Background

This safety briefing discusses how to implement proper computer workstation ergonomics in the field. Designing workplaces to fit the individual and the task with the intention of reducing worker pain, stress, and disability is called Ergonomics. Our jobs are inherently dangerous but we typically only focus on and address the physical or chemical hazards that are directly related to the site or response. Working in the office trailer at your laptop sitting, on a metal folding chair at a folding table for a few hours each day can put you at risk for developing a Muscular Skeletal Disorder (MSD) that could cause permanent disability and chronic pain. A few simple steps can be employed in the field to address the MSD risk and reduce the hazard. The following is a list of risk factors for MSD’s that can be addressed through proper ergonomics and task design:

- Repetitiveness
- High frequency of movements
- Excessive muscular force
- Vibration
- Posture (awkward hand/wrist postures)
- Mechanical stress (direct pressure)

Laptop Ergonomics

Laptop computers are not designed to be ergonomic; they are portable and compact, but not comfortable. For good ergonomics, the keyboard and monitor have to be separated. But with a laptop, you have to choose between good hand posture and good neck posture. At your office, you can add ergonomic tools or even a docking station to increase your laptop ergonomics, but when you are traveling or in the field, you may have very little control over your desk or work space.

Here are some laptop ergonomic guidelines to help while you are traveling or don’t have access to your normal work space.

- **Find a good place to sit.** Your chair is the most important tool for good posture and comfort. Find a good chair that is comfortable and, hopefully, adjustable. Make sure you have good support for your lower back. For a quick fix you can try a rolled towel or sweatshirt behind your lower back, or bring your own lumbar support cushion. Lean the chair back slightly to relax the large muscles in your back and shoulders.

- **Use your laptop on your lap.** This may seem like a poor ergonomic choice, but it is important to protect your wrists and hands. At this angle you can maintain a neutral wrist posture; find a good position where you
can keep your wrists straight and your hands and arms relaxed.

- **Angle your laptop screen up as much as possible to minimize the strain on your neck.** This is where you have to make a choice in your laptop ergonomics between your neck and your wrists. Because your neck is controlled by the large muscles in your back and shoulders, it is normally better to compromise neck posture than wrists posture. Just remember that in this position, it is important that you take frequent breaks, and stretch the muscles in your neck, shoulders, and back.

- **Bring your own keyboard and mouse.** When traveling, this is probably your best option. A wireless, mini keyboard is light, compact, and portable, with no cables to worry about. With a separate keyboard, place the laptop on a table or desk and use the keyboard directly on your lap or slightly elevated on a pillow. This will allow you to keep your hands in good position without having to look down at your laptop screen.

- **Try not to sit at your laptop for more than 30 minutes at a time.** Get up and take a mini stretch break. A mini stretch break should only last a minute or two. Do a few of the stretches/exercises described in the Ergonomic Exercises and Stretch Breaks Section below.

**Long Term Field Work**

If you are working on a long term site, consider directing ERRS to rent ergonomic office chairs. There are numerous companies that rent quality ergonomic chairs with lumbar support from $25-$89 a month.

The chair is the starting point for a properly designed workstation. Important characteristics include ease of adjustability and adequate lumbar support. Begin by reading the instructions that come with your chair. Experiment with the various control features:

- Find the height adjustment feature and begin.
  - Raise yourself as high as the chair will allow.
  - Slowly lower yourself down so that your feet are firmly placed on the floor.
  - In this position, your hips should be slightly higher than your knees and your thighs parallel with the floor.
- Find the seat-pan angle feature. Most people prefer the seat-pan to be adjusted parallel with the floor.
- Find the height adjustment feature for the chair back. Adjust the chair back to support your lumbar spine.
- Adjust the angle of the back to allow for and upright or slightly reclined posture.
- Find the arm adjustment features and position them to the lowest setting.
  - While you are sitting in the chair, relax your shoulders and arms down to your side.
  - Slowly raise the arm supports until you can gently rest your elbows and forearms. Make sure that you do not allow your shoulders to raise upward.
Ergonomic Exercises and Stretch Breaks

Ergonomic exercises are designed for users at their workstations and can help to reduce headaches, eyestrain, neck, back, shoulder and wrist pain. Brief breaks that include short exercises should be taken regularly during the work shift. These exercises should not cause any pain or discomfort. Also, consult with your personal physician before performing any of these stretches if you have a pre-existing injury or medical condition.

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<tr>
<th>Exercise</th>
<th>Purpose</th>
<th>Description</th>
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<tr>
<td><strong>Wrist Tilt</strong></td>
<td>To stretch wrist and forearm</td>
<td>With hand open and facing down, gently bend wrist from side to side, as far as possible. Hold for 3 to 5 seconds. Repeat 3 times.</td>
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<td><strong>Wrist Rotation</strong></td>
<td>To stretch wrist and forearm</td>
<td>Start by stretching your arm and hand out and slowly rotate the wrist down until you feel a stretch. Hold for 3 to 5 seconds.</td>
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<td><strong>Wrist Flexion/Extension</strong></td>
<td>To stretch wrist and forearm</td>
<td>Grasp hand and hold fingers with the other hand. Slowly bend wrist down until you feel a stretch. Hold for 3 to 5 seconds. Relax. Repeat 3 times. Then slowly bend your wrist up until you feel the stretch. Hold &amp; relax.</td>
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| **Finger Stretch** | To stretch wrist and forearm | a) Start with your hand open.  
 b) Make a fist  
 c) Touch your fingertips to the base of your palm, keeping the thumb straight.  
 d) Gently make a hook. Slide your fingertips up your palm so the tips of your fingers are near the base of your fingers and you should feel a stretch. |
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<th><strong>Shoulder Shrug</strong></th>
<th>Purpose: To relieve early symptoms of tightness or tension in the shoulder and neck area. Raise the top of your shoulders towards your ears until you feel slight tension in your neck and shoulders. Hold this feeling of tension for 3 to 5 seconds. Then relax your shoulders downward into their normal position. Do this 2 or 3 times.</th>
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<td><strong>Head Glide</strong></td>
<td>Purpose: To stretch chest, and shoulder muscles Sit or stand upright. Without lifting your chin, glide your head straight back. You know you are doing this exercise right if it gives you the feeling of a double chin. Hold for 20 counts and repeat 5 to 10 times.</td>
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<td><strong>Neck Relaxer</strong></td>
<td>Purpose: To relax neck muscles Drop your head slowly to the left, trying to touch your left ear to your left shoulder. Repeat on the right side. Slowly drop your chin to your chest, turn your head all the way to the left, then turn all the way to the right.</td>
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<td><strong>Shoulder Roll</strong></td>
<td>Purpose: To relax shoulder muscles. Slowly roll your shoulders backward five times in a circular motion. Then roll shoulders forward five times.</td>
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<td><strong>Back/Side Stretch</strong></td>
<td>Purpose: To relax the back and side muscles Interlace your fingers and lift your arms over your head, keeping the elbows straight. Press arms as far back as you can. To stretch your sides, slowly lean to the left and then to the right.</td>
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| **Middle/Upper Back Stretch** | *Purpose:* To stretch upper and middle back muscles  
Hold your right arm with your left hand just above the elbow. Gently push your elbow toward your left shoulder. Hold stretch for 5 seconds. Repeat with your left arm. |
| **Back Curl**     | *Purpose:* To stretch lower back and legs.  
Grasp your shin. Lift the leg off the floor. Bend forward (curling your back), and reach your nose to your knee. Repeat with the other leg. |
| **Ankle Flex and Stretch** | *Purpose:* To stretch ankle muscles.  
Hold one foot off the floor with your leg straight. Alternately flex your ankle (point your toes up) and extend (point your toes down). Repeat with the other leg. |
| **Leg Lift**      | *Purpose:* Stretch leg muscles.  
Sit forward on the chair so that your back is not touching the chair’s back. Place feet flat on the floor. With a straight leg, lift one foot a few inches off the floor. Hold momentarily, and return your foot to the floor. Repeat with the other leg. |