

## Education

### Osteoarthritis and osteoporosis: they are different diseases

Osteoarthritis and osteoporosis are different diseases but often there is confusion between these two conditions. This is especially true among older adults. Research by Burgenet et al. suggests that although many older adults have heard of osteoporosis, many know very little about it. This is important as having a good understanding of osteoporosis helps to prevent and treat the disease. **See page 2 for a chart highlighting the differences between osteoporosis and osteoarthritis.**

**This issue of JointHealth™ monthly** focuses on diet, nutrition and exercise for people with arthritis and osteoporosis. The next issue of JointHealth™ monthly will be published in September 2005. ACE wishes all its community members a healthy, safe and pleasant summer. Be well!

#### Education

- Osteoporosis and osteoarthritis: they are different diseases
- Bone and Joint Health – the role of calcium and vitamin D
- Exercise for osteoporosis and osteoarthritis
- Fall 2005 workshop schedule

#### Arthritis Consumer Experts (ACE)

- Who we are
- Guiding principles and acknowledgement
- Disclaimer



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## Education

### Bone and joint health: the role of calcium and vitamin D

**Good nutrition plays a key role** in both the prevention and treatment of osteoporosis. It is important to get the right amounts of calcium and vitamin D. Calcium has been shown to decrease bone loss and risk of fracture. Vitamin D helps to absorb the calcium.

Building strong bones starts when we are born. It is important to have a good store of calcium before the age of thirty. The reason is because with aging changes begin to happen in our bones. One of these changes is a decrease in the amount of calcium and water in the bones. This makes the bones less dense and more brittle.

By age 35 our bones have reached their peak bone mass. Women begin to lose bone mass at a faster rate than men. By age 65 most women will have 20-30% less bone mass than they did at age 35. This decrease in bone mass increases one's potential for fractures.

Osteoporosis occurs when there is progressive decrease in bone density making bones more brittle, thin and easily fractured. These bones are more thin and porous than usual bone.

#### Sources of Calcium

Dietary Sources of Calcium: the following chart provides examples of dietary sources of calcium.

Food Group	Amount	Calcium (mg)
<b>Dairy Products</b>		
Swiss cheese	50g	476
Cheddar cheese	50g or 1.75oz	363
Plain yogurt 1-2% milk fat	175g	320
Milk – skim	250ml (1 cup)	319
Milk – 2%	250ml (1 cup)	314
Yogurt with fruit 1-2% milk fat	175g	214
Parmesan	30ml (2tbsp)	174
<b>Fruits and vegetables</b>		
Fruit juice enriched with calcium	250ml (1 cup)	280
Spinach, cooked	250 ml (1 cup)	129
<b>Meat and substitutes</b>		
Pink salmon with bones, canned	100g or 3½ oz	211
Almonds	125 ml (½ cup)	206

Osteopenia is the term used for bone loss that is not severe enough to be called osteoporosis. Vitamin D and Calcium are the building blocks that are essential in preventing and treating osteoporosis and subsequent fractures.

#### Other lifestyle behaviours that help prevent or treat osteoporosis are:

- 1) Quitting smoking because smoking can:
  - cause a 5-10% loss of bone mass
  - decrease estrogen and lead to bone loss in women before menopause
  - can lead to early menopause and increase risk of osteoporosis
  - can negatively affect the use of estrogen replacement therapy
- 2) Decrease alcohol and caffeine intake as either may increase bone loss. Try to have only one alcoholic drink or one cup of coffee or tea per day.
- 3) Get enough vitamin D and calcium each day.
  - Vitamin D: take 800-1000 IU
  - Calcium: older men and women need 1500 mg of elemental calcium each day

## Osteoarthritis and osteoporosis: they are different diseases

Osteoarthritis and osteoporosis are different diseases but often there is confusion between these two conditions. This is especially true among older adults. Research by Burgener et al. suggests that although many older adults have heard of

osteoporosis, many know very little about it. This is important as having a good understanding of osteoporosis helps to prevent and treat the disease. Below is a chart highlighting the differences between osteoporosis and osteoarthritis.

	<b>What is it?</b>	<b>Who gets it?</b>	<b>Who is at risk?</b>	<b>Things that increase your risk</b>
<b>Osteoporosis (OP)</b>  <b>Osteoarthritis</b> (Bone+joint pain = joint damage)	<ul style="list-style-type: none"> <li>thin fragile bones that can break easily</li> <li>bone mass loss can occur without any symptoms</li> <li>often a fracture is the first symptom OP is present. Typical fracture locations are the wrist and the hip</li> <li>a frequent cause of height loss and acquired spine curve 'dowager's lump'</li> <li>early detection is important to prevent OP</li> </ul> <ul style="list-style-type: none"> <li>a loss of cartilage in the joint, extra bone formation and reduced joint movement</li> <li>most common form of arthritis</li> <li>typical symptoms are pain, loss of movement, and stiffness</li> <li>common joints: hands, base of thumbs, neck, back hips, knees and first toes (bunion)</li> <li>does not affect other organs</li> </ul>	<ul style="list-style-type: none"> <li>1.4 million Canadians have OP</li> <li>1 in 4 women over the age of 50</li> <li>1 in 8 men over the age of 50</li> <li>however, the disease can strike at any age</li> </ul> <ul style="list-style-type: none"> <li>2.9 million Canadians have OA</li> <li>women more than men (2 out of 3 women)</li> <li>hip and knee OA usually occurs after age 50</li> <li>affects 30% of people over age 75 but is not simply apart of getting old</li> <li>genetic factors and obesity</li> </ul>	<ul style="list-style-type: none"> <li>being female</li> <li>fracture with minimal trauma after the age of 40</li> <li>small and thin body frames</li> <li>anyone with rheumatoid arthritis speeds up the rate of OP</li> <li>family history of OP</li> <li>some medications including heparin (blood thinner), anti-seizure drugs and long term use of corticosteroids (such as Prednisone)</li> </ul> <ul style="list-style-type: none"> <li>links to persons with obesity, diabetes and cartilage disorders</li> <li>occupational trauma over time</li> <li>sports injuries</li> </ul>	<ul style="list-style-type: none"> <li>cigarette smoking</li> <li>loss of menstrual cycle in young women</li> <li>lack of vitamin D and calcium</li> <li>chronic diseases like rheumatoid arthritis and Hepatitis C</li> <li>excessive intake of alcohol and caffeine</li> <li>poor nutrition</li> <li>lack of exercise</li> <li>being Caucasian or Asian</li> </ul> <ul style="list-style-type: none"> <li>obesity increases risk of OA of the hand 3 times</li> <li>a weight gain of 10kg (22 lb) almost doubles one's risk of OA of the knee</li> </ul>

## Calcium and vitamin D *continued*

### What about calcium supplements?

Many Canadians - especially females - do not get enough calcium in their regular daily diet. Calcium supplements can help but it is important to know what and how much you are taking.

The two most common calcium supplements are calcium carbonate and calcium citrate. Take supplements dividing the total amount into two or three doses throughout the day so the body has less to absorb at one time. Example: For 1500 milligrams of calcium supplement, take 500 milligrams, three times a day.

Calcium can be constipating so increase the amount of fluids you drink and build up your calcium supplement until your system adjusts.

#### Calcium carbonate:

- Least expensive and most widely used
- Contains 40% elemental calcium (the calcium that is absorbed)
- 1000 milligrams of calcium carbonate = 400 milligrams of elemental calcium
- For best absorption take while eating or just after eating

#### Calcium citrate:

- Easier to digest than calcium carbonate but more expensive
- Contains 21% elemental calcium so more

pills are needed to get the same amount of elemental calcium as in calcium carbonate

- For persons with less stomach acid calcium citrate is a good choice as it is absorbed quickly by the small intestine
- It can be taken on an empty stomach any time of the day

**On all calcium supplements look for a DIN number, usually on the front label. This number means that the contents of the bottle has been tested for lead content and is considered safe.** For more information go to: [www.healthcanada.ca](http://www.healthcanada.ca) and access the natural food site.

### Vitamin D

Vitamin D is essential for the absorption of calcium. Adults, 19-50 years need 400 IU per day and adults 51 years and older require 800 IU per day. Vitamin D can be obtained through dietary sources such as milk (100 IU/cup). If you need to supplement your vitamin D intake, use a multivitamin. Remember that milk used in coffee, cereal, soups etc. counts too.

It is important to remember not to exceed the recommended dosages of calcium and vitamin D. Although vitamin D is essential, research

has shown that doses higher than 2000 IU can have side effects of toxicity and create other complications, including bone loss.

Also, it is important your doctor is aware of all medications you are taking or considering taking for possible negative side effects. This includes over the counter supplements like calcium and vitamin D.

Vitamin D is also absorbed through our skin from sunlight. However, as we get older our skin's ability to make vitamin D decreases. Canadians, because of our physical location on the Earth, cannot make Vitamin D through our skin from early November until early March.

Try to take advantage of the warm weather. Try to sit out in the sunlight 10-15 minutes a day and expose your arms and legs. Remember to apply sunscreen to your face but not to your arms and legs during this time. Sunscreen blocks the absorption of vitamin D.

Research suggests that if you have sensitive skin, sit out twice/week for 10-15 minutes and use a sunscreen with SPF 6-8. For this short time you will not burn or predispose yourself to skin cancer. If you have an existing skin condition, you should speak to your doctor before sitting out in the sun. ↗

## Education

# Exercise, arthritis and osteoporosis

The research literature on exercise is growing, and it is now generally accepted that there are many benefits of exercise for arthritis and osteoporosis. General benefits of exercise include improved heart and lung function, weight control, and improvement of self-esteem and self-confidence.

Before starting an exercise program, at home or at a gym, it is important to speak to a health professional trained in exercise for arthritis and osteoporosis. They can help you to design an exercise program that will be both safe and effective.

### Before, during and after exercise:

It is important to warm-up and cool down before and after exercising. Use range of motion or heat.

If you are still experiencing pain more than two hours after exercise – you may have done too much.

Use slow, planned movements when doing ROM and strengthening exercises.

Practice in front of a mirror until you feel confident you are doing the exercise as demonstrated by your health professional.

### Types of Exercise

**1) Range of Motion (ROM):** These exercises help maintain or increase joint flexibility, reduce stiffness and pain and helps one perform daily activities. ROM should be done twice/day. If morning stiffness is present, having a warm shower helps loosen joints before exercising. Some helpful hints include:

- each joint should go through 3-10 repetitions in the morning and evening.
- each time the ROM should take about 10-15 minutes in total.
- for inflammatory arthritis's if your joints are inflamed just do the ROM through one repetition to keep the joints mobile.

**2) Muscle Strengthening Exercises:** These exercises should be done 2-3 times per week, 8-10 repetitions per exercise. When you are

able to complete the full set of exercises, you can add weights and/or increase the number of repetitions.

**Isometric:** Involves contracting a muscle without any movement of the joints. These type of exercises are great because they can be done each day, any time, any place. These types of exercises maintain muscle size, improve muscle tone and develop muscle strength that is needed to carry out weight bearing activities and develop strength for joint surgery.

**Isotonic:** Involves both muscle resistance and joint movement. Because joints are involved, extra care is needed to perform these exercises correctly and note how the body responds to these exercises. This type of exercise increases endurance, improves blood flow, promotes strong bones and cartilage and maintains or improves muscle strength.

**3) Cardio/Fitness:** should be done 3-4 times per week, 20-30 minutes without stopping. When just starting this type of exercise, work your way up to this level over a period of 4-6 weeks.

There are both weight-bearing and non-weight-bearing aerobic exercises. What is most important is that you find an exercise or activity that suits you. In other words, an activity you enjoy. Weight bearing exercise is better for prevention of osteoporosis, but may be more difficult if you have arthritis of the weight-bearing joints.

All exercise should include a warm-up and cool-down portion. The part of the exercise in between is increasing your heart rate and maintaining that rate for 20 minutes.

A good heart rate during aerobic exercise is between 60-70% of the heart rate maximum. To find out what your range is:

$$\text{Take } 220 \text{ minus your age } \times .60 =$$
$$\text{Take } 220 \text{ minus your age } \times .70 =$$

These two figures will give you the range of heart rate/minute during the aerobic part of your exercise program. Example:

$$220 - 50 \text{ years} = 170. \quad 170 \times .60 = 102$$
$$220 - 50 \text{ years} = 170. \quad 170 \times .70 = 119$$

Therefore, the heart rate this person wants to

maintain during the aerobic part of the exercise is a rate between 102 and 119.

**With any kind of exercise whether range of motion, isometric, isotonic or aerobic it is important to consult with your doctor, physiotherapist or fitness consultant to ensure that you are exercising safely.**

Types of weight-bearing aerobic exercises:

- walking/hiking
- cross-country ski machines and elliptical trainers
- stair-stepping machines
- exercise classes
- exercise videos for use in the home

Types of non-weight-bearing aerobic exercises:

- biking
- rowing
- swimming
- water aerobics: check your local recreational centre for water exercises specifically designed for people with limited mobility and/or arthritis

Remember to note how you feel during and after the exercise. If you are in pain more than two hours after, you may need to do less the next time. This allows you to gradually develop your strength and length of exercise time while maintaining joint and muscle safety.

One final and important point about exercise: One must keep up exercising as improvements are lost if exercise is not done on a regular basis.

**For information on local exercise programs contact:**

*The Arthritis Society at 1 866 414 7766 (toll free) or [www.arthritis.ca](http://www.arthritis.ca)*

*Local community centers often have exercise programs designed for people with arthritis and mobility challenges.*

**We are also pleased to recommend the following books on arthritis and osteoporosis:**

*Strong Women and Men Beat Arthritis*

by Miriam E. Nelson, Ph D., et al.,  
Oxford University Press, 2002

*Rheumatoid Arthritis Plan to Win*

by Cheryl Koehn, Taysha Palmer and John Esdaile,  
M.D., The Berkley Publishing Group, 2003. ↗

## Free Workshops : Fall Schedule

**Register now at**  
[www.arthritisconsumerexperts.org](http://www.arthritisconsumerexperts.org)  
**or call 1.866.974.1366.**

**JointHealth™**

Halifax, NS	September 17
Coquitlam, BC	October 6

### Plan to Win with Ankylosing Spondylitis (AS)

Montreal, QC	September 22
Toronto, ON	September 29
Calgary, AB	October 11
Winnipeg, MB	October 12
St. John's, NF	October 18
Hamilton, ON	October 19

### Plan to Win with Rheumatoid Arthritis (RA)

Charlottetown, PEI	September 13
Saint. John, NB	September 14
Halifax, NS	September 15
Ottawa, ON	September 19
Sudbury, ON	September 20
Victoria, BC	September 27
Trois-Rivières, QC	September 28 (F)
Thunder Bay, ON	October 13
Yellowknife	TBA

(F) = workshops conducted in French

## Arthritis Consumer Experts

### Who we are

Arthritis Consumer Experts (ACE) provides research-based education, advocacy training, advocacy leadership and information to Canadians with arthritis. We help empower people living with all forms of arthritis to take control of their disease and to take action in health care and research decision making. ACE activities are guided by its members and led by people with arthritis, leading medical professionals and the ACE Advisory Board. To learn more about ACE, visit

[www.arthritisconsumerexperts.org](http://www.arthritisconsumerexperts.org)

### Guiding principles and acknowledgement

#### Guiding Principles

Health care is a human right. Those in health care, especially those who stand to gain from the ill health of others, have a moral responsibility to examine what they do, its long-term consequences and to ensure that all may benefit. The support of this should be shared by government, citizens, and non-profit and for-profit organizations. This is not only equitable, but is the best means to balance the

influence of any specific constituency and a practical necessity. Any profit from our activities is re-invested in our core programs for Canadians with arthritis.

To completely insulate the agenda, the activities and the judgments of our organization from those of organizations supporting our work, we put forth our abiding principles:

- ACE only requests unrestricted grants from private and public organizations to support its core program.
- ACE employees do not receive equity interest or personal "in-kind" support of any kind from any health-related organization.
- ACE discloses all funding sources in all its activities.
- ACE identifies the source of all materials or documents used.
- ACE develops positions on health policy, products or services in collaboration with arthritis consumers, the academic community and health care providers and government free from concern or constraint of other organizations.
- ACE employees do not engage in any personal social activities with supporters.
- ACE does not promote any "brand", product or program on any of its materials or its web site, or during any of its educational programs or activities.

#### Thanks

ACE thanks the Arthritis Research Centre of Canada (ARC) for its scientific review of JointHealth™.



Arthritis  
Research Centre  
of Canada

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#### Disclaimer

The material contained in this newsletter is provided for general information only. It should not be relied on to suggest a course of treatment for a particular individual or as a substitute for consultation with qualified health professionals who are familiar with your individual medical needs. Should you have any health care related questions or concerns, you should contact your physician. You never disregard medical advice or delay in seeking it because of something you have read in this or any newsletter. ↵



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