

July 2021
Issue 118

Army Industrial Hygiene News and Regulatory Summary

Hazardous Substances

Construction Workers At Higher Risk of COPD, Study Shows

Special Interest Articles:

- [Earplug Attenuation](#)
- [Superbug Fungus](#)
- [Work Shift Duration](#)
- [Overuse Injuries](#)
- [Mask Comfort](#)

Workers in construction trades are at “significantly” higher risk for chronic obstructive pulmonary disease than non-construction workers, according to the results of a recent study.

A team of researchers from CPWR – The Center for Construction Research and Training, Duke University and the University of Maryland studied nearly 18,000 participants in the Building Trades Medical Screening Program, or BTMed, to determine the risk of COPD among different trades. The study involved a larger cohort than a 2010 study of construction workers at U.S. Department of Energy nuclear facilities who participated in the BTMed. Those workers were found to have increased COPD risk, according to CPWR.

Read more:

[https://www.safetyandhealthmagazine.co](https://www.safetyandhealthmagazine.com/articles/21436-construction-workers-at-higher-risk-of-copd-study-shows)



[m/articles/21436-construction-workers-at-higher-risk-of-copd-study-shows](https://www.safetyandhealthmagazine.com/articles/21436-construction-workers-at-higher-risk-of-copd-study-shows)

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EPA Retools Chemical Risk Evaluation Process



Responding to recent Executive Orders and directives from the Biden administration, the Environmental Protection Agency has announced changes to chemical risk evaluation policies under the Frank R. Lautenberg Chemical Safety for the 21st Century Act to “position EPA to move forward with actions to ensure the public is protected from unreasonable risks from chemicals in a way that is supported by science and the law.”

According to a June 30 press release, actions will include:

- Using a “whole substance” approach when determining unreasonable risk
 - Expanding consideration of exposure pathways
 - Establishing a “fenceline community exposure screening level” approach
- The release notes that under the Trump administration, EPA “made separate unreasonable risk determinations for every condition of use of a chemical.” Now, under the Biden administration, EPA intends to continue to evaluate each condition of use before making a singular determination of unreasonable risk “for the whole chemical when it is clear the majority of the conditions of use warrant one determination.”

Read more: [EPA retools chemical risk evaluation process | 2021-07-12 | Safety+Health Magazine \(safetyandhealthmagazine.com\)](#)

Common Household Products Should Carry Asthma Warnings, Research Concludes

Commonly-used household products should carry a warning that they increase the risk of asthma, according to a new evidence review.

New research conducted by Smartline, a research project funded by the European Regional Development Fund, finds evidence that a group of chemicals found in a wide range of products in people's homes increases the risk of asthma. Authors conclude that labeling should reflect this risk, and warn people to ventilate their homes while using them.



Read more:

<https://medicalxpress.com/news/2021-07-common-household-products-asthma.html>

8 New Hazardous Substances Added to the SVHC Candidate List



On 8th July 2021, the European Chemicals Agency (ECHA) added 8x Hazardous Chemicals to the Candidate List of Substances of Very High Concern (SVHC) bringing to total to 219 substances:

- 2-(4-tert-butylbenzyl)propionaldehyde and its individual stereoisomers
- Orthoboric acid, sodium salt
- 2,2-bis(bromomethyl)propane-1,3-diol (BMP); 2,2-dimethylpropan-1-ol, tribromo derivative/3-bromo-2,2-bis(bromomethyl)-1-propanol (TBNPA); 2,3-dibromo-1-propanol (2,3-DBPA)
- Glutaral
- Medium-chain chlorinated paraffins (MCCP) UVCB substances consisting of more than or equal to 80% linear chloroalkanes with carbon chain lengths within the range from C14 to C17
- Phenol, alkylation products (mainly in para position) with C12-rich branched alkyl chains from oligomerisation, covering any individual isomers and/ or combinations thereof (PDDP)
- 1,4-dioxane

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Read more:

<https://www.blcleathertech.com/news/8->

[new-hazardous-substances-added-to-the-svhc-candidate-list\)](#)

Study Finds Higher Levels of Potentially Harmful Chemicals in Volunteer Firefighters

A recent study of volunteer firefighters shows that their bodies have higher levels of “forever chemicals” than those of people in the general public, and the amount of these potentially harmful substances likely rises with time and exposures.

Researchers from Rutgers University measured the levels of nine per- and polyfluoroalkyl substances, or PFAS, in the blood of 135 volunteer firefighters and compared them with the levels found in members of the general public. Findings show that higher amounts of the chemicals are present in the volunteer firefighters. One substance, perfluorododecanoic acid, was discovered in 80% of the firefighters

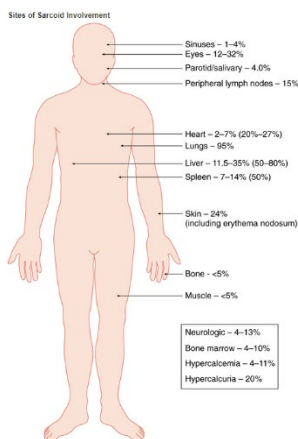


but scarcely seen in the members of the public.

Read more:

<https://www.safetyandhealthmagazine.com/articles/21523-study-finds-higher-levels-of-potentially-harmful-chemicals-in-volunteer-firefighters>

Research Review Strengthens Link between Sarcoidosis, Workplace Exposures



Findings over the past decade – including the results of case studies in the past two to three years – have strengthened the link between the lung disease sarcoidosis and

on-the-job exposures to, most notably, silica and silicates, dust from the World Trade Center, and metals, according to a recent research review.

Conducted by a pair of Canadian researchers, the review of epidemiologic studies includes a Swedish study of nearly 11,000 workers that showed respirable crystalline silica exposure among concrete workers, miners, casters, masons, and

ceramic and glass manufacturers led to an increased risk of sarcoidosis, described by the National Institutes of Health as “an inflammatory disease characterized by the development and growth of tiny lumps of cells called granulomas,” which, if they clump together in an organ, “can lead to permanent scarring or thickening of the organ tissue.”

Read more:

<https://www.safetyandhealthmagazine.com/articles/21485-research-review-strengthens-link-between-sarcoidosis-workplace-exposures>

3D Printing Process Emissions May Cause ‘Strong Irritation’: Study

Emissions from stereolithography 3D printing could “present a strong irritation response among those exposed” and be hazardous to human health, according to a recent study.

Researchers from Chemical Insights, an institute of Underwriters Laboratories Inc., measured emissions from an enclosed 3D printer that uses SLA printing technology, shining ultraviolet light on a vat of photopolymer resin and hardening the resin to create objects.

SLA differs from another printing technology previously studied by the organization – fused filament fabrication – and is becoming increasingly common as the popularity of 3D printing remains on the rise, Marilyn Black, the study’s lead researcher as well as officer and



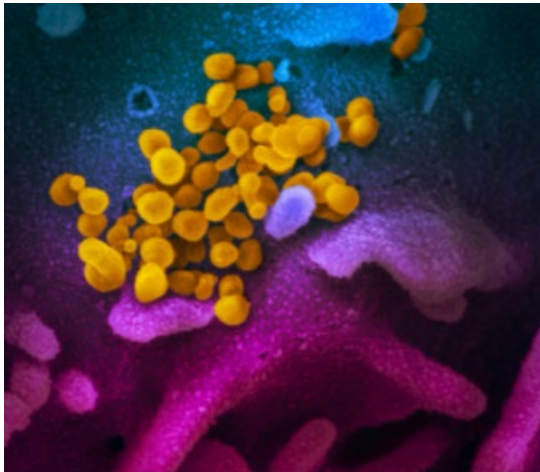
technical advisor at Chemical Insights, told Safety+Health.

Read more:

<https://www.safetyandhealthmagazine.com/articles/21537-d-printing-process-emissions-may-cause-strong-irritation-study>

Radiation

Shielding of Viruses Such As SARS-Cov-2 from Ultraviolet Radiation in Particles Generated By Sneezing or Coughing: Numerical Simulations of Survival Fractions



SARS-CoV-2 and other microbes within aerosol particles can be partially shielded from UV radiation. The particles refract and absorb light, and thereby reduce the UV intensity at various locations within the particle. Previously, we demonstrated shielding in calculations of UV intensities within spherical approximations of SARS-CoV-2 virions within spherical particles approximating dried-to-equilibrium respiratory fluids. The purpose of this paper is to extend that work to survival fractions of virions (i.e., fractions of virions that can infect cells) within spherical particles approximating dried respiratory fluids, and to investigate the implications of these calculations for using UV light for disinfection. The particles may be on a surface or in air. Here, the survival fraction

(S) of a set of individual virions illuminated with a UV fluence (F , in J/m^2) is assumed described by $S(kF) = \exp(-kF)$, where k is the UV inactivation rate constant (m^2/J). The average survival fraction (S_p) of the simulated virions in a group of particles is calculated using the energy absorbed by each virion in the particles. The results show that virions within particles of dried respiratory fluids can have larger S_p than do individual virions. For individual virions, and virions within 1-, 5-, and 9- μm particles illuminated (normal incidence) on a surface with 260-nm UV light, the $S_p = 0.00005$, 0.0155, 0.22, and 0.28, respectively, when $kF = 10$. The S_p decrease to $<10^{-7}$, $<10^{-7}$, 0.077, and 0.15, respectively, for $kF = 100$. Results also show that illuminating particles with UV beams from widely separated directions can strongly reduce the S_p . These results suggest that the size distributions and optical properties of the dried particles of virion-containing respiratory fluids are likely important to effectively designing and using UV germicidal irradiation systems for microbes in particles. The results suggest the use of reflective surfaces to increase the angles of illumination and decrease the S_p . The results suggest the need for measurements of the S_p of SARS-CoV-2 in particles having compositions and sizes

relevant to the modes of disease transmission.

21 Jul 2021(Available with AIHA membership)

Read more: *Journal of Occupational and Environmental Hygiene*, Published online:

Scientists Create UV-Enabled Flexible Wearable Technology

To enable the development of wearable devices that possess advanced ultraviolet (UV) detection functions, scientists from NTU Singapore have created a new type of light sensor that is both flexible and highly sensitive. While invisible to the human eye, UV rays surround us in our environment, and excessive exposure can cause health issues including skin cancer and premature skin aging. The intensity of UV rays is typically reported through an index during weather reports. A wearable device, such as a T-shirt or watch that monitors the actual personal UV exposure throughout the day, would be a useful and more accurate guide for people seeking to avoid sun damage.



Read more: <https://phys.org/news/2021-07-scientists-uv-enabled-flexible-wearable-technology.html>

Ventilation

Office Building Emissions Soar as Owners Crank Up Ventilation Systems

In the name of safety, office landlords are cranking their ventilation systems to keep Covid at bay. An unintended but predictable consequence, however, is a rise in carbon emissions from office buildings.

A new report from Hatch Data analyzed carbon emissions from commercial buildings across the country. The software company predicts commercial buildings will use around 44 billion kilowatt hours of additional energy per year when pre-Covid



occupancy returns, according to the Commercial Observer.

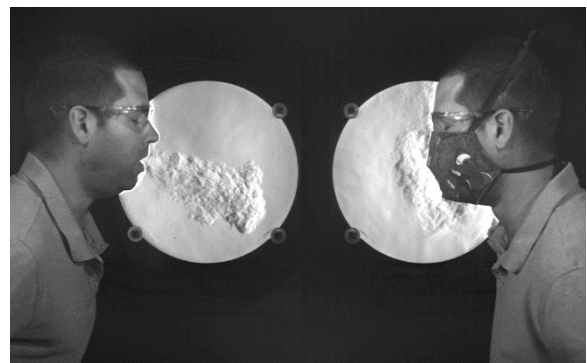
Read more:

<https://therealdeal.com/2021/08/16/office-building-emissions-soar-as-owners-crank-up-ventilation-systems/>

PPE

Efficacy of Universal Masking for Source Control and Personal Protection from Simulated Cough and Exhaled Aerosols in a Room

Face masks reduce the expulsion of respiratory aerosols produced during coughs and exhalations (“source control”). Factors such as the directions in which people are facing (orientation) and separation distance also affect aerosol dispersion. However, it is not clear how the combined effects of masking, orientation, and distance affect the exposure of individuals to respiratory aerosols in indoor spaces. We placed a respiratory aerosol simulator (“source”) and a breathing simulator (“recipient”) in a 3 m × 3 m chamber and measured aerosol concentrations for different combinations of masking, orientation, and separation distance. When the simulators were front-to-front during coughing, masks reduced the 15-min mean aerosol concentration at the recipient by 92% at 0.9 and 1.8 m separation. When the simulators were side-by-side, masks reduced the concentration by 81% at 0.9 m and 78% at 1.8 m. During breathing, masks reduced the aerosol



concentration by 66% when front-to-front and 76% when side-by-side at 0.9 m. Similar results were seen at 1.8 m. When the simulators were unmasked, changing the orientations from front-to-front to side-by-side reduced the cough aerosol concentration by 59% at 0.9 m and 60% at 1.8 m. When both simulators were masked, changing the orientations did not significantly change the concentration at either distance during coughing or breathing. Increasing the distance between the simulators from 0.9 m to 1.8 m during coughing reduced the aerosol

concentration by 25% when no masks were worn but had little effect when both simulators were masked. During breathing, when neither simulator was masked, increasing the separation reduced the concentration by 13%, which approached significance, while the change was not significant when both source and recipient

were masked. Our results show that universal masking reduces exposure to respiratory aerosol

Read more: Journal of Occupational and Environmental Hygiene, Published online: 21 Jul 2021 (Available with AIHA membership)

Noise

Verifying Earplug Attenuation and Evaluating the Effectiveness of One-On-One Training Along With Earplug Fit Testing At Nine Facilities in China



Background

The purpose of this study was twofold: (1) to measure the personal attenuation ratings (PARs) in Chinese workers wearing hearing protection devices (HPDs), to evaluate the effectiveness of the single number rating

(SNR), the noise reduction rating (NRR), and the associated derated values of earplugs; and (2) to evaluate the effectiveness of one-on-one training along with earplug fit testing on PAR improvement.

Methods

Noise exposure measurements, one-on-one training, and fit tests to measure earplug attenuation were conducted at nine manufacturing facilities located in eastern China from 2016 to 2017. 503 workers participated in the study. Ninety-three percent were male. 199 workers were provided one-on-one training.

Read more:

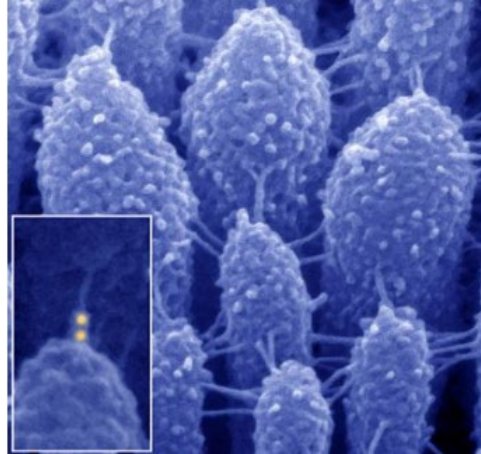
<https://onlinelibrary.wiley.com/doi/10.1002/ajim.23270>

Scientists Explore the Latent Regenerative Potential of the Inner Ear

Scientists from the USC Stem Cell laboratory of Neil Segil have identified a natural barrier to the regeneration of the inner ear's sensory cells, which are lost in hearing and balance disorders. Overcoming this barrier may be a first step in returning inner ear cells to a newborn-like state that's primed for regeneration, as described in a new study published in *Developmental Cell*.

Read more:

<https://medicalxpress.com/news/2021-07-scientists-explore-latent-regenerative-potential.html>



Preventive Medicine

Dog, Cat Owners with COVID-19 Often Pass It to Pets



Two new unpublished studies suggest that people who have COVID-19 often spread it to their dogs and cats—particularly if they share a bed with their cats—although the pets usually have no or mild symptoms but in a few cases might have severe disease.

The studies will be presented at the virtual European Congress of Clinical Microbiology & Infectious Diseases (ECCMID) from Jul 9 to 12.

Read more:

<https://www.cidrap.umn.edu/news-perspective/2021/07/dog-cat-owners-covid-19-often-pass-it-pets>

'Superbug' Fungus Spread in Two Cities, Health Officials Say

U.S. health officials said Thursday they now have evidence of an untreatable fungus spreading in two hospitals and a nursing home.

The "superbug" outbreaks were reported in a Washington, D.C, nursing home and at two Dallas-area hospitals, the Centers for Disease Control and Prevention reported. A handful of the patients had invasive fungal infections that were impervious to all three major classes of medications.



Read more:

<https://medicalxpress.com/news/2021-07-superbug-fungus-cities-health.html>

Face Masks Can Diagnose COVID-19 on Patients



Technology using clustered regularly interspaced short palindromic repeats (CRISPR) led to the invention of disposable sensors that can detect the presence of SARS-CoV-2 on a patient's breath, according to a study in Nature Biotechnology.

Investigators with the Massachusetts Institute of Technology (MIT) and Harvard University report that they relied on "lightweight, flexible substrates and textiles functionalized with freeze-dried, cell-free synthetic circuits, including CRISPR-based tools, that detect metabolites, chemicals and pathogen nucleic acid signatures."

Investigators used as a foundation for their invention previous research they'd conducted that resulted in the creation of paper-based diagnostics for viruses like Ebola and Zika based on freeze-dried cellular machinery.

Read more:

<https://www.infectioncontroltoday.com/vie>

[w/face-masks-can-diagnose-covid-19-says-study](#)

Study Ties Superbug Prevalence in the ED to Ambulance Rides

A study by Duke University scientists today reveals that patients arriving at their emergency department (ED) via ambulance were almost four times more likely to have methicillin-resistant *Staphylococcus aureus* (MRSA) or vancomycin-resistant *Enterococcus* (VRE) colonization or infection than those who didn't arrive by ambulance, though numbers of both were small. The single-center retrospective cohort study, published in *Infection Control & Hospital Epidemiology*, involved 11,324 patients from 2016 to 2019. About one third (3,903) were in the ambulance group, with the remainder in the unexposed group. Among them, 9 patients (0.08%) tested positive for MRSA and 3 (0.03%) for VRE. The 30-day prevalence of MRSA or VRE was larger in the ambulance group than in the unexposed group: 8 (0.20%) and 4 (0.05%), respectively. Patients who arrived at the ED



via ambulance were almost four times more likely to have MRSA or VRE within 30 days of their encounter (relative risk, 3.72; 95% confidence interval, 1.09 to 12.71; $P = .04$).

Read more:

<https://www.cidrap.umn.edu/news-perspective/2021/07/stewardship-resistance-scan-jul-21-2021>

(scroll down to the 2nd heading)

Yoga Can Help Reduce Work-Related Stress: Study



Yoga and other physical relaxation methods can help lower work-related stress levels, according to a recent research review.

During a meta-analysis, researchers examined 15 randomized clinical trials that involved nearly 700 health care workers. The trials evaluated the effects of massage therapy, progressive muscle relaxation, stretching and yoga on reducing stress and enhancing physical and mental health.

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The researchers found that yoga was the most effective of the methods compared with no intervention, followed by massage therapy.

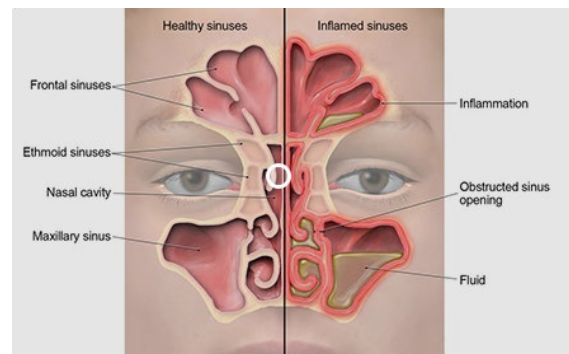
Read more:

<https://www.safetyandhealthmagazine.com/articles/21488-yoga-can-help-reduce-work-related-stress-study>

Environmental Health

Researchers Show How Air Pollution May Cause Chronic Sinusitis

Chronic rhinosinusitis (CRS) is a 12-week or longer condition during which the sinuses get infected or irritated, become swollen, are severely congested and secrete mucus into the throat. CRS also can cause facial pain, pressure and loss of smell, and in some cases, it may be associated with depression, anxiety, impaired sleep and low quality of life. Although the factors leading to CRS are unknown, Johns Hopkins Medicine researchers have provided what may be the first evidence that long-term exposure to tiny particulate air pollution is one of them.



Read more:

<https://medicalxpress.com/news/2021-07-air-pollution-chronic-sinusitis.html>

Study Quantifies the Mortality Cost of Carbon Emissions



A just-published study coins a new metric: the "mortality cost of carbon." That is, how many future lives will be lost--or saved--depending on whether we increase or decrease our current carbon emissions. If the numbers hold up, they are quite high. The study was published today in the journal Nature Communications.

Study author R. Daniel Bressler, a PhD. candidate at Columbia University's Earth

Institute and the university's School of Public and International Affairs, saw a major gap in current estimates of the social cost of carbon--the dollar figure that economists attach to each ton of emissions, based on future damages it is expected to inflict. A complex and highly malleable number, the social cost of carbon underpins how governments worldwide formulate climate policies, by suggesting how much we should be willing to pay today in order to avert damages in the future. Yet, while recent

studies project that climate change will cause millions of premature deaths, current estimates of the social cost of carbon rely on outdated research that does not include those projections. Bressler attempts to add in the new data.

Read more: <https://www.news-medical.net/news/20210729/Study-quantifies-the-mortality-cost-of-carbon-emissions.aspx>

Pathogenic Fungi Find New Habitat on Microplastic Particles in Soils

Representatives of numerous pathogenic fungal species are finding new habitat on microplastic particles in the soil and could thus be one of the possible causes of an increase in fungal infections. Researchers from Bayreuth, Hannover and Munich demonstrated this in a new study. Using high-throughput methods, the scientists analyzed fungal communities from soil samples taken from sites near human settlements in western Kenya. The findings of this research have been published in the journal Scientific Reports.

This study is the first to focus on fungal communities on microplastic particles in the soil. Many of the species detected belong to groups of fungi that are pathogenic to plants, animals and humans. Pathogenic microfungi are able to colonize the otherwise inhospitable surfaces of microplastic particles due to their



characteristic adhesive lifestyle. Furthermore, they are able to withstand strong solar radiation and heat to which they are exposed on soil surfaces.

Read more: <https://www.news-medical.net/news/20210719/Pathogenic-fungi-find-new-habitat-on-microplastic-particles-in-soils.aspx>

Cooking With Coal or Wood Associated With Increased Risk of Major Eye Diseases



A study involving nearly half a million people in China reveals a clear link between cooking with wood or coal, and an increased risk of major eye diseases that can lead to blindness, according to a report published today in *PLOS Medicine*.

Read more:

<https://medicalxpress.com/news/2021-07-cooking-coal-wood-major-eye.html>

Coal Mining Waste Material More than 90 Percent Effective at Removing Heavy Metal

A low-value byproduct of the coal mining process is proving highly effective at helping reclaim the land and water used in mining, University of Alberta research shows. Nano humus, a substance extracted from coal mine deposits and then crushed to a black, powdery material, has "outstanding physical and chemical properties" that remove heavy metals from contaminated water and soil, said researcher Yihan Zhao.



Read more: <https://phys.org/news/2021-07-coal-material-percent-effective-heavy.html>

Using Silicone Wristbands to Measure Air Quality

A study by researchers at the Texas A&M University School of Public Health shows that inexpensive and convenient devices such as silicone wristbands can be used to yield quantitative air quality data, which is particularly appealing for periods of susceptibility such as pregnancy.

The research team found that the wristbands, when used as passive samplers, have the ability to bind smaller molecular weight semi-volatile polycyclic aromatic hydrocarbons (PAHs)—a class of chemicals that occur naturally in coal, crude oil and gasoline and are produced when coal, oil, gas, wood, garbage and tobacco are



burned—in a similar pattern as active sampling.

Read more:

<https://medicalxpress.com/news/2021-07-silicone-wristbands-air-quality.html>

Ergonomics

Upper Extremity Musculoskeletal Disorders and Work Exposures among Railroad Maintenance-of-Way Workers



Background

Our objective was to examine occupational risk factors for musculoskeletal disorders of the shoulders, elbows, wrists, and hands

among railroad maintenance-of-way (MOW) workers. Little systematic research on musculoskeletal disorders has been conducted in this occupational group.

Methods

In total, 3995 active members of the Brotherhood of Maintenance of Way Employees Division (BMWED) completed a standardized survey focusing on disorders caused by hand-transmitted vibration. We computed adjusted prevalence ratios (aPRs) using Poisson regression for shoulder, elbow, carpal tunnel syndrome, and vibration white finger musculoskeletal

symptoms by work exposures, adjusted for age, region, race/ethnicity, smoking, potential second job, and spare time vehicle vibration exposure, and other work exposures.

Read more:

<https://onlinelibrary.wiley.com/doi/10.1002/ajim.23259>

Safety

Researchers Publish Guiding Principles for Work Shift Duration

The American Academy of Sleep Medicine (AASM) and Sleep Research Society (SRS) have published evidence-based guiding principles to help employers determine optimal work shift durations for their workplaces. With a process that assesses risks, considers countermeasures, and institutes an informed approach to determine and evaluate shift durations, employers can make shift duration decisions that manage fatigue-related risks while also maintaining high productivity and safety.



Read more:

<https://medicalxpress.com/news/2021-07-publish-principles-shift-duration.html>

Workplace Improvements to Support Safe and Sustained Return to Work: Suggestions from a Survey of Workers with Permanent Impairments



Background

Roughly 10% of occupational injuries result in permanent impairment. After initial return to work (RTW), many workers with permanent impairments face RTW interruption due to reinjury, unstable health, disability, and layoff. This study used open-ended survey data to: (1) explore workplace factors identified by workers as important levers for change, some of which may previously have been unrecognized;

and (2) summarize workers' suggestions for workplace improvements to promote sustained RTW and prevent reinjury.

Methods

This study included data from workers' compensation claims and telephone surveys of 582 Washington State workers who had RTW after a work-related injury involving permanent impairment. The survey was conducted in 2019, about a year after claim closure. We used qualitative content analysis methods to inductively code open-ended survey responses.

Read more:

<https://onlinelibrary.wiley.com/doi/10.1002/ajim.23274>

Study Links Junk-Food Diet to Tired Truckers, Dangerous Driving Behaviors

A regular diet of junk food may play a role in unsafe driving actions among commercial motor vehicle drivers by contributing to fatigue – a key factor in roadway collisions, results of a recent study out of China indicate.

Researchers used a sample of 389 male truck drivers from a transport company in Suzhou, China. The participants completed



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a food frequency questionnaire, another on fatigue, and questionnaires on driving behaviors and attitudes.

The researchers identified four patterns of diets: vegetable-rich, staple foods (carbohydrates, unrefined grains, dairy products and eggs), animal-derived (fish

and poultry) and snacks (desserts, fried foods and sugary drinks).

Read more:

<https://www.safetyandhealthmagazine.com/articles/21498-study-links-junk-food-diet-to-tired-truckers-dangerous-driving-behaviors>

Exoskeletons Have a Problem: They Can Strain the Brain



Exoskeletons—wearable devices used by workers on assembly lines or in warehouses to alleviate stress on their lower backs—may compete with valuable resources in the brain while people work, canceling out the

physical benefits of wearing them, a new study suggests.

The study, published recently in the journal Applied Ergonomics, found that when people wore exoskeletons while performing tasks that required them to think about their actions, their brains worked overtime and their bodies competed with the exoskeletons rather than working in harmony with them. The study indicates that exoskeletons may place enough burden on the brain that potential benefits to the body are negated.

Read more:

<https://medicalxpress.com/news/2021-07-exoskeletons-problem-strain-brain.html>

Study Finds Lifting Advice Doesn't Stand Up For Everyone

Commonly accepted advice to keep a straight back and squat while lifting in order to avoid back pain has been challenged by new Curtin University research.

The research examined people who had regularly performed manual lifting through their occupation for more than five years and found those who experienced low back pain as a result were more likely to use the



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recommended technique of squatting and keeping a straight back, while those without back pain tended not to adhere to the recommended lifting advice.

Lead researcher Ph.D. candidate Nic Saraceni from the Curtin School of Allied Health said the study required participants

to each perform 100 lifts using two differently weighted boxes, with researchers observing and measuring their action.

Read more:

<https://medicalxpress.com/news/2021-07-advice-doesnt.html>

Study Challenges Overheating Risk for Pregnant Women Exercising in the Heat



Pregnant women are at no greater risk of dangerous 'overheating' when exercising in hot weather compared to non-pregnant women, according to a world-first Australian study.

The findings question recommendations discouraging exercise in hot weather due to the potential risk to the unborn child associated with 'overheating' or maternal hyperthermia, defined as a rise in core body temperature above 39 degrees Celsius or 102 degrees Fahrenheit.

The research is led by the University of Sydney's Thermal Ergonomics Laboratory and was recently published in Sports Medicine.

Read more:

<https://medicalxpress.com/news/2021-07-overheating-pregnant-women.html>

Emergency Preparedness

GAO Gives 15 New Pointers on Pandemic Recovery, Readiness

In its seventh report about the Coronavirus Aid, Relief, and Economic Security Act (CARES), the US Government Accountability Office (GAO) yesterday made 15

recommendations around topics such as program integrity and preparedness for future public health emergencies.

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"GAO's recommendations, if effectively implemented, can help improve the government's ongoing response and recovery efforts as well as help it to prepare for future public health emergencies," the authors write.

Read more:

<https://www.cidrap.umn.edu/news-perspective/2021/07/gao-gives-15-new-pointers-pandemic-recovery-readiness>



Deployment Health

Want to Avoid Running Overuse Injuries? Don't Lean Forward So Much



The ubiquitous overuse injuries that nag runners may stem from an unlikely culprit: how far you lean forward.

Trunk flexion, the angle at which a runner bends forward from the hip, can range wildly—runners have self-reported angles of approximately -2 degrees to upward of 25. A new study from the University of Colorado Denver (CU Denver) found that greater trunk flexion has significant impact on stride length, joint movements, and ground reaction forces. How you lean may be one of the contributors to your knee pain, medial tibial stress syndrome, or back pain.

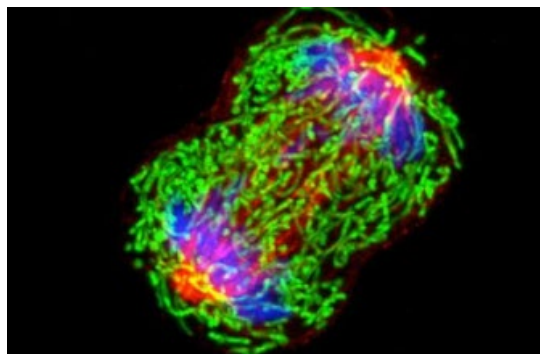
Read more:

<https://medicalxpress.com/news/2021-07-overuse-injuries-dont.html>

Nanotechnology

The Shape of Nanoparticles in Body Fluids May Help Identify the Type of Cancer

A recent study by scientists from Japanese universities has shown that the shape of cell-derived nanoparticles, known as "extracellular vesicles" (EVs), in body fluids could be a biomarker for identifying types of cancer. In the study, the scientists successfully measured the shape distributions of EVs derived from liver, breast, and colorectal cancer cells, showing that the shape distributions differ from one another.



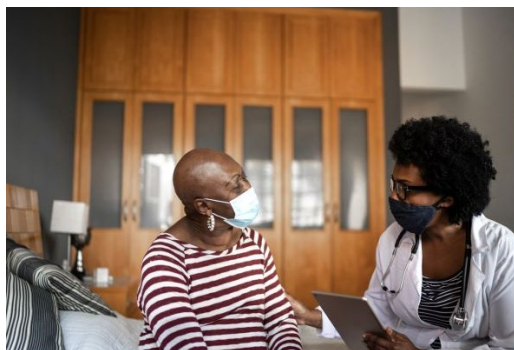
Read more:

<https://www.nanowerk.com/nanotechnology-news2/newsid=58403.php>

Regulatory Research & Industrial Hygiene Professional News

Executive Order

New Federal Guidance Classifies Long-Term COVID-19 Effects as Potential Disabilities



July 26 was the 31st anniversary of the enactment of the Americans with Disabilities Act. In an announcement associated with that anniversary, President Joe Biden's administration indicated that long-term symptoms associated with COVID-19 infections can be considered disabilities under a range of federal laws, including the employment provisions of the

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ADA. These long-term symptoms can include respiratory issues, cognitive difficulties, fatigue, and chronic pain.

Read more:

<https://www.jdsupra.com/legalnews/new-federal-guidance-classifies-long-2976537/>

FDA

FDA's Budget: Medical Device Supply Chain and Shortages Prevention Program

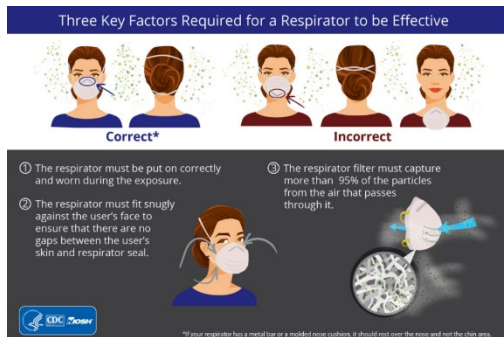
The U.S. Food and Drug Administration's Devices Program is responsible for the regulation and oversight of a wide range of medical devices that patients and their health care providers use every day. These devices range from simple tongue depressors to complex instruments that help save and sustain life, such as heart valves, the artificial pancreas, and programmable pacemakers with micro-chip technology.



Read more: <https://www.fda.gov/news-events/fda-voices/fdas-budget-medical-device-supply-chain-and-shortages-prevention-program>

NIOSH

Heuristic Evaluation of Respirator Masks: Incorporating NIOSH Respirator Mask Comfort Surveying in the Product Design Process



The SARS-CoV-2 pandemic led to world-wide global shortages in personal protective equipment (PPE) in hospitals. Acute shortages of respiratory protective devices such as N95 respirators led to highly innovative period in which new filter materials, chemical treatment, or new concepts for respirator protective equipment were proposed, which were

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purported as replacements for inconsistent supply of N95-type respirators. Evidence of this innovation is the vast number of new patents that were filed in the domain of filtering facepiece respirators during the first half of 2020 across North America, Europe and East Asia.

Read more:

https://link.springer.com/chapter/10.1007/978-3-030-79760-7_107

OSHA

OSHA Requests Input on Potential Update to Standard on Mechanical Power Presses

OSHA is seeking information for, as well as comment on, a potential update to its 50-year-old standard on mechanical power presses.

According to a Request for Information published in the July 28 Federal Register, the standard is based on the 1971 American National Standards Institute industry consensus standard, which has been updated multiple times. Like many others, the standard doesn't address changes in technology or the use of hydraulic or pneumatic power presses.



Read more:

<https://www.safetyandhealthmagazine.co>

[m/articles/21535-osharequestsinputonpotentialupdatestandardonmechanicalpowerpresses](https://www.safetyandhealthmagazine.com/articles/21535-osharequestsinputonpotentialupdatestandardonmechanicalpowerpresses)

Tree Care, Tree Removal Operations: OSHA Issues Updated Enforcement Guidance

OSHA has updated its enforcement guidance for tree care and tree removal operations.

The guidance was issued June 24 in a memorandum to OSHA regional administrators. It provides inspectors with the agency's general industry standards

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some instances in which inspectors may use the General Duty Clause.

Topics outlined in the memo include falls and falling objects, electrical safety, machine guarding, noise exposure, personal protective equipment, hand and portable power tools, and first aid kits.

Read more:

<https://www.safetyandhealthmagazine.com/articles/21514-tree-care-tree-removal-operations-osa-issues-updated-enforcement-guidance>

that may be used for citations, depending on the hazard(s) involved. It also details

EPA

EPA Final Rule Sets Reporting Requirements for 50 Chemicals

The Environmental Protection Agency has issued a final rule that requires anyone who manufactures or imports 50 specified chemicals to report to the agency “certain lists and copies of unpublished health and safety studies” undertaken within the past decade.

This action is being taken, according to EPA, because the Interagency Testing Committee— established under the Toxic Substances Control Act of 1976 – has added the substances to its Priority Testing List. T



Read more:

<https://www.safetyandhealthmagazine.com/articles/21438-epa-final-rule-sets-reporting-requirements-for-50-chemicals>

National Oil and Hazardous Substances Pollution Contingency Plan; Monitoring Requirements for Use of Dispersants and Other Chemicals



The Environmental Protection Agency (EPA or the Agency) is amending the requirements in Subpart J of the National Oil and Hazardous Substances Pollution Contingency Plan (NCP) that govern the use of dispersants, other chemicals and other spill mitigating substances when responding to oil discharges into waters of the United States. Specifically, this action establishes monitoring requirements for dispersant use in response to major oil discharges and/or

certain dispersant use situations in the navigable waters of the United States and adjoining shorelines, the waters of the contiguous zone, and the high seas beyond the contiguous zone in connection with activities under the Outer Continental Shelf Lands Act, activities under the Deepwater Port Act of 1974, or activities that may affect natural resources belonging to, appertaining to, or under the exclusive management authority of the United States, including resources under the Magnuson Fishery Conservation and Management Act of 1976 (“navigable waters of the United States and adjoining shorelines”).

Read more:

<https://www.federalregister.gov/documents/2021/07/27/2021-15122/national-oil-and-hazardous-substances-pollution-contingency-plan-monitoring-requirements-for-use-of>



WEBiNAR

As we continue to combat the COVID-19 virus, we are making our best efforts to provide you with Blueprint, Design Review, and Ventilation lessons that otherwise you'd travel to acquire.

Due to the changing MS TEAMS and DCS environments, and the ability to host a live event with hundreds of participants, we've been providing "Pre-recorded" webinar events.

All handouts are made available, and can be downloaded from your Blackboard webinar course shell with recorded material for you to view ad-hoc, and participation certificates awarded for each lesson survey/evaluation completed.

WEBiNAR



You may ask yourself “what’s the difference between a live webinar and a pre-recorded webinar?”

Not only does a pre-recorded webinar allow you to view in your own time zone at a time most convenient for you, it allows us to edit and re-record segments, swap out segments that didn’t work so well, add effects, graphics, and more in the post-production stage.

Pre-recorded webinars give a more polished effect than a live webinar. Right now, we’re all adjusting to having more remote meetings, watching broadcasts instead of attending live events, and spending a little more time on our computers than doing surveys.

It is our goal to connect with you, getting you the relevant and emerging information you need to help your clients. Our sustainment webinars, whether live or pre-recorded, can help you achieve those goals.

WEBiNAR



How to participate in a “pre-recorded” webinar:

1. Navigate to your “Army Industrial Hygiene Webinar” shell on our Blackboard site <https://aiph-dohs.elic.learn.army.mil>
2. Use the left navigation tile to locate SPECIAL EDITION WEBINARS
3. Select each webinar link to view
4. Record case sensitive code words while viewing
5. Use the left navigation tile to locate COLLECT CERTIFICATES
6. Select the link for your webinar and use code word to initiate certificate

NOTE: Our classroom space is not allowing traditional classroom courses due to the pandemic. We continue our efforts to provide relevant content that aligns with these courses via our webinars.

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DOCUMENT LIBRARY

COLLECT CERTIFICATES

NEW WEBINARS

ASK THE SME RECORDINGS

MANAGE YOUR IH MONSTER RECORDINGS

ARMY IH FEILD OP MANUAL RECORDINGS

IH LEADER RECORDINGS

SPECIAL EDITION WEBINAR RECORDINGS

All slide handouts are here

Most recent recordings here

SME recording archive

MONSTER recording archive

FOM recording archive

LEADER recording archive

Special Edition archive



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 **ABOUT THE "ASK THE SME" WEBINARS**

These "Ask the SME" Webinars are about communicating freely with subject matter experts. Most of the subject matter experts have lead in slides to spark conversation, and then take questions from the live audience. If you are here, then you probably missed the live event. That's OKAY. This is why we provide recordings. If you have questions for the subject matter experts that were not addressed during the live event, we encourage you to contact the SME.

 **SLIDE HANOUTS: Ask the SME Webinars**

Enabled: Statistics Tracking

Attached Files:

- 11/4/2018 Monitor: All About ANOVA (1.918 MB)
- 11/14/2018 SME: Hexavalent Chromium 48min (451.598 KB)
- 2/27/2019 SME: Ergonomics 51min (402.939 KB)
- 8/8/2019 SME: Pharmacy Hazardous Drug Samples 28min (1.569 MB)
- 3/4/2020 SME: APHC Analytical Lab (1.425 MB)
- 6/17/20 SME: IH Contract Technical Monitors (1.0hr) (773.407 KB)
- OWAS Table.doc (90.5 KB)
- Liberty Mutual Tables.pdf (874.9 KB)
- OWAS Postures.pdf (135.149 KB)
- 12/2/20 SME: DCEHRS-IH Report Standardization 90min (1.435 MB)
- Example Standardized Ergo Survey (4.361 MB)





 **12/2/20 SME: DCEHRS-IH Report Standardization 90min**

Enabled: Statistics Tracking

Look for slide handouts and a copy of the Army DCEHRS IH Buddy v0.7 in the SLIDE HANOUTS above, or the DOCUMENT LIBRARY section of this course site.

 **12/2/20 SME: Downdraft Ventilation Q/A 7min**

Enabled: Statistics Tracking



Downdraft Day	
12/2/20 Monster: Building Downdraft Tables in DOEHRs-IH (52min)	THEME: CONTROLLING AIR CONTAMINANTS
12/2/20 Leader: Measuring Downdraft Tables (42min)	THEME: CONTROLLING AIR CONTAMINANTS
12/2/20 SME: Downdraft Ventilation Q/A	THEME: CONTROLLING AIR CONTAMINANTS
12/2/20 SME: DOEHRs- IH Report Standardization (30min)	THEME: MANAGING ARMY IH
12/2/20 Leader: Compressed Air use with Heavy Metals (30min)	THEME: CONTROLLING AIR CONTAMINANTS

Vehicle Maintenance Day	
3/3/21 Monster: Building Vehicle Exhaust Ventilation in DOEHRS-IH (72min)	THEME: CONTROLLING AIR CONTAMINANTS
3/3/21 Leader: Measuring Vehicle Exhaust Ventilation (50min)	THEME: CONTROLLING AIR CONTAMINANTS
3/3/21 Leader: Vehicle Design Review (2hr)	THEME: CONTROLLING AIR CONTAMINANTS
3/3/21 SME: Vehicle Exhaust Ototoxins (40min)	THEME: CONTROLLING AIR CONTAMINANTS
3/3/21 SME: IH Manpower Study Survey (14min)	THEME: MANAGING ARMY IH

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Coating/Painting Day	
6/2/2021 Monster: Building Paint Booths in DOEHS-IH (60min)	THEME: CONTROLLING AIR CONTAMINANTS
6/2/2021 Leader: Measuring Paint Booths (37min)	THEME: CONTROLLING AIR CONTAMINANTS
6/2/2021 Leader: Paint Spray Design (65min)	THEME: CONTROLLING AIR CONTAMINANTS
6/2/2021 SME: Data Mining DOEHS-IH (Paintbooth Accident Investigation) (17min)	THEME: CONTROLLING AIR CONTAMINANTS
6/2/2021 SME: DOEHS Cadmium Data/Protecting Against Cadmium 49min	THEME: CONTROLLING AIR CONTAMINANTS
6/2/2021 SME: Protecting Against Cadmium (combined with Cadmium Data)	THEME: CONTROLLING AIR CONTAMINANTS
6/2/2021 Leader: Particle Size Selective Sampling 35min	THEME: SAMPLING
6/2/2021 Leader: IH Professional Sampling Kit 20min	THEME: SAMPLING
6/2/2021 SME: Surface Sampling 18min	THEME: SAMPLING

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Laboratory/Healthcare Day	
9/1/2021 Monster: Building Lab Hood Ventilation in DOEHRS-IH (64min)	THEME: CONTROLLING AIR CONTAMINANTS
9/1/2021 Monster: Building Dilution Ventilation in DOEHRS-IH (93min)	THEME: CONTROLLING AIR CONTAMINANTS
9/1/2021 Leader: IH Value Strategy Laboratory Engineering Controls (17min)	THEME: CONTROLLING AIR CONTAMINANTS
9/1/2021 SME: Sampling Qualifiers (15min)	THEME: SAMPLING
9/1/2021 Leader: Laboratory Design (2hr)	THEME: CONTROLLING AIR CONTAMINANTS
9/1/2021 Leader: Methylene Chloride (Workplace, Data Mining, Virtual Tour) (2hr)	THEME: SAMPLING
9/1/2021 Leader: Healthcare Ventilation and Design (3hr)	THEME: CONTROLLING AIR CONTAMINANTS
9/1/2021 Leader: OHS for Laboratory/Healthcare (Overview, Risk Management, IH Role, Virtual Tours) (3hr)	THEME: SAMPLING
9/1/2021 Leader: Modeling Laboratory/Healthcare Exposures in DOEHRS-IH (60min)	THEME: CONTROLLING AIR CONTAMINANTS
9/1/2021 Leader: Laboratory/Healthcare Compliance Survey Tour (2hr)	THEME: SURVEY
9/1/2021 SME: Ergonomic Patient Handling (28min)	THEME: HAZARD EVALUATION AND CONTROL

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<i>REVIEW</i>	<i>Recommended Healthcare/Laboratory lessons if you have not already viewed these previously)</i>
Leader	Adventures in Ventilation at Natick Laboratories (68min)
Monster	Pathology, Grossing, Morgue, Tissue, and Death Care (1.5hr)
SME	Pharmacy Hazardous Drug Samples (28min)
Leader	Audiometric Booth Testing and Certification (17min)

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This monthly summary is published by the Industrial Hygiene Program Management Division for the Army Public Health Center.

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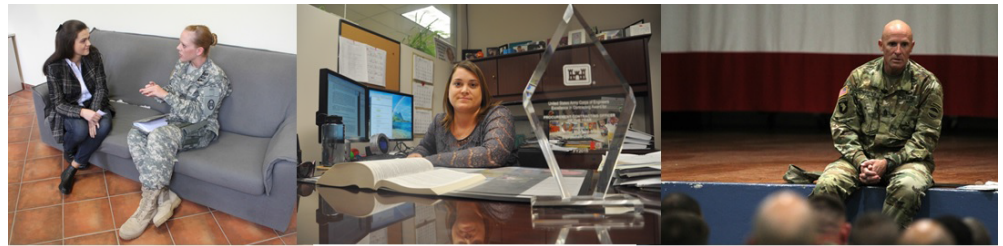
By Phone or FAX:

Office: (410)436-3161

FAX: (410)436-8795

On the Web:

<http://phc.amedd.army.mil/topics/workplacehealth/ih/Pages/default.aspx>



Professional Development and Career Programs

For Army Industrial Hygienists and Industrial Hygiene Technicians, Professional Development is through the Army Safety and Occupational Health (SOH) Career Program, known as Career Program 12 (CP-12).

Career Programs were established to ensure there is an adequate base of qualified and trained professional, technical, and administrative personnel to meet the Army's current and future needs.

Planned training and development are essential elements to building a successful career.

Articles appearing in this summary are a collection of articles taken verbatim from public sources and do not necessarily represent the opinions/views, policy, or guidance of the Department of the Army, Department of Defense, or the U. S. Government.

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