Ergonomics During and After SARS-COV-2 (COVID 19)

Lawrence J. H. Schulze, PhD, PE, CPE,
Associate Professor, Department of Industrial Engineering
University of Houston, ljhs@uh.edu; docergo@gmail.com;
713-252-2803

Sponsored by: The Engineering and Ergonomics Practice Specialties
Agenda Overview

- Learning Objectives
- What Post-COVID work schedules might be
- What Post-COVID work areas might look like
- Return-to-Work / Hybrid Work / home work schedules
- The home / mobile work environment
- Home schooling / Hybrid schooling
- Mind, body & spirit
- Learning Objective Reviewed
Learning Objectives

- Understand the possible changes to work and your workplace
  - The home office, not an office just for you anymore
  - Home-schooling / hybrid schooling

- Understand the implementation of ergonomic principles

- Understand what you can do to make you and your family be healthy in the COVID-post-COVID workplace / school environment

- Understand that good organization and commitment to good health unites the mind, body and spirit and supports good family health
References/Bibliography

- Ryan, K. J. (18MAY2020). What the Future of Office Design Might Look Like Now: architects and designers are rethinking the workspace for the age of coronavirus. Inc.
- Harvard Campus Services, Environmental Health and Safety (20120) Exercise Program for Staff who are completing tasks that are not physically demanding. Harvard University Health Services
- Andrew, S. and Niu, Y. How to keep your workplace clean -- and yourself healthy -- during the novel coronavirus outbreak. CNN
- McCue, T.J. 5 essential Coronavirus Work From Home Tech Tips. Forbes (Mar 13, 2020)
You may see signs that point out the following

Remember do not do these things with your hands
1. Do not touch your face with your hand(s)
2. Do not touch / rub your eyes with your hand(s)
3. Do not touch / itch your nose with your hand(s)
4. Do not shake hands with other people

Remember these good hygiene principles
1. Wash your hands after touching objects others have touched
2. Obey social distancing (6 feet between people / physical ‘shield’)
3. Wear a mask when among others, to protect yourself and others
4. Exercise and eat well
5. Do not engage in any unnecessary travel
Alter workplace behavior
Organizations may require testing
Organization may require temperature check before entering
Extensive use of hand sanitizers
Offices may look different; hello cubicles, goodbye open office?
Partitions may be added
Every other workspace may be occupied
Arrows and lines may be on the floor
Modular offices may be back
Use of sit/stand workstations may be limited due to between workstation partitions
Workspace cleaning requirement by organization & by personnel (cleaning product compatibility)
Personal item limit / stowage
Multi-person workstation use for multiple shifts
Home Office / Home Schooling
• Glare
• Leaning forward with pressure on lower back

• Too many displays of different sizes at different distances

• Glare
• Leaning forward with pressure on lower back
• Screen too far away

• Direct glare from window
• Constrained space
• No back support

• Screen too far away
• Leaning forward with pressure on lower back

• Too many displays of different sizes at different distances
Some Specific Workstation Recommendations

- Upper-arm-forearm angle greater than $90^\circ$;
- $100^\circ$-$120^\circ$ preferred
- Upper leg-lower leg angle greater than $90^\circ$;
- $100^\circ$-$120^\circ$ preferred
- Monitor distance adjusted to visual ability of user and comfort, not too far away
- Monitor located beside window not facing or in back of user to limit eye fatigue
- Feet flat on floor or supported (foot rest, books, wood slats)
- Chair with arm rests & back rest. Height adjustable preferred.
- Chairs should promote good body posture, can use pillows/cushions to raise children up to worksurface and rolled towels to support the back

Take breaks every 30 – 45 minutes
Maintaining Good Posture as You Work from Home

1. No upper back support
2. Lumbar support no in lumbar curve of back
3. No arm supports
4. Legs at 90° and touching front edge of seat
5. Uncomfortable shoes
6. Sweater gathered at elbow joint

$138.00

$20.00

Use these top searches to find the latest sales on new office furniture.

- $200.00-$1,000.00
- $10.00
- $20.00
Ergonomic Tips for Home and Office

- **Workstations**
  - Avoid using the bed, coffee table, etc. A kitchen table is better
  - Avoid resting forearms and wrists on the sharp edge of a table or workstation

- **Chair**
  - If you do not have or cannot get an adjustable chair, use a stable chair
  - If your feet do not touch the floor, support them with books, boards or other material
  - If your chair is too low, use seat cushions to raise yourself, significant other, and kids
  - If your chair does not have a lumbar support, use a rolled up towel and put it in the small of your back
  - Avoid using the couch or the floor, they are designed for relaxation, not working
  - An ‘ergonomic’ chair is ideal; if you don’t have one, take frequent breaks

- **Monitor**
  - Locate monitor perpendicular to windows, so that you are not facing a window and/or it is not directly behind you.
  - Increase font size to reduce eye strain
  - If possible use your television as a monitor
**Ergonomic Tips for Home and Office**

- **Technology**
  - If possible use a desk-top computer or attach external monitor, keyboard and mouse to your laptop
  - If you do not have an external monitor, elevate your laptop to promote a more upright neck posture and connect an external keyboard to the laptop
  - Use noise cancelling headsets with a microphone for calls, conference calls and webinars

- **Tablet / Mobile phone**
  - Continuously change your grip posture
  - Alternate between thumb and finger use when texting
  - Use hands-free option as much as possible

- **Lighting**
  - Control glare by directing light toward the ceiling using miniblinds, or close the blinds all together
  - Make sure you have enough indirect light to avoid eye fatigue while reading

- **Body posture**
  - Keep your wrists straight while typing and do not rest your wrist and/or forearm on sharp edges
  - Keep your upper-lower arm angle greater than 90° (100°-120°)
  - Keep your upper-lower leg angle greater than 90° (100°-120°)
  - Remove jewelry while using computer interfaces (keyboard & mouse)
  - If you or your family starts feeling uncomfortable, change your body position
  - Your best posture is your next posture
Ergonomic Tips for Home and Office

**Health**
- Get exercise to enhance the mind-body-spirit connection
- Walk when talking on the telephone to promote circulation
- Use breaks every 30 minutes to stretch
- Integrate work breaks with school breaks with children
- Avoid high sodium snacks as the cause your body to retain fluid that pools in your wrists, elbows, knees and ankles
- Drink at least 4 8oz glasses of water in 8 hours, 8 glasses is better.
- Keep you normal ‘coffee breaks’ and meal time(s)
- Wash hands frequently, avoid personal contact, disinfect your workstation, practice good hygiene

**Performance**
- Get up, make your bed and get dressed for the day; you start out with accomplishments and sets the mood for the day.
- If you made ‘to do today’ lists at work, make them at home; it is a road made for accomplishments.
- Try to work at home as you would at work; remember people tend to work more from a home office
- Working from home is filled with distractions, especially if the whole family is there; set workspace; worktime, and concentration boundaries
- Connect with others working from home
Organizational Tips

- **Dedicate Work Time**
  - Dressed, office hours set, priorities established

- **Dedicated work space**
  - Desk, chair, computer, lighting, scheduled with other family members if required

- **Working technology**
  - Technology function tests, equipment checked, software updated

- **Communication**
  - Family, friends, colleagues, supervisor(s) / manager(s)

- **Commitment to personal health**
  - Healthy meals & snacks, exercise, stretching, programmed breaks

- **Dedicated downtime**
  - Family, friends, personal decompression
Change grip pressure and fingers with tablets and mobile phones
Use hands-free option with tablets and mobile phones

No Distraction Times communicated with others

To Do Today List made the day before; adjust if needed
Wake up; get dressed & make your bed
Wash hands frequently
Keep normal break and meal times
Per day is better

Drink at least 4 - 8 oz glasses of water per day; 8 - 10 oz glasses of water avoid high sodium high carbohydrate snacks

Avoid high sugar foods Avoid sugar

Vital sign while using cursor control and keyboard

Enough background lighting is provided to avoid big light differences

For increased to reduce eye strain

Avoid working while sitting on couch or chair

Avoid working while sitting on couch or floor

No jewelry worn during heavy computer use

Vital sign straight

Non-screen viewing times integrated into work breaks

Exercise & stretching times integrated into work breaks

Healthy snack times integrated into work breaks

Blinds / curtains adjusted to control glare / reflections on display screens

Added to raise user

Chair adjusted to keep forearms parallel to floor, or pillow(s) / cushion(s)

In curve of user’s back

Chair with back rest adjusted to curve of user’s back if not pillow placed

Chair with arms rest

Feel flat on floor or supported

External monitor, cursor control and keyboard used with laptops

Monitor

Aim looking at monitor then out the window and then back at the

back of viewer

Monitor display located to control glare, not facing window and not in

Monitor distance adjusted to visual ability and comfort of user

Upper leg lower angle 90°: 100° - 120°

Upper arm to forearm angle greater than 90°: 120° - 135°

Work Area / Workstation Ergonomics Checklist
Learning Objectives

✓ Understand the possible changes to work and your workplace
  ✓ The home office, not an office just for you anymore
  ✓ Home-schooling / hybrid schooling

✓ Understand the implementation of ergonomic principles

✓ Understand what you can do to make you and your family be healthy in the COVID-post-COVID workplace / school place

✓ Understand that good organization and commitment to good health unites the mind, body and spirit and supports good family health