Stretching and Wellness for Engineers

ATHLETIC EDGE
Sports Medicine
Orthopedic & Therapeutic Massage Therapy
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• Sitting in front of a computer every day can wreak havoc on your body, especially since most of us don't have the best posture.
• Regular computer users perform 50,000 to 200,000 keystrokes each day.
Repetitive strain injuries have become a workplace epidemic.

- Some types of RSI that are common for engineers:
  - Carpal Tunnel Syndrome
  - Tendinitis & Tennis Elbow
  - Blackberry Thumb
  - Eyestrain
Other common problems for engineers include:

- Neck and shoulder stiffness
- Lower back pain
- Stiff muscles
- Tight joints

- All of these problems are the body signaling that something is wrong
• No matter how well a workstation is designed, or how perfect your posture, problems may still arise.

• Working at a computer often involves very few changes in body position.

• Lack of movement leads to muscle pain, strains, and RSI’s.
• We’re here today to give you options to counteract the negative effects that sedentary office work will have on your body.

• Stretching at the office is a great solution.
Why Stretching?

- It can prevent computer related problems and injuries
- You can stretch anywhere, anytime
- It can make you feel better
- It can lead to a more productive workday.
Typical problems of the computer workplace...

- **Back Pain** - When you sit for long periods, your spine tends to compress. If your posture is bad, gravity accentuates the problem, which can lead to back pain.

- **Stiff Muscles** - Not moving for long periods of time can cause neck and shoulder pain.

- **Tight Joints** - Inactivity can cause joints to tighten, which makes moving more difficult or even painful.
Typical problems of the computer workplace…

- **Poor Circulation** - When you sit very still, blood tends to settle in the lower legs and feet and does not circulate easily throughout the body.

- **Repetitive Strain Injuries** - These injuries are caused by repetitive movement, often of the hands.
Typical problems of the computer workplace...

- **Tension and Stress** - Intense mental focus can produce physical tension (stiffness and pain), which can lead to mental stress - a debilitating cycle. Facial tension and a tight jaw can cause headaches.

- No matter how sound the ergonomics, your body still suffers from long periods of sitting and inactivity.
What Can You Do Throughout The Work Day To Prevent These Problems?

- You can stretch!

- Headaches
- Stiff Neck
- Eyestrain
- Wrist Problems
- Sore Shoulders
- Concave Chest
- Numbness in the Fingers
- Low Back Pain
- Forearm Tendinitis
- Elbow Pain

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When To Stretch…

- Stretching every hour or so throughout the day can help you avoid stiffness and muscle soreness, and make you feel better. You can stretch:
  - On the job, to release nervous tension
  - While waiting for your computer to do something, if only for 5 to 10 seconds
  - Whenever you feel stiff, sore, or tired
  - When you need more energy
  - Whenever you want to focus and do your best
Where To Stretch…

• You can stretch at your computer, or at your desk, and in a variety of other places. Here’s a chance to be creative… For example, you can stretch:
  – At your desk
  – While on the phone
  – While on a snack or lunch break
  – At office meetings
  – While standing or waiting in line
  – Before getting up to go anywhere…
Benefits of Stretching

• Stretching is just about the simplest of all physical activities. It is the perfect antidote for long periods of inactivity and holding still. Regular stretching throughout the day will:
  – Reduce muscle tension
  – Improve circulation
  – Reduce anxiety, stress, and fatigue
  – Improve mental alertness
  – Decrease the risk of injury
  – Make your work easier
  – Make you feel better!

• If You Are Injured
  • Please Note, if you have an injury or any type of recurring soreness, see a doctor or health care provider now.

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How To Stretch

• THE RIGHT WAY TO STRETCH
  – Breathe easily
  – Relax
  – Focus on the muscles and joints being stretched
  – Feel the stretch

• THE WRONG WAY TO STRETCH
  – Holding your breath
  – Being in a hurry
  – Not being focused on your body
  – Stretching while tense
  – Bouncing
  – Stretching to the point of pain
- **TWO PHASES OF STRETCHING**
  - There are two phases to each stretch: the easy stretch and the developmental stretch. They are done one after the other.

1. **THE EASY STRETCH:**
   - Stretch until you feel a slight mild tension and hold for 5-10 seconds. Relax. As you hold the stretch, the feeling of tension should diminish. The easy stretch maintains flexibility, loosens muscles and tight tendons, and reduces muscle tension.

2. **THE DEVELOPMENTAL STRETCH:**
   - Now, move a fraction of an inch farther into the stretch until you feel mild tension again. Hold for 5-10 seconds. Again, the feeling should diminish or stay the same. The developmental stretch further reduces tension and increases flexibility.
• KEEP THE FOLLOWING POINTS IN MIND
  – Always stretch within your comfortable limits, never to the point of pain.
  – Breathe slowly, rhythmically and under control. Do not hold your breath.
  – Take your time. The long-sustained, mild stretch reduces muscle tension and tightness.
  – If you are stretching correctly, the stretch feeling should slightly subside as you hold the stretch.
  – Benefits come from regularity. Stick with it, and see how you feel in a few weeks.
**Stretching Overview**

**Computer & Desk Stretches**

Approximately 4 Minutes

Sitting at a computer for long periods often causes neck and shoulder stiffness and occasionally lower back pain. Do these stretches every hour or so throughout the day, or whenever you feel stiff. Photocopy this and keep it in a drawer. Also, be sure to get up and walk around the office whenever you think of it. You'll feel better!

1. 10–20 seconds, 2 times
2. 10–15 seconds
3. 8–10 seconds, each side
4. 15–20 seconds
5. 3–5 seconds, 3 times
6. 10–12 seconds, each arm
7. 10 seconds
8. 10 seconds
9. 8–10 seconds, each side
10. 8–10 seconds, each side
11. 10–15 seconds, 2 times
12. Shake out hands, 8–10 seconds
Stretch # 1

- Interlace your fingers, then straighten your arms out in front of you
- Palms should be facing away from you
- Feel the stretch in your arms and through the upper part of your back (shoulder blades)

Stretches shoulders, arms, wrists, and fingers

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Stretch #2

- Interlace your fingers, then turn your palms upwards above your head as you straighten your arms.

- Think of elongating your arms as you feel a stretch through your arms and upper sides of your rib cage.

- Excellent for slumping shoulders.

  - Breathe deeply

  - Hold for 15 seconds

Stretches shoulders, back, arms, and hands.

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Stretch # 3 - Right Side

• Hold your right elbow with your left hand
• Gently pull your elbow behind your head until an easy tension-stretch is felt in shoulder or back of your upper arm (triceps)
  • Don’t overstretch or hold your breath
  • Hold for 10 seconds
  • Repeat other side

Stretches triceps, top of shoulders, and sides

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Stretch # 3 - Left Side

• Hold your left elbow with your right hand

• Gently pull your elbow behind your head until an easy tension-stretch is felt in shoulder or back of your upper arm (triceps)

• Don’t overstretch or hold your breath

• Hold for 10 seconds

Stretches triceps, top of shoulders, and sides
Stretch # 4
(Repeat of Stretch # 2)

• Interlace your fingers, then turn your palms upwards above your head as you straighten your arms

• Think of elongating your arms as you feel a stretch through your arms and upper sides of your rib cage

• Excellent for slumping shoulders

  • Breathe deeply

  • Hold for 20 seconds

  Stretches shoulders, back, arms, and hands

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Stretch # 5

This is a good stretch to use at the first signs of tightness or tension in the shoulder and neck area

• Raise the top of your shoulders toward your ears until you feel a slight tension in your neck and shoulders

• Hold this 3-5 seconds, then relax your shoulders downward into normal position

• Think: “Shoulders hang, shoulders down”

• Repeat this stretch 2 more times

Stretches shoulders and neck

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Stretch # 6
(Right Arm, Right Hand)

• With your left hand, gently pull your right arm down and across, behind your back

  • Lean your head sideways toward the left shoulder

    • Hold 10 seconds

    • Repeat other side

    • Relax

  Stretches top of shoulders and neck

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Stretch # 6
(Left Arm, Left Hand)

- With your right hand, gently pull your left arm down and across, behind your back

- Lean your head sideways toward the right shoulder
  
  - Hold 10 seconds
  
  - Relax

Stretches top of shoulders and neck

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Stretch # 7

- Place your hands palm-to-palm in front of you
  - Move hands downwards, keeping your palms together, until you feel a mild stretch
    - Keep your elbows up and even
    - Hold 10 seconds

Stretches wrists, forearms, and hands

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Stretch # 8

- From Stretch # 7, rotate palms around until they face more or less downward
  - Go until you feel a mild stretch
  - Keep your elbows up and even
    - Hold 10 seconds

**Stretches wrists, forearms, and hands**
Stretch # 9
(Right Arm Up, Left Arm Down)

- Extend your right arm above your head
- Reach down with your left arm as you reach up with your right arm
  - Point your fingers
  - Hold 10 seconds
  - Repeat on the other side
- If you do this stretch standing, keep your knees slightly flexed
  - Breathe easily

Stretches shoulders and arms

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Stretch # 9
(Right Arm Up, Left Arm Down)

- Extend your left arm above your head
- Reach down with your right arm as you reach up with your left arm
  - Point your fingers
  - Hold 10 seconds
- If you do this stretch standing, keep your knees slightly flexed
  - Breathe easily

Stretches shoulders and arms

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Stretch # 10
(Right Arm and Leg)

- Sit with your right leg bent over your left leg

- Rest the hand of your left arm on the outside of your upper right thigh

- Apply steady, controlled pressure toward the left with your hand

- As you do this, look over your right shoulder and feel the stretch
  
  - Hold for 10 seconds
  
  - Breathe slowly
  
  - Repeat on the other side

Stretches lower back, side of hip, and neck
Stretch # 10
(Left Arm and Leg)

- Sit with your left leg bent over your right leg

- Rest the hand of your right arm on the outside of your upper left thigh

- Apply steady, controlled pressure toward the right with your hand

- As you do this, look over your left shoulder and feel the stretch
  - Hold for 10 seconds
  - Breathe slowly
  - Repeat on the other side

Stretches lower back, side of hip, and neck

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Stretch # 11

- Place hands just the back of your hips, elbows back
  - Gently press forward
- Slightly lift your breast bone upward as you hold the stretch
  - Breathe easily
- Hold for 10-15 seconds
  - Repeat the stretch
- Note - This can also be done standing

Stretches chest and back

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Stretch # 12

- Shake your arms and hands at your sides for 10 seconds
- Keep your jaw relaxed and let shoulders hang downward as you shake out the tension
  - Repeat twice

**Increases circulation**
RSI’s

Carpal Tunnel Syndrome

• Carpal tunnel syndrome is caused by pressure on the median nerve traveling through the carpal tunnel.

• The most common symptoms of carpal tunnel syndrome include:
  - Numbness, tingling, and pain in the hand
  - An electric shock-like feeling mostly in the thumb, index, and long fingers
  - Strange sensations and pain traveling up the arm toward the shoulder

Studies by the American Academy of Orthopedic Surgeons indicate that two out of three people with mild to moderate carpal tunnel symptoms were able to avoid surgery by using the following Carpal Tunnel exercises.

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Stretching For Carpal Tunnel Syndrome

- Extend and stretch both wrists and fingers acutely, as if they are in a hand-stand position.
- Hold for a count of 5.
Stretching For Carpal Tunnel Syndrome

• Straighten both wrists and relax fingers.
Stretching For Carpal Tunnel Syndrome

- Make a tight fist with both hands
Stretching For Carpal Tunnel Syndrome

- Then bend both wrists down while keeping the fist.
- Hold for a count of 5.
Stretching For Carpal Tunnel Syndrome

- Straighten both wrists and relax fingers.
- Hold for a count of 5.
Stretching For Carpal Tunnel Syndrome

- The exercise should be repeated 10 times.
- Then let your arms hang loosely at your sides, and shake them for a few seconds.
Release Carpal Tunnel Syndrome With Massage Therapy

• Sports massage lengthens and reduces the tension in the muscles which have been overused. By stretching out and lengthening the muscles, the pain can be relieved.

• With massage:
  ▪ Experience significantly less pain within a few weeks
  ▪ Reduced carpal tunnel symptoms
  ▪ Increased grip strength
  ▪ Clinical restoration of function within a few months.
RSI’s
Tennis Elbow

- Tennis elbow is a common term for a condition caused by overuse of arm and forearm muscles that results in elbow pain.

- The most common symptoms of tennis elbow include:
  - Pain over the outside of the elbow
  - Pain when lifting objects
  - Pain radiating down the forearm

Studies by the American Academy of Orthopedic Surgeons indicate that most people with mild to moderate tennis elbow, that followed the Tennis Elbow exercises five times a day for 4-6 weeks, were able to relieve the tennis elbow pain.

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Stretching For Tennis Elbow

- These stretches and exercises are designed to strengthen the muscles in the forearm and increase flexibility through stretching.
- In most cases these exercises will help relieve elbow pain in about 4 to 6 weeks.
- Each stretching exercise is held for 15 seconds and repeated 2 or 3 times.
- This pattern is repeated 5 times a day.

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Stretching For Tennis Elbow

- Stretching the muscles that extend the wrist (extensor muscles):
- Straighten the arm out fully and push the palm of the hand down so you feel a stretch across the top of the forearm.
Stretching For Tennis Elbow

- Stretching the muscles that flex the wrist (flexor muscles):
- Straighten the arm out fully (palm side up), and push the palm downward to stretch.
Exercises For Tennis Elbow

• Strengthening exercises should be performed twice a day following the stretching exercises.

• To perform these exercises, sit in a chair with the elbow supported on the edge of a table or on the arm of the chair the wrist hanging over the edge. Use a light weight such as a coffee cup or soup can when performing the strengthening exercises.

• Repeat the exercises 30 to 50 times, twice a day, but do not push yourself beyond the point of pain.
Exercises For Tennis Elbow

• Strengthening wrist extensor muscles:
• Hold the weight in the hand with the palm facing down.
• Extend the wrist upward so that it is pulled back.
• Hold this position for 2 seconds and then lower slowly.
Exercises For Tennis Elbow

- Strengthening wrist flexor muscles:
- Hold the weight in the hand with the palm up.
- Pull the wrist up, hold for 2 seconds and lower slowly.
Exercises For Tennis Elbow

- Strengthening the muscles that move the wrist from side to side (deviator muscles):
  - Hold the weight in the hand with the thumb pointing up.
  - Move the wrist up and down, much like hammering a nail.
  - All motion should occur at the wrist.
Exercises For Tennis Elbow

• Strengthening the muscles that twist the wrist (pronator and supinator muscles):
• Hold the weight in the hand with the thumb pointing up.
• Turn the wrist inward as far as possible and then outward as far as possible.
• Hold for 2 seconds and repeat as much as pain allows, up to 50 repetitions.
Exercises For Tennis Elbow

- Massage over the area of soreness. Apply firm pressure using 2 fingers on the area of pain and rub for 5 minutes.
Massage Therapy For Tennis Elbow

• Deep Massage and Friction Therapy
  ▪ A combination of deep massage of the forearm muscles (to enhance circulation) and friction therapy of the tendon (to diminish adhesive scar tissue) is an effective treatment for tennis elbow.
What Can A Massage Therapist Do?

• As the work and long hours pile up, so do the aches and pains. These little aches can turn into serious injuries. Regular massage work will help alleviate pain, and prevent injuries from happening.

• Massage can:
  – Identify problem areas before they develop into injuries
  – Remove trigger points and soften scar tissue formed as a result of injury
  – Relax and stretch muscles
  – Improve range of motion
  – Relieve pain and stress
  – Improve circulation
  – Flush out toxins that cause muscle stiffness and soreness
  – Speed recovery and healing from exertion
Thank You For Your Time!

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