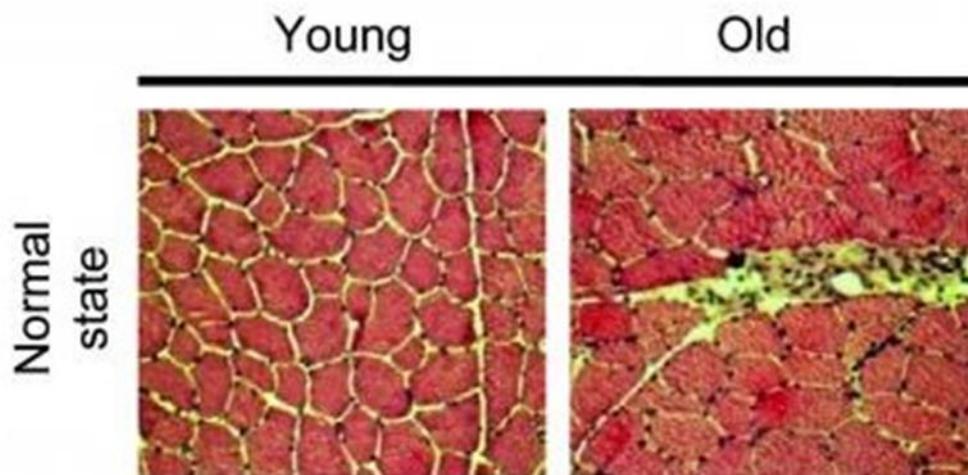


Now You Have It! And Now You Don't!

Happy New Year! I hope everyone had a safe and healthy New Year celebration.

I know you have heard this a thousand times – a picture is worth 1,000 words. Over the years, I have written many articles on the importance of maintaining a healthy and strong muscle mass. The reason is a healthy muscle mass provides the body the opportunity to better prevent and better manage certain diseases. And, a healthy muscle mass enhances the immune system which helps the body to lessen its risk for infections and viruses.

Look at the two images below. The image on the left is human skeletal muscle fibers from a young adult compared to the image on the right which is from an older adult (age >60 years). In the young image, the muscle fibers are dense and well defined. In the old image, the muscle fibers are less dense with spacing showing deterioration. In many cases (especially for sedentary individuals), the open spaces fill with intramuscular fat, a condition known as sarcobesity.



A recent study by Dr. Adelaida Palla, Dr. Helen Blau and others in the December 10, 2020 issue of *Science* and also published in the Stanford Medicine News Center showed that old muscle in mice can be rejuvenated by adding a protein called (15-PGDH) so that old muscle fibers return to look like the young muscle fibers with improved functionality. These authors are replicating this study with human myotubes. This is fascinating information and has many implications for people with certain muscular diseases such as muscular dystrophy.

What is the point? It's simple. **Most of what you see in the old image (open spaces/deterioration, less definition) can be prevented or slowed through a lifelong commitment to strengthening exercises.** These images also show what happens to muscle fibers when muscle is ignored as we age. One of the reasons why it is more difficult to perform physical tasks for older individuals (greater than 60 years) is that our muscle fibers have changed (old fibers) which makes it more difficult to generate strength to complete a physical task that was once easy to do.

As we start a new year, answer this question: **Do you want your muscle fibers to remain dense and well defined throughout life or become less defined with excess spacing and less function as you age?** Maintaining an active lifestyle including strengthening exercises will help maintain a healthier and more functional muscle fiber with age. This means you reduce your risk of slips and falls, have less brittle bones, a healthier immune system, a healthier body weight and the ability to better prevent and manage diseases like hypertension, Type II diabetes, certain cancers and many more. Muscle mass also helps to prevent injuries such as strains/sprains and slips/falls for workers in the workplace.

Keeping muscle strong and healthy does not come easy. It takes work to maintain healthy muscle fibers, but the rewards far outweigh the time and energy that it takes. And it is never too late to start!