

# Three Reasons You Should Be Wearing Triple Stick Straps While Training

By Tom Michaud, D.C.

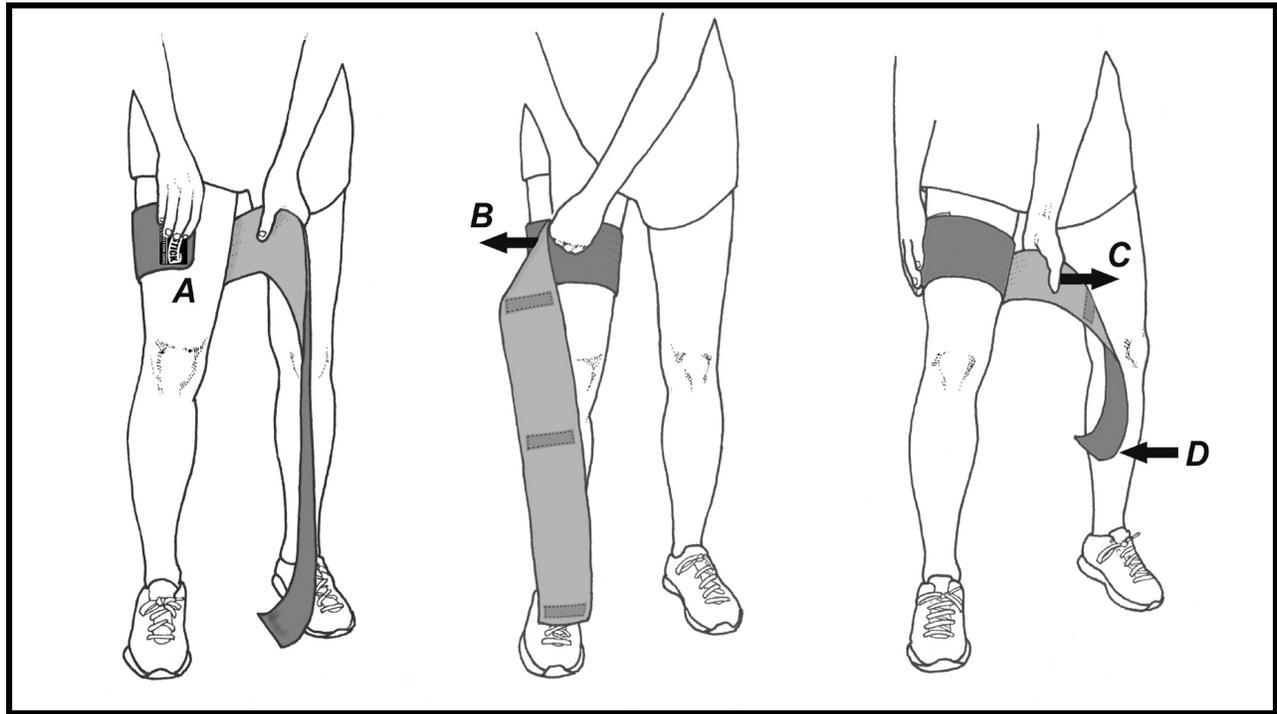


Fig. 1. The Triple Stick Strap.

## Summary:

- *The latest research confirms that blood flow restriction training using lighter cuff pressures can markedly increase the production of growth hormone, allowing you to substantially increase muscle mass while exercising with light weights. Triple Stick Straps were designed to apply approximately 40 mmHg pressure, making them a comfortable and safe alternative to conventional blood flow restriction straps.*
- *In addition to increasing growth hormone, light compression blood flow restriction training also increases the release of vascular endothelial growth factor (VEGF), which in turn promotes the formation of capillaries and improves aerobic capacity while exercising at low intensities. This means that endurance athletes can increase fitness even on their easy days.*
- *Besides strengthening muscles, blood flow restriction training allows you to markedly enhance the size, strength, and flexibility of tendons, even while using light weights. Improving tendon resilience can significantly improve performance and prevent injuries.*

Blood flow restriction training (or BFR training) was originally developed in Japan in the 1970s, where weightlifting enthusiasts used tourniquets to markedly impair circulation to their arms and/or legs while lifting weights (1). Early adapters to BFR training noticed that even when lifting light weights, they were able to build muscle mass at a rate not possible with conventional exercises. Subsequent research has shown that BFR training produces muscle hypertrophy in less than three weeks, with 290-fold increases in growth hormone production (2). Despite nearly unparalleled gains in muscle mass, popularity of BFR training remained limited to competitive weight lifters, as the high cuff pressures tended to be pretty uncomfortable.

Recently, several studies have shown that it is not necessary to use full occlusion of blood flow in order to get all of the benefits associated with BFR training (3, 4) (Fig. 1). The ability to build muscle mass using light resistance is clinically important, as it is possible to start strength training within days, not weeks of an injury. Research by Hassleman et al. (5) proves that even muscles with small tears are able to tolerate light resistance exercise without worsening the muscle tear. In my experience, recovery rates following muscle strains can be cut in half by using Triple Stick Straps to perform BFR training. BFR training is also important for individuals following cast immobilization. Because muscles atrophy 1.5% per day when immobilized, BFR training allows for the rapid return of muscle mass while placing very little stress on the atrophied and weakened muscles and tendons.

Last but not least, training with Triple Stick Straps should be considered for almost all seniors about to begin an exercise program. Because muscle mass decreases by approximately 2% annually after we turn 50, senior citizens are more likely to possess weaker muscles and tendons, which increases their risk of injury when lifting the heavy weights. One review of the literature found that seniors are 10 times more likely to be injured while exercising than their younger peers (6). This is especially true for people with knee arthritis, who are often unable to strengthen their damaged joints because they can't lift the heavy loads associated with conventional strengthening programs. In a 2018 paper published in *Medicine and Science in Sports and Exercise*, researchers had older women with knee arthritis perform either low-intensity resistance training with partial blood flow, or high intensity conventional strength training (7). The authors measured strength, muscle volume, and agility before and after a 12-week exercise protocol and determined that both groups had comparable improvements in strength and function, along with significant reductions in pain. The authors emphasize that because low-intensity BFR training gets the same results as high-intensity training, while appreciably reducing joint stress, it represents an "effective therapeutic adjuvant in osteoarthritis management."

In another important study evaluating the use of blood flow restriction with light compression, researchers from Brazil assigned 30 young males to 1 of 3 exercise protocols (8). The first group was asked to do 4 sets of 10 repetitions using heavy weights. The second group was asked to perform moderate to high intensity endurance training by cycling at 70% full effort for 30 minutes. The last group was told to ride a bicycle for 30 minutes at about 40% full effort while wearing a blood flow restriction strap fitted with light pressure.

At the end of the 8-week training session, researchers were surprised to see that the subjects who wore compressive straps while riding a bicycle at a comfortable pace had measurable increases in muscle mass, while also showing substantial improvement in aerobic fitness despite the light effort. The blood flow restriction group increased muscle mass nearly 11%, while the subjects in the heavy resistance group increased muscle 12.5% (hardly worth the added effort). Moreover, the subjects in the light exercise group also improved aerobic capacity by 11%, which is a considerable improvement given the reduced total workload associated with exercising at such a low intensity. The authors relate the improved aerobic capacity to the fact that blood flow restriction straps increase the release of vascular endothelial growth factors, which promote the formation of capillaries thereby improving aerobic fitness. The importance of this last finding cannot be understated for endurance athletes, especially high-mileage runners worried about overtraining, and those returning from an injury, as the low-intensity workouts produce improvements in aerobic capacity on par with high-intensity training.

Recent research shows that BFR training does more than strengthen muscles. In 2019, researchers from Europe showed that both low-load BFR training and conventional high-resistance training produced comparable improvements in Achilles tendon strength and resilience (9). Additionally, both training protocols produced the same increases in calf strength and muscle volume. In 2021, some of the same researchers proved that low-load resistance training with partial blood flow restriction strengthened the patellar tendon as effectively as high-load resistance training (10). Because age-related declines in athletic performance are strongly correlated with calf weakness and reduced tendon resilience, low-load BFR training should be a part of every aging athlete's exercise routine. Especially when you consider the improved aerobic capacity associated with the increase in vascular endothelial growth factor.

The bottom line is whether your goal is to accelerate recovery, treat/prevent osteoarthritis, increase muscle mass, or improve aerobic capacity, Triple Stick Straps can be a great addition to your rehab routines. Even though wearing compressive straps while exercising has been proven to be safe and effective for almost everyone, people who have recently had surgery, especially joint replacements, should wait at least three months prior to initiating BFR. This is also true for people with a history of clotting disorders and/or people with symptoms such as unexplained swelling, pain, soreness and/or discolored skin. In their 2019 paper evaluating the risk/rewards associated with blood flow restriction training, Bond et al. (11) claim that while the collective literature indicates that blood flow restriction training poses little risk of directly causing injury (even at high strap pressures), the ideal candidate for this type of training is an active person who exercises regularly, but has difficulty with high intensity workouts. This is especially true for people over 60, who would like to avoid the proven risks associated with heavy resistance exercises (6), and for injured athletes, who want to achieve optimal performance as quickly as possible.

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