ENVIRONMENTAL HEALTH AND SAFETY

Lab Chatter

EHS Newsletter • Nov/Dec 2021

IN THIS ISSUE

CONTACT EHS

Ronnie Souza
EHS Director
Biological Safety Officer
Radiation Safety Officer
Phone: x2488
Email: rsouza@une.edu

Peter Nagle
EHS Specialist
Phone: x2791
Email: pnagle@une.edu

Jesse Millen-Johnson
EHS Specialist
Phone: x2046
Email: jmillenjohnson@une.edu

SAFETY SPOTLIGHT

A LITTLE WALKING GOES A LONG WAY

By Jesse Millen-Johnson

We've all heard by now that "sitting is the new smoking" and that staring at our computers for hours on end isn't good. Yet many don't realize that leaving your desk and walking for just 2 minutes each hour may reduce your risk of death by 33%. This is according to a study by the University Of Utah School Of Medicine that followed thousands of participants over a period of 3 years. The reduction in risk was even more striking in those with existing kidney disease, at 41%.

There is no strong evidence of the same benefit for those with standup desks who don't regularly move, suggesting leg movement is a key factor. The 2 minutes study participants walked didn't need to be intense; simply going to get a cup of coffee or walking around the office was sufficient.

In a smaller study by researchers from the Johnson & Johnson Human Performance Institute and the University of Colorado Anschutz Medical Campus, workers who walked for brief periods every hour reported higher energy levels and better moods, along with reduced food cravings. That compared to study participants who either sat all day except for restroom breaks or who walked for a bigger chunk of time in the morning and then sat the remainder of the workday.

Whether you work in an office, do laboratory research, or telework, chances are you don't move as much as you should. For those of us who think we don't have enough time to exercise or get frustrated if we can't get a continuous 30 minutes, these studies are encouraging.

Working with Small Animals

Source: OSHA QuickFacts
Submitted by Peter Nagle

All procedures on animals should be performed by properly trained personnel. By using safe work practices and appropriate personal protective equipment (29 CFR Part 1910 Subpart I), workers can minimize the likelihood that they will be bitten, scratched, and/or exposed to animal body fluids and tissues.

Use Safe Work Practices

- Avoid eating, drinking, smoking, handling contact lenses, applying cosmetics, or taking or applying medicine.
- Avoid touching your mouth, nose and eyes.
- Avoid using sharps whenever possible. Be extremely careful when using a needle and syringe or when using sharps during necropsy (autopsy) procedures. Never remove, recap, bend, break, or clip used needles from disposable syringes. Use safe needles whenever possible.
- Never use your mouth to pipette liquids; only use mechanical pipetting devices.
- Keep doors to rooms holding research animals closed.
- Perform procedures carefully to reduce the possibility of creating splashes or aerosols.
- Restrict operations that generate hazardous aerosols to biological safety cabinets or other ventilated enclosures, such as animal bedding dump stations.
- Clean up all spills immediately.
- Promptly decontaminate work surfaces when procedures are completed and after surfaces are soiled by spills of animal material or waste.
- Properly dispose of animal waste and bedding.
- Remove gloves and wash your hands after handling animals or animal tissues and before leaving areas where animals are kept.
- Report all incidents and equipment malfunctions to your supervisor.

Wear Appropriate Personal Protective Equipment (PPE)

- Wear all required PPE identified by your employer based on the activity performed.
- Wear gloves designed to resist puncture from animal bites.
- Wear eye protection. This will not only protect your eyes from potential scratches, but also will protect them from direct contamination by animal secretions or indirect contamination from materials contaminated with animal secretions.
- Wear head/hair covering to protect against accidental sprays or splashes.
- Wear respiratory protection, if required. NIOSH-certified respirators that are properly selected and fitted will protect you from small particle aerosols.

UNE
UNIVERSITY OF NEW ENGLAND
INNOVATION FOR A HEALTHIER PLANET

The Culture of Laboratory Safety

Source: Prudent Practices in the Laboratory: Handling and Management of Chemical Hazards
Submitted by Ronnie Souza

Introduction

Over the past century, chemistry has increased our understanding of the physical and biological world as well as our ability to manipulate it. As a result, most of the items we take for granted in modern life involve synthetic or natural chemical processing.

We acquire that understanding, carry out those manipulations, and develop those items in the chemical laboratory; consequently, we also must monitor and control thousands of chemicals in routine use. Since the age of alchemy, laboratory chemicals have demonstrated dramatic and dangerous properties. Some are insidious poisons.

During the “heroic age” of chemistry, martyrdom for the sake of science was acceptable, according to an 1890 address by the great chemist August Kekulé: "If you want to become a chemist, so Liebig told me, when I worked in his laboratory, you have to ruin your health. Who does not ruin his health by his studies, nowadays will not get anywhere in Chemistry." (Purchase, 1994).

Today that attitude seems as ancient as alchemy. Over the years, we have developed special techniques for handling chemicals safely. Institutions that sponsor chemical laboratories hold themselves accountable for providing safe working environments. Local, state, and federal regulations codify this accountability.

Beyond regulation, employers and scientists also hold themselves responsible for the well-being of building occupants and the general public. Development of a culture of safety with accountability up and down the managerial (or administrative) and scientific ladders has resulted in laboratories that are, in fact, safe and healthy environments in which to teach, learn, and work. Injury, never mind martyrdom, is out of style.

The Culture of Laboratory Safety

As a result of the promulgation of the Occupational Safety and Health Administration (OSHA) Laboratory Standard (29 CFR § 1910.1450), a culture of safety consciousness, accountability, organization, and education has developed in industrial, governmental, and academic laboratories. Safety and training programs, often coordinated through an office of environment, health, and safety (EHS), have been implemented to monitor the handling of chemicals from the moment they are ordered until their departure for ultimate disposal and to train laboratory personnel in safe practices.

Laboratory personnel realize that the welfare and safety of each individual depends on clearly defined attitudes of teamwork and personal responsibility and that laboratory safety is not simply a matter of materials and equipment but also of processes and behaviors. Learning to participate in this culture of habitual risk assessment, experiment planning, and consideration of worst-case possibilities – for oneself and one's fellow workers - is as much part of a scientific education as learning the theoretical background of experiments or the step-by-step protocols for doing them in a professional manner.

Continued on page 4

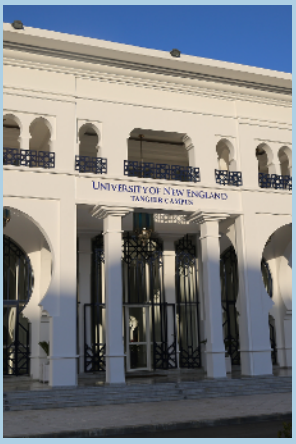
UNE
UNIVERSITY OF NEW ENGLAND
INNOVATION FOR A HEALTHIER PLANET

Accordingly, a crucial component of chemical education at every level is to nurture basic attitudes and habits of prudent behavior so that safety is a valued and inseparable part of all laboratory activities. In this way, a culture of laboratory safety becomes an internalized attitude, not just an external expectation driven by institutional rules. This process must be included in each person's chemical education throughout his or her scientific career.

Responsibility and Accountability for Laboratory Safety

Ensuring a safe laboratory environment is the combined responsibility of laboratory personnel, EHS personnel, and the management of an organization, though the primary responsibility lies with the individual performing the work. Of course, federal, state, and local laws and regulations make safety in the laboratory a legal requirement and an economic necessity. Laboratory safety, although altruistic, is not a purely voluntary function; it requires mandatory safety rules and programs and an ongoing commitment to them. A sound safety organization that is respected by all requires the participation and support of laboratory administrators, employees, and students.

The ultimate responsibility for creating a safe environment and for encouraging a culture of safety rests with the head of the organization and its operating units. Leadership by those in charge ensures that an effective safety program is embraced by all. Even a well-conceived safety program will be treated casually by workers if it is neglected by top management. Direct responsibility for the management of the laboratory safety program typically rests with the chemical hygiene officer (CHO) or safety director; responsibility for working safely, however, lies with those scientists, technicians, faculty, students, and others who actually do the work. A detailed organizational chart with regard to each individual's responsibility for chemical hygiene can be a valuable addition to the Chemical Hygiene Plan (CHP). In coursework, laboratory instructors carry direct responsibility for actions taken by students. Instructors are responsible for promoting a culture of safety as well as for teaching the requisite skills needed to handle chemicals safely.



As federal, state, and local regulations became more stringent, institutions developed infrastructures to oversee compliance. Most industrial, governmental, and academic organizations that maintain laboratory operations have an EHS office staffed with credentialed professionals. These individuals have a collective expertise in chemical safety, industrial hygiene, engineering, biological safety, environmental health, environmental management (air, water, waste), occupational medicine, health physics, fire safety, and toxicology.

EHS offices consult on or manage hazardous waste issues, accident reviews, inspections and audits, compliance monitoring, training, record keeping, and emergency response. They assist laboratory management in establishing policies and promoting high standards of laboratory safety. To be most effective, they should partner with department chairpersons, safety directors, CHOs, principal investigators or managers, and laboratory personnel to design safety programs that provide technical guidance and training support that are relevant to the operations of the laboratory, are practical to carry out, and comply with existing codes and regulations.

In view of the importance of these offices, safety directors should be highly knowledgeable in the field and given responsibility for the development of a unified safety program, which will be vetted by institutional authorities and implemented by all. As a result, EHS directors should also have direct access, when necessary, to those senior authorities in the institution who are ultimately accountable to the public.

UNE
UNIVERSITY OF NEW ENGLAND
INNOVATION FOR A HEALTHIER PLANET