



Osteoporosis Canada

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COPING

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Remember: You can live well with osteoporosis!

Sarcopenia and Osteoporosis: Increasing the Risk of Falls and Fractures

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Fracture Fact

Approximately 95% of hip fractures in those over 65 are the result of a fall.

Reprinted with permission from the IOF (International Osteoporosis Foundation). For full article go to <http://www.iofbonehealth.org/what-sarcopenia>.

WHAT IS SARCOPENIA?

Sarcopenia is a disease associated with the aging process. Loss of muscle mass and strength, which in turn affects balance, gait and overall ability to perform tasks of daily living, are hallmark signs of this disease.

Scientists have long believed muscle loss and others signs associated with aging are an inevitable process. However, researchers are looking for ways in which we can slow the aging process, specifically in relation to loss of muscle mass and strength.

Loss of muscle mass, strength and function

Sarcopenia is, in its most literal sense, the loss of muscle mass, strength and function related to aging. We are now discovering this loss is a complex and multifaceted process. Most commonly seen in inactive people, sarcopenia also affects those who remain physically active throughout their lives. This indicates that although a sedentary lifestyle contributes to this disease, it's not the only factor.

In addition, as we age:

- hormone levels change
- protein requirements alter
- motor neurons die and
- we tend to become more sedentary

Prevention and treatment

These factors in combination are what are thought to cause sarcopenia. Scientists are searching for ways to treat and prevent progression of this disease process by developing treatments targeting individual factors.

In a review of literature, worsening sarcopenia followed trends in losses of muscle

[Click here](#) for this week's COPN Quiz

strength as well as impairment of daily functioning. In one study, the prevalence of sarcopenia increased dramatically with age from 4 % of men and 3 % of women aged 70-75 to 16 % of men and 13 % of women aged 85 or older.

More importantly, when sarcopenia is coupled with other diseases associated with aging, its effects can be even more pronounced. Loss of muscle mass and strength is a significant risk factor for disability in the aging population. When patients suffer from both sarcopenia and osteoporosis, the risk of falling and subsequent fracture incidence is higher. Therefore, treating sarcopenia will in turn help to lessen its burden on co-existing diseases.

WHO'S AT RISK?

As sarcopenia is a disorder related to advancing age, the condition is generally attributed to four key risk factors: being of an age 40 years and older, a sedentary lifestyle, malnutrition, and a diet high in acid-producing foods. While each of these factors is distinct, they combine to produce an age-related loss of muscle coordination and mass.

40 years of age and older

- Muscle loss as we age is regulated by our neuromuscular system (which controls our movement), hormones, protein synthesis, and lifestyle factors. Research has revealed that sarcopenia tends to start at the age of 40 and progresses more rapidly after the age of 75.

Sedentary lifestyle

- A sedentary lifestyle puts you at risk for a multitude of diseases. Muscle inactivity reduces muscle mass, even in young healthy adults.
- Those who lead a sedentary life are more likely to have an acceleration of sarcopenia than those who lead an active life.

Malnutrition

- Malnutrition can claim culpability for a multitude of health problems, and the degeneration of muscles (also known as muscle wasting) is just one of many results of nutritional deficiency.
- Older adults are particularly prone to reduction in food intake and as a result, malnutrition.
- For a sarcopenia sufferer, malnutrition can cause protein deficiency, fueling the further loss of muscle.
- An American survey indicates in adults aged 50 years and older, 32 to 41 % of women, and 22 to 38 % of men consume less than the recommended dietary allowance of protein.
- A 3-year study showed protein intake maintained lean muscle mass in women and men aged 70 to 79 years. Individuals with the highest daily protein intake during the study lost 40 % less muscle mass than those with the lowest protein intake.

Diet high in acid-producing foods and low in fruits and vegetables

- Diets rich in acid producing foods (meat and cereal grains) and low in non-acid producing foods (fruits and vegetables) have been shown to have negative effects on muscle mass.

PREVENTION AND TREATMENT

When it comes to prevention, enough cannot be said to highlight the importance of an active lifestyle, not only for prevention of sarcopenia, but for prevention of multitude of diseases. Numerous studies show resistance training in combination with aerobic exercise is effective in maintaining muscle mass and slowing progression of sarcopenia as we age. Research has also revealed nutrition plays an important role.

There are currently no approved drug treatments for sarcopenia. Research is now focusing on the role of physical activity, nutrition and potential future medications that may be used to treat or prevent sarcopenia.

Physical activity

Exercise, and in particular resistance training (or strength training), is extremely effective for preventing sarcopenia. Resistance training affects the neuromuscular system, protein synthesis, and hormones, which, when not operating normally, work together to cause sarcopenia.

After a program of resistance training is introduced, research shows that motor neuron firing and protein synthesis (both of which are needed in building muscle mass) increase even in the elderly. These changes indicate that it is possible to rebuild muscle strength even at an advanced age.

Aerobic exercise also appears to aid in the fight against sarcopenia. This form of exercise has shown to aid in increasing protein synthesis, an important function in maintaining muscle mass and strength in the aging population.

Nutrition

In order for exercise training to be effective, proper nutrition must be in place. Adequate nutrition intake plays a major role in preventing sarcopenia. Research has shown that older adults may need more protein per kilogram than their younger counterparts to maintain proper levels that reinforce muscle mass.

Protein intake of 1.0-1.2 g/kg of body weight per day is probably optimum for older adults. This theory, coupled with the fact that older adults tend to take in fewer calories in general, may lead to pronounced protein deficiency as well as deficiency of other important nutrients. Therefore, maintaining adequate protein intake as well as adequate caloric intake is an important facet of the treatment of this disease.

Diets rich in acid-producing foods (meat and cereal grains) and low in non-acid-producing foods (fruits and vegetables) have been shown to have negative effects on muscle mass. As mentioned above, protein is important, but a diet high in meat and cereal grains should be balanced with a diet high in fruits and vegetable (non-acid-producing foods) in order to be effective in treating sarcopenia.

Supplements

There is some evidence to support that creatine supplements can also aid in muscle development for older adults that are following a resistance training program.

Maintaining appropriate blood levels of vitamin D may also aid in maintaining muscle strength and physical performance.

IN SUMMARY

Because the loss of muscle means the loss of strength and mobility, managing sarcopenia needs to be taken seriously. Sarcopenia accelerates around age 75 and is a factor in the occurrence of frailty and the likelihood of falls and fractures.

While there are no approved treatments for sarcopenia, there are lifestyle changes you can make to help you live with this disease. These include physical activity, a nutritious diet and taking steps to avoid falls.

If you have questions about this article or any other aspect of osteoporosis, please call toll-free 1-800-463-6842 (416-696-2663 in the Greater Toronto Area) to speak to an information counsellor.

Bone Matters: Upcoming presentation

BONE MATTERS
Take charge of your bone health

Presenter
Fabio Feldman PhD,
Manager Seniors Fall
and Injury Prevention,
Fraser Health
Authority, BC

**“The Serious Side of Gravity:
Prevention of
Falls and Fractures”**

Date: Wed., June 8, 2016
Time: 1:00-2:00pm EDT

Why are some
people at greater
risk of falls and
fracture?
How can you
reduce your risk?

Watch it live!
Have your
questions
answered!
Register at
osteoporosis.ca

Join us for the next installment of Bone Matters!

The goal of this presentation is to raise awareness about falls and fracture prevention. Join us to learn about practical tips and strategies to reduce your risks of falls and fractures. You will also learn about why some people are at greater risk of falls and fractures than others. This presentation will also identify non pharmaceutical technologies aimed at reducing falls and fractures. These tips will ensure that you take away all the knowledge needed to do what you can to reduce your risk in your daily life.

For more information or to sign up for the next Bone Matters, [click here](#).



For more information Call 1-800-463-6842 or
Visit osteoporosis.ca/copn



FUNNY BONE:

To err is human; to blame it on somebody else is even more human.

– John Nadeau

A Recipe from our Sponsor

Chicken and Sweet Pepper Curry

By Josée Robitaille

Course: *Main Dishes*

Preparation Time: *20 mins*

Cooking Time: *20 mins*

Yields: *4 servings*

1/2 milk product serving(s) per person

Calcium: 10% DV/ 109 mg

Just follow the steps for an easy, deliciously flavourful main course.



Ingredients

2 tbsp (30 mL) **butter**
1 tsp (5 mL) ground curry powder
1/2 tsp (2 mL) ground turmeric
4 half chicken breasts, skinned, deboned and cut in 3
1 garlic clove, minced
1 onion, finely chopped
1/4 cup (60 mL) sodium-reduced chicken broth

1 tbsp (15 mL) tomato paste
1 red and/or yellow bell pepper, finely chopped
1 tbsp (15 mL) cornstarch
1 1/4 cups (310 mL) plain **Greek yogurt**
Salt and pepper, to taste
Fresh coriander, to taste

Preparation

In large frying pan, heat butter over medium-high heat. Add curry and turmeric. Salt chicken, place in frying pan and cook 3 minutes. Turn chicken over, add garlic and onion and cook 3 minutes. Add broth and tomato paste, cover and cook over medium heat for 10 minutes.

Add bell pepper and cook 3 minutes. Remove chicken. Remove a spoonful of the sauce and stir it into yogurt. Mix cornstarch with a little water. Add to sauce. Bring to a boil and remove from heat. Add yogurt. Reheat without boiling and adjust seasoning. Serve with basmati rice and fresh vegetables. Garnish with coriander if desired.

For more information about this recipe:

<http://www.dairygoodness.ca/getenough/recipes/chicken-and-sweet-pepper-curry>

This issue of COPING is sponsored by Dairy Farmers of Canada

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getenough.ca