



Osteoporosis Canada

Ostéoporose Canada

EXERCISE FOR HEALTHY BONES

WHY SHOULD I EXERCISE?

Regular exercise improves health in many ways. People who engage in regular exercise have lower rates of depression, heart disease, dementia, cancer, diabetes and many other chronic diseases. Exercise can improve physical fitness, strength, energy levels, stamina and mental health. In children and teens, frequent and vigorous exercise helps to increase bone strength. In older adults, certain types of exercise help to prevent bone loss. Exercise also improves balance and coordination, which helps prevent falls, and this in turn may reduce fractures. Exercise is very important for all, but especially for those with osteoporosis and those who are at risk of a broken bone (fracture) caused by osteoporosis. Because everyone is different, it is impossible to develop a “one size fits all” program for exercise. This fact sheet is a general guide to the types of exercise that can help prevent fractures.

WHAT EXERCISES ARE SAFE AND APPROPRIATE FOR ME?

The first step is to consult your doctor before you start a new exercise program. Any exercise may carry with it a certain amount of risk. If you have osteoporosis or low bone mass, or have broken a bone from a minor event such as falling from a standing height or doing a simple task, you



must be aware of your *fracture risk* to determine the specific types of exercises that you can perform safely and those you should avoid.

A *comprehensive fracture risk assessment* will tell you if you are at low, medium or high risk of fracture. Understanding your fracture risk can help you or your healthcare provider decide what exercises are appropriate, and what precautions you need to take. A *comprehensive fracture risk assessment* does *not* rely solely on the results of a bone mineral density (BMD) test. The assessment begins with your doctor asking you questions about your past medical history, including whether or not you have broken any bones and how those fractures happened, as well as questions about your family’s medical history. He/she may also

If you have a spine fracture from osteoporosis, this means that your risk for another fracture is high. It also means that you should avoid high impact exercises or sports that require forward bending, heavy lifting, reaching overhead, twisting, jumping, bouncing or jerky movements.

examine you and send you for tests that may include blood tests and/or a bone mineral density test. Your doctor may also order an X-ray of your spine to make sure you don’t have any spine fractures because two-thirds of spine fractures are “silent,” meaning they do not cause any pain. (For more information on fracture risk assessment, contact Osteoporosis Canada, 1-800-463-6842, and ask for the *Diagnosis* fact sheet.)

WHAT TYPES OF EXERCISE SHOULD I DO?

A comprehensive exercise program includes all of the following:

1. weight-bearing exercise
2. strength training exercise
3. posture training
4. balance training and
5. stretching

Although most individuals can perform all five types of exercise, some exercises may need to be modified for those who have a moderate or high risk of fracture, including those with spine fractures.

WHY IS WEIGHT-BEARING EXERCISE IMPORTANT?

In *weight-bearing exercise*, bones and muscles of the legs and trunk work against the force of gravity while they bear the weight of the body. Activities like walking, jogging, step aerobics, dancing and stair climbing are all examples of weight-bearing exercise, as are sports that involve running and jumping such as soccer, basketball, volleyball, racquet sports and others. Weight-bearing exercises are the most effective forms of exercise for maintaining strong bones, especially the bones of the hip and spine. Push-ups against the floor or against the wall in a standing position are also weight-bearing exercises because the arms are being loaded by some of the body's weight. Many weight-bearing exercises that increase the heart rate, such as jogging, also strengthen the heart and lungs in addition to the muscles and bones and for this reason they are also called "aerobic exercise." However, not all aerobic exercise is weight-bearing (e.g., swimming and cycling).

Everyone should participate in weight-bearing exercise, not only to maintain strong bones, but to maintain heart health. Individuals who are in good general health and are trying to reduce their risk of osteoporosis will be able to do much more vigorous and frequent exercise than those who have more complicated health issues or have a greater risk of fracture. Individuals whose fracture risk is moderate or high may need to participate in lower impact weight-bearing exercises. Choose exercises that are appropriate for your fitness level, abilities and health status. When in doubt, start low and go slow! You can gradually increase the duration and intensity of your exercise to meet the recommended levels. Regardless of which weight-bearing exercise program you adopt, it is important to combine weight-bearing exercise

with some form of strength training, posture training and balance and stretching exercises, which are described below.

Swimming and cycling are not weight-bearing as water buoys or lifts the body and cycling is done in the seated position, which means the legs are not bearing the person's weight. Swimming and cycling can improve heart health, and can still be part of your exercise program - just make sure to include a few sessions of weight-bearing exercises in addition to the swimming or cycling. Resistance exercises in the water (such as aqua fit) can strengthen muscles while placing less stress on the joints than weight-bearing exercise. Having stronger muscles can reduce the risk of falls.

WHAT IS STRENGTH TRAINING AND HOW CAN IT HELP PREVENT FRACTURES?

Strength training refers to exercise where free weights (dumbbells), weight machines or exercise bands are used to make the bones and muscles work by lifting, pushing or pulling a "load." Strength training improves muscle mass and strength, and it can increase spine and hip bone density and strengthen bone. To be effective, strength training needs to be performed two to three times per week at a moderate to high intensity using all major muscle groups. As with weight-bearing exercise, you can start low and go slow - but it is important to progressively increase the intensity (e.g., number of sets or repetitions, the difficulty of the exercise or the weight of the load) over time to continue to see improvements. Guidance from an experienced instructor will ensure proper form and appropriate progression of exercise intensity. Beginners who are too weak to lift, push or pull a "load" may begin by lifting and

holding their arm(s) or leg(s) against gravity. In this instance the arms or legs act as the "load." Over time, as strength improves, the load can be increased by adding a free weight or an exercise band.

HOW DO I GET RID OF THE HUMP ON MY BACK OR PREVENT ONE FROM DEVELOPING? – POSTURE TRAINING

Some kyphosis (a forward curvature of the spine) can be normal, but weak back muscles or spine fractures can produce more rounding of the back called an exaggerated kyphosis. The more an individual bends or slouches forward, the more pressure he or she is putting on the front of the vertebrae, which puts the vertebrae at even greater risk for breaking (fracturing). *Posture training* exercises emphasize good neck, back and shoulder positioning. Proper alignment of the spine by sitting or standing up straight with the shoulders back can strengthen the back muscles, improve general comfort and help maintain good balance. As the back muscles become stronger, good posture becomes easier to maintain. Posture training done while standing, sitting and carrying out daily activities may help prevent or reduce the hunched spine.

Exercises that emphasize back extension and reduce forward head posture, along with other postural training techniques, may prevent the development of a humped back and may even improve posture. In addition, abdominal exercises, arm/shoulder exercises, and exercises that work the core muscles, all help maintain good posture. The core muscles are those that run the length of the torso (upper body excluding the head and arms). **As already mentioned, individuals with spine fractures or those at high risk of developing a spine fracture should do modified abdominal and core**

strengthening exercises, specifically avoiding excess forward bending or twisting of the spine.

WHAT ABOUT YOGA?

There is little research on whether or not yoga helps prevent falls or fractures. Yoga may improve flexibility and posture, and reduce stress. Many forms of yoga emphasize good posture and often have very good approaches to posture training and body awareness. However, there are many different types of yoga practice as well as different individual teaching philosophies, so it is difficult to make general recommendations about yoga. Furthermore, many yoga postures emphasize twisting and forward or backward bending, and these activities are not advisable for someone with a spine fracture or who is at high risk of a spine fracture. Balance postures are also a part of some yoga practices, and these, too, should be done cautiously by individuals who have a moderate or high risk of fracture. Individuals with osteoporosis who wish to do yoga should consult a professional who has special training in osteoporosis.

HOW DOES EXERCISE HELP TO PREVENT FALLS AND FRACTURES? – BALANCE TRAINING

Exercises that improve balance and coordination can also reduce falls and fractures. Balance exercises help us maintain balance when unexpected or unbalanced movements in daily life occur. However, when balance is challenged, there is an increased risk of falling. For this reason, it is important to observe safety precautions while doing balance training, such as having a table, wall or chair nearby to hold onto, or by having someone “spotting” you.

Tai chi is a very safe and effective low impact form of exercise that improves balance and reduces the risk of falls.

WHAT ABOUT STRETCHING – IS IT BENEFICIAL?

As we age, we lose flexibility from inactivity and poor habits, which can contribute to pain and stiffness. Pain and stiffness can result in a vicious cycle. The more pain and stiffness we experience, the less likely we are to exercise, and so we lose bone and muscle strength as a result. This in turn increases the risk for falls and broken bones, which will just add *more* pain and stiffness.

Stretching exercises help to break this vicious cycle by improving flexibility and range of motion. Stretching exercises are most effective, safer and easier to do if they are done after first warming up the muscles with other types of exercise - muscles that are warmed up have good blood flow and better range of motion, which makes them less prone to injury. Approximately 5-10 minutes should be devoted to stretching at the end of each exercise session.

HOW TO GET THE MOST OUT OF YOUR EXERCISE PROGRAM SAFELY

Anyone who is not accustomed to exercise is advised to consult a doctor, physiotherapist or kinesiologist before starting any type of exercise program. You are encouraged to start slowly and build up gradually - if you progress too quickly you may increase your risk of injury. It is important to consider your fitness level, past experience with the activity and your current health status. Consider making a schedule that specifies when you are going to exercise and what you are going to do (including details like duration, intensity and type

of exercise). Having an “exercise buddy” (someone to exercise with), a pet to walk, or even a DVD to exercise along with will help increase one’s motivation to exercise. In addition, research shows that having a detailed, regular schedule for the different types of exercises that you plan to do, and having a back-up plan for unexpected interruptions to your schedule, are the most effective strategies for “sticking” with a program. Choosing exercises that match your abilities and that are enjoyable are also important factors that will help you maintain an exercise schedule.

HOW MUCH DO I NEED TO EXERCISE?

Once you have figured out your fracture risk (low, moderate or high) with the help of your doctor, and after consulting with a physiotherapist, if needed, about specific exercises you should do and others you may need to avoid, use the **Table** below as a guide to the types of exercise you may perform, how often you should do them (frequency) and how hard you should work (intensity).

FOR THE PHYSICALLY CHALLENGED

Individuals with physical challenges may find themselves limited in the type of activities that they can do. However, exercise is a vital part of a healthy lifestyle for everyone, both to promote healthy bones and to reduce the number of secondary problems that can result from a disability. By adapting activities, changing one’s environment or using assistive devices and equipment that allow for greater participation, everyone can lead an active life. A physiotherapist or occupational therapist can suggest suitable activities for the individual who is physically challenged.

For more information on developing an exercise prescription that is suitable and safe for your individual needs, contact your physician, physical therapist or kinesiologist.

TYPE OF EXERCISE	HOW OFTEN SHOULD I EXERCISE? (FREQUENCY)	HOW HARD SHOULD I WORK? (INTENSITY)	FOR HOW LONG SHOULD I EXERCISE? (DURATION)	WHAT ARE THE BENEFITS OF THIS TYPE OF EXERCISE?
WEIGHT BEARING: walking, dancing, jogging, stair climbing, step aerobics, running	3-5 days of the week for a total of at least 150 minutes per week	Moderate to vigorous intensity (slightly breathless but still able to speak)	20-60 minutes continuously or for 10 minutes at a time, 2-3 times per day	Improved heart health and bone strength. Reduced fracture risk.
STRENGTH TRAINING: free weights, machines, exercise bands or body weight as resistance	2-3 days of the week	If you can do more than 12 repetitions, the weights are too light. If you can't do at least 8 reps, the weights are too heavy.	2-3 sets of 8-12 repetitions; include all major muscle groups	Improved muscle and bone strength, posture and mobility.
BALANCE TRAINING: Tai chi, yoga, other exercises designed to challenge balance	2-3 days of the week for a total of 120 minutes per week. May incorporate balance training with weight bearing and/or strength training exercise to save time.	Beginners: static exercises (standing in one spot holding a posture) Advanced: dynamic exercises (challenge balance while moving around) May need guidance	10-20 minutes	Improved mobility and balance. Fewer falls and reduced fracture risk.
POSTURE TRAINING: safe movements, awareness of position and posture (and back muscle strengthening)	Practise proper position and good posture every day!	Be conscious of posture. Perform exercises aimed at correcting posture. Use mirrors when exercising.	Always!	Less pressure on the spine. Reduced risk of falls and fractures, especially spine fractures.

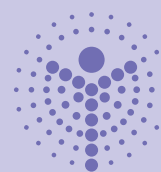


**Make your
FIRST break
your LAST**

INSIST ON ASSESSMENT

Osteoporosis Canada
1090 Don Mills Road, Suite 301
Toronto, Ontario, Canada M3C 3R6
Tel: 416-696-2663
Fax: 416-696-2673
1-800-463-6842 (M-F, 10-4 ET)
www.osteoporosis.ca

To contact the Canadian Osteoporosis Patient Network, email
cPatientNetwork@osteoporosis.ca



Osteoporosis Canada

Ostéoporose Canada

The information contained in this fact sheet is not intended to replace medical advice. Readers are advised to discuss their individual circumstances with their physician.

Charitable Registration Number 89551 0931 RR0001

© May 2012