Lets' Not (Static) Stretch…the Truth

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Today, thanks to social isolation and YouTube, I watched a video of Usain Bolt, the fastest man in the world, performing a warm-up routine. A trainer took each of his legs and put the hip and knee joints into flexion for about 1 second. Then Usain Bolt did some dynamic stretching, including normal running and running with high knees for short distances, and some sudden accelerations from a stopped position. A little walking around, and he was ready to go! In the comments section were many submissions like "I thought we weren't supposed to stretch!" and "But he's only stretching for a few seconds!" and so on.

SHOULD DOGS STRETCH?

Whether or not to stretch, and if so, how and for how long, is a huge controversy in human sports medicine. Since there are no published articles on the effects of either static or dynamic stretching in the dog, we rely on the literature about stretching in humans and apply those findings to dogs. As a result, the same controversy exists in the dog world.

There are numerous articles that say that stretching helps improve human athletic performance. And there are just many that say it doesn't, and might even reduce performance. There are numerous articles that say that stretching helps prevent injuries. And there are just many that say it doesn't. You can see why the subject is so contentious.

As for dogs, they often stretch themselves, usually with a nice, long play-bow when they awaken, so it must be helpful, right? I wish it were that easy…

Luckily there are two published meta-analyses that have addressed the effects of stretching in human athletes. A meta-analysis is a statistical analysis that combines the results of multiple scientific studies that address the same question in an attempt to use pooled data to establish a consensus. It is considered the highest form of scientific evidence. The two meta-analyses (References in blog 1, 2) come to the same conclusions, so we'll just discuss the more recent one.

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The meta-analysis by Behm et al, 2016 examined 125 published studies to determine whether and how **static and dynamic stretching** affected **performance and injury prevention** in sports activities that took place shortly thereafter (1).

There are two main types of stretches: static and dynamic. **Static**, or passive, stretching "involves lengthening a muscle until either a stretch sensation or the point of discomfort is felt" (1). It does not involve contraction of muscles, but rather a passive lengthening of the muscle/tendon unit. A canine example of static stretching is shown in Figure 1. Dynamic, or active, stretching "involves the performance of a controlled movement through the range of motion of a joint" (1). In dynamic stretching, nerve conduction and muscle contraction occurs, so energy-producing mechanisms are activated in the muscle cells, vessels dilate to supply more blood to the muscle, and as a result the muscle heats up. See Figure 2 for an example.

Results of the Meta-analysis

A. Static Stretching Effects on Performance Static stretching reduced performance overall by 3.7%. It caused a 1.3% reduction in power-speed-based tasks such as sprinting and jumping, and a 4.8% reduction in strength-based tasks such as maximal voluntary contractions (e.g., how many times a person could perform a task before experiencing overload). The longer the period of static stretching, the greater the reduction in performance.

B. Static Stretching Effects on Injury Risk Only 12 of the 125 studies examined this question, and those covered a wide variety of types and duration of stretches, as well as various performance activities. Overall, these studies suggested a 54% risk reduction in acute muscle injuries associated with stretching. The study was unable to conclude whether stretching reduced the risk of chronic, overuse injuries, which are the ones we encounter most often in our active dogs.

C. Dynamic Stretching Effects on Performance Dynamic stretching increased performance overall by a minimal 1.3%. It caused a 2.1% increase in jumping performance and a 1.4% improvement in running, sprinting or agility. Dynamic stretching had an infinitesimal negative (-0.23%) effect on strength-based tasks such as maximal voluntary contractions.

D. Dynamic Stretching Effects on Injury Risk No studies examined this question.

The Bottom Line

Summarizing the findings it would seem that static stretching reduces performance but also reduces the risk of acute muscle injuries. Dynamic stretching seems to minimally improve performance, but we don't know whether it is of benefit or not in reducing the risk of injuries.

How do these data apply to our active dogs? Well, that one is easy! Let's look back at the definition of static stretching: it involves "lengthening a muscle until either a stretch sensation or the point of discomfort is felt." Well, we are completely unable to discern when our dogs are feeling a "stretch sensation," and given the fact that most dogs hide pain until it is severe, we also cannot determine when our dog reach "the point of discomfort."

Therefore, static stretching is inappropriate for dogs. If you want to include stretching as a component of your warm-up, just do dynamic stretching, in which your dog initiates the action itself. Recognize, however, that the data suggest that even dynamic stretching has only a minimal beneficial effect on performance.

The play bow is a good example of dynamic stretching for the front limbs and the spine. You can train your dog to initiate a play bow on its own by rewarding when those natural stretches occur. Or you can lure your dog into a play bow as shown in Figure 2.

An Appropriate Warm-Up Routine

Dynamic stretches are best done after the dog is slightly warmed up, so a good warm-up program for your dog would consist of:

1. Three to five minutes of easy activity such as walking around, trotting a bit, playing tug, etc.

2. Optional dynamic stretches, particularly those that extend (Figure 2) and flex the spine (ventrodorsally and laterally), and extend the limbs; these are demonstrated in Fit For Life® Videos 2.0.

3. Activities that practice components of the upcoming performance events, such as jumping, turning, fast starts, etc.

For blog references and photos, please go to www.AvidogZink.com/blog.