-month physical exercise intervention among symptomatic menopausal women seems to have positive short-term effects on work ability, but the effects are diluted to the baseline level after 30 months.

**Key terms** menopausal symptoms.

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## An intergenerational reading program supporting active ageing and interaction between generations

by Salmi PH, PhD, Pöyliö HE, MA, Peura PI, MA, Aro MT, Professor

**Objective** Previous studies have shown that volunteering increases life satisfaction and well-being, and reinforces meaning of life. One of the main reasons for volunteering seems to be a willingness to help others and a desire to gain meaningful new relationships. The objective of the project was to develop and assess a practice for enhancing reading fluency of struggling readers with the help of senior volunteers. The reading program is supposed to support intergenerational interaction: the senior volunteers can contribute in a natural way to the lives of children they read with and gain experiences of participation. The children with reading difficulties get extra support and a chance to interact with seniors. The program is therefore supposed to promote active ageing and interaction between generations.

**Method** In total, 46 children and 46 senior volunteers participated in the program in spring 2013. The program was carried out in school setting, where senior volunteers read one-on-one with the children for 45 minutes, once a week for 7 weeks. Additionally there were peer sessions for the volunteers. After the 7-week period, the volunteers were asked about the reasons for participating the program, benefits of participating, and experiences about volunteering. The data was collected with a questionnaire.

**Results** The questionnaire data will be presented and discussed.

**Conclusion** Reasons for volunteering, as well as experiences of participating in the intergenerational volunteer program will be discussed along with future implications for developing the volunteer program.

**Key terms** volunteer work; well-being.

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## The interplay between work characteristics and perceived health on exit from paid employment among Dutch male and female workers.

by Schuring M, PhD, Robroek SJW, PhD, Otten FW, PhD, Arts CH, Burdorf A, PhD

**Objective** This study aims to (i) investigate the role of poor health, and physical and psychosocial work demands on exit from paid employment among men and women and (ii) explore whether work characteristics modify the effect of poor health on labor force exit.

**Methods** In total, 14 891 Dutch employees (8718 men and 6173 women) participated in a prospective study with ten years follow-up (92 435 person years). Perceived health and work characteristics were measured at baseline with the Permanent Quality of Life Survey (POLS) during 1999–2002. Employment status was ascertained monthly from January 1999 up to December 2008 by Statistics Netherlands. Competing risks hazards analyses and the relative excess risk due to interaction (RERI) technique were used.

**Results** Workers with a poor health were more likely to leave paid employment due to disability (men: HR=8.05; women: HR=4.91) and unemployment (men: HR=1.63; women: HR=1.83). A lack of job control was associated with disability benefits (HR=1.39), unemployment (HR=1.26), and early retirement (HR=1.19) among men. High work demands were associated with early retirement among women (HR=1.33). Low rewards (HR=2.09) and high physical work demands (HR=1.46) increased the risk of disability benefits only among men. Although not statistically significant, a lack of job control increased the risk of disability benefits (RERI=0.82), unemployment (RERI=0.37) and early retirement (RERI=0.54) among workers with a poor health.

**Conclusion** Poor health and physical and psychosocial work demands are related to exit from paid employment among men and women. Improving working conditions, particularly job control, in addition to health promotion is of importance to maintaining a productive workforce.

**Key terms** gender difference; ill health; labor force exit; prospective study.

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## Decreased work ability related to indoor air problems – an intervention to promote health behavior

by Selinheimo S, MA, Vuokko A, MD, Sainio M, PhD, Kallio E, MA, Virtanen M, PhD, Suojalehto H, MD, Järnefelt H, LicA (Psych), Hublin C, PhD, Karvala K, PhD

**Objective** Indoor air problems in the work environment are associated with respiratory health effects and multiple non-specific symptoms. Symptoms are usually transient, but long-lasting and decreased work ability appears to be common, which may not be fully medically unexplained. The individual coping and cognitions related to illness affect how individuals adhere to medical care. The aim of the study was to study factors that affect patients with impaired work ability due to indoor air symptoms, and promote health behavior applicable for occupational health professionals to support work ability.

**Methods** Participants were recruited among patients referred to the Finnish Institute of Occupational Health due to a suspected occupational disease (mainly occupational asthma) from moisture-damaged workplaces. The inclusion criteria were decreased work ability and two or more weeks of sick leave due to indoor-air symptoms during the past year. The treatment included information based on scientific knowledge, asthma counseling, and an intervention using methods of cognitive and motivational psychology.

**Results** The preliminary results show that the patients were committed to the intervention. They had concerns of a serious disease. For some, concerns and fears had led to avoidance and restricted their personal life. Results from the first follow-up will be presented.

**Conclusion** Better understanding of health behavior's determinants is needed to promote good work ability among these patients. Symptoms mimicking asthma may lead to overuse of asthma medication. To avoid catastrophic thinking, objective information and careful examinations are necessary. Psychological support may be beneficial and might be provided by occupational health professionals.

**Key terms** symptom control.

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## Explanatory factors of sickness absence in the forest industry

by Sjögren T, PhD, Haapaniemi V, BA, Niku J, BA, Kankainen A, PhD, Puttonen E, BA, Piirainen A, PhD

**Objectives** The University of Jyväskylä and a forest industry company in Finland started a research project in autumn 2012 focusing on two factories. The principal goal of the project was to examine factors related to work ability and well-being. The aim of the study was to examine explanatory factors related to the study populations' ratio of sickness absence hours.

**Methods** The source population consisted of 636 forest industry employees, of which 140 (22%) were used as cases (sickness absence hours  $\leq 1.5\%$  during the period January 2006–June 2012). Controls (N=140) were randomly selected from the source population (absence hours  $> 1.5\%$ ). The study data was collected via a questionnaire sent to selected study participants. The response rate was 65.4 (mean age 48.5 years, women 44%). Log-linear models were used to examine the relationships between variables.

**Results** Subjective health condition, musculoskeletal symptoms, psychological well-being, and relationship with their superior predicted 60.7% of findings into the right categories: 75% of the cases and 43.3% of the controls. It is more likely that workers have little sickness absence when (i) the overall subjective health condition is better; (ii) musculoskeletal symptoms are fewer; (iii) the worker is more connected to their superiors; and (iv) mental health is at a lower level.

**Conclusions** Musculoskeletal symptoms, psychological well-being, and the worker's relationship with superiors are still factors that should be considered when methods of maintaining work ability and well-being are being designed. In the future, we will investigate more unexpected psychological well-being results. Furthermore we need analysis also where gender and age is taken into account.

**Key terms** health condition; musculoskeletal symptom; occupational health; physical functioning; psychological well-being; sense of coherence; work ability

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## Latent benefits, environmental vitamins, and well-being in a sample of older adults

by Sousa-Ribeiro M, PhD student, Sverke M, PhD, Coimbra JL, PhD

**Objective** This study aims to better understand the relations between the perceived quality of the psychosocial environment and psychological well-being among older adults by combining two theoretical frameworks – the latent deprivation and the vitamin models.

**Methods** A cross-sectional study design was applied. The sample comprised 300 Portuguese adults (aged 40–65 years), grouped as: employed (N=91), unemployed but engaged in training (N=76), and unemployed and not in training (N=133). A comparison was made of the three groups' well-being and perceived access to features present in the latent deprivation and the vitamin models. The associations between these features and psychological well-being were then investigated in the combined sample.

**Results** In general, the employed reported better well-being than the other groups, and the unemployed but in training showed lower distress than those not in training. As expected, the unemployed and not in training perceived the lowest access to some of the latent benefits of employment and vitamins. Features from both the latent deprivation model (primarily social contact and collective purpose) and the vitamin model (primarily opportunity for skills use and environmental clarity) were found to be significantly related to well-being in the combined sample.

**Conclusion** The results highlight the merit of taking both the latent deprivation and vitamin models into account to better understand the well-being of older individuals and may be useful for the design of interventions aiming to enhance well-being and overcome some of the negative aspects of unemployment.

**Key terms** latent deprivation model; older adults; vitamin model.

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## Personal economic losses caused by burnout syndrome among prison officers in Bulgaria

by Stoyanova RG, assistant professor, Harizanova SN, assistant professor

**Objectives** This study aims to undertake an economic assessment of personal losses suffered by correctional officers due to burnout. A police officer's job has long been considered as one of the most stressful. However, very few researchers have studied the development of occupational burnout among the police. There are even less studies aimed at assessing the economic losses of affected persons. This study is the first of its kind in Bulgaria.

**Methods** The inquiry conducted between June–December 2012 covered 201 correctional officers (100% sample) in two Bulgarian prisons (one for men and one for women). Statistical and mathematical models were used to assess the personal losses resulting from burnout.

**Results** Chi-squared analysis helped establish that demographic characteristics have no influence on the occurrence of burnout, but there is a correlation between level of burnout and the number of sick leaves, the need for medical help, and medication expenses. The results show that officers affected by burnout take, on average, 9.95 times more sick leave, and this affects adversely their remuneration as they lose 3.13% of their annual wage. Their expenses on user fees for medical services are 3–4 times higher and their monthly expenses on medications are 3.14 times higher than those without the burnout syndrome.

**Conclusion** The results prove that there is a need to implement financial mechanisms for compensation, consultations, psychotherapy, and rehabilitation of correctional officers affected by burnout after the official recognition of this disease in Bulgaria. This report is supported by Project BG051PO001/3.3-05-0001 "Science and Business"

**Key terms** correctional officer; personal expenses.

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## Self-determination as a resource for sustainable work and mental health

by Strizhitskaya OY, PhD, Petrash MD, PhD

Living in an aging society, the problem of maintaining psychological health appears to be an important issue. On the other hand, modern research in psychology of aging shows that aging people have a personality resource that could enable a longer professional career and better well-being and social activity. However, these resources quite often are underestimated by researchers and unactualized within the subject.

Current research approaches the problem of personality resources – such as self-determination – to understand the capacities of older people. One of the crucial questions here is if older people really would like to continue their professional life and what part career plays in the life of an aging person. We studied 326 older adults, aged 55–78, to find out to what extent their personal activity, motivation, self-regulation resources, and coping behavior would be mediators of their personal and professional well-being. Methods used included (but were not limited to) Russian versions of the C Ryff scale, the Lazarus coping test, the Morosanova self-regulation test, the Pantileev self-attitude test, and a questionnaire developed for the purposes of current research.

The most interesting results of the study showed that the role of professional activity may vary among older adults. Our analysis did not reveal a clear correlation between the motives for continuing work and personal resources, still we discovered that some characteristics of self-attitude (such as self-acceptance) and self-regulation could be predictors of successful continuation of work for participants aged 73–78 years.

**Key terms** active aging; personality resource.

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## Factors that affect Japanese IT workers' work ability: differences among age groups

by Sugimura H, PhD, Ohta M, PhD, Higuchi Y, PhD, Kumashiro M, PhD

**Objectives** A number of factors influence workers' work ability. The degree of impact on workers depends upon both the workers' age group and the type of industry in question. Countermeasures aimed at maintaining or improving work ability should be tailored to the needs of workers according to the industry in which they work as well as their age group. We conducted this study to elucidate the factors that affect Japanese information technology (IT) workers' work ability among differing age groups.

**Methods** A total of 1558 workers that work in an IT company were asked to complete the Work Ability Index (WAI), Brief Job Stress Questionnaire (BJSQ, index for job stressors and social supports) and Generic Job Stress Questionnaire (index for job satisfaction). Work ability was analyzed with multiple regression models using factors such as job stressors (job demand, job control, and job aptitude), social support, and job satisfaction. The impact of these variables was compared in the following age groups: 20–29, 30–39, 40–49,  $\geq 50$  years.

**Results** For the age groups of 20–29, 30–39, and 40–49 years, job demand, job control, job aptitude, social support, and job satisfaction significantly affected the WAI score. Whereas, for the age group of  $\geq 50$  years, job control and job satisfaction significantly affected the WAI score.

**Conclusion** Job control and job satisfaction are factors that affected all age groups of workers in an IT company. In order to maintain or improve their work ability, countermeasures for job control and job satisfaction should be implemented.

**Key terms** age; job satisfaction; job stressor; WAI; work ability index.

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## Are part-time work or social benefits predictors for disability pension? A prospective Swedish cohort study of twins

by Svedberg P, PhD, Alexanderson K, PhD, Ropponen A, PhD

**Objective** Sickness absence (SA) is a strong risk factor for disability pension (DP). Less is known about whether other types of social benefits could also be risk factors for DP. We examined whether part-time work, having received social benefits for SA, rehabilitation, or parental leave are predictors for DP taking familial confounding (genetics and shared environment) into account.

**Methods** A sample of 17 640 same-sex twins was followed from 2000–2008 via national registries for their receipt of social benefits and DP including additional baseline questionnaire data. Hazard ratios using Cox proportional hazards regressions models were estimated.

**Results** Forty-seven percent of those granted DP during the follow-up were working full-time at baseline, whereas among those not granted DP, 69% worked full-time. Self-reported full-time work, part-time work ( $\geq 50\%$  of work time), and self-employment, and registry data of caring for a child were protective factors, independent of familial confounding. Self-reported part-time work ( $< 50\%$  of work time), long-term SA, and registry data on (i) SA compensation for (ii) rehabilitation or (iii) return to work were instead risk factors for DP, independent of familial confounding.

**Conclusions** Full- and part-time ( $\geq 50\%$  of work time) work, self-employment, and benefits for parental leave protect from DP whereas SA and part-time work ( $< 50\%$  of work time) carry a highly increased risk for DP. Results suggest that part-time work and social benefits play different roles in predicting DP. These associations were mainly independent from several confounding factors.

**Key terms** register data; sick leave; twins.

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## Participation in labor-market measures of persons with disabilities: Allocation based on structural selection processes?

by Thomsen U, Mag Art, Rauch A, Dipl Sozw., Titze N, Mag Art, Gruber S, Dipl Soz. Schmelzer P, Dr

**Objectives** Societal participation of persons with disabilities is one central concern of modern welfare states, with integration into the labor market as an important aspect. However, there is lack of knowledge regarding the allocation process into active labor-market measures.

**Methods** Our research focuses on identifying the selection process into employment and training measures and highlighting possible influences on social determinants. Data includes all rehabilitants at the German Federal Employment Agency in the years 2006–2009 (N=152 918). Using multivariate regression analysis, the general probability of participation in labor-market measures is first observed and then the participation in specific main categories of measures is examined.

**Results** First, analyses show that the type of disability has significant influence on the probability of participation. Second, participation in certain measures is determined by gender, school education, and age, again particularly by the type of disability. Mentally handicapped persons are, thus, less likely to participate in training measures than persons with musculoskeletal disorders. Persons with a learning disability, by contrast, have a higher probability for participating in special rehabilitation measures.

**Conclusions** Allocation into labor-market measures seems to be based on structural and social selection processes and indicate exclusion mechanisms. First and foremost the type of disability influences the allocation. One might assume that placement officers consider a higher probability of labor-market reintegration for persons with specific types of disability.

**Key terms** active labor-market measure; labor-market participation.

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## Impact of work injury and permanent impairment on labor-market engagement of older workers

by Tompa E, PhD, Hogg-Johnson S, PhD, Amick III B, PhD, Liao Q, MSc

**Objectives** The study aimed to: (i) investigate the labor-market market engagement trends of older workers following work injury and permanent impairment; (ii) compare these trends with those of younger injured workers; and (iii) determine if labor-market engagement trends of older injured workers have changed with successive cohorts.

**Methods** We matched injured workers with permanent impairments from three time periods with up to ten uninjured individuals who were similar across key characteristics. Yearly post-injury labor-market earnings of injured workers were compared to the average of their matched controls to identify the proportion of earnings recovery each year over a nine-year period. Using a specialized application of latent class finite mixture modeling, we identified groups of injured workers with similar patterns of labor-market earnings recovery. Age, sex, pre-injury earnings, level of impairment, and cohort membership were included in the modeling.

**Results** Five distinct earnings recovery trajectories were identified. Injured workers aged 50–59 years at time of injury were much more likely to be in the low recovery and dramatic downward trend trajectories than those aged 35–49. The most recent cohorts fared somewhat better than earlier ones. Similar trends were found for both men and women.

**Conclusion** The findings indicate that older workers are much more likely to transition out of the labor force prematurely following a work injury and permanent impairment than younger workers. Disability support programs ought to provide focused attention on older workers to minimize premature labor-force exit.

**Key terms** ageing; labor-market earning; workers' compensation.

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## Promotion of well-being at work – economic effects

*by Tompa E, PhD*

Given changes in age demographics and life expectancy in many countries, there is increasing concern about how to keep older workers engaged in the paid labor force longer. The recent economic downturn and related impact on pension funds has heightened awareness of individuals and governments about the importance of maintaining active engagement. In fact, various legislative and policy efforts have recently been made, such as increasing the age for full pension benefit receipt and eliminating mandatory retirement. But these might simply extend non-remunerative unemployment/out of the labor spells if private-sector engagement of older workers is not promoted.

Key to this effort is knowledge about effective stay-at-work interventions and their resource implications for employers, workers, the community, and society. This presentation reviews the evidence on the economic effects of interventions focused on older workers that are directed at improving their occupational health and well-being. These include interventions to improve the physical work environment through ergonomics, improve health and well-being through health promotion, and promote return-to-work following health-related absences through accommodation. The economic evidence is reviewed, methodological challenges to undertaking economic evaluations are discussed, and thoughts are provided on how to advance the evidence base. Economic implications are not often considered in health and safety intervention evaluations, yet this information is critical to decision-making at the individual, organizational, and societal levels. Employers may have their own, short-term, bottom-line perspective in mind, but researchers need to consider the cost and consequences, in the short- and long-term, for all stakeholders.

**Key terms** ageing, health; economic evaluation; productivity.

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## Socialization and well-being among newcomers in work organizations

by Toppinen-Tanner S, PhD, Hakanen J, PhD, Jokisaari M, PhD, Vuori J, Research Professor

**Objective** The aim of the present study is to investigate resources for socialization and their predictive effect on work engagement among newcomers during the organizational entry process. Knowledge about effective ways to enhance young employees' resources at work in order to contribute to their well-being and successful socialization to work life is of high importance for the employees, but also for their employers. Successful early career experiences may have long-lasting beneficial effects on job attitudes, mental health, and commitment in the long run, and the socialization process represents an especially opportune time for strengthening of engagement.

**Methods** The participants at baseline were 234 new employees from three public organizations (85% women, mean age 30 years). They responded to three questionnaire surveys: 3, 8, and 13 months after organizational entry. Resources for organizational socialization were "leader member exchange" (8 items), "role clarity" (3 items), "social integration" (5 items), and "task mastery" (5 items). Work engagement was measured with the Utrecht Work Engagement Scale short form (9 items).

**Results** The preliminary results of the study showed that all of the socialization resources predicted work engagement of the newcomers, and especially the quality of "leader member exchange" was associated with other resource factors.

**Conclusions** Good quality of leadership seems to be a key resource especially during the socialization phase, and may foster engagement through increasing availability of other relevant work-related resources. Specific predictive value of resource variables will be discussed.

**Key terms** longitudinal study; work engagement; young employee.

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## How to support young immigrants' health and work ability at workplaces?

by Turpeinen M, PhD, Salmi A, MA, Nevala M, MA, Jurvansuu H, MA, Tuominen E, LicPsych, Henriksson L, PhD, Laitinen J, PhD

Successful entry into work life helps young immigrants to begin a life of their own and integrate into the society of their new home country. It is equally important that they learn the most beneficial ways in which to promote their own health and work ability from the very beginning of their work careers. How can we support these processes of obtaining work and caring for one's work ability already at a young age? What can employers do? What are the best practices for recruiting young immigrants or organizing their orientation and induction training? How to put these into practice?

The "Promoting the work ability of young immigrants at the beginning of their careers" (NuMaT) project gathers and disseminates these best practices. The young immigrants interviewed described their entrance into the Finnish labor market. Several employers, supervisors, and workmates from multicultural work environments have also shared their experiences of young immigrants' arrival at workplaces. These multidimensional processes are examined through a holistic concept of work ability, which takes into account the resources of the individual and the factors related to both work and the environment outside of work.

The NuMaT project is funded by the European Social Fund and carried out by the Finnish Institute of Occupational Health. Its first results were published in the spring of 2013 and its first output was the "TOP10 checklist for induction training" for employers and supervisors.

[www.ttl.fi/en/research/research\\_projects/working\\_career/numat\\_project](http://www.ttl.fi/en/research/research_projects/working_career/numat_project)

**Key terms** health promotion.

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## Health and coping predict work ability: a prospective study on the differential effects of mental and physical health among aging workers

by van den Heuvel SG, PhD, van de Vijfeijke H, MSc, Leijten FRM, MSc, Ybema JF, PhD, Robroek SJW, PhD, van der Beek AJ, Prof, Burdorf A, Prof, Taris TW, Prof

**Objective** This study examines whether mental and physical health among older employees relate to work ability and whether coping styles moderate the effects of health.

**Methods** A one-year longitudinal study was conducted among 8842 employees aged 45–64 years from the Study on Transitions in Employment, Ability, and Motivation (STREAM). Online questionnaires measured self-perceived mental and physical health (short form-12 health survey) at baseline, and coping styles (Utrecht Coping List) and work ability (Work Ability Index) at follow-up. Covariates were gender, age, type of work, and work ability at baseline. The data were analyzed using hierarchical regression analysis. Interaction terms were tested to assess whether coping styles moderated the health-work ability association.

**Results** Active coping and good mental and especially physical health were related to a high work ability at follow-up. “Avoidant coping” was negatively related to work ability. The coping style “seeking support” was unrelated to work ability. Interaction effects of coping and health on work ability were weak.

**Conclusions** The contribution of good coping styles and good health to high work ability suggests that promoting such factors can help to improve sustainable employability.

**Key terms** interaction effect; sustainable employability.

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## Work ability of ageing Flemish hospital workers: a study using the Work Ability Index questionnaire

by Van Hooste W, Dr, Gerbosch O, Dr, Gracova O, Dr, Vervaeet K, Dr, Morthier R, Dr

**Objectives** The aim of the study was to examine the influence of age and relevant factors on the work ability of Flemish hospital employees. We also studied if a critical age with a strong decline in work ability was detectable.

**Method** By means of a cross sectional questionnaire study, work ability was measured among 662 hospital employees. Vragenlijst Arbeidsbelastbaarheid (VAB) validated the measuring tool using the Flemish version of the Finnish Work Ability Index (WAI) questionnaire. The hospital sample consisted of 140 men and 522 women, mean age of participants was  $42.0 \pm 10.0$  years, all of whom came for an occupational consultation or were contacted through administrative departments.

**Results** The mean WAI score was  $40.5 \pm 4.5$  points and declined with older age ( $P=0.152$ ). Men, although not significantly older, had a statistically significant higher score than women:  $41.3 \pm 5.0$  and  $40.2 \pm 5.0$  points, respectively ( $P=0.029$ ). Jobs with mental job demands, had significantly better score than jobs with mixed and physical job demands, respectively 41.4, 40.4, and 39.4 points ( $P=0.005$ ); 30.2% had excellent, 52.3% good, 15.9% moderate, and 1.6% bad score group result. A portion of excellent and good WAI score was significant negatively correlated with older age groups ( $P=0.000$ ).

**Conclusions** Multiple regression analysis found statistically significant associations between lower WAI and older age, also with the presence of diagnosed musculoskeletal, neuropsychological, or pneumological pathology ( $P=0.000$ ). Cardiovascular pathology was nearly significantly associated with a lower WAI score.

**Key terms** healthcare worker.

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## Reflections of global diversity management on local employees

by Vatansever C, PhD, Caliskan S, Organizational Psy Master Student, Isik I, PhD

**Objective** Diversity management is one of the human resources strategies for companies operating in different geographies. Approaches to diversity management vary widely from structural and cultural changes to compliance with legal requirements. Our research is aimed at defining the perceptions of employees in a multinational company, where working with different cultures is a core competency and center-based policies for the management of diversity are in place.

**Method** Qualitative research is considered as the most appropriate design to frame the perceptions of employees in their own reality. Semi-structured interviews were conducted with 18 employees, and the interviews were tape-recorded then analyzed by MaxQDA. Participants were managers from different functions in the Turkish office of a multinational company, they are either working only in local environment (N=10) or internationally (N=8). Grounded theory was used to get the underlining interpretations of local employees about diversity management and their own perceptions of diversity.

**Results** The main finding is that employees perceive the cultural differences as very natural for the company since it operates all over the world, and these differences should be respected. The second highlighted perception is that employees should have developed the ability to work with different cultures in order to reach the “common objective” of the company.

**Conclusion** Employees seem to accept the differences in the company. The differences are mainly defined as cultural differences. Differences such as sexual orientation is still a taboo.

**Key terms** global human resources management.

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## Psychosocial risk factors in a developing economy

by Vatansever C, PhD, Ozagac S, MA Student, Isik I, PhD

**Objective** Turkey is a developing economy with a remarkable increase in growth rates and far reaching future targets. With the youngest population in Europe and challenging development targets, work life in Turkey can be defined as “restless”. Turbulant work environments lead to work intensification, high emotional demands, and work–life imbalance, and they increase psychosocial risks such as stress, harassments and burnout. The issue of psychosocial risk factors and their impact on employees’ health and safety are not a hot topic for Turkey. The occupational health and safety act that introduces mandatory risk assessment was just accepted in 2012. The concept of psychosocial risks is quite ambiguous even for the health and safety community, and the risk assessment process is not well defined in legislative documents. Our research focused on defining the perceived psychosocial risks via occupational physicians since they are the only professionals in companies specifically focused on employee health.

**Methods** A blended methodology was used in the study. The data was gathered through one-on-one interviews in an industrialized region located in north-west of Turkey. A questionnaire was also used to evaluate the companies in terms of job demands, control, and social support.

**Results** The study is incomplete as yet. But the preliminary findings exhibit that long working hours, low salaries, stretched production targets, and low unionization rate are the main psychosocial hazards.

**Conclusion** Our study points out that psychosocial risk assessment is not a priority for the companies so prevention programs are insufficient.

**Key terms** occupational health; psychological risks; Turkey.

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## Employees' health promotion: the situation in Lithuania

by Venckienė R, Eičinaitė-Lingienė R, Jankauskas R, PhD, Matevičiūtė T, Vičaitė S, Kirilovas G

Healthcare costs due to sick leave, absenteeism, and employee turnover are issues of great concern to employers, providers of healthcare services, and government. In order to promote employees' physical, mental, social health, and prevent negative factors affecting health, it is necessary to implement health promotion in the enterprises.

Statistics show the ageing of the Lithuanian population: at the beginning of 2011, there were 115 elderly persons (age  $\geq 60$  years) for every 100 children (aged  $\leq 18$  years), compared to 78 elderly persons to 100 children at the beginning of 2001. The employment rate for persons aged 55–64 years was 50.5% in 2011, higher than the European Union average. The employment rate at age  $\geq 65$  years is increasing (4.5% in 2010, 5.8% in 2012). At this point, implementing health promotion programs at work is becoming necessary.

The descriptive survey "Evaluation of Preventive Efficacy of Occupational Safety and Health Services" was carried out in Lithuania in 2011–2012 among 250 enterprises that – according to existing legislation (based on the number of employees and economic activity) – must employ (or hire) occupational health specialists. The results show that 85 enterprises (34%) have implemented health promotion and disease prevention programs. Alcohol and drug-use prevention, physical activity, and smoking prevention programs were implemented mostly. The statistically significant increase in the implementation of health promotion and disease prevention programs was found in enterprises employing occupational health professionals (63.8%) compare to enterprises not employing occupational health specialist (27.1%).

**Key terms** enterprise; health promotion programs; occupational health specialist; population ageing

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## Getting there in time – effects of early interventions on disability due to musculoskeletal disorders

by Viikari-Juntura ERA, PhD

To carry out interventions aimed to enhance return to work (RTW) at an appropriate time is important since the likelihood to RTW decreases rapidly as the duration of disability increases. However, research evidence also suggests that more complex interventions have the capacity to save sickness absence days and be cost-effective only after 8–12 weeks of work disability.

Physical load factors at work often play a role in disability due to musculoskeletal disorders (MSD), and reducing workload by ergonomic measures or affecting work time offer possibilities for interventions. One problem is how and by whom an early contact with the workplace can be taken. The occupational health service (OHS) is a natural actor in countries where a well-functioning system exists. In many other countries, the case manager of the insurer is an important actor.

Multisite type of pain – which is rather common – affects work disability in a clear dose–response pattern according to the number of pain sites. Another condition affecting disability is co-morbid depression. How RTW can best be enhanced among workers with multisite pain or co-morbid depression is one topic for a current intervention study.

The presentation will include a review of studies on workplace interventions aimed at enhancing RTW or work retention at the early stage of disability due to MSD. Moreover, views of key actors at the workplace and within the OHS will be discussed together with ways for better collaboration between them.

**Key terms** depression; disability prevention; intervention study; musculoskeletal pain; occupational health services.

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## Psychosocial factors, mental health, and sustained participation in working life

by Virtanen M, PhD, Kivimäki M, PhD, Vahtera J, MD, PhD

Common mental disorders, such as depression and anxiety disorders, are a major cause of work disability and impaired quality of life among working-age populations. Although there are an increasing number of studies examining the association between psychosocial factors at work and the onset of a mental disorder, relatively little is known about psychosocial factors as predictors of the onset psychiatric work disability (sickness absence and disability pension) and return to work after a period of disability.

In this presentation, recent studies from the Finnish Public Sector Study (Finnish Institute of Occupational Health, Finland) and the Whitehall II study (University College London, UK) are presented, with a special focus on psychosocial factors at work (eg, job strain, effort–reward imbalance, job insecurity, and long working hours) predicting adverse mental health outcomes and work disability as well as return to work after illness and sustained participation in working life. The findings indicate the importance of psychosocial factors as contributing factors to work disability due to common mental disorders.

**Key terms** depression; organizational justice; work disability; work stress.

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## Selection, optimization with compensation, age, and work ability – a human resource management perspective

by von Bonsdorff ME, PhD, Vanhala S, PhD, von Bonsdorff MB, PhD, Kauppinen M, MSc, Rantanen T, PhD

**Objectives** Work ability, which reflects the balance between employees' physical, mental, and social resources and various job demands, can be promoted with means of management. This study explores the associations between individual resource allocation strategies called selection, optimization with compensation (SOC) behaviors, age, employees' perceptions of advanced human resource management practices called high involvement work practices (HIWP), and work ability.

**Methods** Data for this study was collected in 2011 among 1026 Finnish metal industry and retail trade employees aged 18–68 years. Path analysis in structural equation modeling was used to analyze data.

**Results** Findings indicated that employees, who report more HIWP and also use SOC behaviors at work, report better work ability. In addition, there was an association between HIWP and work ability, which was mediated by use of SOC behaviors at work in that management practices in the form of HIWP allowed employees through the use of SOC to maintain their work ability.

**Conclusions** HIWP can help promote work ability in two ways: directly by enhancing the level of employees' skills, motivation, information, and empowerment and indirectly by enabling employees to better use individual resource allocation strategies in the form of SOC behaviors.

**Key terms** aging; high involvement work practice.

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## Midlife work and old age functional ability: findings from the Finnish Longitudinal Study on Municipal Employees (FLAME)

by von Bonsdorff MB, PhD

**Objectives** The aim of these series of studies was to investigate the effects of work assessed in midlife on old age health and functioning, a topic that has been little investigated.

**Methods** The Finnish Institute of Occupational Health launched the Finnish Longitudinal Study on Municipal Employees (FLAME) in 1981. Participants, 44–58-year-old municipal employees working in Finland, were randomly selected. The 6257 individuals have been followed-up with postal questionnaires in 1981, 1985, 1992, 1997, and 2009. Perceived work ability relative to lifetime best, psychological job strain, and job-related stress symptoms were assessed in midlife follow-ups together with several other work and lifestyle factors. Data on old age disability was available in 2009 and mortality has been followed-up from the Finnish National Population Register for the 28-year study period.

**Results** Of the 6257 participants, 3093 (74.0% of the survivors) participated in the latest data collection wave and 2079 died during the 28-year follow-up. We found that poor work ability in midlife among blue- and white-collar employees increased the risk of old age disability and mortality during follow-up. We found that low job control among men increased and high job demand among women decreased the risk of total mortality. Furthermore, we found that the increasing intensity of job-related stress symptoms in midlife increased the prevalence of mobility limitations and disability in old age.

**Conclusions** In this representative cohort on aging municipal employees, work-related strain and stress had long-term effects on old age health and functioning that were evident several decades later.

**Key terms** aging; disability; occupational gerontology; work ability; work strain.

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## Promoting career management, employment, and mental health through group interventions among students

by Vuori J, PhD, Nykänen M, MA

**Objectives** Many young workers experience unsatisfactory employment and poor work socialization, which may lead to problems in mental health. Preparedness for work life transitions can be increased with group interventions applying techniques of social modeling and active learning. There are two critical transitions for young people entering the work life. In the first critical phase, students choose their career and field of study. The second critical phase is the transition from vocational studies to employment.

**Methods** Two preventive group methods were developed for promoting career choice, employment, and mental health among young people. The aim is to promote active role and critical skills during the two transition processes, respectively. The effects of the interventions were investigated in two randomly assigned field experimental studies during 2000–2005, involving 1034 students in basic education and 400 students in vocational schools, respectively.

**Results** The two randomized controlled trials, with follow-up periods of seven months to one year demonstrated that increasing career-choice and employment preparedness resulted in better employment outcomes and improved mental health, especially among students who were initially at risk for depression.

**Conclusions** These group interventions have been published and are disseminated widely into practice in Finland. The Finnish Institute for Occupational Health provides training of group trainers and distributes method publications. For example, after the publication of the School-to-Work method in 2002, over 500 teachers and other persons have been trained to become trainers for the method and over 17 000 participant's workbooks have been distributed.

**Key terms** career management preparedness.

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## Age-related leadership – country comparison: attitude versus behavior

by Wallin M, PhD, Saarelma-Thiel T, MA

**Objectives** The aim of this study was to discover and compare intercultural differences between leaders' attitudes and behaviors regarding the scales "employability", "individualized age-related leadership", "leading older employees" and "early retirement".

**Methods** Seven hundred fifty five leaders from Germany, Finland, Italy and Switzerland participated in an online survey about age-related leadership. Principal component analysis (PCA) was conducted to form scales, which were then used to compare answers from all four countries.

**Results** Leaders' self-reported attitudes about age-related leadership obtained significantly more positive values than self-reported behaviors. With regard to "employability" leaders' answers in attitude and behavior are consistently affirmative, highlighting managers' principal willingness to support their employees in maintaining their employability. Country differences were found; rating from which age on leaders consider employees to be "older", Finnish and Italian leaders significantly identified an older range (56.5 and 54.9 years respectively) in comparison to German (51.4) and Swiss (52.3) leaders. No country differences were found for leaders' assessment of the development of their own cognitive, social, physical, and general work-related skills over the lifespan in comparison to leaders' evaluation of older employees' skills development. Leaders rate similar skills as increasing (eg, judgment, ability to lead, practical knowledge) as well decreasing (eg, physical performance, willingness to take risks, ability to work under pressure for long periods) when rating their own and older employees' abilities.

**Conclusions** There were few country-specific differences in age-related leadership. The general leadership attitudes were age friendly, although leadership behavior was not yet reflective of these attitudes. However, this provides a fruitful starting point for training of leaders who manage older employees.

**Key terms** employability; intercultural; survey.

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## Trajectories of health in relation to retirement – results from multiple studies in five countries

*by Westerlund H, PhD*

It has often been assumed that working is healthy. This is largely based on older unemployment research, indicating that work provides certain “latent functions” or “vitamins” that are important for people’s social, psychological, and physical well-being.

In line with this, studies have shown poorer health and increased risk of death after disability pension, and some studies have also indicated negative effects of statutory retirement. However, there are major methodological challenges that could lead to an overestimation of the negative effects: Firstly, it is difficult to separate the effects of ageing from those of retirement. Secondly, there are major selection effects. Whereas disability pension are granted because of illnesses with poor prognoses, working beyond statutory retirement age is most common among self-employed and people with the best health and the healthiest jobs. Studying trajectories of health during a longer period both before and after retirement can mitigate many of these problems.

The presentation will summarize a series of papers using such trajectory analyses on prospective French, Finnish, British, US, and Swedish data, which provide evidence regarding the impact of retirement on self-rated health, mental and physical health functioning, fatigue, depressive symptoms, use of antidepressant medication, headaches, alcohol consumption, physical activity, chronic disease, and adherence with antihypertensive medication. Overall, these studies indicate substantial improvement in the development of subjective health and some health behaviors at statutory retirement, but no immediate effects on physical health.

**Key terms** trajectory analysis.

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## Horizontal career change: a new occupational chance for older workers

by Zieschang H, Dr, Aleksandrowicz P, Dr, Bräunig D, Prof, Jahn F, Dr

Demographic change is leading to a further increase in the retirement age and a clear shortage of skilled labor. Even now, however, there are skilled professions that, due to the workload, are not feasible for workers who manage to stay healthy until retirement. It may be sensible for those workers to switch to another job that involves less or a different kind of stress and permits gainful employment until reaching retirement age.

As a result, we are currently developing a “digital directory” to provide assistance in the search for careers appropriate for such a change. Moreover, the directory is also intended to serve small and medium-sized enterprises to contribute to finding skills-shortage solutions. The core piece of the digital directory is an information communications technology (ICT) tool that includes a database of job profiles. For each job, the specific stress and requirements – but also the required qualifications – are saved. When a user enters his or her personal profile, ie, qualifications, preferences and possible health impairment, the tool will run this data against the profiles maintained in the database, which will eventually propose alternative matching careers.

Based on this concept, a prototype has been developed. It includes about 100 vocations as well as fictitious personal profiles for optimizing the installed search algorithm. The resulting list of professions can optionally rank the matches by either qualifications and preferences or stress and health. The project is financially supported by the German Federal Ministry of Labour and Social Affairs.

**Key terms** ICT tool; premature exit; retirement.

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