Back Health and Safety

Your back is at work every minute of every day, whether you are awake or asleep, active or quiet. Over time the effects of poor posture, bad body mechanics, physical deconditioning and stress can lead to back problems. By understanding how your back works, how to use it properly, and how to exercise, you can prevent most back problems.

How does my back work?
Your back consists of your spine, made up of 24 smaller bones called vertebrae, and a larger bone called the sacrum. The arrangement of these bones produces 3 flexible curves. For your back to stay healthy, you must maintain these curves. The position of these curves must be balanced for the back to stay healthy. On top of each vertebra is a shock-absorbing cushion called a disc. Regular exercise and safe movements help keep discs healthy.

In addition to vertebrae and discs, muscles, ligaments, and nerves complete the makeup of the back. Muscles surrounding the spine, abdomen (stomach), buttocks, hip and thigh all provide support and stability to the back. These muscles must all work together in a smooth, coordinated manner. Problems may develop if weakness or tightness is present in any of these muscle groups.

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Ligaments are tough elastic bands that hold bones together. Improper positions and movements can put repeated stress on ligaments that leads to injuries. Nerves coming from the spine tell the muscles when to move and report pain sensations to us.

**How should I use my back?**

- **Body Mechanics**

  Body mechanics is the way we use our bodies to do the various activities that we do at work and play. Positions that exaggerate or flatten the spine's natural curves can lead to trouble. Problems with your back can occur when you:
  - Lift with your knees stiff
  - Slouch in a chair
  - Twist repeatedly at the waist
  - Work at surfaces that are too low or too high
  - Work with the arms extended far in front of you

- **Posture**

  Posture is the position our bodies assume when doing various activities. Proper posture means keeping the spine's three natural curves in balance. Proper posture during your daily activities will decrease your chances for back injury.

  - **Standing**

    To stand properly, your ears should be in line with your shoulders. The hips and knees are straight and the lumbar curve is present but not exaggerated. Abdominal and buttock muscles work together to keep this position.
- **Sitting**

Proper sitting requires support for the natural spinal curves with the spine, hips, knees and ankles kept at 90 degrees in relation to each other. For prolonged sitting, a built in lumbar support or an accessory lumbar roll can help support the lumbar spine.

- **Lying**

Sleeping requires a firm, but not hard, surface that provides support for the spinal curves. Lying on your side, back or stomach are all acceptable positions if they are comfortable for you and provide restful sleep. Lying on your back requires support for the cervical curve and sometimes a pillow under the knees. Lying on your stomach may require a pillow under the stomach to provide support.

- **Lifting**

Keeping the spine's natural curves during lifting movement is important. The design of leg and buttock muscles makes them better for lifting than the back muscles. Bend the hips and knees, not the back, and squat when you lift an object. Keep the load as close to you as possible and straighten your legs, being careful not to twist as you return to a standing position.
How to Exercise My Back

Adequate strength and flexibility are needed to keep your back healthy and prevent injury. Eighty percent of back pain can be traced to lack of exercise. The following exercises will improve your flexibility and increase strength in the muscles that support your back. These exercises should be done in a slow, steady manner. Speed is not beneficial. These exercises should not be painful. Call your doctor or therapist if pain results or if you have a history of back problems.

- **Pelvic Tilt**
  Flatten your back by tightening the stomach and buttocks.

- **Single Knee to Chest**
  Pull one knee into your chest until a comfortable stretch is felt in the low back and buttocks. Repeat this with the opposite knee.

- **Double Knee to Chest**
  Slowly bring your knees to your chest. Hold for 5 seconds and keep your back relaxed.

- **Curl-Up**
  With your arms folded across the chest, raise your head and shoulders until the shoulders come off the mat. Slowly return to a starting position.
- **Diagonal Curl-Up**
  With your arms held forward, bring your shoulder toward the opposite knee.

- **Hip Rolls**
  With your knees together, roll your hips slowly from side to side. Keep your shoulders on the mat.

- **Bridge**
  Bend your knees and keep your feet flat on the floor. Lift your buttocks slowly then slowly return them to the floor.

- **Low Back Stretch**
  Push your chest toward the mat, reaching forward as far as you can.

- **Cat Stretch**
  Tuck your chin in and tighten your stomach muscles while arching your back.
• **Supine Hamstring Stretch**
  Bend your hip to 90 degrees and straighten your knee as far as possible.

• **Wall Slide**
  Keep your head, shoulders, and back against the wall with your feet out in front. Slowly lower your buttocks while sliding down the wall.

• **Press Ups**
  Push up with your arms while keeping your back and stomach muscles relaxed.

Overall conditioning is also important for back health. Healthy adults under the age of 65 are recommended to do moderate physical activity 5 days a week for 30 minutes. Good types of activity include walking, running and swimming where you work hard enough to raise your heart rate and break a sweat. Strength training exercises are also recommended twice a week.

Talk to your doctor or others on your health care team if you have questions. You may request more written information from the Library for Health Information at (614) 293-3707 or email: health-info@osu.edu.