Warming up prior to practices and meets is not only widely accepted among gymnasts but is also considered an integral part of a gymnast’s overall daily routine; therefore, the purpose of this article isn’t to convince the reader of the merit of warming up but to discuss what strategies are optimal and most likely to allow a gymnast to perform at his/her best.

A commonly used strategy to prepare a gymnast for activity is static stretching. Static stretching is a method in which the athlete puts a muscle group into a stretched position and holds that stretch for a specific time period, which is generally at least 30 seconds. This article will propose (through the support of research literature) that static stretching is not an ideal method to prepare the body for gymnastics and will go so far as to say that static stretching prior to activity can cause a decrement in performance. For many, this will be tough to accept because a plethora of coaches and athletes have implemented these kinds of warm-ups for years. The paradigm shift that has diminished the value of static stretching in favor of a dynamic warm-up routine will undoubtedly cause many to be hesitant to incorporate a change in their programming. Hopefully, the following rationale will at least cause coaches and athletes to consider and weigh each method in hopes of finding the best possible strategy.

During static stretching, the body is still and does not move; consequently, the body temperature does not elevate. This is significant because it is advantageous for the body to experience an elevation in body temperature to accentuate the speed and efficiency at which metabolic reactions take place. Perhaps even more concerning is that static stretching essentially “shuts-down” the efficiency of the nervous system in producing explosive movements. Allow me to explain: When we hold a stretch on a muscle we evoke what is referred to as the myotatic reflex. This means that our muscle spindles, which detect length changes in the muscles, cause a reflex contraction to take place when they notice lengthening of the muscle fibers. However, prolonged stretching may inhibit myotatic reflex activity, allowing the muscle-tendon unit to lengthen with minimal resistance from the muscle and connective tissues. This is not a good thing when it comes to performance because, as one researcher

To see a video of Dynamic Stretching go to http://usagym.org/healthknowledge

---

3. Influence of Pre-Exercise Stretching on Force Production. Jonathan H. Anning, PhD, CSCS,*D. This paper was presented as part of the National Strength and Conditioning Association (NSCA) Hot Topic Series.
proposes, the “inability to generate forces after (static) stretching results from a lack of neural activation.” In addition, other researchers point to the well-supported theory that explosive athletic movements are compromised from static stretching because of a loss of elastic energy in the muscle. In laymen terms, this is similar to a rubber band being stretched for a prolonged period of time and thus losing its elastic “springy” properties. Other studies also illustrate this theory by proving that static stretching before a vertical jump decreases maximal height achieved and force production.

If gymnasts lose their abilities to use the elastic properties of the muscle, they are not able to be as explosive as they can be. Of course, this is an obvious problem considering gymnasts have to produce extremely high levels of power regardless of what event they are engaged in. The sport-specific demands of gymnastics dictates that a warm-up must “crank-up” the nervous system instead of shutting it down.

In conclusion, based on the above information we know that optimal warm-up strategies should include components that raise body temperature and take the muscles through a healthy range of motion without negating the advantages of having a nervous system that is sensitive and ready to promote explosive movement. Dynamic mobility work performed before a practice or meet accomplishes this requirement. Greater neural activity that can generate greater muscle stiffness may explain the enhanced force production and speed performance following dynamic stretching. The dynamic warm-up can be used to its greatest potential by ensuring the athlete is always moving the joints through a healthy range of motion to elicit not only joint mobility where necessary but also to give the body proprioceptive awareness by forcing certain joints to fulfill their roles as stabilizers of the body. It should be noted that these should be non-fatiguing dynamic movements that do not exhaust a gymnast before the meet or practice session starts. Also, a dynamic warm-up should utilize movements that occur in different vectors and planes of motion.

After a practice or meet, it is very appropriate to utilize the benefits of static stretching and/or PNF (proprioceptive neuromuscular facilitation) stretching. Flexibility and mobility are without a doubt among the paramount requirements of the sport and utilizing these methods of stretching after you do gymnastics is in the best interest of these athletes.

Please take time to view our videos sent to USA Gymnastics on dynamic warm-up strategies. These videos will give you ideas on how you can take your warm-ups the next level to put yourself in a position to succeed.

To see a video of Dynamic Stretching go to [http://usagym.org/healthknowledge](http://usagym.org/healthknowledge)

---

Excerpts from: