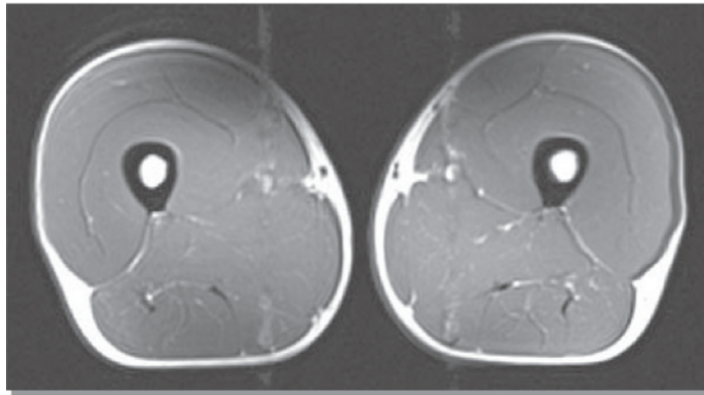


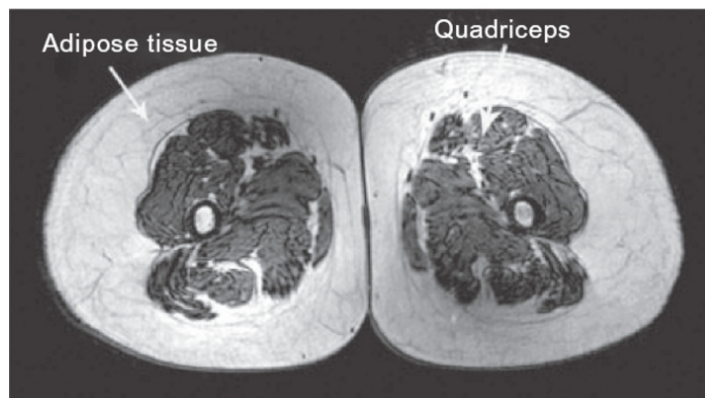
## **Benefits of Lifelong Physical Activity on Muscle**

**Need some encouragement to do your workout today?  
Look at the dramatic MRIs of the thigh below.**

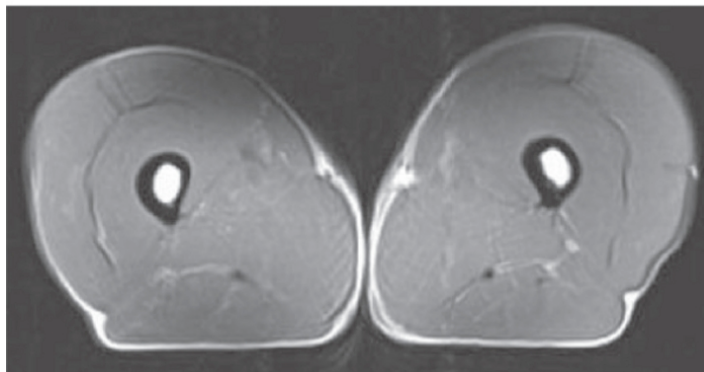
40-year-old triathlete



74-year-old sedentary man



70-year-old triathlete



The above pictures from a recent study<sup>12</sup> illustrate that we are capable of preserving muscle mass and preventing fat infiltration of muscle with lifelong intense exercises. Many of the physiological changes associated with aging are partially due to disuse and lifestyle choices and are seen to a lesser degree, or not at all, in well conditioned masters athletes.

## **Lifelong Exercise and Strength Training in Older Adults**

Maximum strength capacity reaches a peak sometime around the 2<sup>nd</sup> or 3<sup>rd</sup> decade of life and by the fifth decade begins a gradual decline. The good news is that 20 weeks of resistance training in older adults can result in a 1 kg increase in lean body mass. This is in contrast to a 0.18 kg annual decline that often occurs with a sedentary lifestyle beyond 50 years of age. Remarkably it is never too late to improve muscle function. Significant strength adaptations have been shown in subjects aged 85 to 97. Procrastination however is not recommended as it is expected that early intervention will translate to better outcomes.

Lifelong intense activity is encouraged. A Canadian study looked at highly trained lifelong (30+ years) runners and compared them to healthy recreationally active young and age-matched controls. They looked at the number of motor units which consist of one nerve together with all the muscle fibers it stimulates. Normally the number of motor units gradually declines with age. The masters runners had a greater number of motor units compared to their age-matched controls and a similar number compared to the young. The authors concluded that lifelong high-intensity physical activity has the potential to limit the loss of motor units associated with natural aging well into the 7<sup>th</sup> decade of life.

Older athletes are pushing the limits of what was previously thought impossible. At the 2011 Scotiabank Toronto marathon 100 year old Fauja Singh finished the marathon and 80 year old Ed Whitlock finished in an astonishing 3:15. Amazingly, Ed Whitlock ran the same marathon 5 years later as an 85 year old in under 4 hours. For most sports there is a well-maintained but declining sports performance well into the 60's years of age. Rowing has shown well-maintained performances into the 70's.

The view that at an advanced age, load-bearing intensity should be reduced in order to avoid injuries and chronic overuse is widespread and not supported by recent evidence. Healthy aging adults should be capable of safe participation. The risk of side effects is low IF the dose is adapted to the client. However, it is always recommended, especially for adults who are pregnant, frail, have a disability or a medical condition, to consult a health professional to understand the types or amounts of physical activity appropriate for each individual based on individual exercise capacity and specific health risks or limitations. Older adults may need more recovery days and reduced frequency of either high volume or high intensity training. Cross training might be particularly useful for the recovery days.

Lifelong exercise has many benefits. Get out there and enjoy your training!

The above content is for educational purposes only and is not a substitute for medical advice, diagnosis, or treatment. Always talk to your physician and qualified health care professional for your specific health and medical needs.

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