With aging, bone breaks down faster than it rebuilds. While this is a natural process, certain measures can be taken throughout life to help keep bones strong and reduce the risk of developing osteoporosis later in life.

Your Bones are Essential Building Blocks

Newborns have 270 bones. After some of them fuse, adults are left with about 206 bones in their body.

While a human skeleton appears to be brittle, bones are actually connective tissues that perform a number of essential functions. That's why bone health is so important to maintain throughout your life.

Bones consist mainly of collagen, a protein that interacts with calcium, phosphorous and other minerals, to create a strong, porous matrix rather than a solid structure. Only certain enzymes can break down collagen, which helps explain why bones take a long time to decompose under certain conditions.

Bones help hold up your body and protect vital organs, including the brain. Bone marrow produces red and white blood cells and platelets, and it stores and releases fat and minerals when the need arises. Bones also provide safe passageways or tunnels for tendons, nerves and vessels.

Bones regenerate in response to physical activity and hormones. Exercise such as weight training, walking, jogging or dancing is encouraged because bone loss occurs when bone is reabsorbed by the body under conditions of reduced stress. People with restricted mobility or who don't exercise develop weaker bones over time. (Refer to the National Center for Biotechnology Information for an introduction to bone anatomy.)

As people age, bone mass and mineral density decrease. Osteopenia and osteoporosis are conditions related to loss of bone mass and density, which can increase the risk of bones breaking. These conditions are often silent and need to be detected with bone density scans. Treatment may include changes in diet and exercise, and in some cases, medication.

Broken Bones

Some people get a kick out of writing something funny or drawing a cartoon on a cast, but breaking a bone is no joke. Even a relatively uncomplicated fracture can induce shock. A break causes pain and limits function while healing. Symptoms such as catastrophic thinking, changes in appetite and sleep disruptions are common after a fracture. Over time, people with severe fractures may experience psychological effects such as post-traumatic stress disorder, depression, social isolation, and anxiety about diminished capacity and the inability to take care of themselves and others.

Bones are covered in layers of cells called periosteum, which generate new growth and healing when a bone is bruised or broken. The body sends white blood cells to a fractured bone to remove dead tissue and help prevent infection. The severity and treatment of a break depends on the type. Considering how

many bones are in the body, it's not surprising there are many types of breaks. Examples include greensticks (common in children, when a crack occurs on one side similar to when a green stick bends), stress or hairline cracks, displaced (broken parts are not aligned), closed, open or compound (when a bone pierces the skin), spiral and shattered.

A broken bone may need to be immobilized with a cast, sling, compression bandage, boot or brace, such as for a neck or head injury. A hip fracture, a common injury for older people, is usually treated with surgery and physical therapy. Sometimes it's hard to tell whether a bone is broken or it's a sprain. Signs and symptoms of fractures include pain, swelling, tenderness, warmth, restricted movement, bruising or discoloration, or a bump or deformity under the skin.

Common causes of bone fractures include vehicle and pedestrian accidents, falls and contact sports. Activities that involve prolonged repetitive force, such as long-distance running, playing an instrument or assembling parts, can cause stress fractures. Young people tend to heal more quickly than older adults. Conditions like diabetes, osteoporosis or poor nutrition can slow the healing process.

For Healthy Bones

It's important to give your body the fuel it needs to support bone health. Following recommended daily allowances of essential vitamins and minerals for your gender and age is advisable. For example, most adults should consume 1,000-1,200 milligrams (mg) of calcium per day. Sources include dairy products, leafy greens, almonds, orange juice and fortified cereals. Recommended daily take of vitamin D for bones is 15 micrograms (600 IU), depending on age and risk factors. Sources include sunlight, fatty fish and some fortified foods. Vitamin C helps form collagen in bones. Recommended daily intake is 75-90 mg. Ask your doctor about dietary supplements and amounts before you start taking them.

Did You Know? Teeth are Not Bones

Bones can heal themselves because they are living tissue and have blood vessels that supply oxygen and nutrients. Teeth can't heal themselves because they don't have living tissue in their enamel and don't have a way to get oxygen and nutrients. If a tooth is cracked, chipped or has a cavity, it has to be repaired or removed by a dentist.

More Tips

1. Watch what you consume. Limit alcohol to moderate levels. Monitor caffeine and sodium intake; they are linked to calcium loss. If you smoke, get help to quit. Smoking weakens bones and reduces calcium absorption.
2. Do weight-bearing exercise for at least 30 minutes most days of the week. WorkCare's Chief Medical Officer Dr. Peter P. Greaney says walking at a comfortable pace is one of the best ways to maintain good health.
3. Take safety precautions. Wear a seatbelt in moving vehicles and a helmet when riding a motorized cycle or bike. Wear the right protective equipment for all activities and sports. Remove clutter and trip hazards in your home and workspaces. Make sure ladders are firmly placed and used correctly.
4. Balance calorie intake and physical activity to maintain a healthy weight. Being overweight puts strain on the body, increases health risks and may affect balance. Being underweight increases the risk of bone loss and fractures.
5. Ask your doctor about bone density screening. It is recommended for women over age 65 and men over 70, and for younger people with risk factors.

Maintaining strong bones contributes to overall physical and mental health, reduces the risk of injury and supports an active lifestyle as you age.