



Issue 44 (March 2016)

SPOTLIGHT

Workplace Safety and Health Report 2015

WORKPLACE SAFETY & HEALTH REPORT 2015
More fatalities but fewer non-fatal injuries at work in 2015

WORKPLACE INJURY RATES & OCCUPATIONAL DISEASE INCIDENCE AT A GLANCE (2011-2015)*

Year	Fatal	Major	Minor	Occupational Disease
2011	3.3	21.1	384	32.1
2012	3.1	21.6	382	35.3
2013	2.7	18.8	364	27.4
2014	1.8	17.4	344	27.5
2015	1.9	17.4	344	27.5

WORKPLACE INJURIES

- 66 workers were fatally injured, an annual rate of 5.9 per 100,000 employed persons
- 11,688 workers sustained non-fatal injuries (a total of 344 per 100,000 employed persons)
- 597 workers sustained workplace occupational diseases, an annual rate of 17.6 per 100,000 employed persons
- 1.5 incidents occurred for every million man-hours worked (a statistic frequently cited)
- 685,379 man-hours worked, a rate of 85 man-hours worked per 100 man-hours worked (a statistic rarely cited)

For the full infographic, click [here](#)

Click [here](#) to access the recently published 2015 National Statistics on Workplace Safety and Health. You can also explore the statistics and trend using the [Data Visualisation](#) tool available on the WSH Institute website.

Visiting Expert Series on Nanomaterial Risks

WHAT'S TRENDING

These Streetlights Kill Mosquitoes, Charge Phones, And Send Disaster Warnings

If the streetlights on your block don't do anything other than brighten dark corners, that will probably soon change. New lights in Copenhagen point out empty parking spaces; streetlights in Glasgow measure air pollution and noise; L.A.'s new lights boost Wi-Fi coverage. And now another new streetlight, designed for Southeast Asia, can kill mosquitoes, charge cell phones, and send out warnings in a flood.

(Source: Fast Co-Exist)

[More...](#)

Relevance: How might we apply the innovation at our worksites to enhance health, safety and well-being of our workers?

The 4D Technology Is Revolutionizing Engineering

Quite often we come across news items concerned with developments in 3D technology. Research units across the world are exploiting the already existing technology to make it more flexible and useful.

(Source: Tech Story)



The half-day session entitled "Addressing Nanomaterial Risks" at the Workplace held on 24 February 2016 at the Devan Nair Institute for Employment and Employability was attended by around 120 participants from WSH service providers, academia, government organizations and industry.

Associate Professor Ng Kee Woei of NTU gave an overview of nanomaterial applications and their potential health and safety risks, and Dr Michael Riediker of IOM Singapore presented key findings from a WSH Institute sponsored research project on "Potential occupational exposures to nanoparticles in Singapore".

More information can be found [here](#).

Solutioning Session on Work-related Traffic Accidents with Vocational Riders



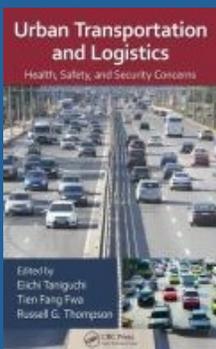
The WSH Institute conducted a focus group discussion with about 40 vocational riders and rider supervisors from 14 organisations on 19 February 2016 at the Devan Nair Institute for Employment and Employability, to find out causes to such accidents and to explore ideas and solutions to reduce them. More information can be found [here](#).

Under such developments, one massive shift in the technology has been introduction of '4D Printing'. The concept of 4D technology was first introduced by a research team Led by Skylar Tibbits, Self-Assembly Lab Director at the Massachusetts Institute of Technology, and the firms Stratasy and Autodesk Inc.

[More...](#)

Relevance: 4D assembly techniques allowed physical parts to change in response to changes in the environment. Can future workplaces be made safer through the application of this ability?

RECOMMENDED READING FROM THE WSH INSTITUTE COLLECTION*



TITLE:
Urban Transportation and Logistics: Health, Safety, and Security Concerns

AUTHOR:
Eiichi Taniguchi, Tien Fang Fwa, Russell G. Thompson

AREA OF INTEREST:
Urban transportation -- Planning
Urban transportation -- Safety measures
Freight and freightage -- Planning



Please use your QR code scanner to access the recommended reading titles on [Traffic Safety](#)

OWL HIGHLIGHTS

1 Safety motivation and work pressure as predictors of occupational accidents in the petrochemical industry

Date of publication: November 2015

Source: Health Scope

This study investigates the relationship between safety motivation and work pressure with occupational accident rate. Using a sample comprising 300 line employees in a petrochemical company in Iran, a questionnaire was administered to measure the score on a safety motivation scale, perceived work pressure scale, and incident reporting rate.

The results found that safety motivation has a significant negative correlation with occupational accident rate and work pressure has a significant positive correlation with occupational accident rate. These findings suggest that safety motivation reinforces employees' safety behaviours and promotes adherence to safety procedures. Meanwhile, work pressure is likely to be a causal factor of both accident rates and unsafe work behaviours. Work pressure is also likely to increase psychological stress amongst workers, which increases the chances of occupational accidents to happen.

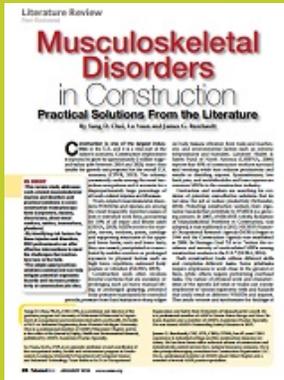
The paper also suggests that organisations can effectively lower occupational accident rates by identifying critical antecedents and investigating why people are motivated to work safely, and some of the recommended measures to reduce workplace injury and accident rates are listed below:

- (i) Managers need to focus on changing the organisation environment through motivating people to effectively participate in safety activities instead of simply penalising injured workers
- (ii) A reward system for employees can be introduced to recognise those who have adhered to all safety guidelines and have had no incidents during a specific time period
- (iii) Workers must be able to understand the aims and objectives of the motivation programme and how their performance will be evaluated
- (iv) Employers need to reduce work pressure in high-risk jobs



To read more, click [here](#)

2 Musculoskeletal disorders in construction: Practical solutions from the literature



Date of publication: January 2016
Source: Professional Safety

This study examines work-related musculoskeletal injuries and disorders (WMSDs) and discusses their practical solutions for seven construction-related occupations through a systematic review of the literature. Due to the nature of physical work and characteristics of the specific job sites or trades, employees can be exposed to various ergonomic risks and hazards that could result in different WMSDs and injuries. For example, the major WMSD risk factors for carpenters include static and/or awkward postures for extended periods, heavy manual material handling, excessive and repetitive motions of tool usage, and extreme weather conditions, and these may differ from the other occupations listed as each construction trade utilises different skills and completes different tasks. By identifying risk factors for injuries and disorders, OSH professionals would be able to offer effective interventions to meet the challenges these workers face in the field. To mitigate these WMSDs and injuries, this article recommends the following strategies:

- (i) Site-specific ergonomics programmes – Involves matching tasks, tools and the environment to workers’ needs to achieve a healthy, productive workplace, ranging from training, simple tool modification, to elaborate material handling (lifting) devices or automation
- (ii) Work process improvement – Involves changing the way work is performed to reduce labour intensity and time to complete the tasks, such as replacing manual material handling with using material handling tools such as mechanical, hydraulic or vacuum lifts
- (iii) Engineering controls – Eliminating the risk factors present in specific construction tasks, such as modifying the size or design of materials
- (iv) Tool selection/use – Using ergonomically designed hand or portable power tools, such as auto-feed screw gun with an extension
- (v) Stretch and flex exercise programmes – Implementing site exercise programmes such as morning warm-up stretching exercise

To read more, click [here](#)

3 If the shoe fits

Date of publication: January 2016
Source: Occupational Safety & Health

In the United States, more than 89,000 non-fatal occupational injuries and illnesses reported in 2013 were due to injured ankles or feet. The 2 major categories of work-related foot injuries in industrial settings are:

- (i) Injuries from impact, compression and punctures, and
- (ii) Injuries from slips, trips, and falls caused by footwear



If the Shoe Fits
Footwear certified as meeting ASTM F2413-11 standards meet the requirements of impact resistance and compression resistance. Then the requirements of additional sections can be met.

By Kelly J. Tamm | Jan 01, 2016

We tend not to think about our feet unless pain is involved, and when that's the case, our feet are all that we can think about. In the workplace this is especially bothersome because pain and productivity are not the best of friends.

There are two major categories of work-related foot injuries in industrial settings. The first category includes foot injuries from impact, compression, and punctures. The second group of injuries includes those resulting from slips, trips, and falls, where footwear may have played a role.

Foot injuries and complications are just as likely in an office setting as they are in an industrial setting, but the problems present themselves in different ways. The following issues aren't necessarily injuries, but rather ailments that can be caused by workplace conditions—wearing feet aches, foot, toilers, calluses, corns, rheumatism, arthritis, fallen arches, bunions, and sprains. These foot issues can result from standing for long periods of time, especially on hard concrete flooring, or by poorly fitting footwear.

This article focuses on the importance of the fit, form, and function of protective footwear.

Statistics

According to the Bureau of Labor Statistics (BLS), of the 917,000 private industry nonfatal occupational injuries and illnesses involving days away from work during 2013, 22 percent (202,200 cases) involved injuries to the lower extremities. More than 58,000 (43 percent) of these cases involved injuries to the ankle or foot.

Ailments such as aching feet, athlete's foot, blisters, calluses, corns, and sprains can also occur due to workplace conditions, standing for long periods of time and poorly fitted footwear. This article highlights the importance of "the fit, form, and function of protective footwear". Employees, who are exposed to hazards such as electrical hazards, falling or rolling objects, or objects piercing the sole, are required to use protective footwear.

The appropriate protective footwear must be chosen based on the hazards that are present. For example, to prevent slips, trips and falls, appropriate slip-resistant footwear or work boots with high-traction sole should be considered. In the presence of electrical hazards, employees should use electrical hazard resistant footwear.

Additionally, properly selected and fitted footwear can increase protection and comfort for employees, plus improve productivity. The article further provides tips on what to keep in mind when choosing footwear, as well as pointers in replacing them.

To read more, click [here](#)

4 Changes in working conditions and physical functioning among midlife and ageing employees

Date of publication: January 2015
Source: Scandinavian Journal of Work Environment & Health

Limited physical functioning such as difficulties in mobility are early signs of declining health and may result in early unemployment. It also affects the individual's independence and quality of life. With the workforce ageing rapidly in post-industrial societies, it is important to understand the factors that contribute to physical functioning among ageing employees.

This study seeks to examine the "effects of changes in physical and psychosocial working conditions on physical health functioning among midlife and ageing employees during a follow-up of 10-12 years". It analyses survey data collected from 2,784 participants in Finland. The results indicate that repeated and increased exposure to adverse physical working conditions has a negative impact on physical health functioning over time. While changes in job demands have no effects on physical health functioning, decreased job control was associated with a greater decline in physical health functioning. These findings suggest that physically and psychosocially demanding working conditions have detrimental effects on physical health functioning among midlife and ageing employees.

Furthermore, it was found that adjustments made for factors like obesity, chronic conditions, smoking, etc, did not alter this conclusion, indicating that physical functioning is not totally dependent on health related factors or health behaviours. Hence, employers should look into preventing deterioration and improving working conditions to help maintain better health functioning among ageing employees.

To read more, click [here](#)



Other Useful Resources

- Prevent combustible dust explosions with N₂ inerting (*Chemical Engineering*)
- Case series of keratitis in poultry abattoir workers induced by exposure to the ultraviolet disinfection lamp (*Annals of Occupational and Environmental Medicine*)
- Occupational lead exposure and associations with selected cancers: The Shanghai Men's and Women's Health Study cohorts (*Environmental Health Perspectives*)
- Workplace exposure to diesel and gasoline engine exhausts and the risk of colorectal cancer in Canadian men (*BioMed Central*)

OWLlinks is brought to you by Workplace Safety and Health Institute, Singapore. OWLlinks enables leaders and professionals to keep abreast of the latest WSH development and trends from around the world.

For enquiries or feedback, please email us at contact@wshi.gov.sg
Visit the *WSH Institute website* for updates on WSH-related matters, information and events.

Vision: A leading Institute for WSH knowledge and innovations.
Mission: Enhancing WSH through knowledge, innovations and solutions.

The information provided here is based on information available at the time when this issue of *OWLlinks* was compiled. The information provided here is not to be construed as implying any liability to any party nor should it be taken to encapsulate all the responsibilities and obligations of the reader of *OWLlinks* under the law. Please note that Workplace Safety and Health Institute will be unable to provide full-text of articles listed in this *OWLlinks* if it contravenes the copyright regulation.

If you wish to update your *OWLlinks* profile, please click [here](#).

If you do not wish to continue receiving the *OWLlinks* by email, please click [here](#) to unsubscribe.

An Initiative of



The Observatory for WSH Landscape (OWL) is a function of Workplace Safety and Health Institute. OWL aims to observe, analyse and communicate changes in the workforce, workplace and working life to researchers, policy makers and industries in Singapore and Asia.