

Research Update

Practical, leading edge research results applied to physical activity for older adults, in plain language for health practitioners and leaders.
Sponsored by Active Living Coalition for Older Adults (ALCOA)

Type 2 Diabetes and Physical Activity for Older Adults

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All older adults, including people with Type 2 diabetes, benefit from regular physical activity. And one of the best all-around activities is walking.

Type 2 diabetes is a chronic health condition that gets worse with age and contributes significantly to the death and illness of older Canadians. Diabetes is the 7th leading cause of death in Canada. The economic cost of diabetes, estimated at close to \$9 billion a year, is related to cardiovascular disease and to complications such as vision loss, kidney

failure, amputation, and gastrointestinal, urinary and sexual dysfunction.

The Canadian Diabetes Association acknowledges the important role of physical activity and exercise in managing Type 2 diabetes at all stages of treatment. Physical activity includes all daily activity – errands and chores as well as exercise programs. The goals of increased physical activity for people with Type 2 diabetes include improving control of blood sugar levels, increasing insulin sensitivity (so the body is better able to use the insulin it has to control blood glucose.)

The Canadian Diabetes Association endorses Canada's Physical Activity Guide to Healthy Active Living for Older Adults. This recommends a minimum of

Precautions

- 1.) Before starting any new exercise program, people with Type two diabetes should see their family doctor. The doctor should assess whether the activity is suitable and also assess the person's cardiac status, including if needed a cardiac stress test.
- 2.) People with foot problems should check with their doctor or foot specialist to make sure that with suitable shoes, it is safe for them to walk. Otherwise they should try cycling or swimming.



"The Canadian Diabetes Association Clinical Practice Guidelines (Meltzer et al., 1998) acknowledge the important role of physical activity and exercise in the management of Type 2 diabetes at all stages of treatment."

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Walking tips

- ✓ Invest in a good pair of comfortable walking shoes
- ✓ Increase the number of times you walk each week. Then the length of your walks before you increase your pace
- ✓ Work toward walking daily for at least 30 minutes, in addition to doing your regular activities
- ✓ Vary where you walk to keep it interesting
- ✓ Share the health benefits with a friend – walk with others whenever you can

30 to 60 minutes of moderate physical activity on most days of the week. According to the Guide, every minute counts – people can accumulate physical activity 10 minutes at a time throughout the day. But if people want to lose weight, they should do the activity daily and increase the

time to 60 minutes.

Despite the known benefits of regular physical activity, people with Type 2 diabetes have difficulty staying with structured exercise programs for a long period of time. One survey showed that they are often not interested in joining a structured exercise program. Even though they believe that they should get more exercise.

Walking for health

Survey after survey shows that walking for health is the most popular exercise choice, especially for older adults and those with Type 2 diabetes. Walking is inexpensive, convenient, accessible and acceptable.

People can:

- Walk their dog in the park
- Walk around a shopping mall
- Walk on a treadmill at home or at a fitness facility

In a recent study, women with Type 2 diabetes and between the ages of 50 and 65 walked 60 minutes at their own pace five days a week. The women recorded their

activity using a simple log. After 12 weeks, they showed improvement in blood sugar levels and in their physical fitness, cholesterol and fat levels and body composition. Their weight decreased 1.5 kg and the fat content of their upper body also decreased.

Another study evaluated the effects of daily walking in middle-aged men with Type 2 diabetes. Researchers told participants in a diet and physical activity group (the treatment group) to walk at least 10,000 steps a day. They were given pedometers for motivation and to record their activity goals. Participants in a diet-only group (the control group)



maintained their typical level of activity.

During the study, the diet-only group averaged 4,500 steps a day but the diet and physical activity group easily surpassed their goal and averaged 19,200 steps a day. They also lost more body weight and

dramatically improved their insulin sensitivity. The results show that keeping a record of activity using pedometers, logs, simple calendars or a combination of these can help people with Type 2 diabetes track their goals.

Increasing walking using a pedometer

By Catrine Tudor-Locke, PhD

In survey after survey, walking for health is reported as the most popular exercise choice, especially for older adults. Public health recommendations state that everyone should do 30 minutes or more of moderate physical activity, such as brisk walking, most if not all days of the week. But how do you know if you are walking enough to reap health benefits?

Re-discovering pedometers

Pedometers are simple gadgets that cost \$25 or less, that you wear on your waist to continuously count the steps you take in a day. For the past 30 years in Japan, pedometers have been used successfully to increase walking. But in North America we are only now discovering their usefulness in assessing walking behaviour. They also have the potential to be motivational devices.

Research increasingly supports the use of pedometers. In older women, a higher number of steps a day has been associated with increased bone density. And in middle-aged populations, a lower number of steps a day has been linked to increased body fat and decreased fitness. Studies of individuals who have increased their steps a day have shown improved physical fitness, blood pressure and body composition.

What do pedometers measure?

Pedometers worn on the waist record steps through the up and down motions of the hip. In laboratory conditions, pedometers are impressively accurate. But in the real world there can be errors when people walk slowly and do certain movements, such as bending and weight shifting. Pedometers may not be appropriate for

frail older adults who walk very slowly or have gait impairments. However, for most older adults who are using pedometers to

monitor their own behaviour, the amount of error is likely to be small and unimportant.

How many steps are enough?

This is always the burning question. Simply stated - more is better. Relatively healthy middle-aged adults take between 7,000-13,000 steps a day. (This is lower for women than men.) Healthy older adults take between 6,000 – 7,000 steps. Adults living with disabilities and chronic illnesses, such as diabetes and arthritis, take between 3,500-5,500 steps a day.

A realistic approach is to increase your steps a day by an amount that equals an extra 30 minutes of walking, over and above what you regularly do. For example, depending on walking speed, people take between 800 and 1,200 steps in 10 minutes. So, an extra 30 minutes of walking would mean adding between 2,400 to 3,600 steps a day. People who are not used to exercising and those starting at less than 5,000 steps a day should gradually increase their walking to reach these levels. Once people are more active, they will gain extra benefits from walking faster and adding more steps to their day.



Resistance training

Resistance training is any form of exercise that requires a muscle to contract against a force or resistance. It includes :

- Lifting your own body weight (for example, push-ups and squatting exercises)
- Lifting weights
- Pushing against water in an aqua fitness class
- Using weight training equipment

Although it can potentially increase muscle strength and endurance, and improve glucose tolerance and insulin sensitivity, the benefits of resistance training for reducing cardiovascular risk are not as readily apparent. Since there is limited research about resistance training for people with Type 2 diabetes, it should not replace, but be done along with a regular aerobic program such as brisk walking. The American College of Sports Medicine recommends that resistance training be scheduled at least twice a week as part of a well-rounded exercise program for people with Type 2 diabetes.



All people with this condition should discuss their resistance training program with their physician and should be properly instructed and monitored while in the program.

Managing your risks

People with Type 2 diabetes say that their fear of a hypoglycemic reaction is a barrier to regular exercise. However, such episodes are rare. They usually only happen with prolonged or intense exercise together with insufficient nourishment and mostly affect people who take pills or insulin to lower blood sugar levels.

People with Type 2 diabetes do not need to eat extra food before, during or after exercise, unless they are doing exceptionally long and intense activities. However, at the beginning of a new exercise program, they should monitor their blood glucose levels. If they have any questions, they should contact their doctor.

Research References: For a list of the studies and publications related to these articles in this newsletter, please contact ALCOA office or visit our web site (see page one for coordinates)

The views expressed are those of the authors and not necessarily those of Health Canada.

Some useful web sites

- Walking: www.Walking.about.com
- Canadian Volkssport Federation: www.chebucto.ns.ca/Recreation/CVF
- Hiking and Walking Home Page: www.webwalking.com/hiking.html
- Pedometers: www.walk4life.com
- Canadian Diabetes Association: www.diabetes.ca
- Active Living Coalition for Older Adults: www.alcoa.ca
- Canada's Physical Activity Guide for Healthy Active Living: www.paguide.ca
- Canadian Health Network: www.canadianhealthnetwork.org
- Centre for Activity and Aging: www.uwo.ca/actage