



# Strength Training and Aging

“If youth but had the knowledge and age the strength”

- proverb

## Strength Training and Aging

I am quickly approaching the dawn of my 58<sup>th</sup> birthday. I'm not sure if that's old yet, but I am guessing many would say "ahh...yes it is", especially my teenage daughters 😊

It seems no one can stop the clock. It is inevitable that there will be decline as we age. If you asked me two years ago, I would have said the decline happens rapidly after age 50. Today, I have another point of view. The fact is the clock will keep ticking along, but I have learned, the speed at which that clock meters the decline into our senior years can be slowed considerably. If we work effectively with intent to keep our exercise stresses appropriate, it can seem like it actually moves in the other direction. I've realised with certainty that strength training plays a pivotal role in sustaining health and vitality while we age.

Not many would argue that fitness, diet and healthy life practices are necessary for longevity. Fitness for the elderly may be considered something that should be limited to low level cardiovascular exercises like walking, tai chi or short low impact hikes, etc. Few would think that the elderly should consider resistance training comparable to that of much younger individuals at your local gym. I believe that philosophy should be reconsidered.

**Physical age vs. chronological age:** The fitness concept of contrasting chronological age with a physical fitness marker commonly described as "physical age" illustrates how fitness and healthy lifestyle practices correlate with aging.

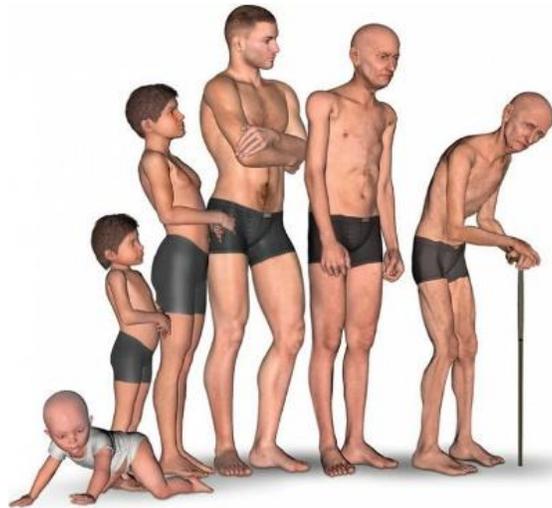
Inactivity can shorten the life of organs to the extent that one's physical age again supersedes chronological age, but in the wrong direction. It's obvious how inactivity can hasten aging, but it can also be argued that chronic exercise or other forms of overly stressful exercise can have a destructive and accelerated aging effect similar to that of sedentary living. What is our true age? ([Ref 1 phycology today](#))

The physical activities we chose have an optimal pattern of volume, intensity and frequency to reach and maintain optimal health, delay aging and minimize disease risk. Abusing muscles, organs and energy systems with chronic, destructive or excessive

practices will counteract the benefits that could be reached with a sensible fitness lifestyle. Strength training is no different.

## Benefits of Strength Training

It might surprise you that strength training has some proven anti-aging benefits. Many people believe that strength training is only for people who care about bodybuilding, but the reality is that it can help add more years to your life, and more life to your years. Whether you are a man or a woman, in your 20's or your 80's, strength training can keep you feeling and living younger longer.

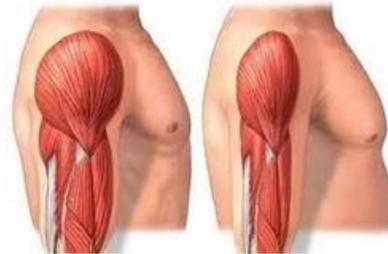


### The effects of aging

Aging is a natural process we all go through. Aging in and of itself isn't a problem except when it begins to affect your overall quality of life. Some of the normal health issues that accompany aging are:

1. Muscle weakness
2. Skeletal weakness
3. Lower energy
4. Changes in physical appearance
5. Diminished brain function

Research has shown that strength training (exercise with either weights or bodyweight) specifically helps in *all* of these areas! I'll present some of the findings below.



## 1. Muscle weakness

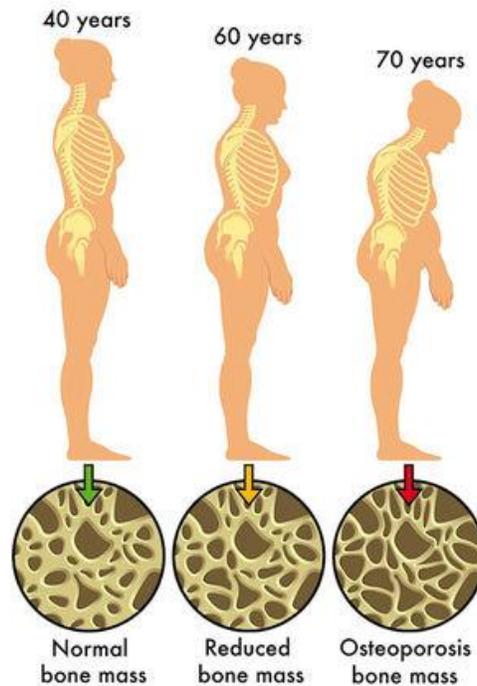
As you age you lose muscle mass, a condition called Sarcopenia. People who are physically inactive lose between 3 and 5 percent of their muscle mass per decade after age 30, and it accelerates at around 65. This is a problem because it causes you to become weak and can contribute to falls and fractures. (Ref 2. [WebMD](#))

There are a number of possible causes of Sarcopenia, including a decrease in muscular nerve cells, a decrease in hormone levels, and a decrease in the body's ability to synthesize protein. Strength training has been shown to be useful for both the prevention and treatment of Sarcopenia.

Resistance exercise seems to activate a muscle stem cell called a satellite cell. With the infusion of these squeaky-clean cells into the system, the mitochondria seem to rejuvenate. (The phenomenon has been called "gene shifting.") After six months of twice weekly strength exercise training, the biochemical, physiological and genetic signature of older muscle is "turned back" nearly 15 or 20 years. (Ref 3. [New York Times](#))

Resistance training has been reported to positively influence the neuromuscular system, hormone concentrations, and protein synthesis rate. Research has shown that a program of progressive resistance training exercises can increase protein synthesis rates in older adults in as little as two weeks. (Ref 4. [WebMD.com](#))

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## 2. Skeletal weakness

As we age, our skeletons tend to become more subject to arthritis (joint inflammation), osteoarthritis (cartilage breakdown), and osteoporosis (bone weakness). These can lead to pain, decreased mobility and a higher risk of fractures leading to life-threatening falls.

Lifting weights, even our body weight, offers numerous benefits to help manage arthritis pain. Exercise keeps muscles around affected joints strong, lubricates the joints, decreases bone loss and helps control joint swelling and pain.

(Ref 5. [Arthritis.org](http://Arthritis.org))

People with mild to moderate hip osteoarthritis may be able to avoid hip surgery if they exercise, according to a study published in *Annals of the Rheumatic Diseases* in 2013. The study showed that people who participated in an exercise program for one hour at least twice a week for 12 weeks were 44 percent less likely to need hip replacement surgery six years later compared with a similar group of people who did not exercise. Also, those who exercised reported improved flexibility and ability to perform physical activities compared with those who did not exercise.

Osteoporosis can also be prevented and treated through strength training. Like muscles, bones become stronger when they are active. Weight-bearing exercise strengthens bones by making them produce more cells. (Ref 6. [Arthritis.org](http://Arthritis.org))

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### 3. Lower energy

Strength training is one of the best ways to boost your metabolism. Testosterone and DHEA, the hormones that affect strength and energy levels, decrease as you age. But incredibly, just 12 weeks of resistance training can significantly increase the level of free testosterone and DHEA, which results in excellent health benefits for men and women, according to a study published this year in the journal of the Federation of American Societies of Experimental Biology. (Ref 7. [Theglobeandmail.com](http://Theglobeandmail.com))

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### 4. Changes in physical appearance

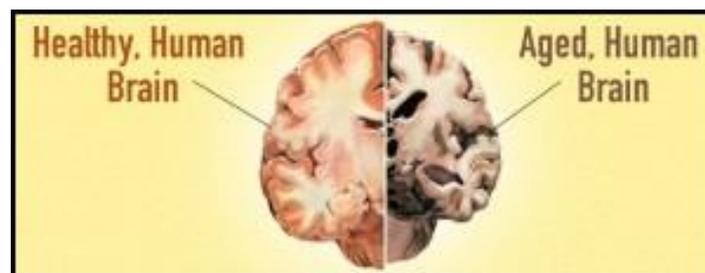
As you know, as we age it is common to put on additional abdominal fat. As muscles and the skeleton weaken, posture also suffers. And there is also the issue of saggy,

droopy skin.

Strength training is especially important for keeping off belly fat. This so-called visceral fat, which surrounds your internal organs, is particularly dangerous for your heart. Mekary and colleagues at the Harvard T.H. Chan School of Public Health found that healthy men who did 20 minutes of daily weight training had less of an age-related increase in abdominal fat compared with men who spent the same amount of time doing aerobic activities. Strength training also increases the number of mitochondria, the energy-burning structures inside cells. (Ref 8. [Health.harvard.edu](http://Health.harvard.edu))

Strength training also helps to improve skin tone. You can lose weight other ways, but it is recommended to include strength training to retain muscle tone and skin elasticity (avoiding droopy skin).

As stated above, muscular degeneration accelerates as you age, and that tends to be reflected in your posture. But strength training helps you keep your muscle mass longer and preserves the muscle tone required for good posture.



## 5. Diminished brain function

Resistance training can slow the cognitive decline associated with aging. A study led by Teresa Liu-Ambrose of the University of British Columbia showed that lifting weights improved memory and staved off the effects of dementia. It also improved the seniors' attention span and ability to resolve conflicts.

“Where previously we had seen positive associations between aerobic activity, particularly walking, and cognitive health, these latest studies show that *resistance training* is emerging as particularly valuable for older adults,” said Dr. William Thies, chief medical and scientific officer of the Alzheimer’s Association, in a statement.

(Ref 9. [Healthland.time.com](http://Healthland.time.com))

## Primal Essential Movements (PEM's)

For most people regardless of age, two high-intensity strength-training sessions per week is enough to deliver optimal results. The meaning of a "brief, high-intensity workout" is a session that is challenging enough that it would be difficult to continue the session at that level of physical output beyond 20 or 30 minutes due to the accumulation of fatigue.

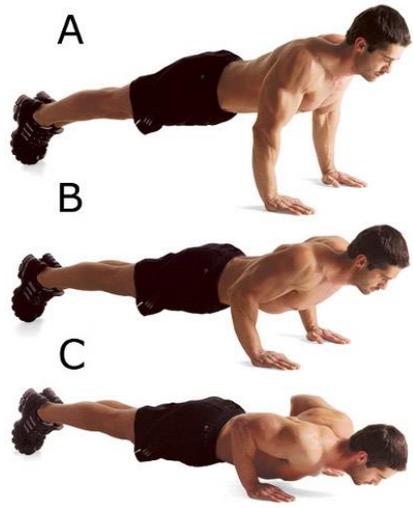
For many people, doing two sets of max effort in each of the four PEM's, (pushups, pullups, squats, and planks) might take around 20 minutes, adding in a few minutes of warmup and cooldown in between the exercises, and the rest periods between each set.

With each of the PEM's you can perform progression exercises, working up to the most challenging outcomes. Push ups (10 reps building to no more than 50) and planks (hold for 1 minute, building to 2 minutes), can be done from your knees initially, working into much more difficult form. Pull-ups can be assisted by using a chair to allow your legs to help with the lift. The number of reps is not important in the beginning (build to a max 25). Improvement will come with time. Squats would be done only body weight initially, trying to squat low enough for your butt to almost touch the ground (build to 50 reps).

Start with one set of each PEM at the max reps you can perform using good, safe form. Each strength session you will build up your capabilities. You can add additional sets at lower reps but do not go over 20 – 30 minutes duration on the session. It is important to keep the stress of your workouts managed. You do not want to keep your body flooded with stress hormones inhibiting your progress with a possible resulting weight gain. Gap your strength exercise days at least 2 days apart with no more than 2 days per week.

Primal Essential Movements (PEM)

Push-ups, Pull-ups, Squats and Planks (See illustrations below)



Push-ups



Pull-ups



Squats



Planks

I have come to understand the importance of strength training and healthy aging. It may surprise you how your body responds to the physical demands in a very positive way, even when you managed the frequency to align to the schedule of an active adult. I know I was.

# Living Aligned Health Coach Service

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