

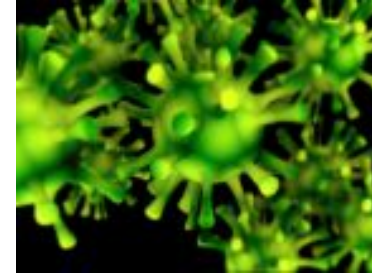
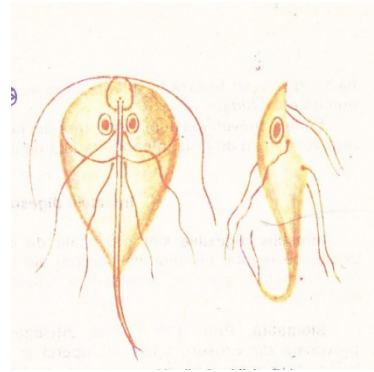
Occupational Health

- Know the hazards associated with your job
- Follow safe work practices – you are responsible for your safety and that of others around you
- Enroll in the Occupational Health and Safety Program

Know the hazards associated with your job

- Pathogens
- Chemical
- Allergens
- Physical
 - Animals
 - Environment
 - Equipment
 - Lifting and handling heavy objects
 - Repetitive motions

Pathogen Hazards



- Bacteria, viruses, fungi or parasites
 - Induced for research studies
 - Naturally present
- Zoonotic diseases
 - Can be transferred from animals to people (uncommon)
- SPF – Specific Pathogen Free

Pathogen Hazards

Rodents – unlikely, SPF/ sentinel screening

- Hanta virus – rodents, flu-like symptoms
- Lymphocytic choriomeningitis – immunocompromised rodents and other, flu-like symptoms
- Rat-bite fever – rats, flu-like symptoms

Fecal/ oral transmission (i.e. wash your hands!)

- Campylobacteriosis – any, diarrhea
- Salmonellosis – dogs, reptiles, diarrhea
- Protozoal disease - gastroenteritis
- Enteric Yersiniosis – puppies, kittens, gastroenterocolitis

Other

- Brucellosis – aborting dogs, flu-like symptoms
- ORF – sheep and goats, abscess like lesion on hand/ arm
- Newcastle disease, Psittacosis – birds, conjunctivitis, fever, respiratory symptoms
- Influenza – ferrets
- Ringworm or sporotrichosis (fungal) – cats and others, skin lesion

Pathogen Hazards

Laboratory Acquired Infections 1930-1999

- Total 5,346/ 190 deaths/ underreporting likely
- Less than 20% of infections with known exposure

More recent reported infections

- 1994 Sabia virus, Yale University
- 1997 Herpes B virus, Emory University
- 2004 *Francisella tularensis*, Boston University
- 2006-7 *Brucella*, Texas A&M University

Hazard Containment

- + and - air pressure differences
- Filtration of exhaust air
- Treatment of contaminated waste
- SOP for each specific biohazard under study
- Biosafety cabinets, individually ventilated cages
- Signs
- Hygiene



Hygiene



- PPE

- Personal hygiene

- No smoking, eating or drinking in animal areas
- Wash hands/ shower when leaving
- Keep personal items in locker

Chemical Hazards

- Detergents, disinfectants and sterilants
- Acid (cagewash)
- Anesthetic agents
- Formaldehyde

Safe work practices:

- PPE (safety glasses, face shields, gowns, gloves, boots, etc.)
- Know where SDS sheets are



Chemical Hazards

- Quatricide - **Causes serious eye damage.** If contact occurs rinse continuously with water for 15 minutes **and seek medical attention.**
- preEmpt- If eye contact occurs flush with cool water. Obtain medical attention if irritation develops or persists.
- Stink inc. - If eye contact occurs flush with water. If irritation persists, call a physician.



Allergies

- 10-44% of all lab animal staff have LAA
 - 10% will eventually develop into asthma
- 73% of those with pre-existing allergies will develop LAA
- Symptoms develop
 - over 1-2 years of exposure in atopic people
 - Average 8.2 years in non-atopic

Allergies

- Immediate hypersensitivity occurs within 10-15 minutes, late component – 4 -6 hours
- Animal bites and scratches:
 - Can trigger anaphylaxis in allergic individuals
 - Can increase the risk of developing an allergy
- Allergens stick to you – children of parents who work with lab animals have higher rates of allergy to mice, rats and hamsters

Allergies



Animals that commonly cause allergies

- Rats – urine and saliva
- Mice – urine – especially males
- Guinea pigs – dander, fur, saliva, urine
- Rabbits – fur, saliva, urine
- Cats and their fleas – more likely to cause asthma, fur, saliva, albumin
- Dogs – saliva, fur, skin, albumin



Allergies

Symptoms:

- Rash, hives, itchy skin
- Sneezing, runny nose
- Red, itchy eyes
- Anaphylaxis

Protect yourself:

- Surgical masks are NOT effective, must use N-95, and be fit tested
- Cover skin
- Protect eyes



Physical Hazards

Hazard

- Animals: Bites, scratches, etc.
- Environment: Noise, wet floors, electrical, etc.
- Equipment: Cage wash, autoclaves, pressure vessels, etc.

Safe work practices

- Proper training
- Ask for help if you need it
- Ear plugs
- Follow instructions for using machinery
- PPE

Dangerous equipment

- Cagewash
 - Cagewash equipment can be extremely dangerous. At least 7 deaths have occurred at animal research facilities as a result of staff being shut in a rack washer.
 - Rack washer – safety features in case you are shut in the rack washer
 - Push the door open
 - If the washer is started, pull the red cord on the side to stop the cycle
 - Tunnel washer – belt can pinch/crush fingers

Dangerous equipment

- Autoclaves
 - Wear a mask when opening a cycle that originated in a BSL-3 suite
 - Long gloves to prevent burns
 - Do not enter autoclaves unless absolutely necessary. If you must enter an autoclave ensure that it is in standby mode first.
 - B1 – the door will not close unless someone holds the button continuously
 - B2 – the carriage should be engaged which prevents the door from closing.
 - It is not necessary to enter the D102 or clean side autoclaves for normal operations.
- Pressure vessels must be secured

Lifting and Handling Heavy Objects

- Back injuries account for 20% of all workers compensation claims, 4/5 of these are lower back injuries
- Animal staff lift and handle heavy objects routinely. Always use good lifting technique, and know your limits – ask for help if something is too heavy.



Lifting and Handling Heavy Objects

Risk factors:

- Weight of the object
- Force required to move the object
- Distance from body
- Posture/ awkward positions
- Twisting, jerking or sudden movements
- Repetition, frequency, duration



AVOID INJURY
Don't twist
move your feet

Lifting and Handling Heavy Objects

Avoid injury!

- Use your Power Zone
- Avoid twisting or reaching
- Keep your back in a neutral position
- Keep objects close to your body
- Avoid sudden, jerking movements
- Alternate between heavy/light tasks
- Backs supports are available



Lifting and Handling Heavy Objects

Moving Racks and Carts

- Whenever possible, push rather than pull
- Watch your hands and fingers!



Repetitive/Cumulative Motion Injuries

Symptoms: pain, swelling, aching, numbness, tingling, decreased range of motion

Primarily occur in upper extremities; carpal tunnel, tennis elbow, etc.

Risk factors: repetition, force, static postures, soft tissue compression, vibration, lack of recovery time

Avoid repetitive/cumulative motion injuries

- Alternate tasks, or alternate the way you are doing a task to minimize repetitive motions.
- Avoid awkward or uncomfortable positions and movements by altering your work habits.
- When you are doing the same task for an extended period of time, plan a 5 minute stretch break every 30 minutes. Short, frequent breaks are more beneficial than long, infrequent breaks.

Avoid repetitive/cumulative motion injuries

Stretching!

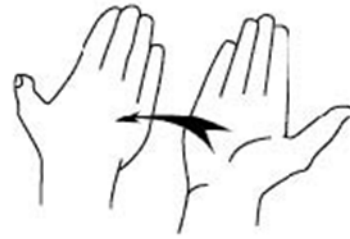
- Choose stretches that target the areas where you feel tension.
- If you are repeatedly moving in one direction, stretch in the opposite direction.

Avoid repetitive/cumulative motion injuries

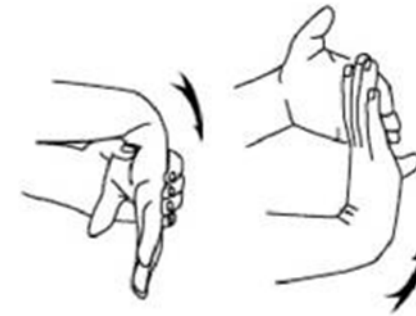
Wrist/ hand stretches



Wrist Tilt



Wrist Rotation



Extension/ Flexion



1. Hand open



2. Fist



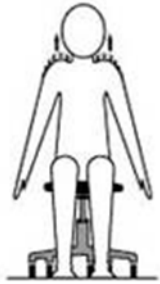
3. Finger tips to palm, thumb straight



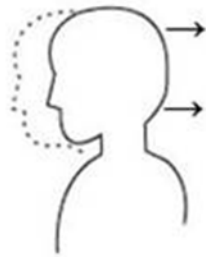
4. Slide finger tips up to base of fingers

Avoid repetitive/cumulative motion injuries

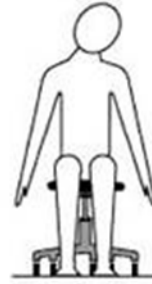
Neck/shoulder stretches



Shoulder Shrug
Raise shoulders
to ears, hold 3-5
seconds.



Head Glide
Glide head
straight back
without lifting chin.
Hold for 20
counts.



Neck Relaxer
Drop head to the
left, then right.
Drop chin to
chest, turn head
to left, then right.



Shoulder Roll
Roll shoulders
backward 5 times,
then forward 5
times.

Avoid repetitive/cumulative motion injuries

Back stretches



Back/ side stretch
Interlace fingers, lift arms overhead, keep elbows straight, press arms as far back as you can, lean to the left, then the right.



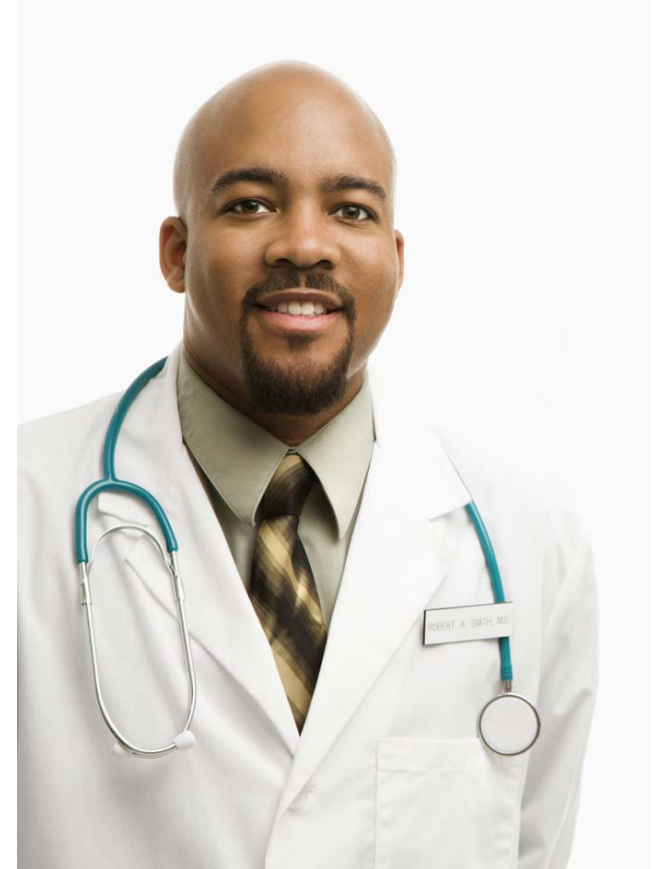
Middle/ upper back stretch
Hold right arm with left hand just above the elbow. Push elbow towards left shoulder. Hold for 5 seconds, switch sides.



Back curl
While seated, grasp shin, lift leg, bend forward and touch nose to knee. Repeat with other leg.

Occupational Health and Safety Program

- Mandatory
- Risk assessment, medical exam
- Vaccination
 - Tetanus
- TB testing
- Spirometry (lung function test)
- Training



Incident Reporting

- For life threatening emergency, call 911 or have someone call for you
- Report all incidents as soon as possible to your supervisor
- Complete an incident report

Adapted with permission from Colorado State University