

## PEROSH news

### Use the available evidence: PEROSH Clearing House for Systematic Reviews

Systematic reviews present an aggregate level of information based on which it is much easier to make recommendations for practice than based on primary studies. PEROSH started a collaborative project on collecting evidence that is available in systematic reviews on occupational health and safety topics. Performing a systematic review is a lot of work. Coordinating the work done and making it available to other researchers and practitioners in the occupational health and safety field is the aim of this project.

The collaborative group has developed a methodology for locating systematic reviews of OSH topics and instructions on how to select the appropriate reviews. The domains of the topics include interventions, risk factors, predictors and tests to diagnose problems for any content area in OSH.

The procedure is as follows. First an answerable question is formulated based on the components Participants, Intervention/Exposure, Control and Outcome (PICO). Then this is reformulated in a search strategy which is run at least in PubMed and Medline. Finally references are selected and the process is documented together with the appropriate references to the systematic reviews. This is all included in the web, where it is available free of charge.

The project group aims at gathering 50 questions to be answered by systematic reviews in the coming year.

An editorial board will check the quality of the contributions and will survey the process. The board consists of Ulrike Euler (BAuA) and Annette Nold (IFA-DGUV) from Germany, (IFA-DGUV), Birgitte Blatter from the Netherlands (TNO) and Jos Verbeek from Finland (FIOH). The other partners in the project are from Denmark (NRCWE), Norway (NIOH), Poland (CIOP-PIB), Italy (ISPESL) and Spain (INSHT).

A preliminary website is available at  
<http://www.perosh.eu/p/clearinghouse>

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If you would be interested to collect and present systematic reviews in your research area please inform [jos.verbeek@ttl.fi](mailto:jos.verbeek@ttl.fi). The procedures are relatively simple and we would be happy to get more researchers involved.

*More information on the other PEROSH projects can be found on [www.perosh.eu](http://www.perosh.eu).*

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## Measuring and working with safety climate

NOSACQ-50 is a questionnaire developed by a team of occupational safety researchers from several Nordic institutions, lead by the Danish NRCWE (Pete Kines). This questionnaire consists of 50 items across seven dimensions and can be used as a diagnostic tool to measure the safety climate(s) in companies.

On the 26th of August, a kick-off meeting of the PEROSH group on Safety culture and Zero accidents was held at TNO in Hoofddorp, consisting of members from CIOP-PIB, FIOH, NRCWE, Prevent and TNO. Pete Kines (from NRCWE), presented the Nordic Safety Climate Questionnaire (NOSACQ-50), and together with Lieven Eeckelaert (Prevent) discussed the current expansion of the tool throughout EU and opportunities for further PEROSH collaboration.

Safety climate is in this regard defined as workgroup members' shared perceptions of manager as well as workgroup safety related policies, procedures and processes. The questionnaire has been pilot tested in various industries in all the Nordic countries, and the results confirm the reliability and validity of the questionnaire.

At the end of 2009, Prevent started with the translation of NOSACQ-50 into Dutch (Flemish) and French, and in 2010 they were pilot tested in 16 companies from different sectors (chemical, transport, governmental services, etc.) across Belgium. In total, some 1300 workers were surveyed. The validity testing of the results, done by the NOSACQ-50 development team, was positive, and Prevent is now planning to further apply the questionnaire in its research and consultancy.

NOSACQ-50 is currently available in numerous languages including Chinese (simple), Czech, Dutch, Danish, English, Finnish, German, Hungarian, Icelandic, Italian, Norwegian, Persian, Polish, Russian, Slovene, Spanish and Swedish. This allows for studies in companies with a multilingual and/or multinational workforce. Results from around the world are currently be-

ing collected in an international database in order to allow for benchmarking and further development of the tool. NOSACQ-50 can be used in full or be tailored for specific studies using individual dimensions. Use of the questionnaire is free of charge in the interests of exchange of information (data and experience), and it may not be used commercially.

The newly established PEROSH working group on Zero Accidents and Safety Culture will, among other objectives, examine additional collaborating opportunities for further expansion of NOSACQ-50 throughout the EU.

*More information on the NOSACQ-50 can be found on: <http://www.nrcwe.dk/Spørgeskemaer/NOSACQ-50.aspx> (New website in 2011).*

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## Challenges of tomorrow: PEROSH launches futures group

In order to prepare for the working life research challenges of tomorrow, PEROSH decided to launch a futures group in charge of dealing with the "priorities for the future" and identifying and monitoring of emerging trends and risks. The group will be chaired by the INRS and include representatives of all PEROSH members. The kickoff meeting will take place in Brussels on the 24th of November.

## Events

**November 25, 2010, Brussels**

### **PEROSH seminar: Research in action. Removing the gap between research and practical prevention**

What are the major drivers and policy challenges to ensure an ongoing interaction between working life research and practical prevention today? This will be discussed on the 25th of November at the PEROSH seminar on "Research in action. Removing the gap between research and practical prevention" in Brussels.

The PEROSH seminar will invite leading European researchers and policy-makers to discuss the major drivers and policy challenges to move forward and ensure the ongoing interaction between research and practical prevention.

As stated in the EU2020 Strategy, the ambition for Europe is to lead as a knowledge based and inclusive society. To understand the complexity of today's world of work and to remain resilient, a multidisciplinary approach and successful association of academic knowledge and practical implementation will be necessary.

Through the presentation of strong case examples, this seminar will look into the possibilities for improving the interaction and communication between the different stakeholders. Moreover, it will consider the possibilities for improvement of the efficiency and cost-benefit of OSH interventions at workplace level via evidence-based research.

#### **Please register by 12 November 2010**

The seminar will take place on the 25th of November 2010, from 13:30 – 17:45. Registration is free. Please note that places are limited and reservation is needed. Reservations can be made via the subscription form on the website. Deadline for registration is 12 November 2010.

*More information on the programme and subscribing:*  
<http://www.perosh.eu/p/NEWSRIA>

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### **April 5-6-7, 2011, Nancy** **INRS Occupational Health Research Conference 2011: Risks associated to Nanoparticles and Nanomaterials**

INRS launches a new series of international Health Research Conferences. Its first edition will be devoted to risks associated with nanoparticles and nanomaterials. The conference will take place in Nancy on 5-6-7 April 2011. Abstract submissions are open and the deadline for submissions is November 15th, 2010.

The conference is supported by the PEROSH network and will bring together researchers, experts and practitioners from different backgrounds with the aim of sharing the latest knowledge on nanoparticles and nanomaterials and discussing research needs on the following topics: health effect assessment, characterization of nanomaterials, exposure measurement and assessment, emission control and protective equipments, risk assessment and risk management.

An issue of Annals of Occupational Hygiene will be devoted to the papers from the conference. The conference brochure as well as the practical guidelines for the abstracts are now available on the conference website: <http://www.inrs-nano2011.fr>.

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### **February, 1 & 2, 2011, Brussels** **PPE Conference 2011: The European Lead Market for Protective Textiles and Clothing**

As a member of the organising committee, CIOP-PIB is pleased to announce the PPE conference 2011.

The main purpose of the PPE conference 2011 will be to:

- inform industry, end users & policy makers about the status of the PPE Lead Market Initiative
- highlight major innovation trends and needs for increased competitiveness of the PPE sector in Europe
- collect input for follow-up work and discuss with all relevant partners that could provide resources for such work
- show case results of on-going publicly funded projects in the PPE field.

The conference will take place on February 1 & 2, 2011 in Brussels. The conference is a joint initiative of Euratex & Textile ETP, ESF, ETSA, Industrial Safety ETP and Centexbel.

*More information:* <http://www.ciop.pl/778.html>

## News from the PEROSH members

### Work-related illness keeps 12.5 million Europeans off work



Knowledge for business

Each year 12.5 million people in Europe are off work sick because of work-related health problems. That is equivalent to an estimated 367 million days lost due to work-related illness. These figures come from a TNO analysis carried out for Eurostat of the statistical data concerning accidents at work, work-related illness and work-related risks in 2007 in Europe. TNO's main source was the Labour Force Survey carried out by Eurostat in the 27 EU countries plus Norway and Croatia.

Of all Europeans between the ages of 15 and 65, some twenty-three million people (8.6%) are affected by health problems caused or aggravated by work. Between 1999 and 2007 the number of working people affected by health problems was reported to have increased by half, from 4.7% to 7.1% (based on a comparison of nine EU countries). These problems led to half of them being restricted to some extent in performing their daily work while 20% suffered serious limitations. Half stayed off work due to health problems and about a fifth stayed off work for more than a month.

#### Age

The number of people up to the age of 55 with work-related health problems is increasing while after this age there is a fall, which is probably due to the 'healthy worker effect' phenomenon, whereby people with work-related health problems retire earlier than those without such problems.

#### Types of work-related health problems

The two main types of health problem are physical (the chief reason cited by around 60% of the respondents with work-related complaints) and psychological – stress, depression and fear (14% of the respondents cited these reasons). Well educated people tend to cite stress, fear or depression as the most serious health problem whereas those of a low and average educational background are more likely to cite physical problems.

#### Risk sectors

For both men and women 'farming, hunting and fishing' and 'mining' are the sectors with the most work-related health

problems. For women the health and welfare sector can be added.

*The Publication Health and safety at work in Europe (1999-2007) is available on the website of EUROSTAT: <http://epp.eurostat.ec.europa.eu>*

### Comment: Thoughts about Work Environment Research Collaboration in Europe

*By Trygve Eklund, Director General and Paal Molander, Research Director General, National Institute of Occupational Health, Norway*



Statens arbeidsmiljøinstitutt

Research on work environment in Europe covers a wide range of topics, ranging from well-being related projects to occupational cancer. It is a challenge for the national work environment research institutes as individual institutions to cover all areas of interest within this field. Therefore a joint effort and collaboration among such institutes in Europe is favorable from many points of view.

Sharing of knowledge often results in expansion of knowledge. This reasoning is obvious for the individual collaborating institutions by knowledge transfer, but usually also is valid for the whole scientific field of interest by means of increased focus and growth of new ideas. For these reasons the National Institute of Occupational Health (NIOH) in Norway wishes to contribute both to the specific activities within the Partnership for European Research on Occupational Safety and Health (PEROSH) and to the general development of this organization. We are therefore very grateful to the Danish National Research Centre for Work Environment (NRCWE) for their leading position and excellent work in developing the PEROSH the last years, by adding further substance and concrete activities to the partnership.

The financial situation for many of the PEROSH partner institutions is not as clear, long-term based and sufficient as one might prefer. It appears that it has been a trend lately in many of the European countries that research funding tends to be bound to programs originating from political strategies, thus carrying a risk for limiting and challenging the national institu-

tions' responsibilities for coverage of comprehensive knowledge needs within this wide field. As a result, the research strategy periods might become shorter, with possible concurrent major changes in research priorities. If such possible changes are motivated by observed changes in the work life calling for new knowledge, and likewise reduce the knowledge needs related to established work environment risk factors, this certainly might be an asset for the quality, public utility and relevance of the research activities. However, if this not is the case, but rather is a result of changing political winds or focus areas, such trends might threaten the scientific quality from and the development of the national work environment research institutions in the long run.

NIOH is organized directly under the Norwegian Ministry of Labor, and we have high respect for political decision-makers and their desire and duty to use their vote of confidence within the election period. And we sincerely appreciate their role as important and demanding stakeholders and relevance signposts for work environment research institutes. But the research institutions are also in need for more long-term based research perspectives than it is fair to expect from people with a stronger main focus on present work life challenges. Therefore it is important that work environment research institutions, in dialogue with the work environment authorities and the social partners, also are given opportunities and financial strength to plan for the future by aiming at discovering future risk factors in order to fulfill the role as providers of evidence-based knowledge to be used preventively to reduce risks and improve health. A possible future situation with short-term based and ever-changing research strategies will call for short-term research activities, which in many cases can be associated with reduced scientific standards. Building of knowledge and expertise is time consuming.

Within the PEROSH network the collaborating institutions have different opportunities to explore this role, which may result in different research focus and areas of interest. However, it is the hope of NIOH that the all in all research focus and competence of all the partners represent a well balanced platform between present and future knowledge needs within this field. In addition to learning from and being inspired by the other PEROSH partners, this is the major motivation for NIOH contributions to the partnership. Therefore, NIOH will aim to stimulate to discussions within PEROSH on general research strategies and priorities based on scientific knowledge and needs detached from national short-term financial snapshot opportunities, expectations and requests.

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## From NEW OSH ERA to Joint Programming

By Ellen Zwink, Federal Institute for Occupational Safety and Health (BAuA), Germany



Some PEROSH partners had been involved in the 4-years project NEW OSH ERA "New and emerging risks in occupational safety and health – Anticipating and dealing with change in the workplace through coordination of occupational safety and health (OSH) risk research" which was finished in April 2010 (1). The participation in this project on programme level pointed out the strong intention of the national OSH institutes to coordinate and to concentrate their research priorities and activities in the field of occupational safety and health. Within the framework of NEW OSH ERA a common call on the subject of work-related stress was published.

In order to continue this successful approach, the EU commission's initiative "Joint Programming" (JP) from 15th July 2008 (2) seemed to be the right opportunity for making better use of Europe's limited public research and development (R&D) funds through extended co-operation. Joint programming involves strategic collaboration between existing national programmes or common planning and setting up entirely new ones, pooling resources and collectively monitoring and reviewing progress. The strengthening of the European Research Area (ERA) remains the priority objective. The concept of Joint Programming comprises the development and implementation of common strategic research agendas based on a voluntary level and a common vision of how to address major societal challenges (e.g. increased global competition, ageing population or climate change). The GPC subcommittee (Groupe programmation conjointe) of the High Level Group CREST (Comité de la recherche scientifique et technique) was mandated to identify possible research areas for Joint Programming. Each European Member State is requested to make proposals on which the EU Council of Ministers will decide at last.

In Germany the consultation process resulted in the thematic proposal "More years, better lives – The potentials and challenges of demographic change" (3) in April 2010. This topic was initiated by the Federal Institute for Occupational Safety and Health (BAuA) and the German Federal Ministry of Labour and Social Affairs (BMAS). The Federal Ministry of Education and Research (BMBF) elaborated the proposal and took over the coordination of the initiative. The vision of an 'active life in old age' will become one of the major social challenges in Europe and other highly industrialised world regions in the

upcoming years. Research in occupational safety and health is particularly demanded in the area of 'work and productivity' in order to guarantee a sustainable employment along the working life.

Among five other proposals the German one was presented to the GPC in a second wave (4). In May 2010 the EU Council welcomed the new set of themes for Joint Programming Initiatives (JPI) and invited the European Commission to continue its progress presenting the state of play of research in the field of each of them. Until now the German initiative is supported by Denmark, Finland, France, the Netherlands, and Turkey.

In a next step the German JP coordinator will invite the interested European Member States to organise a topical consortium (e.g. secretariat, board, expert groups). A concrete Strategic Research Agenda (SRA) will be prepared as soon as the committees takes up their activities.

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- (1) <http://www.newoshera.eu>
- (2) [http://ec.europa.eu/research/press/2008/pdf/com\\_2008\\_468\\_en.pdf](http://ec.europa.eu/research/press/2008/pdf/com_2008_468_en.pdf)
- (3) <http://www.jp-demographic.eu/documents/synthesis-paper>
- (4) <http://www.era.gv.at/space/11442/directory/11767.html?page=2&>

## Designing a workplace for workers with motion disability by means of computer simulation and virtual reality techniques

By P. Budziszewski, A Grabowski, M. D wiarek, J. Jankowski, M. Milanowicz

**CIOP**  **PIB** CENTRAL INSTITUTE FOR LABOUR PROTECTION  
- NATIONAL RESEARCH INSTITUTE

Employment of disabled people is a serious social problem in Poland. According to data obtained from the Economic Activity Survey (conducted by the Central Statistical Office of Poland), in 2009 nearly 2.1 million people with disabilities were of working age. Only ~508 000 people in this group were occupationally active, and ~443 000 actually worked. The number of persons with disabilities constitutes nearly 10% of the working age population, but their share in total employment is lower than 4% [1]. Such a low share of employed persons with disabilities may be caused by greater than average difficulties in finding a job, less willingness or capacity to enter the labour market. The odds of finding a work placement by professionally active disabled people are about 20–40% lower than by healthy people [1]. Therefore, the crucial issue is to facilitate employment of people with disabilities to the extent to which they retain their ability to work and can use their skills and capabilities. The important aspect is adaptation of working environment to disabled people.

The aim of the project is to use computer simulation and virtual reality techniques to facilitate adaptation of workplaces to workers with motion disability [2]. For this task special software and a computer human model were developed (Fig.1). Our computer programme can be used to create a virtual working space to adjust the human model's measurements and constraints to reflect a disabled person, as well as to analyse necessary modifications. It also makes it possible to conduct research in an immersive virtual reality environment to assess a modified workplace and, if necessary, add further modifications.

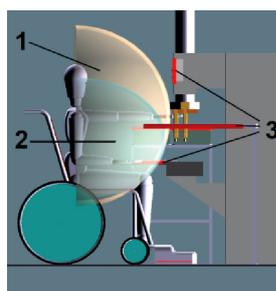


Figure 1. Computer model of a person in a wheelchair with a visualization of maximal arm reach (1), preferred working space (2) and accessible working areas of the workplace (3).

In the currently ongoing last and third stage of the project, research that involves virtual reality is carried out. A person with a disability is asked to access a virtual reality environment with immersive virtual reality equipment and to simulate work. This allows the experimenters to assess the proposed modifications. In the next step, further modifications will be applied according to the preferences of the disabled workers. These modifications will focus on ergonomics. A separate module was developed to help implement the modifications proposed by a disabled worker. It is possible to control the engine of computer simulation via a TCP/IP network. Thus, all objects can be modified during the simulation by the supervisor.

The preliminary results of the study show that computer simulation can be used to determine whether a worker with a disability can access all important areas of a workplace and if not, propose necessary modifications. A virtual environment makes simple, one-step modifications possible [3]. The third stage consist of verifying the proposed methodology through research with people with disabilities and virtual reality.

Twelve disabled people participate in this research. They access a few variants of each workplace: an unmodified one, one with earlier modifications and one with modifications introduced according to their measurements. There are also more additional variants of the workplace, reflecting the opinion of the person studied. The evaluation of all variants is two-fold:

- the efficiency of work, accuracy of performed tasks and movements done during work are measured;
- a subjective evaluation of workplaces and each modification is done with a questionnaire prepared in cooperation with psychologists.

Each person spends approximately 270 min. in the virtual environment during 3 days of tests. To minimise discomfort combined with long exposure to immersive virtual reality, one session takes no longer than 30 min., with 20-min. breaks in between.

The project is carried out in the Laboratory of Virtual Reality Techniques, Department of Safety Engineering, Central Institute for Labour Protection - National Research Institute, within the scope of the National Programme "Improvement of Safety and Working Conditions", partly supported by the Ministry of Science and Higher Education (2008–2010). The Central Institute for Labour Protection – National Research Institute is the Programme's main co-ordinator.

#### REFERENCES

1. Chłon-Dominczak A, Poznanska D, Promotion of employment in the open labor market. Proposed activities in Poland, International Labour Organization, Budapest, Hungary, 2007
2. Budziszewski P, Grabowski A, Tokarski T, Dzwiarek M, Kurkus-Rozowska B, Jankowski J, Designing a workplace for workers with motion disability with computer simulation and virtual reality techniques, The 8th International Conference on Disability, Virtual Reality and Associated Technologies, 2010
3. Nivolianitou Z, Aneziris O, Nasios K, Virtual Reality applications for improving safety in the process industry, In Safety and Reliability for Managing Risk (Guedes Soares & Zio, Eds), 2006, Taylor & Francis, London.

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## The increasing use of portable computing and communication equipment and its impact on occupational safety and health in Europe



Mental stress arises primarily through the boundaries between the occupational and private spheres becoming blurred, and through mobile employees in some cases being less and less integrated into their companies through social contacts. This is one of conclusions of a new report submitted to the European Commission.

The report examines the increasing use of mobile information and communications technology (ICT) in the occupational sphere and the impact on health for employees in Europe.

The report looks into the technology and the use made of it; the ergonomic and psychosocial risks to employees; the implications for the organization of the health and safety of workers at work; and the implications for EU legislation and its surveillance.

The study demonstrated that mental stress arises primarily through the boundaries between the occupational and private spheres becoming blurred, and through mobile employees in some cases being less and less integrated into their companies through social contacts.

Physical workload is caused primarily by unfavourable ambient conditions for visual display unit (VDU) work during travel, and by the poor ergonomic characteristics of the mobile communications equipment.

The report's recommendation is that, not least owing to the rapid pace of technical development, legislative initiatives should not be launched; proven and applicable standards from

the EU directive governing VDU work should be applied, and recommendations drawn up for design measures suitable for practical implementation.

Project partners were the Institut für Arbeitsschutz der Deutschen Gesetzlichen Unfallversicherung (IFA); Verwaltungs-Berufsgenossenschaft; GVG - Gesellschaft für Versicherungswissenschaft und -gestaltung e.V.; Institut Arbeit und Gesundheit der Deutschen Gesetzlichen Unfallversicherung (IAG); all Germany.

More information: <http://www.dguv.de/webcode.jsp?q=d91083>

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## Health effects and risks of Nanoparticles

By Vidar Skaug, Senior Physician, Cand Med



The nanotechnology is already upon us. On the consumer market one can, already, find more than one thousand different consumer products, and each day five more products are launched – according to numbers from USA. In the years to come many possibilities for this technology will spring forward. A technology that has been looked upon, by some experts, as more important for the societal development today than the impact of the industrial revolution at that time, 150 years ago.

In this perspective NIVA education (Advanced Training in Occupational Health) in cooperation with the National Institute of Occupational Health in Norway (NIOH) is arranging a seminar on 'Health effects and risks of nanoparticles' the 2nd of November in Oslo.

### What are nanomaterials?

Nanomaterials are chemical compounds built by extremely small particles at the size of molecules or atoms. The materials are being produced on an industrial scale as well as in laboratories. The production focuses on the ability of very small particles, when put together, to provide relatively extreme surfaces in relation to their volume and weight. Brand new product usabilities emerge.

Examples on such usabilities are changes in the compounds absorbing ability or their repelling ability, electrical or thermal abilities, and changes in colour, catalyst effect or strength (the ability to hold or stretch).

### Major investments in the technology

In quite a few countries expanding volumes of fairly comparative nanoparticles are being produced for different purposes. The surface of the particles may be coated by chemicals for optimal usability.

One can now see that there are made sizeable investments within nanotechnology in the major industrial countries, led by the United States of America. There are high expectations for the technology within such fields as materials and consumer goods, health and medicine, energy and environmental issues as well as information technology, electronics, food and agriculture.

### Risks and Health effects

Unfortunately the very same abilities that we do want to use when it comes to nanoparticles, are the ones that we fear can provide harm to the employees working with and exposed to nanoparticles in their work environment. The technology is relatively young, and few workers have been exposed, so we will have to wait years and decades before any long term effect might eventually occur.

Even though there have not been reported harms on exposed personnel, lab-results and research-findings demonstrate that the particles can pass various biological barriers and enter different cells and tissues, by various mechanisms. From experimental studies possible risks to humans are local inflammatory reactions, effects on the respiratory system, heart and coronary system and the immune system – to mention a few.

Today the discussions have not silenced among scientists and lay people on what significance these harms may have for the ones exposed within their work environment today.

### The National Institute of Occupational Health in Norway and nanoparticles

NIOH has, partly related to the PEROSH-project on nanomaterials started up a project on nanotoxicology, where the aim is to study the effect of exposure to nanoparticles in relation to genes in genetic model-systems where you can find different levels of inflammation. The aim is to study whether they can have any cancer-related effects as well as the studies of the inflammation processes. The experimental in-vitro studies are being set up these days, and in vivo studies have been planned as the next step.

### How to work with nanoparticles in your work environment?

The seminar Nordic Tour 2010: Health effects and risks of nanoparticles will provide you with the possibility to learn more. The seminar is arranged in Oslo, Norway, November 2. 2010.

For more information on the Nordic Tour 2010: Health Effects and Risks of Nanoparticles check out the NIVA-pages – [www.niva.org](http://www.niva.org), or NIOHs web [www.stami.no](http://www.stami.no)

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## Low back pain can be prevented by new approach



Low back pain remains a major cause of disability, absenteeism, and suffering at work. That is why INRS is proposing a prevention approach in addition to the usual actions, and that is called the “green frame” approach.

This collection of recommendations for firms defines a working environment and the physical and psychosocial limits within which a worker suffering from low back pain can return to work, while also improving the probability and the quality of recovery for that worker.

This proposal is original because it aims to incorporate low back pain prevention into workstation design and work organisation. Implementing the “green frame” requires close coordination between OSH practitioners and the person’s doctor.

For several years now, clinical consensuses as regards treatment of low back pain have increasingly been reached both in France and elsewhere (United Kingdom, Germany, Netherlands, Canada, United States). All of them stress the importance of returning to appropriate physical activity as quickly as possible.

For more information: <http://www.inrs.fr/> (Search term: “Les lombalgies les comprendre, les prévenir, in French)

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## Confirmation of ISPESL incorporation into INAIL



Justified by the urgent need to cut public administration costs, the Italian National Institute for Occupational Safety and Prevention (ISPESL), was closed and incorporated into the Italian Workers’ Compensation Authority (INAIL), by Law Decree No. 78 of 31 May 2010 (ratified by Law No. 122 of 30 July 2010).

This means that since 1 June 2010 INAIL, in addition to carrying out its mandate concerning compulsory insurance for companies (as provided for by the Consolidation Act issued in 1965 to regulate mandatory insurance against occupational accidents and illnesses), as well as additional tasks assigned by Legislative Decree No. 81 of 9 April 2008 (counselling companies, providing information and training, promoting safety, drafting of good practice guidelines, contributing to the national information system for prevention), is now also charged with all ISPESL tasks, including OSH research.

Nevertheless, the situation is at the moment in a phase of high uncertainty that will last until the issuing (expected at the end of October 2010) of non-regulatory Decrees by the Minister of Labour and Social Policies, agreed with the Minister of Economics and the Minister of Health, that will transfer ISPESL financial, human and instrumental resources to INAIL, based on the results of the ISPESL closing balance at the end of July. Among the main issues that will have to be regulated, it is worth mentioning the nature of public research institute of ISPESL, which will have to be maintained within the new home of INAIL. The first statements issued by INAIL top management on the modalities for incorporating ISPESL tend to ensure fully the continuity of the Institute’s research activities and stressed the importance of carrying out the current OSH research projects related to it’s 2009-2011 Research Plan. In this line, about 500 temporary research and administrative staff have had their contracts extended until the end of 2010.

Furthermore, the role played by ISPESL in several European and international OSH research programs and networks will not be neglected in order to continue to guarantee the presence of Italy in the panorama of OSH research.

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## Light commercial vehicles: restraining the load in the event of a road accident



In a head-on collision, a load that is unrestrained in the back of the vehicle is thrown violently towards the seats, and thus becomes a projectile that can injure or even kill the occupants of the vehicle. INRS has conducted research on vehicle equipment aimed at preventing that risk.

The results of the research show that installing a partition for separating the occupants from the load is merely a partial protection measure in dealing with this risk. It is necessary to restrain the items of equipment and the goods that are transported, in particular by stowing them in a safe place in the back of the vehicle. INRS has developed test methods for assessing the mechanical strength of such a dedicated stowage place in the event of impact. The protocol defines minimum strength requirements. INRS wishes to continue this effort and to procure change in European regulations in this field.

To consult the test methods (in French and in English):  
<http://www.inrs.fr/publications/ns286.html>

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## Maintenance and Occupational Safety and Health: A statistical picture

This new report of the European Risk Observatory of the EU-OSHA shows the main hazards, risks, health problems and accidents that maintenance workers in Europe are exposed to and suggests appropriate prevention measures.

10-15% of all fatal workplace accidents are related to maintenance operations. EU-OSHA's new campaign on Safe Maintenance raises awareness of the importance of proper maintenance work. The following PEROSH – partners cooperated within the project: Prevent, Belgium; INSHT, Spain; INRS, France; CIOP-PIB, Poland; IFA, Germany; BAuA, Germany. It was carried out in cooperation with EUROSTAT.

More information: [http://osha.europa.eu/en/publications/literature\\_reviews/maintenance\\_OSH\\_statistics](http://osha.europa.eu/en/publications/literature_reviews/maintenance_OSH_statistics)

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## New professor will further strengthen the nano research



On June 1st, the NRCWE welcomed Ulla Vogel, M.Sc., Ph.D., as professor in nanotoxicology where she joined an already well-established and strong team of nano researchers at the NRCWE. Ulla Vogel will be responsible for the coordination and the further development of the research within the field of risk assessment of new chemical substances in the working environment. The focus will primarily be on the toxicity of nanoparticles.

### Optimal synergy

One of professor Vogel's most important tasks is to obtain as much synergy as possible from the many research activities within nanotoxicology at NRCWE. She thinks that the NRCWE has a very competent and ambitious research team in nano research. The main strength of the research group is the many different qualifications among the researchers who therefore complement each other very well. The research group is composed by toxicologists, chemists, aerosol physicists, and molecular biologists.

### Important research needs in nanotoxicology

Professor Vogel suggests a number of research issues which she believes to be very important in nano research:

- How do we measure and quantify the exposure to nanoparticles?
- Are nanoparticles emitted during decomposition of matrixes with embedded nanoparticles?
- What are the health effects of nanoparticles which accumulate in the liver?
- Do nanoparticles increase the risk of cardiovascular disease?
- Do carbon nanotubes have asbestos-like properties and do they cause cancer?
- Do nanoparticles affect fertility and do they induce hereditary mutations?
- What are the toxic effects of surface coating spray products?

### Current research in nanotoxicology at the NRCWE

- Safety evaluation of manufactured nanomaterials by characterisation of their potential genotoxic hazard - NANOGENOTOX
- Development of sustainable solutions for nanotechnology-based products based on hazard characterization and LCA - NanoSustain
- Airway effects after exposure to surface coating spray products
- Risk Assessment of Engineered Nanoparticles - ENPRA
- Risk Evaluation Tool and Good Practice for Safe Handling of Nanoparticles (NANOTOOL)
- Novel Concepts, Methods, and Technologies for the Production of Portable, Easy-to-Use Devices for the Measurement and Analysis of Airborne Engineered Nanoparticles in Workplace Air - NANODEVICE
- Nano-technological materials and products in the plastics industry. Exposure assessment and toxicological properties - NANOPLAST
- Nanoparticles in the paint- and lacquer industry. Exposure and toxic properties
- Translocation of nanoparticles and ultra fine air pollution particles across tissue barriers in mice
- Characterisation and technological analyses of nanoparticles in liquid based nanofilm products (NANOFILM, Danish acronym)

### PEROSH collaboration

- Hazard identification and engineered nanoparticles: <http://www.perosh.eu/p/7V5GKA>
- Exposure Measurements and Risk Assessment of Manufactured Materials/Nanoparticles Group: <http://perosh.prevent.be/p/7V5GSA>

*More information:*

*Professor Ulla Vogels' research:*

<http://www.nrcwe.dk/Medarbejdere.aspx>

*Current research and scientific articles about nanotechnology:*

[http://www.nrcwe.dk/Forskningsresultater/Nye\\_teknologier.aspx](http://www.nrcwe.dk/Forskningsresultater/Nye_teknologier.aspx)

## Gene variants and lung cancer risk

*By Professor Aage Haugen, Head of Research*



Researchers at the National Institute of Occupational Health (NIOH) in Norway have in several recent studies demonstrated that genetic variations may influence the risk of lung cancer. Although occupational and environmental exposures to carcinogens contribute to cancer risk in humans, variation in incidence and progression of cancers among individuals can be attributed to variation in genetic makeup between individuals.

Cigarette smoke is the strongest documented risk factor for the development of lung cancer, but occupational factors play an important role. Despite the fact that smoking causes most cases of lung cancer, only one of ten develops lung cancer.

This variable susceptibility to lung cancer most likely reflects genetic variations in the response to lung carcinogens. Recent research has identified functional polymorphisms that influence an individual's cancer risk. The focus has been on genes involved in metabolism of carcinogens, DNA repair and inflammation.

### The Genome Wide Association Studies

In 2006 a method was published that made it possible to analyze a large number of genetic variations, the approach was called genome wide association (GWA) studies. The GWA approach has revolutionized the discovery of gene-disease associations. GWA studies have identified specific sites in the genome responsible for several cancer risk traits.

Previous GWA studies identified lung cancer susceptibility loci at chromosome 15q25, 6p21, and 5p15.33. The risk variants on the long arm of chromosome 15 (CHRNA3 and CHRNA5 genes), encode subunits of nicotinic acetylcholine receptors. These genes are also found associated with COPD. Individuals with COPD have 2 times increased risk of lung cancer. The mechanisms behind this are presently not known.

### Variations in CHRNA genes influence lung cancer risk

Researchers at NIOH have participated in an international study within the framework of the International Lung Cancer consortium (ILCCO) published in J Natl Cancer Inst, and confirm that variations in the CHRNA genes influence lung cancer risk among smokers in Caucasians but was not related to lung

cancer among non-smokers or in Asians. This suggests that among Asians these genevariants in this chromosome region changes the risk of lung cancer independent of smoking habits.

For chromosome 5p15 region the researchers found a statistically significant association in both Caucasians and Asians. A stronger association was found between 5p15 locus and adenocarcinoma versus other histological types. Neither of the two variants on chromosome 6p21 was associated with the risk of lung cancer in this study. Further studies with other gene variants in this region are therefore necessary.

The interesting finding of Truong and coworkers (1) represent a major step in understanding the genetics of lung cancer. The next approach will be to investigate the mechanisms, from polymorphism to function.

(1) *J Natl Cancer Inst* 102:959-71, 2010.

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## Measured value register of knee stress work activities (GonKatast)



A register of measured values of knee stress work activities, the "GonKatast" register, will be available to the accident insurance institutions. The aim of this register is to provide valid data for quantification of the relevant load on the knee within various vocational groups, and thereby to create a basis for future prevention measures and workplace investigations in the context of procedures for formal recognition of cases of occupational disease.

Ahead of the project, 22 professions were identified in which knee straining tasks could occur to a relevant degree. These were: concrete workers, floorers, roofers, electrical installation contractors, composition floor layers, vehicle trimmers, tilers, airport ramp agents, mould makers, plumbers, goods vehicle mechanics, painters and decorators, natural and artificial stone layers, parquet layers, plasterers, interior designers, pipe layers, assemblers, welders, steel fabricators, shipyard workers and carpenters.

A total of 251 relevant shift recordings were performed and evaluated for these occupations. The tasks to be studied were classified in 87 task modules (typical working shifts), and measurements were performed for them. With the aid of a modified version of the CUELA software application, a total of approximately 550 hours of measurement were processed and evaluated with regard to the nature and incidence of the tasks posing load upon the knee.

All shift recordings were input into the IFA's OMEGA-MSB database in order to make them available for further evaluation. This database can be extended continually in the future.

The representative results for 16 occupations were summarized by the accident insurance institutions in charge in documentations for the processing of cases of formally recognized occupational disease. These results are included in the form of register/catalogue data in the IFA's case history software for knee disorders, which was developed at the same time, and are thus available for investigations by the accident insurance institutions into cases of suspected occupational disease. Following a vote by the GonKatast working group supervising the research activity, the overall results have been published in 2010 in the form of an IFA report which is available for download (in German).

The "GonKatast" register of measured values will thus be available to the accident insurance institutions, for which it will be a useful instrument for investigating the work-related criteria during investigations into suspected cases of occupational diseases of the knee (BK 2102, 2105, 2112) and the identification of prevention foci in the area of occupational knee strain.

More information: <http://www.dguv.de/webcode.jsp?q=d105262>

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## Neck pain is connected with psychological and social factors at work

Jan Olav Christensen, Phd Student



A new study from the National Institute of Occupational Health in Norway demonstrates a clear link between role conflict, empowering leadership and control at work and neck pain.

In the study 2419 employees from 20 organizations answered questions about work content, work environment, attitudes, organizational change, health complaints, and work ability twice with a two-year follow-up period.

The aim of the study was to determine which psychological and social factors at work contribute to the neck pain. Data were analyzed in several ways in order to conclude which factors were the most reliable predictions.

### Role conflict and neck pain

Many of the factors in the study were associated with neck pain, but role conflict was the strongest risk factor, and it was also associated with neck pain in all analyses, says PhD student Jan Olav Christensen.

Role conflict means that you experience a discrepancy between the way you must execute your tasks and the way you feel that they should have been executed, or that you receive conflicting demands from different persons. It can also involve conflict between work tasks and your own values and norms, says supervisor and project leader Stein Knardahl.

Working with arms raised to or above shoulder level did also increase the risk of neck pain.

### Potential for prevention

Employees that reported to have empowering superiors who supported independence and initiative had a lowered risk of neck pain. Control over decisions related to one's own work was also associated with lowered risk.

The definitions of the factors investigated in the study are relatively precise. Hence, companies should be able to alter these and thereby contribute to the prevention of neck pain.

Previous research has concentrated on a limited selection of work related psychological factors. This study demonstrates the need for comprehensive investigations of several aspects of work in order to discover the factors that are most consequential for musculoskeletal pain.

### The new workplace

The project "The new workplace: Work, factors that determine absence and participation in and exit from working life. A prospective longitudinal study" aims to produce new knowledge of which work factors have an impact on health and participation at work. The project investigates a variety of specific factors that are often subsumed under the general term "stress".

"The new workplace" is an ongoing prospective study. A large number of employees in a variety of organizations answers questionnaires every other year. Hence, work life conditions can be monitored and the impact of work factors on health, motivation, working ability, sickness absence, and participation can be studied.

It is well known that musculoskeletal disorders contribute to sickness absence, but there is limited knowledge about the cause of these health complaints.

More information: <http://www.ncbi.nlm.nih.gov/pubmed/20655144>

Contact/project leader: Director of department, Dr Med Stein Knardahl, [stein.knardahl@stami.no](mailto:stein.knardahl@stami.no)

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## Fewer and fewer older people not at work



The percentage of people aged 50 and above not working continues to fall. Dutch people are retiring later on average, though retirement age does depend on the kind of industry in which one works. People with a protracted illness tend not to be employed or work part-time. A hundred thousand young people have no education or work and ethnic minority mothers are still underrepresented in the labour market. These are just a few of the conclusions reached in the recent TNO/CBS publication 'Alle Hens aan Dek: Niet-werkenden in beeld gebracht'

(All Hands on Deck: a picture of the non-employed).

#### **Falling percentage of non-employed 50 to 65 year-olds**

The percentage of people aged 50 to 65 not working continues to fall, especially among those aged 60 and above, where the fall is significant, and the percentage of 50 to 55 year-olds and 55 to 60 year-olds has almost halved in a period of less than 15 years. More and more older people, therefore, are remaining in work.

#### **Considerable differences in retirement age by industry**

Since older people are continuing to work, the average retirement age has increased, although this does differ according to industry sector. In 2007 the average retirement age was 62, with this being around 61 in the government and healthcare sectors. In farming and fishing, the retirement age is higher at 64. Self-employed entrepreneurs tend not to retire on average before their 66th birthday. It is mainly those industry sectors that combine a high level of ageing with a low average retirement age, like government and healthcare, that run the risk of a shortfall in skilled personnel in the long term.

#### **People with a protracted illness are more often not employed**

People suffering from an illness for at least half a year make up the largest group among those not employed. Of the 2.7 million people concerned, 48 per cent makes up the non-employed population against 23 per cent of those without a protracted illness. Moreover, the number of healthy people without work has fallen whereas the number with a protracted illness has risen somewhat. The trends for people with and without a protracted illness are therefore divergent, with the former working more than average in part-time employment.

#### **Hundred thousand young people with no work or education**

In 2009 more than a hundred thousand young people from 15 to 26 years of age had no education or work. Of this total, forty thousand young people of a low educational background that wanted to work were not (any longer) in search of paid employment. The other sixty-six thousand did not even want to or were unable to work. Forty-three thousand of these young people had no basic educational qualification; physical or psychological handicaps are often the basic cause of this failure to gain a basic education qualification.

#### **Ethnic minority mothers still underrepresented in the labour market**

Over a period of fifteen years the percentage of non-working women had halved to 37 per cent by 2009, a trend that is also evident among mothers with young children. In 2009, 29 per cent of mothers with young children did not have paid jobs of at least 12 hours per week. That figure had been 60 per cent in

1996. Ethnic minority mothers, mainly of Turkish or Moroccan descent, remain underrepresented in the labour market. From 2006 to 2008 around half the Turkish and Moroccan mothers were not employed; for indigenous mothers this figure was 25 per cent. This is attributable not only to care for children but also to the low level of education and cultural differences.

#### **“All hands on deck”**

The publication ‘Alle Hens aan Dek: Niet-werkenden in beeld gebracht’ is the product of a collaboration between TNO and CBS. It contains current data on the non-working population. CBS and TNO authors describe various aspects of the non-working population in the Netherlands based on CBS and TNO data. In ‘Alle Hens aan Dek’ the non-working population from 15 to 65 years of age is subdivided into those following an education, people that have retired (early), people with a protracted illness, mothers with school-age children and people without, or with outdated, work experience.

Data sources like the Working Population Survey and the CBS Social Statistical Database, the CBS and TNO National Survey on Working Conditions and TNO’s Employer Labour Survey helped the authors to describe the key target groups for employment policy.

Download the publication in Dutch at [www.tno.nl/allehensaandek](http://www.tno.nl/allehensaandek).

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## **The Finnish Institute of Occupational Health to accommodate the latest addition to the Cochrane Collaboration**



The Cochrane Collaboration is a worldwide network which publishes reports, also called systematic reviews, on what works in health care. The Finnish Institute of Occupational Health is the only institution authorized to organize the publishing of reports on Occupational Safety and Health interventions. The new unit is widely supported by e.g. WHO and EU OSHA.

From July 30th 2010, the Finnish Institute of Occupational Health, with the support of the Finnish Ministry of Social Affairs and Health, will accommodate the Cochrane Occupational Safety and Health Review Group. This is a significant

achievement, as it is the first unit of its kind in Finland. The only other Review Group in the Nordic countries is in Denmark. The Occupational Safety and Health Review Group is responsible for organizing the production and publication of systematic literature reviews on the effectiveness of occupational safety and health interventions worldwide. Internationally, the unit is supported by WHO and EU OSHA.

The Review Group's editorial office is situated in Kuopio. Its objective is to make the knowledge obtained from systematic reviews available to everyone, and with it to improve the quality of work life and well-being at work. The reviews published by the group aim to find effective ways in which occupational or work-related diseases and exposures to harmful substances can be decreased.

Experts at FIOH have participated in reviews looking at, for example, how best to reduce noise-induced hearing loss or how screening professional drivers for drugs and alcohol can be used to decrease accidents and injuries. To date, occupational safety and health is the main topic of 45 reviews published in the Cochrane Library.

The core of the Cochrane Collaboration consists of 53 Review Groups which function as scientific journals. Each decides, within its own scope, on the topics worth reviewing and ensures that the resulting systematic reviews are of high quality. The reviews condense all high quality research evidence from all over the world on the effectiveness of particular interventions on specific problems. They are published in one joint electronic publication known as the Cochrane Library, one of the most prestigious (Impact Factor 5.653) and trusted sources of information in the health sciences.

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## About PEROSH

PEROSH is a cooperation of European working environment research institutes aiming to collaborate and to coordinate their research and development efforts for healthier, longer and more productive working lives.

## Member Institutes

- Federal Institute for Occupational Safety and Health (BAuA), Germany, [www.baua.de](http://www.baua.de)
- Institute for Occupational Safety and Health of the German Social Accident Insurance (IFA), Germany, [www.dguv.de/ffa](http://www.dguv.de/ffa)
- Central Institute for Labour Protection - National Research Institute (CIOP-PIB), Poland, [www.ciop.pl](http://www.ciop.pl)
- Finnish Institute of Occupational Health (FIOH), Finland, [www.ttl.fi](http://www.ttl.fi)
- Health and Safety Laboratory (HSL), United Kingdom, [www.hsl.gov.uk](http://www.hsl.gov.uk)
- Institut National de Recherche et de Sécurité (INRS), France, [www.inrs.fr](http://www.inrs.fr)
- Instituto Nacional de Seguridad e Higiene en el Trabajo (INSHT), Spain, [www.insht.es](http://www.insht.es)
- National Institute for Occupational Safety and Prevention (ISPESL), Italy, [www.ispesl.it](http://www.ispesl.it)
- National Research Centre for the Working Environment (NRCWE), Denmark, [www.nrcwe.dk](http://www.nrcwe.dk)
- Institute for Occupational Safety and Health (Prevent), Belgium, [www.prevent.be](http://www.prevent.be)
- National Institute of Occupational Health (STAMI), Norway, [www.stami.no](http://www.stami.no)
- Netherlands Organisation for Applied Scientific Research (TNO), Netherlands, [www.tno.nl](http://www.tno.nl)
- Occupational Safety Research Institute (VUBP), Czech Republic, [www.vubp.cz](http://www.vubp.cz)

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