



Finnish Institute of  
Occupational Health

Annual Report 2007

The Finnish Institute of Occupational Health is a research and specialist organization that promotes health and safety at work and the well-being of workers. We seek solutions for the needs of our clients and the needs of work life by means of research, training, specialist advisory services and communications.

Our goal is that workers will remain safe and in good health, from the beginning to the end of their careers. Working conditions and work should promote health and work ability, and not endanger workers in any way.

We have six Regional Offices: Helsinki, Kuopio, Lappeenranta, Oulu, Tampere, and Turku. Our headquarters are in Helsinki.

FIOH was founded in 1945. The number of permanent personnel is approximately 600, and about 200 persons are currently working on different projects.

## Mission

To promote work safety and health as part of good living.

## Values

Our organizational values are effectiveness, reliability and partnership. Connected to these are expertise, respect, and trust, which we consider good guidelines for working together.

## Vision

It is our vision that occupational safety and health should always be included in the promotion of well-being and productivity both in Finnish society in general, and especially in individual workplaces. Thanks to intervention models we have developed, Finns now stay on at work for longer than before.

The Finnish Institute of Occupational Health (FIOH) is renowned in Finland and abroad as a research and specialist institute in occupational health and safety, and is in demand as a partner organization.

We are engaged in a constant process of regeneration, based on anticipated changes in the operating environment. FIOH is an exemplary, sought-after workplace.

## Clients

Both policy makers and citizens are clients of FIOH. In our work, we pay particular attention to the needs of professionals and workplaces in the field of occupational health and safety.

# FIOH organization and administrative staff in 2007

MINISTRY OF SOCIAL AFFAIRS AND HEALTH  
BOARD OF DIRECTORS

Harri Vainio, Director General  
EXECUTIVE COMMITTEE

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TEAMS

<b>Knowledge Transfer in Occupational Health and Safety</b> Jos Verbeek	<b>Biological Mechanisms and Prevention of Work-Related Diseases</b> Kirsti Husgafvel-Pursiainen	<b>Brain and Work Research Centre</b> Kiti Müller	<b>Aerosols, Dusts and Metals</b> Timo Tuomi (Antti Tossavainen)	<b>Changes and Future Work</b> Pekka Huuhtanen	<b>Executive Support</b> Outi Huida
<b>Publication, Information and Web Services</b> Mona Lökström	<b>Control of Hypersensitivity Diseases</b> Antti Lauerma	<b>Ergonomics and Usability</b> Nina Nevala	<b>Bioaerosols and Indoor Air</b> Marjut Reiman	<b>Health Care and Social Services</b> Marjukka Laine	<b>Finance and Procurement Services</b> Pentti Laaninen
<b>Research and Development in OHS</b> Maria Rautio (Pirjo Manninen)	<b>Musculoskeletal Disorders</b> Helena Varonen	<b>Occupational Safety</b> Markku Aaltonen	<b>Biomonitoring</b> Antero Aitio	<b>Organizational Development Services</b> Jalmari Heikkonen	<b>HR Services</b> Monica Hostio
<b>Statistical Services</b> Tuula Nurminen	<b>Nursing and Support Services</b> Outi Fischer	<b>Transport and Logistics</b> Seppo Olkkonen	<b>Chemical Agents</b> Tapani Tuomi	<b>Organizational Innovations and Management</b> Ahti Simola	<b>Information and Communications Technology, ICT</b> Maija Välisuo
<b>Surveillance of Working Conditions and Health</b> Timo Kauppinen	<b>Occupational Medicine</b> Helena Taskinen	<b>Work Development</b> Kirsti Launis	<b>New Technologies and Risks</b> Kai Savolainen	<b>Personnel Assessment and Competence Development</b> Kirsi Junnila	<b>Operational Development and Co-ordination</b> <ul style="list-style-type: none"><li>- communications</li><li>- international affairs</li><li>- planning and control</li><li>- research services</li></ul> Jouni Toikkanen
<b>Training and Development</b> Matti Ylikoski	<b>Physical Work Capacity</b> Hannu Rintamäki		<b>Occupational Safety Management</b> Mika Liuhamo	<b>Work and Mental Health</b> Sirkku Kivistö	
<b>Work and Society</b> Antti Kasvio	<b>Promotion of Work Ability and Health</b> Päivi Husman		<b>Physical Factors and Technical Solutions</b> Rauno Pääkkönen		
	<b>Work-related Diseases</b> Kristiina Mukala		<b>Protection and Product Safety</b> Helena Mäkinen		
			<b>Risk Assessment</b> Tiina Santonen		

UNITS OF EXCELLENCE

	<b>Unit of Excellence for Immunotoxicology</b> Harri Alenius			<b>Unit of Excellence for Psychosocial Factors</b> Jussi Vahtera	
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THEMES AND ACTION PROGRAMMES

<b>KESTO – Sustainable Work Career Development Programme</b> Matti Ylikoski			<b>Good Indoor Environment Theme</b> Kari Reijula	<b>Work and Life Course Theme</b> Juhani Ilmarinen	
<b>Young People and Work Programme</b> Timo Leino				<b>Changes and Flexibility in Work Life and Well-being at Work Programme</b> Pekka Huuhtanen	
				<b>Work/Life Balance Programme</b> Kaisa Kauppinen	

REGIONAL OFFICES AND REGIONAL DIRECTORS

**Helsinki** Olli Punnonen, **Kuopio** Anna-Liisa Pasanen,  
**Lappeenranta** Irma Welling, **Oulu** Irmeli Kinnunen, **Tampere** Rauno Hanhela,  
**Turku** Jyrki Liesivuori

# Annual Report 2007

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## DIRECTOR GENERAL'S REVIEW

# Director General's review

The expertise of the Finnish Institute of Occupational Health is in demand. In its government programme, Prime Minister Vanhanen's second Cabinet, which began its operations in the spring, emphasizes the development of work life, striking a balance between the necessary flexibility and safety required in work life, reducing health inequalities, and strengthening the role of occupational health services.

Finnish competence in the field of health has aroused interest also in other parts of the world, and in the past year the Finnish Institute of Occupational Health (FIOH) participated in the development and assessment of health systems for instance in Latvia and other Eastern European countries. With the help of FIOH, Finland has brought the 'Health in All Policies' approach to the negotiation tables of the EU. This means the consideration of health-related aspects in all political decision-making, not only in the realm of health politics. A well-functioning health care system means seamless co-operation between prevention, primary care, and specialized care supported actively by good quality occupational health care.

Despite international successes, a worrying trend was observed in Finland when the figures describing occupational accidents and occupational diseases began to rise. Because of the good financial situation, many workplaces are hiring new personnel, subcontractors and other, often rapidly changing persons, and induction training and matters concerning the work environment have in many cases been left to the background.

There is no room for complacency in matters of health and safety at work. Sickness absences, disability pensions, and quality problems have a high cost.

## Reducing exposure

The EU chemicals legislation REACH came into force on 1 June 2007 thus reforming the distribution of responsibility in chemical safety. Previously, it was the duty of officials to prove that a certain product was dangerous. Now, it is the companies themselves who must prove that the chemicals they use are safe. The costs incurred to companies will increase at least in the short term, but remarkably greater savings are expected from reduction in illnesses caused by chemicals. FIOH supports Finnish industry in the fulfilling of the REACH obligations; we offer training and specialist support for both companies and authorities.

Also on 1 June, the reformed Tobacco Act came into force rendering Finnish restaurants smoke-free. The aim was to protect restaurant workers from smoke. FIOH had already monitored the effects of the preceding Tobacco Act that allowed smoking in restaurants within a restricted area, and found them inadequate. The legislative reform was implemented based on the ground-work and recommendations by FIOH. The discussion on whether the ban on smoking creates a more pleasant atmosphere or whether it will crush sales in the restaurant business is likely to go on for a long time. Research data on the effects of the reformed Tobacco Act will

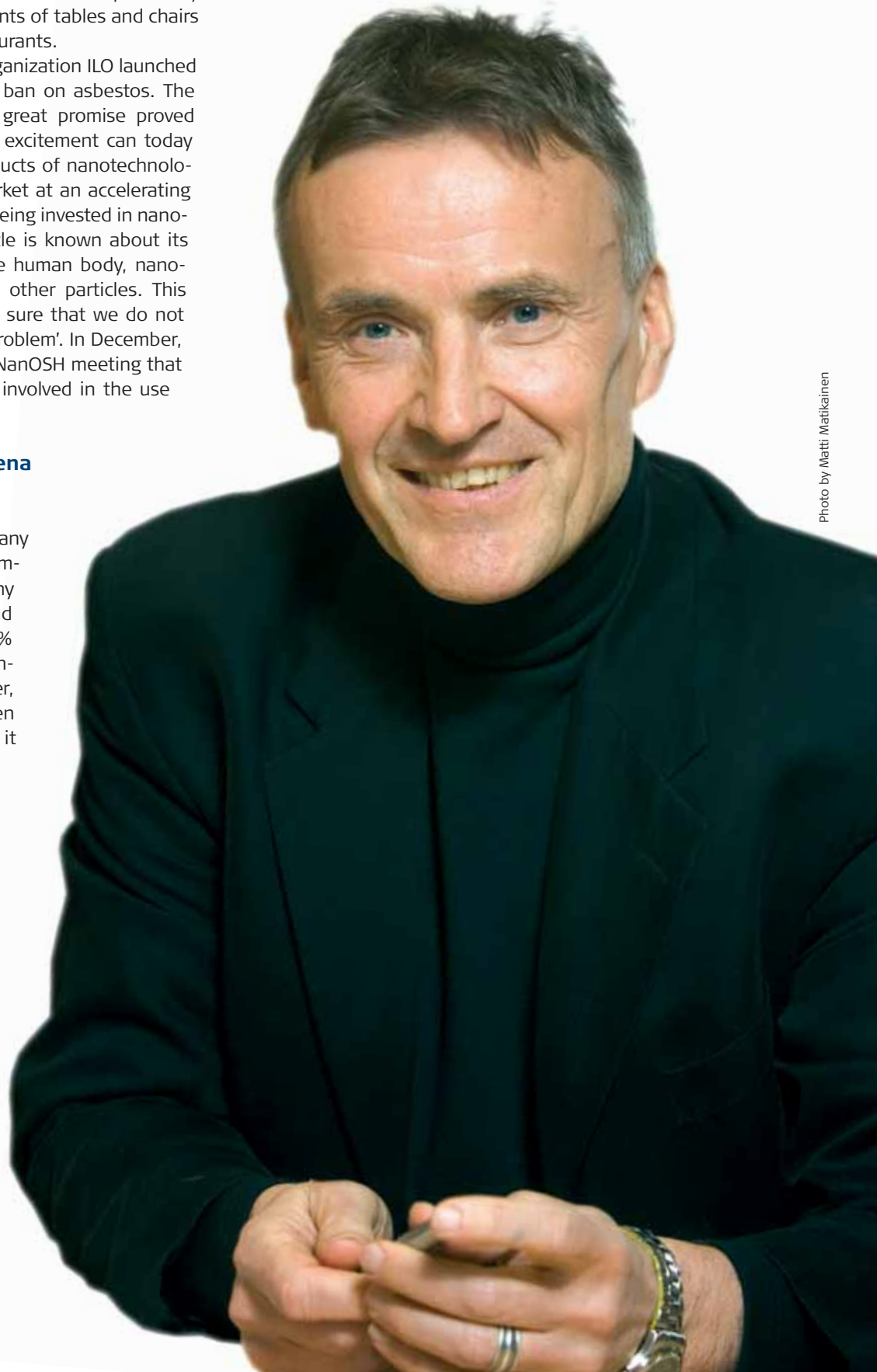
**There is no room for complacency in matters of health and safety at work. Sickness absences, disability pensions, and quality problems have a high cost.**

be available at the end of 2008, when a national survey and measurement results will be finalized. Initiative and persistence as central features in the Finnish national character became evident in the previously unseen winter-time arrangements of tables and chairs on pavements outside of restaurants.

The International Labour Organization ILO launched a programme for a worldwide ban on asbestos. The product that once contained great promise proved life-threatening in use. Similar excitement can today be detected in relation to products of nanotechnology, which are entering the market at an accelerating rate. Huge sums are currently being invested in nanotechnology, but so far very little is known about its health effects. Once inside the human body, nanoparticles behave differently to other particles. This is why it is important to make sure that we do not end up with a 'new asbestos problem'. In December, FIOH hosted the international NanOSH meeting that explored the safety questions involved in the use of nanotechnology.

### **The workplace into an arena for health promotion**

The functional capacity of too many working age Finns has been compromised due to an unhealthy lifestyle. Our 2007 Work and Health Survey found that 53% of the working population in Finland are overweight. Moreover, 53% of men and 19% of women use alcohol to an extent where it poses health risks.



The workplace contains many opportunities for the promotion of work ability and health, but so far many of them have not been optimally exploited. To improve this situation, the Finnish Institute of Occupational Health was involved in the launch of EU's Move Europe campaign that encourages workplaces to support a health-promoting lifestyle. Particular emphasis is placed on exercise, smoking prevention, healthy eating, and stress management.

### **Investment in occupational health is an investment in the future**

A healthy work community is at the core of productivity. Effective coping at work, creativity, innovation, and productivity spring from work that matches the capacities of the individual and can be performed in a safe and healthy way so that people are able to do their work with confidence both in themselves and in the future. Work life must thus be developed to enable people to retain their functional capacity and enjoy life. Working people need incentives, inspiration and opportunities. Well-being at work assumes an even greater importance in small companies where the contribution of every worker is crucial.

The results of our work have significance only if they have an impact on everyday work life. We want to help workplaces of all sizes to promote well-being at work, and to intervene in factors threatening work ability at an early stage. We would also like to bring these elements to the knowledge of designers, developers, and policy makers. For working age citizens we offer practical information on how to promote health in and out of work.

**A healthy work community is at the core of productivity. Coping at work, creativity, innovation, and productivity spring from healthy and safe work that matches the capacities of the individual.**

I would like to extend my warmest thanks for the passed year to all our clients and partners. Together we are able to learn new things and make our goals reality – also in the years to come.

✓ FIOH staff gathered together on 5 December to celebrate Finland's 90 years of independence. Non-Finnish researchers working at FIOH presented their greetings to Finland in their own languages.

From the left: Riku Nikkilä, Angelica Siew from Malaysia, Greta Turunen, and Simo Virtanen.



Photo by Lea Palo



## FINANCES

# Finances

## Income

The income from FIOH activities amounted to EUR 26.6 million, which was 0.7 million (3%) higher than that of the previous year, and is comprised as follows: 11.1 million from services, 7.9 million from research, 5.2 million from training and 1.3 million from publications and information services. The remaining 1.0 million was miscellaneous income.

## Expenditure and acquisitions

Annual expenditure was EUR 60.4 million, i.e. 3.6 million (6%) more than in 2006. A total of EUR 4.4 million was spent on the acquisition of equipment and other long-term expenditure; this was 0.7 million more than in the previous year.

The total sum of expenditure, acquisitions and other long-term expenditure totalled EUR 65.6 million, which was EUR 4.4 million (7%) more than in 2006.

## Public funds and total result

The state budget for 2007 granted FIOH EUR 38.2 million, 0.4 million more than in 2006. Public funds accounted for 58% of total expenditure (59% in 2006). After the transfers of public funds from the previous year and to the following year, the accounts showed a surplus of EUR 0.8 million, compared to EUR 1.9 million in 2006.





# What is the impact of the Finnish Institute of Occupational Health?

We develop solutions to improve well-being in collaboration with our clients and partners. Our solutions are based on research evidence.



## WHAT IS THE IMPACT OF THE FINNISH INSTITUTE OF OCCUPATIONAL HEALTH?

# Strategic goals

Our operations are guided by the following strategic goals:

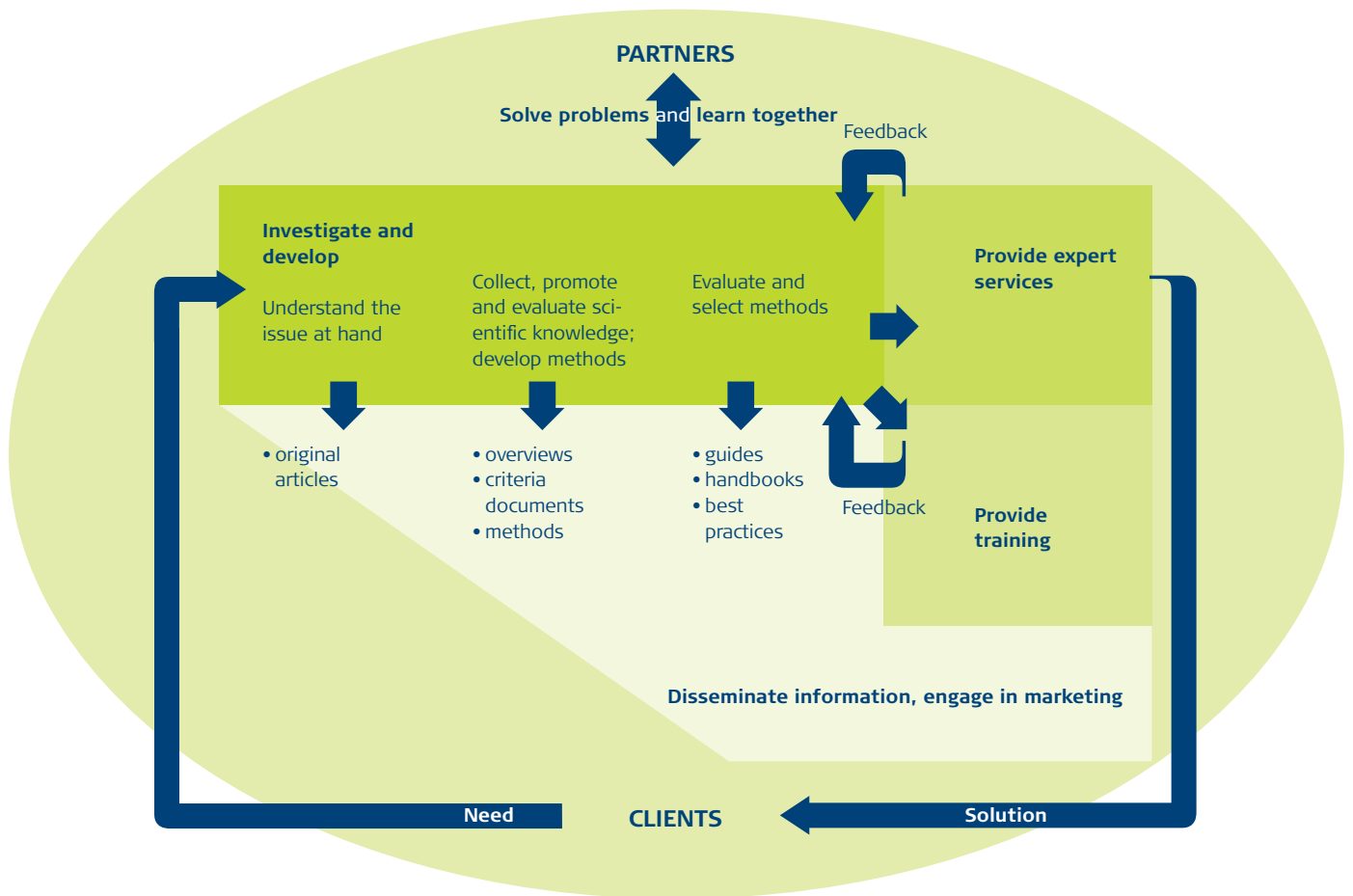
- The management of occupational health hazards at work as part of management practices and corporate risk management
- Innovative, regenerative and healthy work communities
- Each citizen equipped to ensure his or her occupational safety and well-being
- Providing authorities with information for promoting occupational safety and health
- Smoothly flowing work processes, safe and easy to use working methods and tools
- Solutions for increasing participation in work life
- Controlling new occupational hazards, exploiting new opportunities

The strategic goals constitute development tasks through which we aim to improve the opportunities, success and well-being of your clients. We develop

operating methods based on scientific evidence and incorporate them as part of our clients' operations; in this way, we impact the practices of work life. Our aim is to develop solutions and disseminate them in a way that produces social innovations: entirely new and better ways of functioning in work life.

We use about 50% of our resources on the implementation of our strategic goals. In addition to this, we use about 30% of our resources on our statutory or demand-based core functions and about 20% on future-oriented activities aimed to strengthen our competence and on activities requiring the ability to react quickly to new situations.

Our operations produce a chain of innovations that begins with research, continues as development work, and ends with the dissemination of functional solutions into practice. To ensure the effectiveness and efficiency of the solutions, we carry out evaluation research.



^ FIOH chain of innovations begins with research, continues as development work, and ends with the dissemination of functional solutions into practice.

WHAT IS THE IMPACT OF THE FINNISH INSTITUTE OF OCCUPATIONAL HEALTH?

# Management of health hazards as part of leadership

According to Finnish law, work must be organized in such a way that it does not pose a danger of losing health or deterioration of illness or excessive loading. Health hazards at the workplace are also a risk to the success of the company, its image, and the supply and retention of staff. In Finland, 100,000 workplace accidents occur every year. The number of occupational diseases reported annually is some 6,000, but in addition to these, work is associated with the occurrence and symptoms of various other diseases as well as with disability caused by these diseases.

We develop methods and services for the assessment and prevention of health hazards. The management of health hazards should be part of the safety management of companies.

We provide support for small and one-person businesses to promote and enable better management of the health hazards of work. We are involved in developing a support network for entrepreneurs in co-operation with occupational health services, entrepreneur organizations, and Employment and Economic Development Centres. We distribute good practices to occupational health services to enable better management of the health hazards at workplaces through collaboration between OHS and management.

## SAFETY MANAGEMENT AND ACCIDENT PREVENTION

### Safe working methods for the whole chain of subcontractors

An increasing number of workplaces today are shared by employees of the commissioning company and workers from several other companies, such as subcontractors. Such workplaces may incorporate many different nationalities, languages and cultures, creating new challenges for safety management. Our experience shows that the safety of shared workplaces can be improved by the commissioning company for example through supervision, observation, and measure-



Photo by Jukka Mykkänen



ments. Good safety practices must be disseminated to the entire chain of subcontractors.

### Companies have acknowledged the link between safety and productivity

Safety and productivity are two sides of the same coin. According to the study, the majority of companies have acknowledged the connection between safety and productivity. Costs incurred by accidents and sickness absences are calculated in a number of different ways, but not many companies keep track of the profits gained from the investments in accident prevention and occupational health promotion. The average cost of a single accident was calculated at EUR 6,031.

### Zero accidents is possible

The Zero Accident Forum is a network formed by Finnish workplaces, and its members share a genuine willingness to improve occupational safety and attain the goal of zero accidents. The Forum includes workplaces of different sizes from a variety of different fields. The guiding principle behind the Forum is learning from one another, also beyond sector boundaries. In 2007, the number of workplaces participating in the Forum grew to 160. In all, the workplaces employed about 200,000 workers, covering some 10% of current workforce in Finland. The Forum arranged five common events that in all attracted some 500 participants.

### Resilience engineering as the theme of NoFS

The Finnish Institute of Occupational Health was responsible for the organization of the NoFS 2007 safety conference in Tampere. The theme of the conference was resilience engineering, which is a new and innovative approach to the development of safety, highlighting a preventive approach and the flexibility of organizations in abnormal situations.

### ATEX prevents explosions

The human, environmental and economic consequences of explosions and sudden backdrafts can be crucial to small and medium-sized enterprises (SMEs). Owners of SMEs and consumers often lack the ability to recognize situations that may result in unexpected fires and explosions. In the ATEX project, we supported SMEs in the prevention of hazards caused by flammable and potentially explosive dust/vapour/gas-air mixtures. We also developed the ATEX Forum, a network of specialists, authorities responsible for the enforcement of legislation, and insurance companies.

### Accident prevention is co-operation

We participated as research specialists in a committee preparing occupational safety provisions of the Ministry of Social Affairs and Health. Based on an initiative from the Ministry of Social Affairs and Health, we prepared a collaboration plan with the Injury Prevention Unit of the National Public Health Institute. The aim of the collaboration is to make use of reciprocal competence to promote accident prevention on a national scale.

## RISK ASSESSMENT AND RISK MANAGEMENT

### FIOH supports companies in the fulfilment of REACH obligations

EU's new chemicals legislation REACH imposes new obligations on companies using and manufacturing chemicals. We organized six REACH information meetings in different parts of Finland. In total, the meetings attracted 530 participants. In a pilot project, we tested the preparation of exposure scenarios in co-operation with Finnish companies with methanol as the test substance. This gave us valuable information on problems related to the preparation of exposure scenarios.

## CASE

### Lindström Corporation, member of Zero Accident Forum



Photo by Juha Repo

Lindström Corporation has been a member of the Zero Accident Forum since 2004. According to Ms Tea Rewell, HR Manager, the Forum is a constant source of inspiration and learning for developing occupational safety activities in the company. The benefits of the Zero Accident Forum are seen for instance in the attitudes and competence of management and personnel. The number of acci-

dents has been reduced, and notifications are made of danger situations. The Forum has brought useful contacts to other businesses, and the participants share good practices with each another.

According to Rewell, the major challenge is to incorporate zero-accident thinking as part of everyday activities and attitudes. The development of safety should be on the agenda of every meeting arranged.

◀◀ Lindström Corporation functions in 18 countries and provides services in workwear, personal protective equipment, restaurant textiles, industrial towels, as well as mat and sanitary service.



## WHAT IS THE IMPACT OF THE FINNISH INSTITUTE OF OCCUPATIONAL HEALTH?

**Support and tools for risk assessment in SMEs in the metal industry**

Despite the reformed Occupational Safety and Health Act, SMEs in the metal sector have not been able to control the risks caused by chemicals. The most significant reasons for deficiencies in exposure assessment and risk assessment are lack of resources – time, money and information – and inadequate enforcement of regulations. The companies are not sufficiently familiar with operators in the field of occupational health and safety or with legislation in the field. FIOH supports small and medium-sized metal companies by providing advisory services, datasheets, and by developing model solutions.

**New model for biomonitoring results ensures more information for the client**

We created a new approach to producing biological threshold limit values in order for the values to offer more effective guidance in the management of health risks. In the future, our reports to our clients will contain more information on the significance of the results and needs for further action. Biomonitoring, or analysis of blood or urine samples, can be used to predict the health effects of certain substances, such as lead, mercury and cadmium.

We prepared proposals for the Ministry of Social Affairs and Health to include six new biological threshold limit values in the 2009 list of concentrations known to be hazardous (HTP in Finnish). We also produced recommendations for how to account for the combined effects of chemical factors in the analysis of measurement results, in risk assessment, and in the list of concentrations known to be hazardous. Our new model enables occupational health services to perform a per-

sonal risk assessment for the worker. The model takes into account the combined effects of chemicals, noise, vibration, and accident risks.

**Well-being of the entrepreneur as the key resource of a company**

The entrepreneur's health and work ability, coping at work and competence are crucial for the livelihood of a small company. Yet, only 10% of micro-enterprises are covered by occupational health services. The Finnish Institute of Occupational Health has developed support networks and good practices to support the well-being of entrepreneurs in Savo, Varsinais-Suomi, and the regions of Mäntsälä, Oulu and Lappeenranta. Thousands of employees from small enterprises, representatives of the entrepreneurs, and OHS professionals have participated in the training sessions. We also distributed 50,000 copies of 'Entrepreneur's Guide to OHS' to the homes of entrepreneurs.

As the practices learned are established, local entrepreneurs and other actors begin to continue the practices to support well-being independently.

In the Wood and Bioenergy project, we gathered a network of companies in the region of northern Savo and other regional operators that are able to support the well-being at work among entrepreneurs in the field. More than 150 enterprises committed themselves to the network. Small enterprises were interested in networking both with other small enterprises and with companies in the same field.

In Savo, we arranged more than 150 events on the topic of well-being for small entrepreneurs. Training on topics associated with health, working conditions, personal well-being, and health-related habits was arranged at the events, which also provided testing of personal health status and physical fitness. Assess-

**CASE****Well-being of the entrepreneur, Anneli Hiltunen, Hair Salon Aale, Kuopio**

"A small entrepreneur must also invest in well-being. In my opinion, occupational health services are pivotal from the viewpoint of coping at work: you can get help in all situations. They will not make you queue, and they know you already. When you know the place, it is easier to pick up the phone and ask for help. Occupational health services are a small investment in your own well-being."

>> Hairdresser Anneli Hiltunen appreciates the value of occupational health services.

ment of possible defects in the work environment and counselling were also available. A club to promote better coping at work led by the entrepreneurs themselves was established in nine municipalities.

### IMPROVING THE INDOOR ENVIRONMENT

Improving the quality of indoor environment has been selected as one of the central thematic areas of FIOH. The Good Indoor Environment Theme impacts the quality of indoor environment at workplaces by developing preventive integrated design and through more efficient identification and management of problems. The activities are based on collaboration between constructors, users of the premises, and policy-makers.

#### Hospitals in need of renovation

Finnish hospitals are currently experiencing an accumulated need for renovation. To alleviate this situation, the VALSAI project at FIOH produced a national vision for the development of hospital premises focusing particularly on the needs of the Ministry of Social Affairs and Health and Hospital Districts. With the vision, the designing of hospital premises for the needs of specialized care as well as the planning of the necessary renovations has become more effective. An assessment tool of hospital premises constructed for the needs of hospital districts was finalized; the tool was tested at the Hospital District of Helsinki and Uusimaa and at the University Hospital of Kuopio. The tool will be adopted in hospitals when planning the renovations.

#### Relocation to a renovated building may cause anxiety

In a project carried out in co-operation with the University of Helsinki, we managed to prevent a crisis situation due to fears caused by earlier indoor air problems,

and the relocation back to the renovated premises was successful. We developed a good practice for the management of indoor air problems in the premises of ministries in the ENNA project. The practice is currently being disseminated to occupational health services and other workplaces.

#### Tool for the designing of sound environments in open-plan offices

An internet-based tool for the designing of sound environments in open-plan offices was adopted and disseminated. We participated in the preparation of a guideline on the acoustic designing of buildings published by the Building Information Foundation. The guideline can be applied by educational institutions, auditoriums, exercise facilities, and libraries. To promote design processes aimed to improve the quality of indoor environments, we distributed design tools for air conditioning and room currents.

#### The Tobacco Act

FIOH had a significant impact on how the legislation on smoking in restaurants was implemented in Finland. After the tightening of the legislation, we assessed the implementation of the legislation by means of a follow-up survey and measurements during the transition period.

#### International conferences

We organized the first international congress on indoor air at workplaces (WORKAIR). We also participated in the arrangements of two international series of congresses: Clima 2007 and RoomVent 2007. In Finland, we arranged a training tour on the quality of indoor environment.

#### FURTHER INFORMATION

>> [www.ttl.fi/zeroaccidentforum](http://www.ttl.fi/zeroaccidentforum)

>> [www.ttl.fi/english/occupationalaccidents](http://www.ttl.fi/english/occupationalaccidents)

>> [www.ttl.fi/english/atex](http://www.ttl.fi/english/atex)



Photo by Paula Naumanen

WHAT IS THE IMPACT OF THE FINNISH INSTITUTE OF OCCUPATIONAL HEALTH?

# Innovative, regenerative and healthy work communities

Meaningful work, good organization of work and work communities, and the development of competence provide the foundation for innovativeness and the regenerative and co-operative skills and abilities of personnel. This is reflected in the physical, social, and moral well-being of workers. Organizations that succeed in this are able to thrive in the constantly changing and increasingly international operating environment. The significance of information and interaction management is increasing in work life. Information and communication technologies enable a new kind of work not bound by the limitations of time and place.

We develop methods for the management of change and organization of work for the needs of workplaces, OHS, and organizations developing work life. The central aim of these methods is to promote well-being, life-long learning, and efficiency. We also endorse workplace culture that transforms differences into resources. Differences such as these can be due to age, gender, occupation, cultural background, or personality.

## Managing changes and flexibility

The 'Changes and Flexibility in Work Life and Well-Being at Work' programme (2003–2007) produced information on good practices and flexibility in work life to support development and training activities. The programme was completed, but its work is continued in various teams at FIOH. The information base created by the programme is utilized in particular to support the national 'Project to Restructure Municipalities and Services' (PARAS). To support the PARAS project, we



Photo by Sirpa Isberg

published research information on experiences of justice among municipal workers and constructed co-operation networks with other players in the field to further promote research and development of organizational change in the municipal sector.

Our research on flexibility in working hours showed that flexibility must be explored from several different perspectives. Flexibility that supports a company's economic activity, such as extra hours and different shift systems, also known as productive flexibility, is used to respond to changes in supply and demand. Flexible individual working time arrangements take into account workers' individual needs with regard to working time, which may vary in different stages of the work career. Achieving a balance between the needs of the company and the needs of the workers was found especially important. The incidence of stress symptoms was the highest when flexibility was based exclusively on the needs of production, whereas in a situation of reciprocal flexibility the symptoms were less. Such reciprocal flexibility in working hours was reflected in improved balance between work and home life.

We piloted a method for assessing the progress and for identifying crucial time points in organizational change in co-operation with four large organizations with different functions. Together with managers, superiors, and other personnel of the client organizations, we developed an operating concept for identifying asynchronies that arise in organizational change. We presented and tested the results in a training session involving professionals in human resources, occupational safety, occupational health services, and production.

We developed and applied the 'Change Workshop' method with three client organizations for the pur-

poses of developing managerial skills, the work of a community in a key position in an on-going organizational change, and the work of a community undergoing legislative change. The projects have entailed analysis of the operating concepts of organizations and developing a model for the analysis. We organized change training for health care middle management, OHS units, and learning networks. The effectiveness of the work done has focused especially on the organizations and OHS professionals who have taken part in the projects and training.

### **Leadership to enhance innovation, well-being, competence, and product of the work**

Development of the social and health care sector is an important challenge in today's Finland. The Finnish Institute of Occupational Health responded to the challenge by analysing the emergence and evolution of innovations related to service provision and the organization of work in Finnish hospitals. We modelled innovation processes in health care and collected good practices for innovation work. The study showed that the generation of health care innovations is preceded by a lengthy and complex process. The management of the hospital district is in a key role in the development of new operating methods for specialized care.

Based on the research, we produced guidelines for measures that promote the success of innovations in health care workplaces in different stages of innovation processes. We have disseminated information on the guidelines through training organized in the health care sector.

We produced information on the application of different organization and management paradigms in Finland. This generates perspective and helps workplaces

## **CASE**

### **City of Pori, Sirpa Isberg**

Photo by Sanna Jääskeläinen



In co-operation with FIOH, the Health Department of the City of Pori set to develop its workers' well-being and coping at work. The aim was to both maintain and develop the work ability of staff. According to Marjukka Palin, Head of Finance, the aims were broadly defined and, in part, difficult to measure. Two years was a short period for a project of this magnitude, but the project functioned as a

good foundation for continued development work. The project promoted a broad understanding of well-being at work and its significance in the work community. It fostered an attitude of working together towards common goals and functioned to dismantle boundaries that had emerged between units. The plans to develop work communities were of high quality and contained clear goals and timeframes. New ideas were also gained for the work of management and superiors.

◀◀ Giving and receiving neck massage on a break from work community training in Pori.

## WHAT IS THE IMPACT OF THE FINNISH INSTITUTE OF OCCUPATIONAL HEALTH?

when making plans for leadership development.

We published a text book on crisis management. Expertise and knowledge of crisis communications was useful in different ministries along the year, for instance in connection with the school shooting in Jokela.

### **Towards a network in research and expertise on occupational violence**

Occupational violence has increased in several occupations of the service trade, for instance in the fields of social affairs and health, transport and security, and trade. The term occupational violence is used to refer to incidents that occur at work or on the way to work where people are insulted verbally, threatened, or physically abused or that threaten their safety, well-being or health. With their own actions, work communities can endorse the prevention and control of the risk of violence. Workers should openly discuss amongst themselves any violence or threatening situations that may have occurred. Agreeing on common practices for acting in violent situations makes it possible to reduce the emergence of such situations.

FIOH participates in the preparation of an integrated model to control violence in workplaces. The aim is to create a Finnish network for research, competence, and expertise in the field of occupational violence.

### **Positive spirals of well-being at work**

According to a longitudinal study on the work of dentists, positive spirals of well-being at work are a reality. Job resources are a central requirement of good work performance. Job resources predicted experiences of being absorbed in one's work and experiences of this absorption predicted subsequent personal initiative. Initiative predicted innovative operating methods in the

work community and better coping at work. Burnout is likely to be one stage in the development of depression. Based on the results of the study, we wrote an open letter to chief municipal dentists on developing work and work communities to support well-being at work.

The Health Department of the City of Pori began a development process of well-being at work with FIOH based on challenges that emerged from a work climate survey conducted. The development work was conducted simultaneously on many different levels: board of directors, meetings between managers, and staff events.

The development activities yielded numerous benefits. For instance, the working time experiments had a positive effect: the image of the company was improved, replacements were easier to find, and well-being was enhanced. Induction lists became a simple and easy-to-use tool. A spiral of positive appreciation was reflected in the development of the induction process. The process of induction made the actual content of the work more visible and, as such, more susceptible to assessment and development. Wide participation in development work increased the workers' appreciation of their own work, which in turn meant increased work satisfaction and resources.

### **Specialists in nuclear technology are ageing rapidly**

The majority of specialists in nuclear technology in Finland are retiring in the next few years. In a safety critical field such as this we must prepare for the actions required to preserve high-quality expertise and hire new competent professionals. FIOH supports safety critical organizations in their human resource management.

#### **FURTHER INFORMATION**

>> [www.ttl.fi/english/worklifebalance](http://www.ttl.fi/english/worklifebalance)

>> [www.monikko.net](http://www.monikko.net)



Several new development interventions were planned for 2008.

### Workplace cultures to support diversity

The Work/Life Balance Programme (2004–2009) produced information and models on the reconciliation of work and family life at different life stages. The products included publications and fact sheets on equal treatment of different genders, age groups, and people with different cultural backgrounds.

The 'MONIKKO – Gender Equality and Diversity in Work Organizations' project showed that managing diversity in personnel is a highly demanding task, but when successful it also produces innovative practices in daily life and additional value for the worker, the organization and the client. The age, gender and ethnic background of the worker should be accounted for both when agreeing on the practices of daily work and in strategic planning. Diversity is an essential element of work life in today's Finland, and companies should learn to exploit the diversity of their personnel more effectively than today.

### Better management of daily practices promotes coping at work

In a project on the management of daily life, we charted Finnish specialists' views on work, family, and leisure time in Finland in 2015. Successful organization of daily life helps workers to cope better in their work. In the future, solutions supporting work/life balance will be an image factor for the company and a competitive advantage in the battle for workforce. This was one of the conclusions of the Delfoi expert panel. The objective of the panel was also to determine how the meaning of work, family and leisure time changes in the life course of a person. The results of the Delfoi panel are based on interviews of 33 experts. The panel included representatives of labour market parties, researchers, authorities, entrepreneurs, HR managers, NGO representatives, and social thinkers.

### Finns share a positive attitude towards diversity in work life

The diversity barometer sought to find out how the diversity of Finnish work life is experienced in companies today and how it is expected to develop. The term diversity is used here to refer to the difference and equality of people irrespective of age, gender, ethnic background, sexual orientation, family situation, disability, language, religion, or political beliefs. Age was seen as the most important dimension of diversity in work communities. The significance of ethnic background in work communities was expected to grow, but in the current situation it was not perceived as central as age, gender, and family situation. The diversity

barometer was implemented for the first time in Finland. The co-operation partners were the Finnish Association for Human Resource Management and the Commission for Local Authority Employers.

### New tools for accessibility planning

The new website on accessibility by FIOH contains an assessment method for accessibility in the workplace, a model for producing expert opinions, and a databank for accessibility solutions. The data bank also contains good workplace solutions for the sensory disabled. We developed a consultation network for accessibility and arranged accessibility training.



^ Diversity is an important part of Finnish work life, and companies should be able to make better use of diversity among personnel. For many immigrant women, work is a natural and important part of life, showed the MONIKKO project implemented by FIOH.



WHAT IS THE IMPACT OF THE FINNISH INSTITUTE OF OCCUPATIONAL HEALTH?

# Each citizen equipped to ensure his or her well-being

Through our personal choices we influence the well-being of not only ourselves but also that of our co-workers and intimates. When making these choices, we are helped by the knowledge of which factors promote health and which endanger it. Each citizen may actively develop health and safety at his or her workplace.

The workplace or the work community may also serve as a site for health promotion. FIOH supports workplaces in their efforts to promote health by producing information, ideas and methods for health promotion for instance with the help of various campaigns.

## Alcohol-free January

FIOH challenged occupational health services and workplaces to take part in the Finnish Alcohol-free January Campaign. In association with the campaign, we published a drinking diary in Finnish and Swedish. In co-operation with the national Alcohol Programme operating in the Ministry of Social Affairs and Health, we distributed 70,000 drinking diaries to occupational health services and workplaces. The drinking diary was considered a good method for activating discussion on alcohol at workplaces and for monitoring the use of alcohol. In all, 98 workplaces participated in the Alcohol-free January campaign.

## Early intervention or brief intervention

In a brief intervention project, we drew up measures to explore the needs and challenges in the prevention of substance abuse at workplaces and occupational health services. We arranged training in substance abuse prevention for instance in collaboration with state provincial offices. In all, about 1,000 people participated in the training.

## Alert at the wheel

Every day 66,000 professional drivers are transporting people and goods on the roads of Finland. According to studies, too many drivers are overweight and thus susceptible to diseases such as diabetes and sleep apnoea. These diseases diminish drivers' alertness and cause unnecessary risks on the road. Besides drivers themselves, various other factors affect the obesity and dietary habits of drivers, such as the meal selection at garages, and the attitudes and knowledge of occupa-



Photo by Kristiina Kulha

## CASE

### Students learning about the activities of FIOH

FIOH organizes regular visits for students. In 2007 we also participated in the Campus Day of the Meilahti hospital area. We organized a service exhibition, gave brief information bulletins, and opened the doors of the laboratories to visitors.

◀ Terhi Tammilehto and Virpi Lehtinen, adult students from the Helsinki Polytechnic Stadia, enjoyed the opportunity to get a glance inside laboratories of otherwise limited access. In their opinion, the day was useful to their studies. Students are required to write down and report to their teacher what they have learned during the day.

▶ Some of the students took the plunge to test immersion suits.

tional health services and employers. FIOH is co-ordinating a project in which FIOH, the Finnish Heart Association, the Finnish Hotel and Restaurant Association, and trade unions in the transport sector join forces to promote a healthy lifestyle among professional drivers.

### Criteria for a health-promoting workplace

We produced test criteria for a health-promoting workplace. The criteria will be tested in co-operation with the workplaces and occupational health services participating in the project. Based on experiences from the development project, we will construct model criteria for a health-promoting workplace. The project is part of the Government's policy programme for health promotion and it was presented in six municipalities in the course of a tour arranged by the Ministry of Social Affairs and Health.

### Health information to citizens via the internet, guides, and the media

Information on health promotion was distributed to citizens via the internet, printed guidebooks and the media. The FIOH newsletter can be subscribed to at [www.ttl.fi](http://www.ttl.fi).

The media was an important channel for disseminating the knowledge produced at FIOH for a wider audience. The year 2007 was very active from the viewpoint of media communications. The number of press releases published by FIOH was 52 and the number of media conferences arranged 13. A radio programme on the effects of lifestyle diseases on Finns' work ability and means to counteract the trend attracted more than 100,000 listeners. At the Helsinki Book Fair, specialists from FIOH gave talks on the following topics: 'Making sense of change', 'Difficult characters in work life', 'How

to avoid workplace violence', 'Wise choices', and 'Multiculturalism at the workplace'.

In order to promote the physical activity of school-aged children, FIOH participated in the activities of a specialist group on the exercise of children and young people called together by the Young Finland Association and in the preparation of national recommendations on the exercise of school-aged children. Five student visits to present the activities of FIOH were arranged.

The RaPatti group counselling model helps young people increase their well-being. The model is intended for use by Occupational Health Services together with their young clients. With RaPatti, young people can locate ideas and solutions that help to manage stress and maintain a healthy lifestyle. We market RaPatti in collaboration with Medivire Occupational Health Services and their client company.

### STEP tools

STEP tools are a product family developed to support the work-related well-being of the individual, the community, and the company. Tyky-Step is a tool for the launching and implementation of activities to promote work ability and health at the workplace. TUKI-Step is a tool for supporting the early work ability of the individual. The objective of Y-Step is to get micro-level entrepreneurs interested in well-being at work for themselves and their company.

#### FURTHER INFORMATION

>> [www.ttl.fi/english/kesto](http://www.ttl.fi/english/kesto)

>> [www.ttl.fi/bookstore](http://www.ttl.fi/bookstore)



Photo by Kristina Kulha

WHAT IS THE IMPACT OF THE FINNISH INSTITUTE OF OCCUPATIONAL HEALTH?

# Providing authorities with information for promoting occupational safety and health

Protection of workforce and ensuring the provision of social and health care services fall within the duties of a government. Reliable, up-to-date information on the effects of work and the structures of work life on health is needed to provide foundation for legislative work and policy guidance. In addition, we need information on the gravity and prevalence of health effects. A significant part of the regulations are created in the European Union.

As in other fields, public funds must be utilized as efficiently as possible in matters related to occupational health and the development of work life. To this end, we need the follow-up and assessment information produced by FIOH.

Interaction between FIOH and public authorities was active in the past year: our specialists took part in the work of nearly 300 work groups on various topics, thus offering their expertise in the area of work life for the

>> FIOH is in active contact with Finnish policy makers. In the photo, Minister Paula Risikko observes the testing of personal protective equipment overseen by Team Leader Helena Mäkinen.



Photo by Kristiina Kulha

benefit of the groups. We took part in the preparation of the government's policy programmes, as well as the TEROKA programme aimed at reducing health inequalities and the national KASTE programme for the development of social and health care. In 2007, FIOH produced 58 expert opinions for ministries and other communities.

To provide public authorities with the most recent information, we began to publish an electronic newsletter for communicating Finnish and international research results and information on services, products, training, and events provided and organized by FIOH.

### Information on the development of working conditions and health

We produced information for legislators by publishing a broad summary of working conditions in Finland. According to the 'Work and Health in Finland 2006' report, occupational accidents have increased particularly in construction. Significant differences exist between different occupational groups in working conditions, lifestyle, and health status. Especially personnel in elderly care are dissatisfied with their working conditions.

According to specialists at FIOH, to diminish these health inequalities it is necessary to impact both working conditions and health behaviour. As a location where work and other spheres of life come together every day, the workplace appears as an optimal forum for this. Work consumes resources, but also replenishes them. Today, Finns choose to stay on at work for longer than before.

An internet/extranet information resource on working conditions in Finland was launched in early 2007. Through the extranet, we disseminated information on the development of working conditions to Labour Pro-

tection Districts and the Ministry of Social Affairs and Health and through the internet to everyone interested in the development of working conditions.

Some 28,000 workers were listed in the ASA register on exposure to carcinogenic substances for the year 2005. The number of restaurant workers exposed to tobacco smoke fell somewhat, whereas the number of wood workers exposed to oak and beech dust rose. About 6,800 occupational diseases or suspicions of them were notified for 2005. Noise-induced hearing loss and repetitive strain injury were the most common diseases registered.

### Coverage of Occupational Health Services on the up

A survey on Occupational Health Services (OHS) indicated that measured on a number of different indicators, occupational health care has changed for the positive in the 2000s. Its coverage has increased. Yet, small workplaces and companies with less than 10 employees remain problematic; for instance, only 50% of full-time farmers have joined OHS for agricultural entrepreneurs.

FIOH developed the processes of occupational health services with the overall aim of good practices and effectiveness. In co-operation with the Occupational Diseases Section of the Advisory Board on Occupational Health Care, we designed measures to diagnose occupational diseases and to improve prevention. To ensure the competence and adequate training of OHS specialists, we trained medical specialists in accordance with the annual objective established and prepared a plan for an advanced qualification for occupational health nurses.

## CASE

### Paula Risikko, Minister of Health and Social Services, Ministry of Social Affairs and Health

The Ministry of Social Affairs and Health and the Finnish Institute of Occupational Health are engaged in close collaboration in many sectors. In 2007, FIOH provided to the ministry 27 expert opinions, and its specialists took part in committees and councils thus bringing the perspective of work life into the preparation of health and social affairs.

In her speech to open the Occupational Health Convention, Minister Risikko stressed the significance of occupational health services and workplaces in the promotion of health. Workplaces may support the workers' resources and guide

them towards choices that promote health and maintenance of healthy lifestyles. The task of occupational health services is to promote the preventive work and early intervention in problems with work ability. Moreover, in the project to restructure municipalities and services it is important to see to it that the collaboration between OHS and public health care functions in a way that enables efficient utilization of resources and that the services support one another for the benefit of citizens.

WHAT IS THE IMPACT OF THE FINNISH INSTITUTE OF OCCUPATIONAL HEALTH?

# Smoothly flowing work processes, safe and easy to use working methods and tools

The usability of working methods and tools has a significant impact on the safety, productivity and job strain. Good usability reduces the number of errors, disturbances in production, accidents, and other health hazards. It also increases the cost-efficiency of operations. Usability is essential in how the work can be carried out by different people, for instance by people of different ages, different cultural backgrounds, and people with reduced work ability. Usability is determined at the stage of designing the processes and tools.

To attain the strategic goal of 'Smoothly flowing work processes, safe and easy to use working methods and tools', the Finnish Institute of Occupational Health develops design methods and design and selection guidelines in co-operation with manufacturers. In this work, we apply the methods of co-construction and simulate actual situations.

As specialist advisory services, we assess and test the functioning of personal protective equipment and health hazards caused by equipment, materials, and production processes. We also participate in the formulation of occupational health and safety criteria in this field.



### The goal of human-centred design

In 2007 we participated in three construction projects and a development process of a production line with the aim of bringing the viewpoint of ergonomics into the design work. Participation in long-term projects with our clients also enables our specialists to gain knowledge of how human-centred design can be enhanced in the daily practices of companies.

In a health care product development project, we explored the usability and usefulness of a mobile terminal for doctors when making their rounds. The use of information technology is expanding in health care, and patient information is increasingly being transferred into electronic format. In addition to researchers, the project involved designers and users of the mobile terminal.

The Taske and Sätke projects by FIOH were awarded an honorary mention in a competition organized by the European Agency for Health and Safety at Work. With the help of user experiments, we developed solutions for plumbers, pipe fitters and electricians to reduce safety hazards and physical work load. The new working methods, tools, and protective equipment make working positions more ergonomic and improve safety.

The handling of heavy loads is associated with an increased risk for back pain. For this reason, the employer has the responsibility to organize training for employees on the appropriate handling of heavy loads. According to a systematic Cochrane review, the teaching of lifting techniques does not help in the prevention of back pain. Consequently, designing workplaces to avoid unnecessary lifting becomes increasingly important.

### Optimal protection for fire fighters

A project on the protective clothing of fire fighters showed that precision protection of fire fighters' cloth-



Photo by Risto Toivonen

#### CASE

##### A mobile terminal for physicians

The use of information and communication technologies is increasing in health care, and patient information is being transferred into electronic format. Physicians and nurses will soon be able to check lab results, x-rays and patient histories from the computer. The traditional patient file trolleys are becoming redundant. In a project by FIOH, we tested the usability of a mobile terminal for this purpose. In addition to researchers, designers and users of the terminal took part in the research.

^ Chief Physician Vesa Savander tested the mobile terminal in the Lohja Hospital. According to Mr Savander, the use of the device seemed very convenient. 'The mobile terminal must be an easy to use and sought-after tool for work, so that everyone would be able to make use of it easily and effectively, even in demanding treatment situations,' conclude Nina Nevala, Adjunct Professor, and Risto Toivonen, Research Engineer, from the Finnish Institute of Occupational Health.



## WHAT IS THE IMPACT OF THE FINNISH INSTITUTE OF OCCUPATIONAL HEALTH?

ing reduces the strain to the workers and promotes recovery in situations where maximal protection is not necessary. The project produced a prototype of the protective clothing. The functionality of protective clothing was explored also in the 'Heat Strain and UV Exposure in Road and Roof Construction Work' project. Additional protection is necessary against hot splashes and substances and UV radiation. The durability of the shoes' sole structure as well as the functionality of the protective clothing were seen as problematic. The results are used to support textile, clothing, and footwear industry in the development of new materials, clothes and footwear.

In the project on protecting the health and functional ability of soldiers in cold environments we focused on the development new clothes for soldiers and in the study of the physiological properties of clothing in the cold. The properties of the new clothing system were found to be superior to previous ones.

### Guidelines for a functional office

We produced a guidebook on improving the functionality of office space. The book contains guidelines on the designing of a good office environment (interior design, lighting, indoor air, sound environment), on creating a functional work space, use of eyeglasses, and the appropriate use of equipment. In four months 600 copies were sold.

We participated in the development of international ergonomics standards in three work groups on the following topics: principles of ergonomic design, anthropometrics, and biomechanics. The revised main ergonomics standard 'Ergonomic Design Principles – Part 1 Terminology and general principles' and 'Human Physical Performance – Part 5 Risk assessment for repeti-

tive for repetitive handling at high frequency' were published.

### Productive and convenient working times

We produced research information on a topic closely related to working times, length of sleep. According to the study, those who slept too little had a greater risk of premature death than average sleepers. The risk of death was increased by 25% for men sleeping less and by 20% for women sleeping less. Persons with an average sleep duration of 6.5 hours or less was counted as short sleepers. With long sleepers, those sleeping 8.5 hours or more, the risk was increased by 25% for men and by 16.7% for women.

According to another study, partial sleep deprivation for the duration a work week affects the performance of concurrent tasks. Tasks like this are common in security critical fields. The studies emphasize the development and dissemination of working times in a way that disrupts the sleep pattern the as little as possible.

We developed the working times of the social and health care sector in co-operation with the City of Helsinki Health Centre. The development project indicated that eliminating the night-shift/morning-shift combination enhances mental and physical well-being. Based on the project, a decision was made to adopt the ergonomic work shift design in all hospitals of the City of Helsinki Health Centre. We took part in the preparation of a guide on health-promoting and productive working hours by labour market organizations in the field of private social services. The guide presents recommendations by FIOH on the ergonomics of shift schedules.

### A new shift schedule adopted in paper mills

A fast forward rotating shift schedule designed at FIOH

#### FURTHER INFORMATION

>> [www.ttl.fi/ergonomics/](http://www.ttl.fi/ergonomics/)

has been effectively adopted in the forest industry. According to the Finnish Paper Workers' Union, the shift schedule has been tested in 12 paper plants and has been officially adopted in six plants. In addition, two projects on the effects of the transfer to the fast forward rotating shift schedule with the aim of supporting decision-making in companies were completed.

### **Safety critical fields apply findings by FIOH**

We organized three courses on working times for occupational health services. In addition, we tailored a shift work course for the safety industry. As a result of this course, the Criminal Sanctions Agency and Finnish Police are launching working time development projects, and the course has also been applied in well-being at work training arranged by the Finnish Customs and the Fire and Rescue Department.

Working hour arrangements in safety critical fields were developed in two projects. In a study conducted for a large company, we found that a transfer from an 8-hour shift schedule to a 12-hour shift schedule did not reduce the alertness of workers. The alertness was studied in a two-year follow-up study.

In an international service project, we prepared a literature review on the health and safety effects of long working hours for the Norwegian Petroleum Safety Authority. Based on the review, the Academy of Norway launched a research programme on the development of working hours in the oil industry.

The work carried out at FIOH in the areas of working time and sufficient sleep gained wide visibility both in printed (some 120 articles) and electronic media (10–15 citations).

### **Increasing safety in professional driving**

The guidelines for the health examinations of professional drivers will be revised in 2008 based on a project by FIOH and the Ministry of Transport and Communications to improve the occupational health of drivers. In collaboration with various trade unions and occupational health services in the field, the Finnish Institute of Occupational Health arranged the 'Alert at the Wheel' seminar and workshop to improve the quality of working meals of professional drivers. An assessment of alertness management among professional drivers has been carried out in ten cargo transportation companies.

We have provided research and advisory services to occupational health services and public authorities in connection with driving ability estimates. FIOH organized a meeting of a specialist network on matters related to the driving ability of professional drivers. The realization of OHS for entrepreneur drivers was promoted by distributing 8,000 copies of 'Entrepreneur's Guide to OHS' to the target group.

We mapped development needs in ten cargo traffic companies. Based on these needs, we launched a further project in seven companies. After the risk assessments, we will carry out development measures targeting the ergonomics and logistics processes of the companies and the operations of their occupational health services.

We developed logistics systems and the safety of road transport in collaboration with Sito Ltd and other players in the field. These include the Ministry of Transport and Communications, the Finnish Road Administration, the Finnish Vehicle Administration AKE, transport companies, and an association of professional drivers.



^ Every day 66,000 professional drivers are transporting people and goods on the roads of Finland. According to studies, too many drivers are overweight and thus susceptible to diseases such as diabetes and sleep apnoea. These diseases diminish drivers' alertness and cause unnecessary risks on the road. In its projects, FIOH promotes the health of drivers by endorsing a healthy lifestyle and remodels guidelines for health examinations.

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# Solutions for increasing participation in work life

The Finnish Government has established extending Finns' working careers as one of its targets. With view to the length of the work career, critical points are transitions between work and life at different life stages: from education to work, from one occupation to another, from unemployment back to work, from sick leave to work, to mention but a few. Increasing flexibility in the organization of work to accommodate particular life situations or health problems is likely to be necessary to increase participation in work.

To achieve this strategic goal, the Finnish Institute of Occupational Health has brought together multidisciplinary expertise in the area in its Life Course and Work Theme. The Theme produces tools for the managing of work careers of young and ageing people.

In addition, FIOH develops solutions that can be used to diminish sick leaves and disability pensions resulting from chronic illnesses and disability. Our main emphasis is on mental health problems and musculoskeletal diseases.

## Better management of work careers for the young and the ageing

The 'Towards Working Life' group method supports the transfer to secondary education of young people graduating from comprehensive school and promotes the mental health of students. We monitored the effectiveness of the programme with a study that involved 1,034 pupils. The study showed that the 'Towards Working Life' group method increased the number of students' social contacts related to their work and educational



careers. The method reduced symptoms of depression and burnout with students at risk of depression and with learning difficulties. The group method seems to work well as a general tool in career counselling in basic education.

The 'Towards Working Life' method was distributed for the use of schools and colleges together with the previously published 'School-to-Work' method. We arranged 12 training courses for teachers and trained 160 teachers to be trainers of the group method. More than 5,000 workbooks were distributed to pupils.

A total of 486 workers from 15 different organizations took part in the effectiveness study of the 'Successful Seniority' group method designed to promote job control. The training groups arranged as part of the study involved a total of 245 workers and superiors. The study won the 'Best Practices Evaluation Competition' arranged by the National Institute for Occupational Safety and Health (USA) and American Psychological Association (shared first place). In all, three separate 'Successful Seniority' training courses were organized, in which we trained 44 workers to become group leaders in 15 different organizations.

We initiated the training of trainers for the 'Work and Age' programme. Two institutes offering leadership training have integrated the programme in their training schedules. A prototype for age management was completed. A training programme was launched for regional directors of the co-operating company. International training of the 'Work and Age' training programme was launched with four two-day courses in age management: three in English and one in German. FIOH arranged for the fourth time the Finnish National Forum on Ageing in Helsinki.

## Youth and Work Action Programme completed

The Youth and Work Action Programme (2002–2007) at FIOH preceded the Life Course and Work Theme. The programme targeted the age group of 15 to 29. The programme focused on promoting the health, work ability, and functional capacity of young people, and supporting young people's work life competencies and transition into work.

According to the recommendations of the Youth and Work Action Programme, national programmes targeting young people should aim to halt the accumulation of health inequalities and health hazards, to incorporate work life training into the education of young people, to guarantee young people healthy and safe work corresponding to their education, and to ensure a well-functioning health services would that would cover young people both at work and when studying.

'Youth and Work' Barometers mapped for the first time the work and health situation of young people in Finland. Young people's experiences about their health and work ability were primarily positive. There was, how-



Photo by Janne Heinonen

## CASE

### Duunitalkoot: A toolbox to improve work life by enhancing dialogue at workplaces

The Duunitalkoot internet service by FIOH was published in February and now has some 4,000 visitors every month. The most used sections deal with work community and superiors. The SRV Group tested the sections Superior, Developers, and Managers of the online service before its publication. According to Martti Virkki, Site Manager, the service contains a vast amount of valuable information for superiors. Hannu Linnonen, Vice President of the SRV Group, found the opportunity to listen to the content of the Managers section a functional solution.

▲ Pirjo Ahanen, HR Manager of the SRV Group, pointed out that the website is likely to stimulate a thirst for more knowledge.

◀◀ The Duunitalkoot internet service is a tool for promoting well-being at work.

## WHAT IS THE IMPACT OF THE FINNISH INSTITUTE OF OCCUPATIONAL HEALTH?

ever, a need for more induction training as well as counselling and guidance from occupational health services. For this reason, counselling and guidance models have been developed that enhance co-operation between occupational health services and the workplace. The Passport to Health and Safety Skills developed in collaboration with Skills Finland has been adopted in skills competitions for students and graduates of vocational education.

### Online tool for enhancing dialogue at workplaces

FIOH launched the free-of-charge Duunitalkoot internet service in February 2007. The service, described as an online toolbox to improve work life by enhancing dialogue at workplace, encourages workplaces to promote work-related well-being through common measures. Its aim is to guide workers towards creating a good environment for discussion and participation in the workplace. Users of the website can measure their health and work ability with the Work Ability Index, which is a thoroughly investigated measure and also predicts future work ability and possible threats to it.

The online service has some 4,000 visitors per month. The most used sections deal with work community and management. The service has spread to the use of labour market organizations and municipal and state-level organizations. Also pension insurance companies and training organizations have published the address of the Duunitalkoot service on their websites.

The KESTO Action Programme on Sustainable Work Career Development was completed at the end of 2007.

### Solutions for the prevention of sickness absences and work disability

A study based on data from the 'Occupational Health Services in Finland' survey showed that the use of alternative work arrangements and experiments in connection with a return from a long sick leave is too limited in Finland. Less than half of occupational health services had commonly agreed upon practices. The practices were more common in occupational health services that had a relatively large number of client companies, in which the occupational health physician was involved in analyses performed at the workplace, and that were engaged in wide collaboration with employers and research institutions. Moreover, active following of sick leave statistics on the part of the employer was related to the existence of return-to-work practices.

In order to avoid disability pensions caused by inadequate care, the treatment of depression in working-age people should be rendered more effective. Even though on the population level, the use of antidepressants tripled in the period 1994–2004 and current clinical guidelines stress versatile models of good care, the quality of treatment of those retiring due to depression has hardly improved in the last 10 years. The result was based on two Finnish population samples in which the treatment of people retiring due to depression was assessed at two time points 10 years apart.

The uptake of partial sickness allowance that became available at the beginning of 2007 was explored in collaboration with the Social Insurance Institution of Finland. The use of the benefit was less than expected: by the end of September 2007, 1,300 persons had received partial sickness allowance. According to a survey study, occupational health physicians had a positive

#### FURTHER INFORMATION

>> [www.ttl.fi/english/kesto](http://www.ttl.fi/english/kesto)

>> [www.ttl.fi/english/databankoninformationwork](http://www.ttl.fi/english/databankoninformationwork)



Photo by Sakari Manninen



attitude towards partial sickness allowance and estimated that it would be a welcome method to facilitate return to work particularly in cases of back pain and depression. Difficulties in how to make the work lighter and problems in finding replacements were identified as factors hindering the use.

Rise in sickness absences has continued in municipalities. Among employees of the City of Helsinki and the municipalities targeted in the ongoing Ten Town Study, the number of sickness absence days in 2001 was on average 16.8 days per work year, whereas in 2006 the figure had reached 19.2 days. Almost 40% of sick leave days entitling to compensation from the Social Insurance Institution were due to musculoskeletal diseases, with psychological reasons as the second most important group. The risk of depression was found to be particularly high for those involved in social work and special education.

Based on a follow-up study in municipalities, the risk of sickness absences was affected by many different factors. In addition to sociodemographic factors, these factors may be related to the individual, organization of work or leadership, or life events outside of the realm of work.



Photo by Sakari Manninen

## CASE

### City of Vantaa

The Ten Town Study monitors the well-being and sickness absences of employees in ten Finnish municipalities with the help of surveys. The municipalities involved are Espoo, Vantaa, Tampere, Turku, Oulu, Raisio, Naantali, Nokia, Valkeakoski, and Virrat. The towns make use of the results of the Ten Town Study both in strategic development work and in the development of individual work units.

Kirsi-Marja Lievonen, HR Manager of the City of Vantaa: 'For us the Ten Town Study has been a real source of starting points and measurement indicators for city-level development work. The Ten Town Study has had an impact on how we have begun to develop leadership in a goal-oriented manner and invest in leadership training and the enhancement of

work communities. In 2008, much of our work in the field of human resources has focused on the prevention of threatening and violent situations.'

^ Employees of the City of Vantaa taking a break from a seminar.

<< Kirsi-Marja Lievonen, HR Manager, City of Vantaa



WHAT IS THE IMPACT OF THE FINNISH INSTITUTE OF OCCUPATIONAL HEALTH?

# Controlling new occupational hazards, exploiting new opportunities

Technical and social reforms are being introduced into work life that change work and how it is organized. Scientific progress is deepening our understanding of how work-related factors affect our health. New observations can challenge our previous understanding. Improvements in work life and advancements in science may help to remove occupational health hazards and improve the well-being of people. Yet, the development of work life may also bring new types of risks.

We systematically analyse work life to better understand and predict where the development of work life is headed at a given time. We follow the latest research data and techniques and assess the possibilities of utilizing them in our field. Our future strategy at FIOH is guided by our strategic goals.

Central research topics in 2007 included the effects of environmental changes on work life, the development of work-related allergies, and the health effects

of nanoparticles. We also studied the effects on work life and occupational health of globalization, changes in organizational structures, and knowledge work.

## **Environmental changes will affect the development of work life**

We gathered the views of the Finnish working-age population, as well as industry and experts, on the future of work and the related risks. International migration

### **>> Nanotechnology**

The diameter of a nanoparticle is less than 100 nm. One nanometre is a billionth of a metre, in other words, a millionth of a millimetre. There are thousands of different nanoparticles in shape, diameter and chemical composition. Therefore it is erroneous to talk about synthetic nanoparticles or nanotechnologies in general. Rather, one should mention which particle is meant and in what kind of technology or process it is being used.

and competition for jobs and will intensify, and work-related uncertainties will increase as well. Environmental changes will affect the future development of work life. Even though there are challenges and developmental needs in sight, positive alternatives were also presented, ones that will become available when opportunities for meaningful work increase. Expert views on the topics were collected in the book 'Työ murroksessa' (Work in Transition).

### Occupational health hazards of nanotechnology

Synthetic nanoparticles and nanotechnologies based on their utilization raise great economic and technological expectations and at the same time cause concern among workers, consumers and decision-makers.

FIOH is a central actor both nationally and internationally in the research on the health hazards of nanoparticles. In 2007 we created capacities and prerequisites to produce together with our co-operation partners reliable research data on the characteristics of nanomaterials and nanoparticles, their behaviour in the body, and their potential effects on cells and test animals.

The initial research results suggest that, for instance, titanium dioxide nanoparticles cause changes and inflammatory responses in cultivated cells and in test animals exposed to the particles. Furthermore, it was discovered in an experimental model of asthma in mice that exposure to nano-sized titanium dioxide particles changed the reactions of the animals' lungs to various stimuli.

International top-ranking researchers gathered for the EuroNanOSH Conference organized by FIOH in Helsinki in December to consider the challenges of con-

trolling the health hazards of nanotechnology. The conference was attended by 197 experts from 29 different countries.

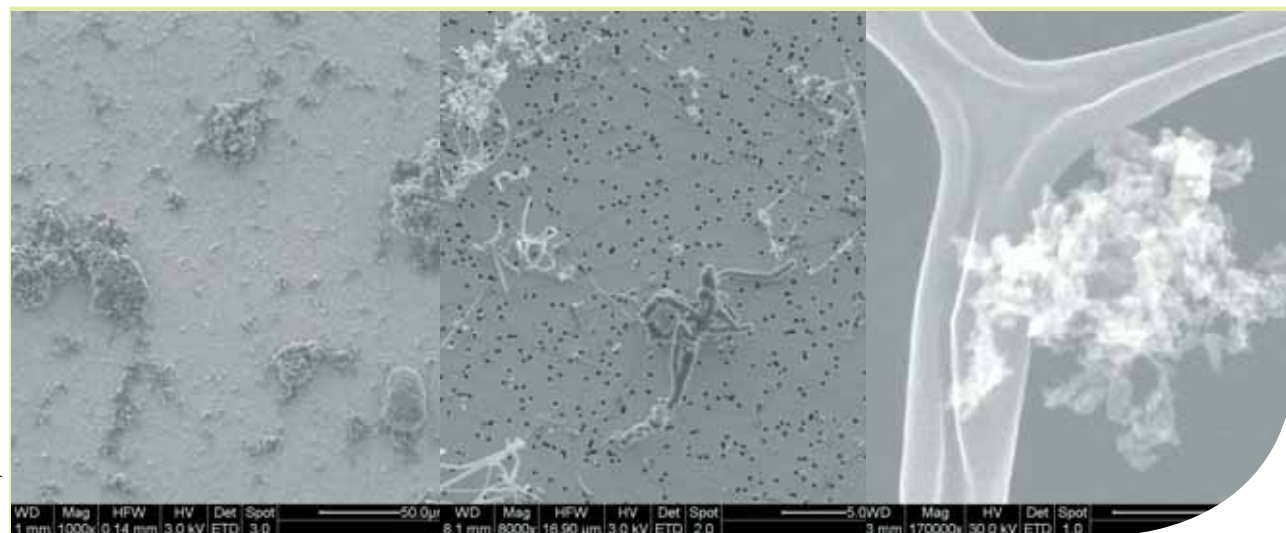
### Research on hypersensitivity illnesses to focus on moisture damage microbes

We decided to direct research to ascertaining the role of inflammation mechanisms, hereditary predisposition to illness, and factors associated with the work environment in skin and respiratory passage allergies and hypersensitivity illnesses caused by moisture damage microbes.

Our research showed that the moisture damage mould *Stachybotrys chartarum* activated intense production of inflammation mediator substances. The release of mediator substances is caused by the combined effect of immunologically active cell wall structures and mycotoxins. The results shed light on the health hazard mechanisms caused by moulds, an understanding of which is a prerequisite for reliable risk assessment, development of diagnostics, and the prevention of the diseases caused by exposure.

We identified two new wheat allergens by utilizing proteomics. The skin prick tests on patients proved the new wheat allergens to be clinically significant ones. The results make it possible to diagnose wheat-related occupational diseases in more detail than previously.

The scientific challenges connected with the allergy to natural rubber have been successfully addressed for the most part, and with information, training and co-operation with the authorities the allergenicity of natural rubber products, the emergence of new allergy cases, and symptoms of allergic patients have been significantly reduced.



## WHAT IS THE IMPACT OF THE FINNISH INSTITUTE OF OCCUPATIONAL HEALTH?



Photo by Finavia

## CASE

**Finavia – Ageing air traffic controllers**

Together with FIOH Finavia has set out to improve the occupational well-being of elderly air traffic controllers. Director Erkki Pitkänen at Finavia explains that as the retirement age for air traffic controllers has been raised to 65 years, it is important to ensure that the elderly air traffic controllers can cope with their work. The fast-paced work requires, for instance, good concentration skills, high tolerance of stress, three-dimensional visualisation skills, and the ability to divide one's attention between a number of tasks. Air traffic controllers mainly do shift work.

Current research data suggest that there is not enough knowledge on how age affects the work of the traffic controllers, says Research Professor Kiti Müller of FIOH. The connec-

tions between age and cognitive functional capacity should be studied by occupation. Work ergonomics, assessment of work ability and its follow-up in occupational health care should be improved. In the future Finavia and FIOH will examine the work requirements of air traffic controllers at FIOH's Brain and Work Research Centre.

^ The demanding work of air traffic controllers is performed in shifts.

## Prevention and control of musculoskeletal disorders

The causes of musculoskeletal disorders are only partly known at present. Recent studies have shown that not only strain factors but also metabolic and inflammation factors are significant in the occurrence of the disorders. In certain studies the risk factors for arteriosclerosis have been connected to back disease. Hereditary factors also influence the occurrence of musculoskeletal disorders, but the joint effects of strain and genetic predisposition are unknown.

According to two systematic literature surveys, excess weight or obesity is connected to ischialgia. In some studies, sciatic pain was connected to long-term smoking and extensive exercise.

We examined the material of the 'Health 2000' study to determine the connection of fat deposits in the carotid arteries to back pain, sciatic pain and diagnosed ischialgia. The study was honoured as the best back study in the competition of the Finnish Society for the Study of the Lumbar Spine in 2007. The results showed the fat deposits to be connected to continuous sciatic pain and clinical discoveries indicative of ischialgia, but not to local back pain. The results indicate that ischialgia may be a manifestation of arteriosclerosis or that arteriosclerosis and ischialgia have joint risk factors. In the Health 2000 material, a connection was also discovered in Finnish men between high serum total cholesterol, LDL cholesterol and the level of triglycerides and ischialgia clinically detected by a doctor.

## Data on human information processing in the planning of knowledge work of the future

We piloted a test battery for the assessment of the cognitive functional capacity of directors in the IT sector who were strained and exhausted. The examinees were discovered to suffer from slowed information processing in working memory, inconsistent performance, and inadequate recollection. The results prompted further development of the tests.

In connection with a study of pilots' performance, we studied the suitability of the methods for measuring the physiological and mental workload people experience in flight simulators. On the basis of the use studied, we will develop methods suitable for the actual work environment.

With the help of the new measuring design, we can examine the ergonomics of user interfaces that use the human voice and visual information, for example, and determine what kinds of sounds can be used to accelerate the location of essential information on the screen. Sound cues given by the screen from the direction of the object to be located significantly accelerated visual searches. As distance stereo vision has become more

important in operating in the real and virtual 3D world, an internet-based stereo vision test was developed.

In several fields, work is conducted in control rooms, which are technical operating environments with complex information structures in which the cognitive, i.e. the information-processing demands and restrictions of the human being, are emphasized. These environments can be found, for instance, in traffic control, energy management, hospitals' intensive care units and emergency wards and in chemical, paper and printing industries. In several fields in which safety is crucial, such as railway and air traffic control, the retirement age of the employees has been raised to 65 years. However, there is rather little information in these fields on the functional capacity of a person after the age of 55.

As a service project for FinAvia we carried out a literature survey on the effects of age on cognitive functions and the potential effects of this on air traffic controllers' capacities to work in their occupation beyond the age of 60. In general, the functional reliability of the working memory and the ability to perform several tasks simultaneously deteriorate with age. Further, differences in performance between individuals increase with age. The project established that there is no research data on the effects of age on the work ability of air traffic controllers and in the future the connections between age and cognitive functional capacity should be studied by occupation. Work ergonomics, assessment of work ability and its follow-up in occupational health care should be improved.







# International activities

International collaboration is a natural part of everyday work in a research institute.



## INTERNATIONAL ACTIVITIES

# EU and international collaboration

At FIOH, international collaboration is carried out on two levels. In 2007, we on the one hand participated in system-wide development through our activities in international organizations and the European Union, and on the other hand pursued more specific goals through means of research collaboration and networking.

## EU collaboration

FIOH represents Finland in various advisory bodies and expert groups of the European Union and participates in standardization work, risk assessment of chemicals, research framework programmes, and various networks. In addition, FIOH is involved in joint projects with both the European Foundation for the Improvement of Living and Working Conditions in Dublin and the European Agency for Safety and Health at Work in Bilbao.

Since 1998, FIOH has participated actively in the Topic Centre activity of the Bilbao Agency; the work in the two Topic Centres of Work Environment and the Risk Observatory was continued in 2007. Data on national research and statistics, OHS policies, and good practices in various EU countries were gathered and analyzed. Material on risk assessment was produced

and efforts were made to include OHS information in higher education curricula. In addition, a publication on migrants in work life was produced.

The extensive ERA-NET project NEW OSH ERA continued in 2007 under the co-ordination of FIOH. The project aims at building a European dimension in research in the area of new and emerging risks at the workplace through rationalizing and pooling of resources. The NEW OSH ERA consortium includes 18 leading public agencies, ministries and research organizations from 10 European countries.

In 2007 FIOH continued the Twinning project 'Managing Occupational Risks Related to Asbestos in Estonia'. Another Twinning project with the aim of strengthening the Latvian occupational health and safety system came to a close in spring 2007.

»» A total of 136 indoor experts from 26 different countries took part in the WorkAir Conference. After the Conference, some of the participants visited the FIOH Air Quality and Ventilation Laboratory.



Photo by Solveig Borg



## INTERNATIONAL ACTIVITIES

FIOH is actively involved in the highly topical research on nanoparticles: it co-ordinates projects on exposure to nanoparticles in both the 6th and the 7th Framework Programmes (FP). The 7th FP, launched at the beginning of 2007, provides FIOH with better opportunities for participation than its predecessor, the 6th FP. As concerns the national ESF programme (European Social Fund) 2007–2013, FIOH prepared more than 15 project proposals for various open calls at the end of 2007 and at beginning of 2008.

FIOH continued its work as a National Outreach Centre (NOC) of the European Foundation. The purpose of the Centre is to improve information dissemination of the Foundation in Finland. The national internet pages of the Foundation are updated continuously ([www.ttl.fi/noc](http://www.ttl.fi/noc)).

In 2007, FIOH was home for 31 EU projects of different sizes and 8 national ESF projects.

### Collaboration with international organizations

Collaboration with the World Health Organization (WHO) and the International Labour Office (ILO) continued similarly to previous years. In March 2007, the WHO Regional Office for Europe in collaboration with the Health and Safety Laboratory organized the 5th European Network Meeting of the WHO Collaborating Centres in Occupational Health in Buxton, UK. The meeting participants approved recommendations that encouraged collaboration between WHO, ILO and the EU to promote occupational health and safety in the European Region. In the meeting, FIOH committed to developing further basic occupational health services in order to ensure the provision of the services to all working people in the region. In addition, we made a similar commitment to support the goals and activities of the international organizations. FIOH participated in the preparation of the WHO Global Plan of Action, which was endorsed by the World Health Assembly in May 2007. We also supported the planning of the implementation of the Global Plan of Action both in the European and the African Region. FIOH supported the ILO and WHO global strategies on occupational health and safety through the publication of three issues of both the 'African Newsletter on Occupational Health and Safety' and a corresponding publication for Asia.

In March 2007, the Institute hosted a WHO CICAD meeting, which was attended by 24 experts. In December 2007, a brief consultation of the WHO Collaborating Centres in Occupational Health was organized with the theme of occupational health and safety in nanotechnologies. The meeting preceded the three-day Euro-NanOSH Conference, held in Helsinki.

The specialists at FIOH contributed actively to the International Commission on Occupational Health both

as Board Members and in the Scientific Committees. They were also involved in the information dissemination of the organization. FIOH was also represented on the Board of the International Occupational Hygiene Association.

### Collaboration with neighbouring regions and Nordic countries

The 'Barents Newsletter on Occupational Health and Safety' (established in 1998) was published in three issues, totalling 108 pages. The themes of the issues were: Accident Prevention, Infectious Diseases and Musculoskeletal Disorders. The articles were published both in Russian and in English. The circulation is 2,500.

The Baltic Sea Network on Occupational Health and Safety (BSN) continued its work in 2007. The 13th annual meeting of the Network was organized in the premises of the WHO Regional Office for Europe in Bonn at the end of October. One of the issues on the agenda was the tightening collaboration with the Northern Dimension Partnership in Public Health and Social Well-being (NDPHS).

BSN collaborated with NDPHS in the preparation of the NDPHS Strategy on Health at Work. The Strategy was approved in the Partnership Annual Conference held in Vilnius, Lithuania in mid-November. FIOH participated actively in the preparation of the Strategy.

Nordic collaboration was continued as in previous years both through the Nordic Council of Ministers and directly between research institutes. The various forums of Nordic collaboration, as well as the 'Barents Newsletter on Occupational Health and Safety', were used effectively as vehicles in the collaboration with neighbouring regions.

#### FURTHER INFORMATION

>> [www.balticseaosh.net](http://www.balticseaosh.net)

>> [www.ttl.fi/BarentsNewsletter](http://www.ttl.fi/BarentsNewsletter)

>> [www.ttl.fi/Asian-PacificNewsletter](http://www.ttl.fi/Asian-PacificNewsletter)

>> [www.ttl.fi/AfricanNewsletter](http://www.ttl.fi/AfricanNewsletter)

The EU Twinning collaboration continued with the project 'Managing Occupational Risks Related to Asbestos in Estonia in 2007'.

### Development collaboration

In 2007 FIOH continued to support the information services of the Asian-Pacific and African occupational health and safety experts by publishing regional newsletters.

FIOH continued to publish the 'African Newsletter on Occupational Health and Safety' for English-speaking African countries in collaboration with WHO and ILO. Three issues, totalling 80 pages, were published in 2007. The themes of the issues were Agriculture, Infectious Diseases, and Migrant Workers. The edition is 7,000 copies.

We also continued to publish the 'Asian-Pacific Newsletter on Occupational Health and Safety' in collaboration with WHO and ILO. Three issues, totalling 72 pages, came out in 2007. The themes were: Infectious Diseases, Migrant Workers, and Agriculture. The edition is 4,500 copies.

FIOH in collaboration with the Finnish Ministry for Foreign Affairs continued to plan the follow-up programme for East Africa. The plan was endorsed in late 2007.

### Other international activities

Traditionally, bilateral collaboration has been carried out between FIOH and the corresponding research institutes in China, France, Germany, Italy, Japan, Poland, Singapore, as well as the US National Institute for Occupational Safety and Health (NIOSH) and the National Institute of Environmental Health Sciences (NIEHS).

### International conferences

In May 2007 FIOH and the Finnish Ministry of Social Affairs and Health in co-operation with the Finnish Society of Indoor Air Quality and Climate organized the 'International Conference on Healthy Air – Better Work 2007' (WorkAir2007). The Conference was attended by 136 participants from 26 countries. The Conference presentations offered a multiprofessional view on how to recognize, manage and prevent indoor work environment problems. A NIVA Workshop entitled 'Good Occupational Indoor Environment – Our Common Goal' was arranged during the Conference to provide practical tools and good practices for those working with indoor environment issues.

At the beginning of December 2007, FIOH in co-operation with Tekes – the Finnish Agency for Technology and Innovation and the VTT Technical Research Centre of Finland arranged the 'European NanOSH Conference – Nanotechnologies: A Critical Area in Occupational Safety and Health' (EuroNanOSH) in Helsinki. The EuroNanOSH Conference was also supported by the National Institute for Occupational Safety and Prevention in Italy (ISPESL) and the National Institute for Occupational Safety and Health in USA. The Conference focused on occupational safety and health from the viewpoint of nanotechnology and engineered nanoparticles in workplaces. EuroNanOSH presentations considered the possible effects of nanotechnology on the health of workers, and the conference also included discussion on both international and regional level collaboration to prevent health problems and to guarantee a safe and healthy work environment for workers everywhere. EuroNanOSH was attended by 192 experts from over 20 countries.



### Foreign visitors in 2005–2007

	2005	2006	2007
Visitors	224	210	221
No. of countries represented	28	27	25



## INTERNATIONAL ACTIVITIES

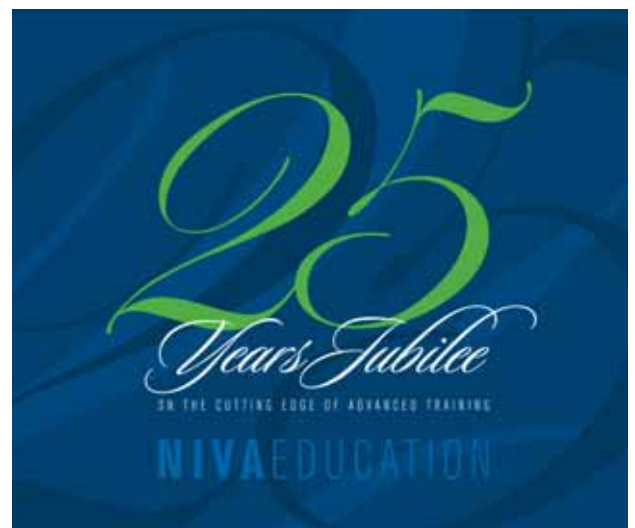
# NIVA, Nordic Institute for Advanced Training in Occupational Health

NIVA is a Nordic institute that specializes in advanced training in occupational health. NIVA has been located within the premises of FIOH since its establishment in 1982. The Nordic Council of Ministers funds about twenty institutions in different locations throughout the region. NIVA is one of these institutes. In 2007, NIVA's budget from the Nordic Council of Ministers (NCM) was EUR 442,400. In addition, NCM granted NIVA project funding for collaboration with Northwest Russia. Activities were also funded with income from courses.

**Full 25 years for NIVA!**

The Year 2007 was a year of celebration for NIVA, as it marked a quarter of a century of NIVA's existence as an institute. Many of the changes that have occurred in its field of operations during this time span have also had an effect on NIVA's course contents and activities. The first NIVA courses in the 1980s were strongly focused on physical problems, such as safety at work,

toxicology and epidemiology, but in the 1990s psychosocial aspects, such as burnout, harassment and bullying at work, also started to gain momentum, and strategies related to the prevention of occupational hazards became central. In the new millennium, the role of prevention has further strengthened, and issues related to broader labour market developments have gained more visibility. Examples of this are courses and training



activities on the ageing of the workforce, labour shortage, and cultural diversity of the potential labour force. The focus on both work environment and labour market issues has also been a strategic decision.

In the course of its first 25 years, NIVA's activities have also become increasingly international. Whereas most of the participants (90%) at the end of 1980s came from the Nordic countries, the figure is now around 65%. The rest of the participants come from the Baltic countries, other parts of Europe, Russia, and even countries outside of Europe. The fact that the language of nearly all NIVA courses is English undoubtedly plays a role in this. Even though an increasing number of participants come from outside of the Nordic countries, Nordic co-operation is concretized in the activities

of NIVA even today. NIVA courses are built around Nordic expertise, which today is not only shared between the various Nordic countries but also carried beyond their borders.

NIVA is a modern institute. Its activities are founded on good collaboration and extensive networking. The Finnish Institute of Occupational Health has throughout the decades been a central collaboration partner for NIVA. The Finnish member of the NIVA Board, in which all Nordic countries are represented, also comes from FIOH. NIVA is a good example of the principle of lean administration, as the institute staffs only 3.6 employees: the Director and 2.6 course secretaries (two full time and one 60%). The Director of NIVA has since the end of 2006 been Mia Latta, PhD.



Photo by Pirjo Turtainen

^ NIVA's directors through time celebrating the institute's 25-year jubilee: (from the left) Guy Ahonen, Elisabeth Lagerlöf, Mia Latta, Peter Laursen, Kari Eklund, Karin Olsson, and Kaj Elgstrand.

## INTERNATIONAL ACTIVITIES

# Advisory activity in international organizations

**AALTONEN MARKKU**

- EU, VRi European Virtual Institute for Integrated Risk Management, 2nd General Assembly of the European Technology Platform Industrial Safety, Stuttgart, Germany 13.2.2007

**ALANKO KRISTIINA**

- OECD, Expert group meeting, Sensitization hazards, Bethesda, USA 21–22.2.2007

**ENGSTRÖM BERNT**

- EU, ISO/TC 44/SC 9/WG 1 and WG 2, Stockholm, Sweden 12–15.2.2007
- EU, ISO/TC 44/SC 9/WG 2, Sankt Augustin, Germany 6.9.2007–7.9.2007

**HENRIKS-ECKERMAN MAJ-LEN**

- EU, CEN/TC 347 Methods for analysis of allergens, Dansk Standard, Charlottenlund, Denmark 8.11.2007

**HIETANEN MAILA**

- EU, DG Enlargement, Workshop on EMF safety and environmental legislation, St Petersburg, Russia 31.5.2007
- EU, Hospital Imaging and Radiology Europe, Expert meeting on EMF Directive and MRI systems, London, UK 15–16.10.2007
- EU, International Telecommunication Union, ITU-T Workshop Human exposure to electromagnetic fields, Geneva, Switzerland 19–20.11.2007
- EU, DG Sanco, Meeting of Governmental Experts for the Implementation of Council Recommendation on EMFs, Brussels, Belgium 22–23.11.2007

**HIRVONEN MIKKO**

- EU, CEN TC 161 Foot and leg protectors WG1&2 and WG3; VG 10, Berlin, Germany 14–16.3.2007

**HUSGAFVEL-PURSIAINEN KIRSTI**

- IARC, Scientific Council, the International Agency for Research on Cancer, Lyon, France 31.1.2007–2.2.2007
- The Nordic Expert Group for Criteria Documentation of Health Risks of Chemicals, Nordic Expert Group Meeting, Uppsala, Sweden 27.11.2007

**HÄMÄLÄINEN RIITTA-MAIJA**

- EU, Neighbourhood Policy, WHO country officers of ENP countries, European Observatory of Health Systems, TAIEX Seminar on Health in all policies in ENP countries, Brussels, Belgium 25–26.7.2007

**ISOPAHKALA SIRKKU**

- EU, CEN / TC 162 / WG 7, Berlin, Germany 15–18.2.2007

**KAUPPINEN KAISA**

- EU, Negotiating Gender in the European Union, Bratislava, Slovakia 26–27.1.2007

**KAUPPINEN TIMO**

- IARC, IARC Monographs on the Evaluation of Carcinogenic Risks to Humans, volume 97, Lyon, France 5–12.6.2007

**LAUNIS MARTTI**

- EU, CEN/TC 122 Ergonomics, 15th plenary meeting, Dublin, Ireland 26–27.4.2007
- EU, CEN/TC 122/WG2 Ergonomic design principles, 25th meeting, Dublin, Ireland 24–25.4.2007
- EU, CEN/TC 122/WG2 Ergonomic design principles, 26th meeting, Vienna, Austria 26–28.9.2007

**LEHTINEN SUVI**

- WHO, Fifth European Network Meeting of the WHO Collaborating Centres, Buxton, UK 14–16.3.2007
- WHO, Co-ordinating the activities of WHO, ILO and EU on the health of workers in Europe, Vilnius, Lithuania 14.11.2007
- NDPHS, Healthy Life – Healthy Work. Pre-PAC Forum, Vilnius, Lithuania 15.11.2007

**LESKINEN TIMO**

- EU, CEN/TC 122/WG 4 Biomechanics and ISO/TC 159/SC 3/WG 4 Human physical strength – Manual handling and force limits, Solna, Sweden 8–9.3.2007

**MÄKELÄ ERJA**

- EU, CEN/TC162/WG8 Protective gloves, Lyon, France 25–26.1.2007

**MÄKINEN HELENA**

- EU, CEN TC 162 WG 2 Protective clothing against heat and fire, Manchester, UK 7–8.3.2007

**MÄKINEN MILJA**

- Nordic Council of Ministers, Nordic workshop on human exposure assessment methods in REACH and biocide contexts, Oslo, Norway 9–10.5.2007

**VON NANDELSTADH PATRICK**

- EU, CEN TC85 WG 4 and WG 6 Eye protectors, Milan, Italy 2–5.5.2007

**OLLILA JUHANI**

- ISO, ISO/PC 230 Psychological assessment, Vienna, Austria 11–12.10.2007

**PAHKIN KRISTA**

- EU, Topic Centre on Risk Observatory: Core group meeting, Paris, France 21–22.5.2007
- EU, Topic Centre on Risk Observatory: Core group meeting, Paris, France 15–16.10.2007

**PÄÄKKÖNEN RAUNO**

- EU, DG Social Affairs, Employment and Equal Opportunities, Seminar on Health and Safety at work, Ankara, Turkey 27–28.2.2007

**RINTAMÄKI HANNU**

- EU, COST 730, Universal thermal climate index, Sophia, Bulgaria 17–20.4.2007
- EU, COST 730, Universal thermal climate index, Piran, Slovenia 17–19.8.2007

**SAALO ANJA**

- EUROSTAT, European Occupational Diseases Statistics Technical Group (EODS), Luxembourg, Luxembourg 23–24.4.2007
- UROSTAT, Health and Safety at Work Statistics Working Group (HSW), Luxembourg, Luxembourg 17–19.10.2007

**SANTONEN TIINA**

- EU, Major Accident Hazards Bureau, Scientific review of ACUTEX results, EU Joint Research Centre, Ispra, Italy 22–23.2.2007
- WHO, ICSC Peer Review Meeting, Munich, Germany 15–20.4.2007
- Nordiska Expert Gruppen, Nordic Expert Group meeting, Lund, Sweden 29–30.5.2007
- Nordiska Expert Gruppen, Nordic Expert Group Meeting, Uppsala, Sweden 26–28.11.2007
- WHO/FAO, First FAO/WHO Joint Meeting on Pesticide Management, Rome, Italy 22–26.10.2007

**TAMMELA ERJA**

- EU, European co-ordination notified bodies PPE, VG 5 Protective clothing and gloves, Seville, Spain 7–10.5.2007
- EU, CEN/TC162/WG 7/PG 1 Project group for EN 13356, Berlin, Germany 24–25.9.2007

**TUOVILA JUHA**

- WHO, ICSC Peer Review Meeting, Munich, Germany 15–20.4.2007

**VAINIO HARRI**

- WHO, Fifth European Network Meeting of the WHO Collaborating Centres, Buxton, UK 14–16.3.2007
- EU, EU Ministerial Conference 'Health in all policies', Rome, Italy 17–19.12.2007

## HUMAN RESOURCES

# Human resources

The high competence of our personnel guarantees our ability to respond to the challenges of Finnish work life. In 2007, 57% of the personnel had a university degree and 180 a doctoral degree. Our Work Climate Survey showed that FIOH staff perceive their opportunities for development as good. The Career Path Model offers a tool for long-term development. In 2007, we introduced career paths for researchers, specialists, and health care professionals.

## Number and structure of personnel

At the end of 2007, 901 persons were employed by FIOH, which shows an increase of 14 persons compared to the previous year. Women comprised 70%, and the average age of personnel was 46 years. The number of male and female superiors was equal.

The number of personnel remained very similar to previous years. FIOH's work input in 2007 was 809 person-work-years. State-funded person-work-years totalled 576.5, thus amounting to 80% of the total, and 232.5 were funded by our own income. The number of person-work-years increased somewhat from the previous year (802 in 2006). Of the staff, 27% were working on a temporary basis. Researchers and specialists made up 60% of the staff, 10% were physicians, and 5% other health care personnel. In all, 7% functioned in leadership positions of Centres of Excellence or other units, and 11%

were involved in the production of support services.

Out of permanent staff, 54 persons changed employer. Turnover of permanent staff was 7%. Fourteen employees retired, and the average retirement age was 63.4 years. To facilitate the acquisition of new staff, the recruitment process at FIOH was made more efficient, and an electronic recruitment system was adopted. Moreover, a procurement contract was signed for aptitude testing in personnel selection.

## Occupational health and well-being at work

Sick leaves fell by 3.4% from 2006. The sick leave percentage was clearly lower than the average among the members of the Confederation of Finnish Industries (4% in 2006). Occupational health services for the staff of FIOH were remodelled in the spring, when the contract for the delivery of the services was signed with Medi-



Photo by Leena Mäki



vire Occupational Health Services. The reform aimed at uniform, good quality service based on good occupational health practice. A special emphasis of occupational health services at FIOH is placed on preventive action and health promotion.

### Human resources development

The level of education among FIOH employees is high; in 2007, 57% were university graduates, and 180 persons had a doctoral degree. The Centres of Excellence maintain and develop the competence of their personnel with the aim of balancing functional needs and the quality and quantity of competence in an optimal way. Training (both internal and external) amounted to 1.5% of paid working time. The percentage was the same in 2006. The number of days in training was 3.7 days per person.

Career Paths support long-term development of personnel in FIOH. In 2007, Career Path models were introduced for researchers, specialists, and persons involved in care work. The aim of Career Paths is to describe a person's competencies at a certain point in his or her career. In 2007, a training programme for a Specialist Qualification in Leadership was organized at FIOH for the first time. In all, 20 superiors began the training.

FIOH gained recognition for competence in human resources development. Professor Matti Ylikoski was chosen as Public Administration HR Developer of the Year. The recognition was granted at an event arranged by Management Events on 6 October 2007 in Helsinki. The prize is awarded to a person who has developed human resources management in the public sector in an innovative way or advanced the work to enhance the well-being of personnel in the public sector.

### Work Climate Survey

The Work Climate Survey from 2007 shows that the strengths of FIOH are clear and well-recognized goals, opportunities to influence the content of one's work, meaningful work content, good leadership and teamwork and inter-team collaboration. Opportunities for personal development were also considered good. These strengths are what make our strategic work possible. Organization of work in a way that prevents excessive strain on the personnel was seen as an important object of development. Low level of pay and the practices of rewarding for good work also received criticism.



Photo by Timo Raunio

◀◀ FIOH staff exercising on Yellow Band Day. The Day is organized by FIOH in collaboration with the Finnish Rheumatism Association.

🏆 Professor Matti Ylikoski, Public Administration HR Developer of the Year

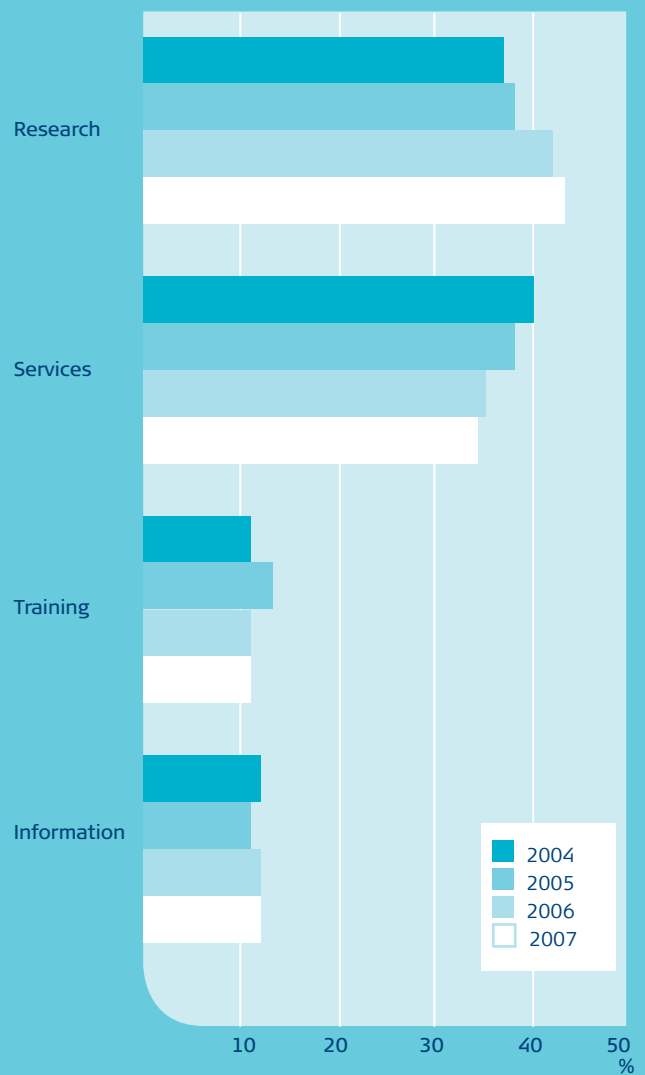
# Basic functions and key figures

FIOH looks for solutions for the needs of work life by means of research, training, specialist advisory services, and communications.

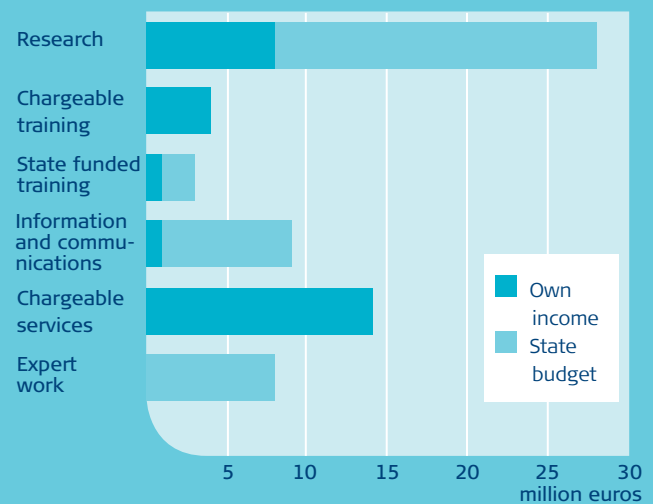




Person-work-years by basic function



Financing by function



## BASIC FUNCTIONS AND KEY FIGURES

# Research

With the help of its research and development activities, FIOH maintains and regenerates its knowledge and expertise. Our aim is to create a solid knowledge base for effectiveness that is based on scientific evidence. Research activities are directed to questions of occupational health and work ability, work environment and work communities that are central from the viewpoint of work life in Finland.

External funding for research increased in 2007. The income from research was EUR 7.9 million. Funding granted by the Academy of Finland; Tekes, the Finnish Funding Agency for Technology and Innovation; and the European Union increased, while funding from other central financing bodies remained stable.

A total of 653 scientific publications were produced on research carried out at FIOH; 1.7 publications were produced for every person-work-year spent on research. FIOH staff held 318 presentations in international scientific conferences. The number of completed dissertations was 10.

## Front-line research

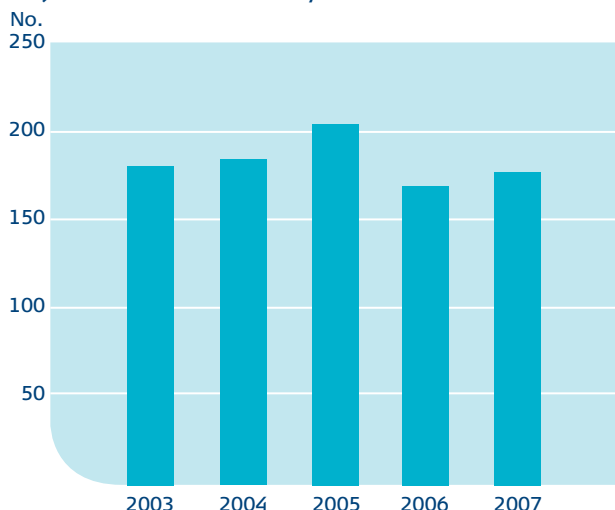
FIOH has selected two units of excellence as strategic emphasis points for front-line research. The units of excellence are interdisciplinary research groups that

function in networks with different universities and research institutes in Finland and abroad. They aim at scientific innovations and the generation of new competence in their respective research areas.

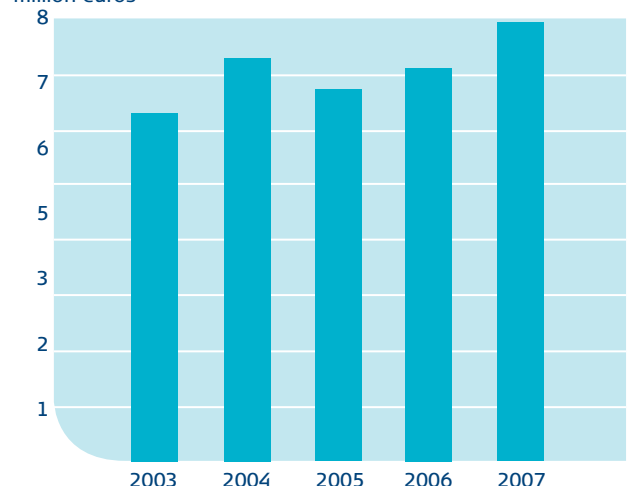
**The Unit of Excellence for Psychosocial Factors** produces information on psychosocial risk factors and their health effects, risk groups and protective factors as well as the mechanisms mediating the health effects. In 2007, the unit published results that gained wide international attention.

In 2007 the unit reported new findings on the effects of psychosocial factors on mental well-being and health. Research results by the unit show that the use of psychotropic drugs increases after enforced redundancies also among those who keep their jobs. Men who kept their jobs in downsized organizations were almost 50% more likely to be given a prescription for psycho-

Projects active at the end of year



External funding  
million euros





tropic drugs than were those whose organizations were not downsized in a significant way. Women working in downsized organizations were 12% more likely to be given a prescription. The increased chances of a prescription for a psychotropic drug after downsizing represent a great burden not only on the individual but also on society.

The use of antidepressants is distributed unevenly between different population groups and varies according to the person's position in the labour market. The shorter the person's fixed-term tenure, the more likely he or she is to use antidepressants. The use of antidepressants was most common among those affected by long-term unemployment and receiving employment aid.

**The Unit of Excellence for Immunotoxicology** produces information on work-induced and work-related allergies and the potential to develop the diagnostics, prevention and treatment of work-induced allergic diseases. In 2007, the unit made important advances in ascertaining the mechanisms of diseases related to the work environment.

Accumulating sleep deprivation has a significant impact on the functioning of the immunological defence system. In a project by FIOH and the University of Helsinki, it was shown that a sleep deprivation of five consecutive nights (four hours of sleep) causes a significant increase of CRP in the serum and increased production of certain proinflammatory cytokines in white blood cells. Sleep deprivation also reduced the number of natural killer cells in the circulation. The results shed light on the pathogenetic mechanisms of diseases linked to chronic sleep deprivation, such as cardiovascular diseases.

MicroRNAs are recently identified RNA molecules that control the activity of genes. The Unit of Excellence participated in a study, led by the Karolinska Institutet, in which it was shown that the miR-203 microRNA secreted by the keratinocytes of the skin occurs specifically in the skin lesions of psoriasis patients. The study creates opportunities for the development of new methods for prevention and treatment. Further studies on the topic will focus on examining the microRNA molecules regulating atopic eczema and allergic rash.

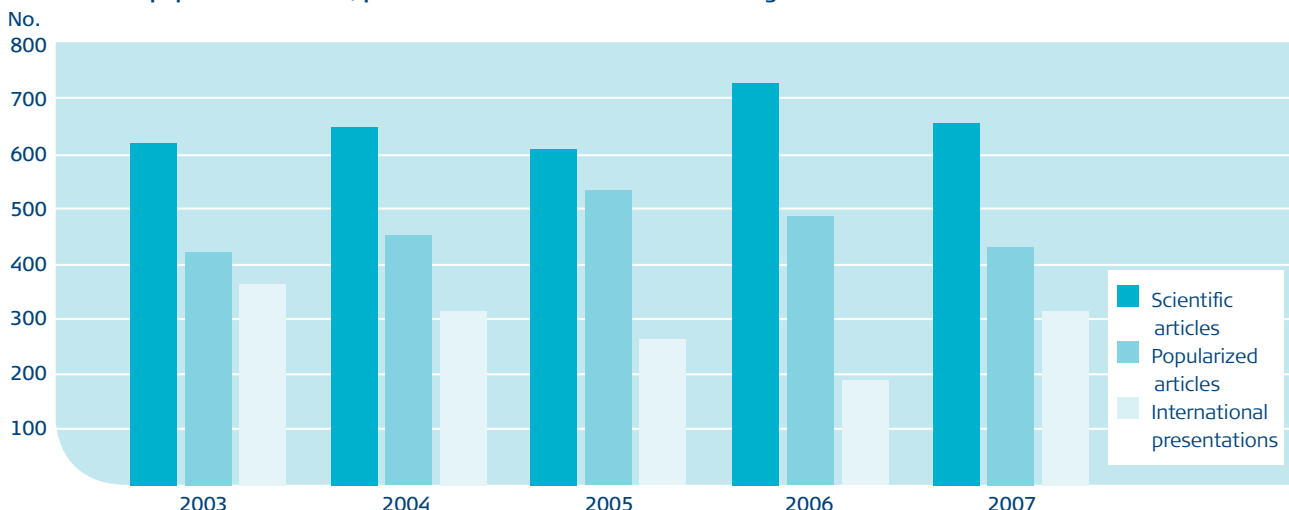
In a study on the activation of the immune response, receptors of the natural immune system were identified that trigger immune response in human macrophages and keratinocytes of the skin. The activity of these identifying receptors is central both in the development of asthma and in the exacerbation of the symptoms of asthma in connection with viral infections.

**The Brain and Work Research Centre** provided new insights in the study of connections between sleep and level of alertness and shift work. The thematic of sleep and working time gained wide publicity, and the demand of training on the topic also increased.

### Cochrane Collaboration

Cochrane Collaboration Occupational Health Field, housed at the Finnish Institute of Occupational Health, completed and published five new systematic reviews about the effectiveness of interventions to prevent occupational diseases and injuries in construction and agriculture. The Field also continues to build a database of occupational health intervention studies, which now contains more than 1,000 references and is available free of charge at [www.cohf.fi](http://www.cohf.fi).

Scientific and popularized articles, presentations held at international congresses





## BASIC FUNCTIONS AND KEY FIGURES

# Specialist advisory services

Finnish work life benefits greatly from FIOH's specialist advisory services in occupational health and safety. Through its various teams, FIOH provides these services for workplaces, health care units, labour market organizations, and foreign firms. The majority of the services are free of charge for state authorities, and are financed by state aid.

Having decreased from the previous year by EUR 0.5 million, FIOH's income from specialist advisory services was EUR 11.1 million in 2007. The proportion of service income out of all income was 41%. To promote efficiency and our 'research to practice' process, we have invested in the packaging of our services and in the improved management of our service selection. Our products have been arranged into product lines and product families, and we have used the same logic to clarify the structure of our website on specialist advisory services. Our service activities have been developed as a whole to correspond even better to the needs of our clients, and the content of the services has been developed on a broad front. Problems in the meeting of supply and demand have been solved, and sufficient resources have been ensured by the use of sub-contractors and investments in the development of competence.

## Organizational development services

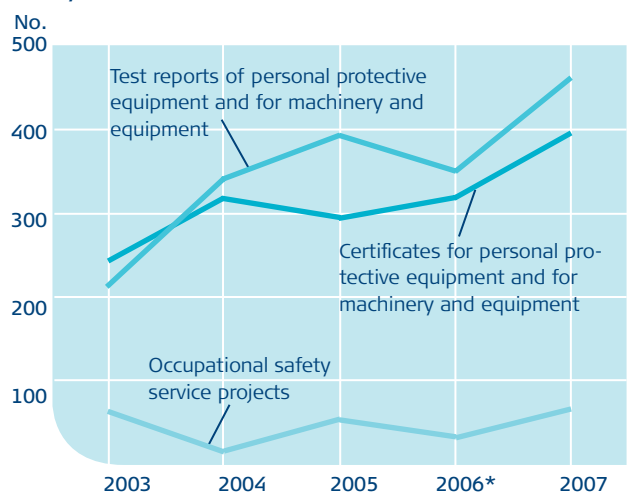
- Development projects and support for change processes
- Development of management and supervisory operations, guidance and training for management and supervisors
- Work climate surveys
- Support for crises and conflict management
- Personal assessment and competence development

The volume of services in organization psychology has been reduced somewhat compared to the previous year. With this product line, we invested strongly in product development and the packaging of new services. For example, the work climate survey has been remodelled, and an all-encompassing recruitment service has been launched. For the municipal sector, the emphasis has been increasingly on training projects.

**Trend of services provided in the field of work organizations and organizational psychology, 2003–2007**



**Trend of services provided in the field of occupational safety, 2003–2007**



### Work process and equipment development services

- Ergonomics and usability (ergonomics, cognitive ergonomics, working hours)
- Management of organizational change

Service and training projects in cognitive ergonomics and working times were implemented as anticipated, and particularly for the working time service the demand was more active than anticipated. With the help of the developed 'Change Workshop' method, we analyse the disturbance load that emerges in changes at work and endorse the management of organizational change.

### Work environment development services

- Occupational safety management
- Occupational safety services
- Health hazards caused by chemicals, indoor air assessments, dusts and fibres, noise, vibration, radiation, lighting, temperatures and ventilation, biological exposures
- Biomonitoring of chemical and biological exposure
- Training and advice in risk assessment processes, toxicological hazard and risk assessment, REACH specialist advisory services and training

Previously separate accrediting decisions for testing and laboratory activities related to occupational hygiene were merged under one label. Laboratory functions were developed, as was the functionality of field activities.

Quantitative growth compared to the previous year was evident especially in occupational-hygiene and toxicological samples related to research, development of methods and quality control (38% growth compared to 2006), projects on occupational health (the number has doubled), test reports of equipment and machin-



Photo by Antero Tenhunen

^ FIOH laboratories offer various analysis services. Blood and urine samples are analysed in the Biomonitoring Laboratory. Analysis can be used to predict the health hazards of substances such as lead, mercury, and cadmium. In the picture, metal analyses are being performed.

### Trend of services provided in the field of occupational hygiene and toxicology, 2003–2007

Services provided	2003	2004	2005	2006*	2007
	number				
Specialist opinions on occupational hygiene and toxicology, results of measurement and reports	1,508	1,371	1,255	1,508	1,396
Analysed industrial hygiene and toxicological samples (number of samples)	27,883	28,013	30,145	41,692	40,188
Analysed biochemical samples (number of samples)	16,269	14,970	12,641	12,142	12,452
Occupational hygiene and toxicological samples in research, development of methods and quality control (number of samples)	43,522	22,986	8,941	1,560	2,151

\* The documentation of all services has been adjusted starting 2006, when an organizational reform was carried out at FIOH. The figures are thus not entirely comparable to those from previous years (2003–2005).

## BASIC FUNCTIONS AND KEY FIGURES

ery including personal protective equipment (32% growth), and in the certificates granted to equipment and machinery including personal protective equipment (24% growth).

A new approach has been created for the production and development of limit values for biomonitoring to improve the management of health risks. With the help of indoor air assessments and by producing services in occupational hygiene, we help organizations to assess and prevent health hazards caused by biological factors. By producing structural reports as a part of our indoor air services to workplaces, owners of premises, and consultants, we provided them with means to assess and prevent health hazards occurring in moisture damaged buildings. Based on our recommendations, workplaces repaired moisture damages and enhanced working methods and ventilation, all of which reduced work-induced exposure to microbes.

The amount of service activity directed to physical factors remained the same. Noise and vibration measurements and ventilation assessments were the most typical services provided. The most significant customers in this area were industrial plants and public administration. The service was able to provide answers to clients' problems and the main emphasis was in finding solutions. At the same time, the service was an important channel for model solutions, safety management, and risk management. Through the use of testing and certificates, we ensured that the products entering the market and instructions on their use fulfil the requirements set for safety and usability. A clear increase was detected in this.

**Health and work ability promotion services**

- Physical work capacity, loading
- Promotion of work ability and health
- Occupational medicine; occupational diseases, work ability assessment, health significance of work-related exposure
- Development of occupational health services

Certain services in occupational medicine implemented in regional out-patient clinics in collaboration with university hospitals enable us to account for wider, work-induced morbidity in the service provision. In the TFKA project on physical loading at work, we prepared a web-based prototype for an application that enables workers themselves to make observations on the performed work phases and loading experienced. The system then automatically attaches this information to measured data on pulse and pulse variation and produces personal and workplace-specific reports of the findings.

**Trend of services provided in the field of occupational medicine, extensive workplace health promotion, development in occupational health services, and physical work capacity, 2003–2006**

Services provided	2003	2004	2005	2006*	2007
	number				
Patients examined	2,654	4,225	2,428	2,219	2,310
Patient examination and treatment consultations	7,395	6,468	5,885	5,194	4,436
Suspected occupational diseases examined	1,779	2,372	1,786	1,894	1,978
Occupational diseases diagnosed	644	660	591	486	488
Work ability assessment expert opinions	398	324	497	93	88
Extensive workplace health promotion service projects	80	73	118	3	-
Other cross-functional service projects for workplaces	28	156	151	1	1
Development projects for occup. health service units	44	36	48	-	2
Physical work capacity measurements	3,000	2,707	2,608	3,803	3,114

\* The documentation of all services has been adjusted starting 2006, when an organizational reform was carried out at FIOH. The figures are thus not entirely comparable to those from previous years (2003–2005).



Photo by Kristina Kulha

^ FIOH offers accredited testing services for personal protective equipment, laser devices, noise measuring equipment, and noise and vibration emissions from machinery. In the picture, cold protective clothing is being tested on a thermal manikin.

## BASIC FUNCTIONS AND KEY FIGURES

# Training

FIOH organizes training to maintain and promote professional skills, targeted at occupational health and safety professionals and specialists, occupational safety personnel, and people working in personnel development, management and in manufacturing as well as the general public.

Training is based on the research and development activities of FIOH, namely expertise in occupational health and safety, the work environment, work organizations and organizational development. We provide training for physicians specializing in occupational health, in collaboration with universities. In addition, FIOH arranges tailored courses for companies and organizations, and lectures given by experts at various seminars and meetings.

FIOH training focuses on clients' problem-solving and development processes, and makes use of the latest knowledge regarding adult learning and learning organizations.

## Course activities

In 2007, a total of 9,355 persons participated in the 286 training courses offered by FIOH all around the country. Over half of the training activities were organized regionally, and the total number of trainee days was 19,557.

The increase in the number of participants and trainee days was mostly due to the two nation-wide training tours on good occupational health practice and indoor air, which together attracted 1,889 participants. Furthermore, training on the psychosocial and physical-chemical work environments, and in occupational safety increased notably. In addition, the use of new methods, such as virtual university and e-learning, has grown in FIOH training.

## Competence and degrees

In 2007, FIOH arranged its training for OHS specialists and experts in accordance with the Decree on the Guidelines for Good Occupational Health Practice. A total of 360 specialists passed the OHS competence course in 2007, and 55 physicians took the specialist university examination in occupational health services. Moreover, 25 psychologists participated in the competence training programmes, and 51 safety managers participated in the two advanced courses on occupa-

»» The 'Good Occupational Health Practice and Quality Key for OHS' training tour began in Helsinki on 24 May 2007. In total, the events of the tour attracted 1,440 participants.



tional safety and safety management offered by FIOH.

Finnish occupational health service personnel also actively took part in updating their training, as required by legislation. In addition to the annual 'Occupational Health Convention' and 'Work Ability Day', the most popular courses in further and advanced training were those dealing with health examinations in case of extremely hazardous exposures, the use and interpretation of drug tests in work life, safe use of cytostatic medicine, welding and the work environment, eye-glasses and work involving visual display units (VDU), and personal protective equipment. Courses dealing with mental health at work and coping with high sickness absenteeism and alcohol abuse in companies were also very popular, as were the themes of workers' health in structural changes, coping with changes, and the maintenance of work ability e.g. via healthy life-style choices.

More than a fifth (22%) of the 286 courses were tailored for companies and organizations. Most of them dealt with occupational health services and occupational safety, but many also addressed organizational development and change management in enterprises and organizations.

### International training and other training innovations

In 2007, the Finnish Institute of Occupational Health offered international training programmes abroad, and launched its first three courses in age management. In addition, training on the critical transitions in the work life course was initiated.

FIOH has been actively involved in training both trainers and trainees in the use of the Safety Card, for shop floor level work life. To increase the emphasis and

Training according to type in 2007 (number and %)

Type	Courses	Participants	Trainee days
Competence training for OHS (legislated)	15 (5%)	360 (4%)	4,459 (23%)
Competence training for occupational safety	2 (1%)	51 (1%)	780 (4%)
Tailored courses for companies	64 (22%)	1,680 (18%)	2,344 (12%)
Further and advanced training	205 (72%)	7,264 (78%)	11,974 (61%)
<b>Total</b>	<b>286</b>	<b>9,355</b>	<b>19,557</b>

opportunities for further training, we have established a tailored 'Learning Path'. This offers a plan and training curricula with reasonable courses and e-learning modules when the trainee is interested in deepening or widening his or her knowledge, skills and competences through an advanced and flexible two-year training programme.

### Participants in training

Customer loyalty is a sign of FIOH's well-established position in the field of occupational health and safety training in Finland. Occupational health service specialists (occupational health physicians and nurses) as well as other specialists required for the production of occupational health services (e.g., physiotherapists, psy-



## BASIC FUNCTIONS AND KEY FIGURES

chologists, occupational hygienists, technical and agricultural advisers, nutritional therapists, optometrists, ergonomics, physical exercise specialists) still hold the highest number among participants in FIOH training. Safety managers and employees' safety representatives (delegates) are another significant group. However, the number of personnel managers and human resource development specialists, for example, has increased to 6% of participants, and in fact, over 26% of training participants belong to professional groups other than occupational health and safety specialists.

Since health and safety is an area that concerns and requires multiprofessional collaboration in enterprises and organizations, FIOH has endeavoured to reach wide-ranging target groups for training, especially managers and specialists in key positions, such as HR managers and developers, industrial and production managers, and planners. We also consider trainers in leadership academies, in the training institutions of social partners, and in other respective training institutes as playing an important role in the future development of occupational health and safety in Finland.

## Participants in training 2003–2007 (%)

Participants	2005	2006	2007
Nurses	23	21	27
Physicians	12	11	11
Physiotherapists	6	5	4
Safety managers	10	11	10
Safety delegates	9	9	7
Personnel administration & HR development	4	7	6
Production, sales and technical staff	9	8	9
Others	27	28	26
Total	100	100	100

## Course activities in 2005–2007

	2005	2006	2007
Participants	7,013	6,965	9,355
Trainee days	18,819	17,252	19,557
Courses	236	248	286

>> More than 900 persons attended in the 54rd annual 'Occupational Health Convention' organized during the European Week for Safety and Health at Work, focusing on the EU theme 'Lighten the Load'.

## Courses by topic in 2003–2007 (%)

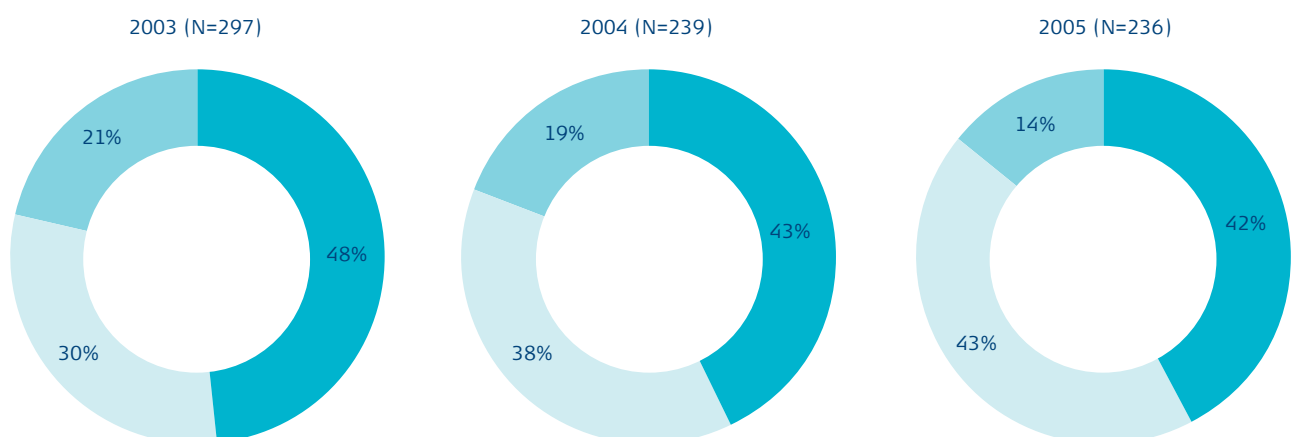
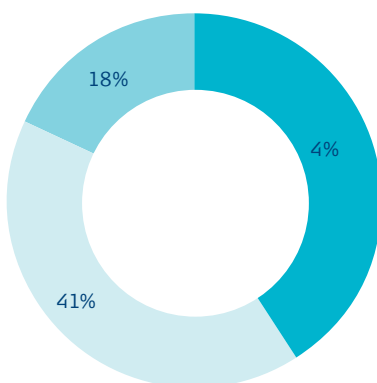


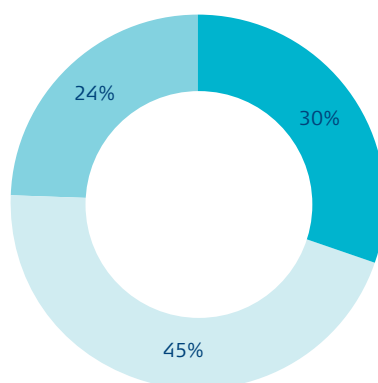


Photo by Timo Raunio

2006 (N=248)



2007 (N=286)

**Topics**

- Development of OHS
- Improvement of work environment
- Development of work communities and organizations

## BASIC FUNCTIONS AND KEY FIGURES

# Information and communications

We aim to ensure that information produced by FIOH reaches citizens, workplaces, occupational health and safety professionals, and the relevant decision-makers in an accessible form. All our experts disseminate information in their everyday work.

## Good collaboration with media

The media is an important channel in the dissemination of information to the public. The year 2007 was especially active from the viewpoint of media communications. FIOH issued 52 press releases and organized 13 media conferences. Among topics that drew the most attention were Duunitalkoot – a toolbox to improve work life by enhancing dialogue at workplaces; immigrants' experiences; temporary work contracts and depression; and issues connected with length of sleep and shift work. FIOH gained good results in a media survey on the administrative sector of the Ministry of Social Affairs and Health. The survey explored journalists' experiences and ideas on communities in this administrative sector and their media communications. The image of FIOH was the best in the administrative sector, but there was

room for improvement in how well-known FIOH and its operations were known among the journalists, interactivity of communications, and accessibility of researchers and information officers.

## Fairs and exhibitions

In 2007 FIOH participated in 14 fairs or exhibitions with its own individual stand and in three with joint stands. Among the largest events were the Finnish Medical Convention, the Farmari Agricultural Fair, FinnMateria, the Kuntamarkkinat Municipal Fair, the KoneAgria Fair in Agricultural Machinery, ChemBio Finland 2007, and the Helsinki Book Fair.

We also gave out information on our activities during the visits of student and teacher groups and other interested groups. Altogether, we had 1,380 visitors in

## Key figures in information and communications

	2004	2005	2006	2007
Popularized articles authored by FIOH staff	451	313	485	430
Publications by FIOH				
• new titles	30	30	43	46
• sold copies: publications	33,058	29,864	37,936	42,716
• forms	125,712	118,483	140,000	145,900
• reprints	15	16	19	17
• dissertations	6	6	3	5
• 'Työ ja Ihminen' (People and Work) – number of subscribers (permanent)	430	432	413	412
• 'Työ Terveys Turvallisuus' – number of subscribers	5,012	5,060	3,909	3,978



2007. We also participated in the organization of Campus Day at the Meilahti Hospital Campus.

Two new factsheets were published on OHS for farmers and the functions and on the duties of the collaboration group on OHS for farmers. The content and appearance of the factsheets on work-induced cancer and the health effects of computer work were renewed.

We participated in the work of the co-ordinating group for communications in the administrative sector of the Ministry of Social Affairs and Health (HAVI) and in a network of PR professionals in OHS.

### Library

The number of loans, article copies, information search requests, and library customers decreased in 2007. A total of 340 articles were edited for the Cochrane Occupational Health Field.

In accordance with our contract with the Ministry of Social Affairs and Health, our regional office in Tampere provides library services for ministries.

### Web services and newsletter

The development of research communications was named as one of the special areas of emphasis in 2007. We developed web material on research and began publishing an electronic newsletter. Five newsletters were published, and the number of subscribers is some 2,000. The subscribers include policy makers, OHS personnel, journalists and individual citizens. The newsletter focuses on the following topics: Finnish and international research on occupational safety and health, products, services, courses offered by FIOH and other events.



Photo by Minna Laukkonen

⤴ We present FIOH services at various fairs and exhibitions and gather feedback from customers. In the picture: Nina Kallioma.

### Library and information services

	2004	2005	2006	2007
Loans and article copies	16,224	16,015	15,998	11,075
Library visits	3,574	4,773	3,531	2,367
Search requests / Help Desk information search requests	407/160	163/162	110/311	64/244
Use of electronic information sources, number of articles	14,364	18,404	21,014	19,656

### Media communications

	2004	2005	2006	2007
Number of press releases	35	40	43	52
Number of media conferences	8	13	8	13
Attained total circulation (millions)	28	29	31	41
Number of visitors	740	1,217	1,172	1,380



## BASIC FUNCTIOS AND KEY FIGURES

Collaboration was continued with the database on safety and health at work and citizens' information portals, and the web services began collaboration projects with the Haaga-Helia University of Applied Sciences and the Aker Yards shipyard.

New thematic sub-sites established included the Duunitalkoot web service and a website on indoor air and indoor environment. The online information resource on working conditions in Finland was developed further. The provision of especially web services targeted to citizens will be supplemented with health information on different thematic areas and by combining the thematic sub-sites on age and work and youth and work into a single topic on life course. We also produced an electronic version of a guide for conducting health examinations in occupational health services to be published in 2008.

An online user survey was conducted in spring 2007. In all, we received 125 responses. The clients gave the FIOH web services an overall grade 8.5. A project to renew the web service was initiated, and the results of the survey are applied in the project. The number of visitors to the [www.ttl.fi](http://www.ttl.fi) website increased from the previous year by 12%.

### Books and periodicals

In 2007, 46 new publications were issued and reprints were taken of 17 publications. The best selling products were the 'Work Ability Index' questionnaire form, a guide on good occupational health practice, an exercise book for the 'School-to-Work' group method, a guide on how to apply the Occupational Safety Act, and a guide on the supervision of labour protection. In addition, we produced an online guide for health examinations in OHS.

FIOH publications were presented at the Helsinki Book Fair, which attracted more than 60,000 visitors.

Collaboration with Duodecim Medical Publications Ltd. was continued by producing publications for the Duodecim Occupational Health Library internet service. The piloting and marketing of the Occupational Health Library will be launched in spring 2008.



Web services: [www.ttl.fi](http://www.ttl.fi)

	2005	2006	2007
Total number of visitors	694,000	754,000	842,400
Number of visitors in thematic sub-sites	250,000	301,000	337,240
Number of www pages	5,121	5,737	7,345

### FURTHER INFORMATION

- >> [www.ttl.fi/english](http://www.ttl.fi/english)
- >> [www.ttl.fi/bookstore](http://www.ttl.fi/bookstore)
- >> [www.ttl.fi/ english/information](http://www.ttl.fi/english/information)

## Books published by FIOH in 2007

### English-language publications

#### Cancer survivors at work

- Work-related problems and factors associated with their employment, work ability and social support from the work community  
Taskila Taina  
People and Work  
Research Reports 80,  
113 p.  
ISBN 978-951-802-777-8, 2007

#### Electromyography for assessing muscular strain in the workplace

Jarmo Sillanpää  
People and Work  
Research Reports 79, 125 p., ISBN 978-951-802-774-7, 2007

#### Management of Occupational Safety and Health Information In Finnish

Räsänen Tuula  
People and Work  
Research Reports 77,  
170 p.  
ISBN 978-951-802-745-7, 2007

#### Medical Handbook for Seafarers

Heikki Saarni, Leena Niemi  
213 p.  
ISBN 978-951-802-743-3, 2007

#### Occupational burnout and health

Kirsi Ahola  
People and Work  
Research Reports 81,  
191 p.  
ISBN 978-951-802-794-5, 2007

#### Polymorphic low penetrance genes and breast cancer – The role of genes involved in metabolism of xenobiotics, estrogens and reactive oxygen species

Pia Sillanpää  
People and Work  
Research Reports 78,  
155 p.  
ISBN 978-951-802-767-9, 2007

#### Retirement Transition and Well-being – 16-year Longitudinal Study

Seitsamo Jorma  
People and Work  
Research Reports 76,  
105 p.  
ISBN 978-951-802-733-4, 2007

#### Value of Partnership for Workplace Health Promotion – Guideline for Partnership Building

Riitta-Maija Hämäläinen & the ENWHP network: Anja Dijkman, Ása Guðbjörg Ásgeirsdóttir, Karla Van den Broek, Theodor Haratau, Karl Kuhn, Giuseppe Masanotti, Jacek Pyżalski, Arjella van Scheppingen, Maria Dolores Solé, Matti Ylikoski  
63 p.  
ISBN 978-951-802-779-2, 2007

#### Workplace Health Promotion in Europe – the role of national health policies and strategies

Hämäläinen Riitta-Maija  
208 p.  
ISBN 978-951-802-739-6, 2007

### Swedish-language publications

#### Arbetslivet i sikte Guide för handledare

Vuori Jukka, Koivisto Petri, Larvi Tommy, Jokisaari Markku, Sutela Sanna, Salmela-Aro Katariina (arbetsgrupp)  
71 p.  
ISBN 978-951-802-798-3, 2007

#### Arbetslivet i sikte Arbetsbok

Vuori Jukka, Koivisto Petri, Larvi Tommy, Jokisaari Markku, Sutela Sanna, Salmela-Aro Katariina (arbetsgrupp)  
48 p.  
ISBN 987-951-802-799-0, 2007

#### Dryckesdagbok

Jurvansuu Hanna, Heljälä Leena, Kuokkanen Martti  
Hur du räknar och bokför alkoholenheter. Kaloritabell innefattas  
4 p. 2007

A full list of FIOH publications is available at:  
[www.ttl.fi/bookstore](http://www.ttl.fi/bookstore)

## BASIC FUNCTIONS AND KEY FIGURES





According to the National Readership Survey, the 'Työ Terveys Turvallisuus' periodical has 151,000 readers.

### Changes for the 'Työ Terveys Turvallisuus' periodical

According to the National Readership Survey, the 'Työ Terveys Turvallisuus' (Work Health Safety) periodical is the most widely read magazine in Finnish workplaces.

The periodical's Editor in Chief Matti Tapiainen retired on 31 October 2007. The new Editor in Chief is Director General Harri Vainio. The new Managing Editor began her work on 5 November 2007.

The circulation of the 'Työ Terveys Turvallisuus' periodical is 61,000. In addition to the regular circulation, issues 3 and 7 were mailed to all enterprises with more than five employees with the aim of reaching the management of the enterprises. Eight issues were published in 2007. A remodelling of the design and structure of the periodical was begun at the end of 2007.

### Internal communications

The main emphasis in internal communications was on the maintenance of intranet, training, and a project to endorse video conferencing. We arranged two training sessions on the preparation of a press release and public relations. The 'Työtisläinen' newsletter for FIOH staff came out 11 times.

# The Jorma Rantanen Award

Each year, the Finnish Institute of Occupational Health (FIOH) presents the Jorma Rantanen Award to distinguished occupational health and safety research scientists or professionals. Nominees for the award must have an outstanding career in the field of occupational safety and health, and an international reputation for their achievements.

The award is in honour of Professor Jorma Rantanen, the former Director General of FIOH.

The first award was given in 2003.

### Awardees

2003	<b>Philip J. Landrigan, USA</b>
2004	<b>Lorenzo Tomatis, Italy</b>
2005	<b>Tom B. Leamon, USA</b>
2006	<b>Sir Michael Marmot, UK</b>
2007	<b>Dominique Lison, Belgium</b>



## BOARD OF DIRECTORS AND EXECUTIVE COMMITTEE

# Board of Directors



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**10 Ritva Ekroos**, staff representative, FIOH

**11 Harri Vainio**, Director General, FIOH

**12 Martti Lehtokangas**, Administrative Director, FIOH

Six meetings were held in 2007.



# Executive Committee



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Director of Centre of Expertise, Human Factors at Work

**11 Jouni Toikkanen**  
Head of Development

## EVENTS

# Events in 2007

## January

FIOH challenged all workplaces and occupational health services to Alcohol-Free January campaign.

The Drinking Diary published by FIOH makes it easy for everyone to monitor and evaluate their alcohol consumption.

Our study showed that forced redundancies increase mental health problems among employees who keep their jobs. In downsized organizations, use of psychotropic drugs increases not only among those who lose their jobs, but also for those who remain at work. The study was conducted in collaboration with the University of London.

## February

Duunitalkoot internet service was opened. It is useful for entrepreneurs, employees, superiors, organization management and developers. The use of the site is free of charge, and the site is financed by the VETO programme of the Ministry of Social Affairs and Health, the Finnish Work Environment Fund, and FIOH.

## March

Our study showed that immigrants' experiences of Finnish workplaces vary and equality is not yet fully realized. The experiences of immigrants from Estonia or Russia of their work and work communities are largely similar to stories of their Finnish co-workers. Inequality was most often encountered by persons from sub-Saharan Africa and the Horn of Africa. They were also subject to bullying more often than others.

## April

The Zero Accident Forum provided a classification of safety at work to all those member workplaces that have successfully promoted occupational safety at their workplace. The number and severity of accidents in the workplace were used as grounds for the decisions.

## May

The Ministry of Social Affairs and Health in collaboration with Finnish Society of Indoor Air Quality and Climate organized the international WorkAir 2007 Conference in Helsinki. The quality of indoor environment has an increasingly great impact on the health, safety, and coping of workers and the productivity of work, as most work is carried out in office-like indoor facilities.

## June

The President of the Republic awarded for the first time the title of Counsellor in Occupational Safety and Health on 15 June 2007. The title was granted to Reino Laitinen from FIOH for his dedicated and successful work for occupational health and safety in Finland. Laitinen has been the head of FIOH Tampere Regional Office for over 30 years and retired in early 2006.

## July

Summer holiday. Our studies show that people are more productive and can handle even large amounts of work they are able to have control over the work and are given time to recover.



Photo by Kristiina Kulha



Photo by Kristiina Kulha

## August

FIOH published a collection of articles entitled 'Työ murroksessa' (Work in Transition), with contributions from a group of specialists in work life. The rapid economic and social development of recent years has made social scientists re-evaluate the pressures for change in work life in Finland and other developed industrial countries.

## September

The final seminar of the Youth and Work Action Programme. According to studies one in ten young people experience problems in attaching themselves to work life, even though many fields are experiencing lack of capable young people. Young people should receive versatile guidance at a sufficiently early point in their careers to ensure a transfer to a healthy and safe work life. Information and advice should be given in comprehensive school, when learning their profession, and at the workplace.

## October

The 54th Occupational Health Convention was arranged on 23 to 24 October at the Helsinki Fair Centre. The themes were Productivity from Health, Superior, and Power from Networks.

The national Safety and Health at Work Award was granted to the municipality of Dragsfjärd for persistent, successful and continuing work in the field of occupational health and safety.

## November

Professor Dominique Lison was granted the Jorma Rantanen Award. Lison is an esteemed toxicologist and researcher from the Catholic University of Louvain in Belgium. Lison has specialized in the development of

biomonitoring and the assessment of health hazards from chemicals.

FIOH published the Diversity Barometer that showed that Finns have a very positive attitude towards diversity. Diversity was considered to increase creativity in organizations and improve productivity.

The Finnish National Forum on Ageing was arranged for the fourth time. The forum promotes dialogue between researchers, financing bodies, policy makers, and other users of information.

## December

International top-level researchers gathered in Helsinki to present their most recent research results and consider the challenges in the management of the health hazards from nanotechnology. The Finnish Institute of Occupational Health organized the EuroNanosh Conference at the Marina Congress Center on 3 to 5 December.

The Ministry of Social Affairs and Health published a report by rapporteurs Huttunen and Mäki-Lohiluoma according to which the distribution of labour between the Ministry and the institutes and offices within its administrative sector must be remodelled. FIOH and the Radiation and Nuclear Safety Authority were found to have well-defined operations and no changes were proposed to their activities. However, the National Research and Development Centre for Welfare and Health and the National Public Health Institute should be merged to form a single Research Centre for Health and Well-Being.

◀◀◀ The title of Counsellor in Occupational Safety and Health was granted to Reino Laitinen (on the right).

◀◀ Sixten Korkman of the Research Institute of the Finnish Economy (on the left) and Juhani Ilmarinen of FIOH at the Forum on Ageing.

◀◀ The municipality of Dragsfjärd received the national Safety and Health at Work Award.

From the left: Klas Nyström, Tage Lehtonen, Tony Wass, and Kati Wänninen.



Photo by Timo Raunio







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