THE IMPORTANCE OF BUILDING MUSCLE

The words “muscle mass” conjure up images of bodybuilders in the gym pumping up their pecs and performing curls for the girls, but building bulging biceps and increasing muscle mass is not just for bodybuilders. In the midst of the functional exercise movement, many fitness professionals focus on training efficient movement patterns and have forgotten the importance of building muscle. The old adage, “everything goes downhill after the age of twenty” holds true when it comes to muscles.

The loss of muscle mass is referred to as ageing atrophy; in which the total number, size and proportion of different fibers begin to decrease after the age of twenty five years old (Lexell et al., 1988).

Maintaining, and even gaining, muscle mass is especially important for older clients and the benefits extend well beyond just aesthetics. Muscles have a protective role, rehabilitative impact and metabolic role that provides valuable benefits to the aging exerciser.

Learning Objectives:
1. Review sarcopenia and its impact on the body
2. Understand the role of muscle in injury prevention
3. Learn the metabolic impact of muscle mass

Protective Role
Osteopenia, a condition that involves the loss of bone mass, is a concern with older clients - especially women. It’s considered a pre-osteoporotic state and osteoporosis will likely develop if this condition is not reversed; which can lead to weak and brittle bones. In the same way, older clients who lose muscle mass may develop a condition called sarcopenia.

According to the European Working Group of Sarcopenia; this condition is classified as low muscle mass, low muscle strength and low physical performance (Cruz-Jentoft et al., 2010). Unless there is a significant illness or injury, muscle mass tends to decrease very slowly over many years; it’s a very insidious process.
Sarcopenia falls under the radar because health practitioners often use body weight as a measure of health, instead of body composition levels. Assessing muscle loss by means of monitoring body weight is an inaccurate method because it doesn’t take into account the lean body mass (LBM) to fat ratio.

An example is a sixty-year-old female who has weighed 130 pounds her entire adult life. Since her weight has not changed, most would consider her to be healthy. However, the reality is that although her weight has remained the same, her body composition has changed drastically. She may have lost significant LBM and gained body fat, but this change is not detectable by only tracking her body weight measurements. This is the classic example of the skinny fat person!

A healthy ratio of muscle mass is also (and obviously) very important for athletes and even more critical for those playing in contact sports, such as football or ice hockey. Muscle mass aids these athletes in preventing injuries from contact. In the same way, muscle mass can help prevent injuries for older, non-athlete clients. Think of muscles as an insurance policy against injuries. The more muscle mass a client can maintain, the more protection they will have against fractures from falling and other incidents. Many of these older clients lose muscle in critical protective areas such as the gluteal muscles.

**Rehabilitative Impact**

If an injury has occurred, pain and inflammation will set in to heal the injury. During this process, muscle is usually lost in this cycle of pain and inflammation. Low back pain is a perfect example. Pain induces a reflex inhibition that leads to atrophy of low back muscles and stiffness of ligaments and joints. Due to this pain and stiffness, clients limit exercise; which results in muscle spasm and strain leading to a vicious cycle of pain (Lee et al., 2012).

A client who has had current or chronic low back pain will have wasting of the paraspinal muscles (Cooper et al., 1992). In particular, the multifidus muscles are integral for lumbar segmental stability and may play a role in reducing the occurrence of low back pain provided that atrophy is stopped and reversed (Daneels et al., 2000). Part of the solution is to reduce pain so that the client can exercise again. The other part of the solution is to hypertrophy the atrophied muscle. The gain in muscle in the multifidus will help break the cycle of pain and acts as a preventative measure against further low back pain.

**Metabolic Influence**

Muscle mass has a huge metabolic influence on the body (Ravussin et al., 1986). Ten thousand years ago you may have needed to be economical with calorie burning because you didn’t know where your next meal was coming from.
In this day and age, the majority of us have an abundance of food so conserving calories is not necessary. Therefore, when it comes to burning calories, there’s no need to be economical.

Think of a Ferrari versus a Fiesta. Nothing against a Fiesta, but the larger engine in the Ferrari burns a lot of fuel just idling at a stoplight. In the same way, the more muscle you have, the more calories you burn; even just sitting on your bum! Also, when you put the “pedal to the metal” in a Ferrari, you’ll burn up fuel quickly.

In a similar fashion, when you exercise, it’s similar to putting the pedal to the metal - you burn more calories. It becomes a snowball effect. The bigger your engine (aka your muscle mass), the more calories you can burn doing the same work.

**Increasing Muscle Mass**

Before discussing methods for hypertrophy, it’s important to understand the effects of aging on muscle mass. As we age, motor units are lost via denervation. In an attempt to survive, the body adapts by converting the type II fibers into type I fibers. In this process, the conversion of the fibers to a higher percentage of type I fibers results in a loss of type II fibers, as well as loss in strength and power (Lang et al., 2010). This has a significant impact on the type of training that should be performed for hypertrophy goals.

Increasing or maintaining muscle mass is similar to maintaining a garden. If you give plants the right type of soil, water and sunlight, plants will grow. As we age, the cross sectional area of our muscle doesn’t change but the landscape does. It’s important to give the body the right signal to stimulate the type II fibers to grow. It comes down to, “use it or lose it”!

Hands down, resistance training is the best bet to create hypertrophy in the type II fibers. Keep in mind, resistance training doesn’t just mean lifting heavy weights or loading up barbells; resistance can come in many forms. Bodyweight training or suspension training can be as beneficial as the more traditional lifting options. The benefits of resistance training are twofold: The load stresses the muscles as well as bones. Proper resistance exercise will help to build muscle mass as well as bone mass.

**Dietary Changes**

Exercise is one component of achieving hypertrophy but don’t forget about nutrition. Muscles are made of protein, so in order for a client to gain muscle, they must maintain a sufficient level of daily protein intake. Several examples of protein sources include free-range whole eggs, free-range chicken breast, grilled wild salmon or grass fed beef.
Additionally, the post-workout window is an opportune time to consume supplements, such as branched-chain amino acids and protein powders. Take advantage of this window of opportunity for repairing and building muscle.

When designing programs for older clients, kill two birds with one stone: Incorporate functional movement patterns such as squats, deadlifts, lunges, presses and pull-ups. Not only are these functional movements, these are also some of the best exercise options for increasing muscle mass. As a result, your clients will have the opportunity to move better while maintaining as much muscle mass as possible.

References:


