

Physical Activity: the Single Best 'Medicine' for our Aging Population

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Canada: Population Aging

<https://www.populationpyramid.net/canada/>

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Over the past 100 years we have added an additional 30 years to life expectancy

THIS SINGLE FACT - LONGER LIFE - IS THE ROOT OF A TIDAL WAVE OF CHANGE THAT IS IMPACTING ECONOMIES, BUSINESSES, GOVERNMENTS, COMMUNITIES, FAMILIES AND INDIVIDUALS.

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Active aging

Active ageing is the process of *optimizing opportunities for health, participation and security in order to enhance quality of life as people age*. It applies to both individuals and population groups.

The word "active" refers to *continuing participation in social, economic, cultural, spiritual and civic affairs, not just the ability to be physically active or to participate in the labour force*. Older people who retire from work, ill or live with disabilities can remain active contributors to their families, peers, communities and nations. *Active ageing aims to extend healthy life expectancy and quality of life for all people as they age*.

"Health" refers to physical, mental and social well being as expressed in the WHO definition of health. *Maintaining autonomy and independence for the older people is a key goal in the policy framework for active ageing*.

http://www.who.int/ageing/active_ageing/en/index.html

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A nice definition, but what does it mean?

- Health
- Quality of life
- Healthy life expectancy
- Participation
- Autonomy
- Independence

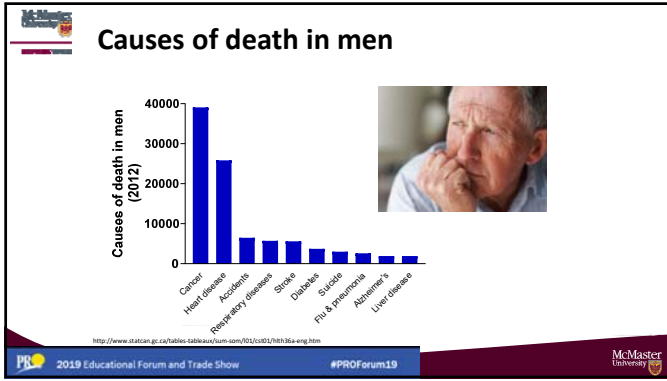


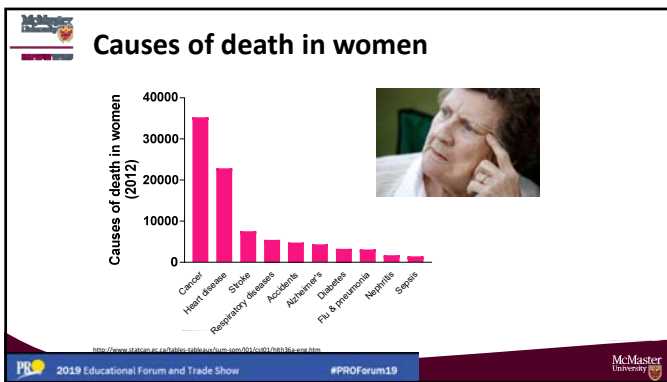
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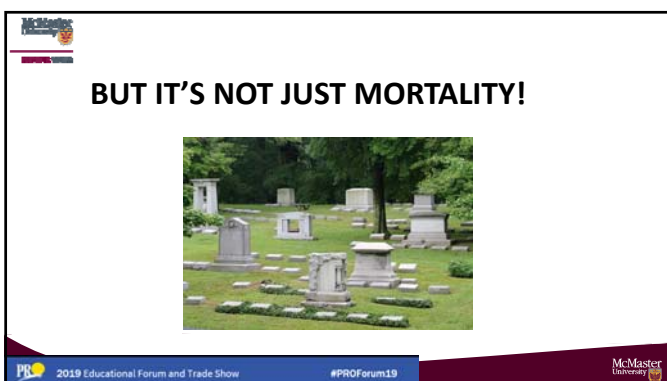
WHAT DO CANADIANS HAVE TO WORRY ABOUT?



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Which of these chronic diseases are associated with reduced HRQL?

1. Cancer
2. Heart disease
3. Stroke
4. Lung disease
5. Diabetes

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Diseases associated with reductions in HRQL

1. Cancer
2. Heart disease
3. Stroke
4. Lung disease
5. Diabetes
6. Renal disease
7. Osteoporosis
8. Arthritis

Predictors	Latent trait	Indicators
Age	Health-related quality of life (HrQL)	Poor or fair general health
Sex		Activity limitations
Race/ethnicity		Physically unhealthy
Annual income		Pain-related activity limitation
Employment		Lack of energy
Chronic alcohol use		Mentally unhealthy
Current smoker		Sad, blue, or depressed
No leisure-time physical activity		Worried, tense, or anxious
Asthma		Lack of rest or sleep
Diabetes		
Obesity		
Physical disability		

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What if?




- There were a treatment that would lower risk and reduce symptom progression for all known chronic diseases: cancer, cardiovascular disease, stroke, type 2 diabetes,
- It would work regardless of age, sex, race, and risk
- It already has a large evidence base on which to base recommendations
- It could save the healthcare system billions of dollars and cost comparatively little in return
- The side-effect profile of this treatment includes better prognoses for a variety of unrelated ailments including depression, dementia (all-cause and Alzheimers), self-efficacy, and suicide incidence
- If all of this came in a pill would you take it?

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Physical activity



Movement of the body by the skeletal muscles that results in energy being expended



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Exercise

Physical activity that is planned, structured, and repetitive done with aim of improving or maintaining physical fitness



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...for older adults

PHYSICAL ACTIVITY

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Physical activity guidelines



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What do they guidelines say?

1. Take part in at least **2.5 hours of moderate- to vigorous-intensity aerobic activity each week.**¹
2. Spread out the activities into sessions of **10 minutes** or more.
3. It is **beneficial essential** to **add muscle and bone strengthening activities** using major muscle groups **at least twice a week.** This will help your posture and balance.²

¹ It's a dose-response
² Flexibility and balance exercises

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Relationship between health benefits and (aerobic) physical activity

A = Sedentary
 B = Moderately active
 C = Active



Kesaniemi et al. Med Sci Sports Exerc 22:79-107, 2011
 Nigam et al. Lancet 2011; 378: 1202 - 1208, 2011




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IS *THE MOST VIABLE* FOUNDATION FOR ACTIVE AGING BEING PHYSICALLY ACTIVE?

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CANCER


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Association of Leisure-Time Physical Activity With Risk of 26 Types of Cancer in 1.44 Million Adults

JAMA Intern Med. 2016;176(6):816-825. doi:10.1001/jamainternmed.2016.1548

Cancer	Number	Rate*	HR (95% CI)	P Value	Heterogeneity†
Esophageal adenocarcinoma	5	100	0.58 (0.17-1.98)	0.41	0%
Esophageal squamous	5	102	0.72 (0.15-3.51)	0.68	2%
Liver	10	1384	0.72 (0.35-1.48)	0.34	0%
Lung	10	1913	0.76 (0.71-0.79)	<0.001	4%
Stomach	11	6168	0.77 (0.70-0.84)	<0.001	0%
Small intestine	7	162	0.78 (0.40-1.50)	0.51	0%
Gastric cardia	6	790	0.78 (0.48-1.30)	0.32	0%
Esophagus	6	1046	0.78 (0.68-0.91)	<0.001	0%
Esophageal adenocarcinoma	6	442	0.88 (0.43-1.84)	0.71	7%
Mucosal melanoma	10	1042	0.88 (0.79-1.02)	<0.001	0%
Hemangioma	6	2494	0.88 (0.72-1.08)	0.004	0%
Colon	10	14385	0.84 (0.77-0.91)	<0.001	0%
Head and neck	11	1093	0.85 (0.78-0.93)	<0.001	4%
Rectum	10	1033	0.87 (0.80-0.95)	<0.001	0%
Bladder	10	1070	0.87 (0.81-0.93)	<0.001	0%
Overall	10	15176	0.92 (0.91-0.93)	<0.001	0%
Non-Hodgkin lymphoma	10	4010	0.92 (0.87-0.98)	<0.001	0%
Thyroid	11	3829	0.92 (0.85-1.00)	0.05	4%
Gastric noncardia	7	3428	0.93 (0.73-1.19)	0.6	0%
Soft tissue	10	811	0.94 (0.71-1.24)	0.2	0%
Pancreas	10	4138	0.95 (0.83-1.08)	0.4	14%
Lymphoid lymphoma	10	2160	0.98 (0.87-1.12)	0.77	0%
Ovary	9	2690	0.92 (0.81-1.05)	0.16	0%
Brain	10	2110	0.98 (0.93-1.03)	0.1	4%
Prostate	7	4680	0.95 (0.93-0.98)	<0.001	0%
Melanocytic melanoma	10	12438	1.27 (1.18-1.40)	<0.001	0%


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HEART DISEASE

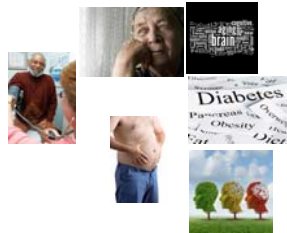




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Evidence-based support for physical activity and higher fitness lowering of risk (and/or improving prognosis)

1. Heart Disease
2. Cancers
3. T2D
4. Dementia
5. Depression



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MUSCULOSKELETAL FITNESS

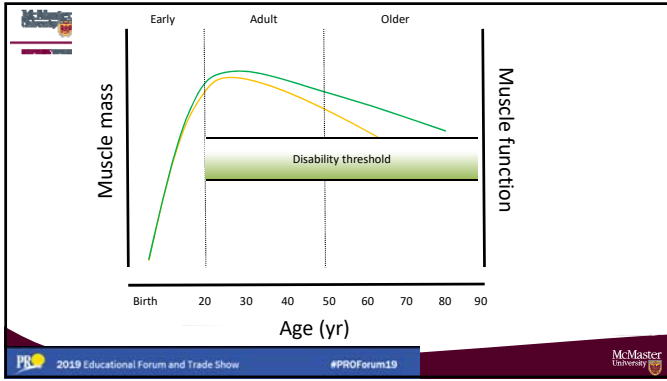


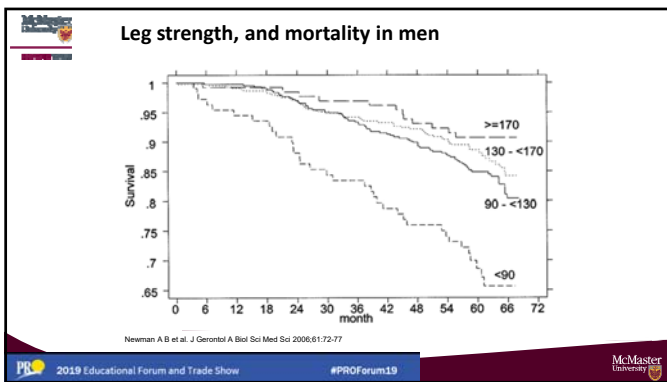
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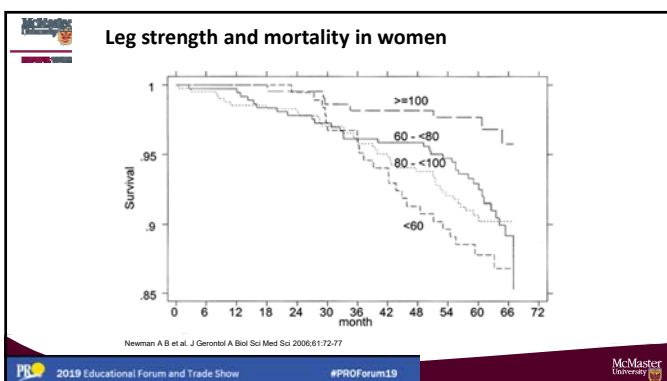
SARCOPENIA

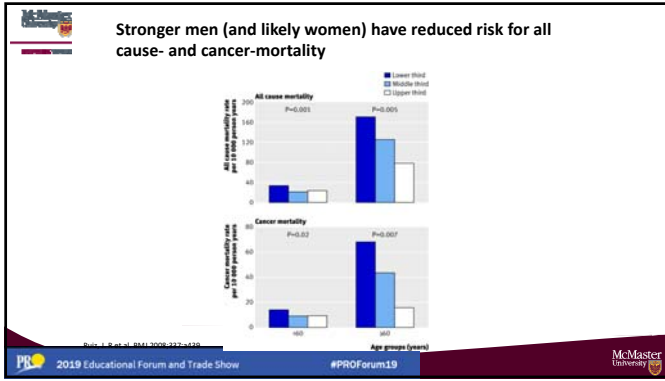


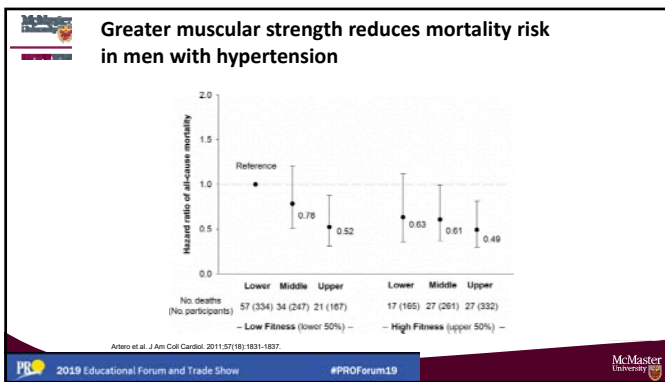
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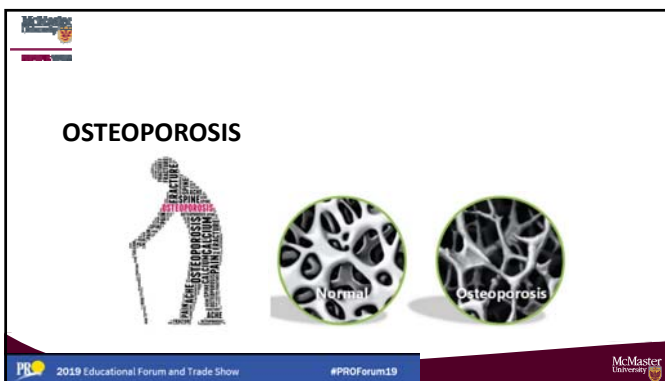












Exercise for preventing and treating osteoporosis in postmenopausal women

At the spine

- Exercisers 1% less bone loss vs. non-exercisers
- People engaging in *STRENGTH and AEROBIC* had 3.2% less bone loss than those who did not exercise.

At the hip

- Exercisers 1% less bone loss vs. non-exercisers
- Strength training had on average 1% less bone loss.

Fractures

- Rate of fracture lower (half)

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KNEE OSTEOARTHRITIS



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Comparable effects of exercise and analgesics for pain secondary to knee osteoarthritis

- The pooled effect size of pharmacological pain interventions was 0.41 and for exercise 0.46
- There was **no statistically significant difference between the two types of intervention**


CONCLUSION

- **This meta-epidemiological study provides evidence that for knee osteoarthritis pain, the effects from exercise and from oral analgesics are comparable**

Henriksen et al. J Comp Eff Res. 2016 Jul;5(4):417-31.

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WHAT TO DO?



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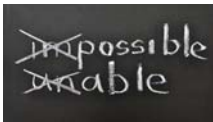
For the uninitiated

- Find an activity you like such as walking, swimming, or cycling (outdoors)
- **Minutes count** — increase your activity level 10 minutes at a time. Every little bit helps (outdoors)
- **Active time can be social time** — look for group activities or classes in your community, or get family or friends to be active with you (outdoors)
- Get stronger!
- Walk wherever and whenever you can, OUTSIDE
- Connect with the environment we grew up in!!
- Activity in **Green** and **Blue** spaces do more for your mental wellbeing than exercise indoors!

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The barriers

- Common misconception that, to reap health benefits, vigorous, intense, and 'draining' exercise is necessary
- An exaggerated fear, enhanced by cognitive dissonance, of the risks of physical activity in old age



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"IF WE HAD A PILL THAT CONTAINED ALL OF THE BENEFITS OF EXERCISE, IT WOULD BE THE MOST WIDELY PRESCRIBED DRUG IN THE WORLD."



Ronald M. Davis, MD, AMA President.
1956 - 2008

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THERE WILL BE NO PILL...



Is *the most viable foundation* for active aging being physically active?

Yes, it's the biggest part...

But you have to ***get outside and move!!***

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THANK YOU

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