CrossFit JOURNAL WHEN LIMBER BECOMES TOO LOOSE

Theresa Larson explains when and how to stretch and why some people shouldn't stretch at all.

BY HILARY ACHAUER





Theresa Larson's physical-therapy patients come to her with a variety of ailments, but back pain is one of the most common complaints.

Recently, a woman who does CrossFit and yoga came to Larson complaining of a low-back pain that radiated down her leg.

"What stretches should I be doing?" she asked.

Before answering, Larson asked the woman to bend at the waist with her legs straight and touch the ground.

"She flopped over and put her elbows on the ground," Larson said. "I asked her if she felt any tension—any hamstring stretch at all-and she said no."

Larson, a physical therapist specializing in movement and rehabilitation for athletes and adaptive athletes, told the woman she could help, but the treatment wouldn't involve any stretching. The woman's problem was she was too flexible. She lacked stability in her joints, and that was contributing to her low-back pain.

Stretching is something we all feel we should be doing. For many of us it falls to the bottom of the list, somewhere between taking vitamins and finally learning a second language.

According to Larson, not everyone needs to stretch. People with too much mobility frequently lack stability.

"When you bend over and touch your toes, you should be able to feel tension in your hamstrings and butt. If you don't, you need more stability. So stretching more isn't going to get you that. It's going to hinder you," Larson said.

If you can't touch your toes, you could benefit from increased flexibility, but research shows traditional static stretching-holding a stretch for a few seconds to a few minutes—is better after the workout. This doesn't mean you should jump into a workout cold, however. Movement-specific dynamic stretching is an essential part of any athletic pursuit.

Stretching is simply not a one-size-fits-all prescription. Before you join your friend for an epic mobility session, assess your flexibility and stability and the type of activity ahead.

Pre-Workout Movement

The consensus on the benefits of pre-workout stretching has shifted over the years. There was a time when stretching before exercise was considered essential. Then, in the early 2000s, experts determined static stretching had a negative impact on performance and could even increase the risk of injury.

"Static stretching will not increase your force production. If you are going to do a high-velocity-type training, that's not going to help your vertical jump. That's not going to help your force production. So it's actually going to diminish your ability to work fast if you static-stretch before training," Larson said.

If the static stretch is held for less than 30 seconds and followed by warm-up movements, there's almost no negative effect on performance.

The study found static stretching could have a temporary negative effect on the body's ability to generate power only if each stretch was held for more than 60 seconds and the subject immediately jumped into the activity. As the authors of the study point out, that's not how most people approach warm-up stretching. Most people hold stretches less than 30 seconds and usually do some type of warm-up movement before the sport or exercise. If the stretch is held for less than 30 seconds and followed by warm-up movements, there's almost no negative effect on performance. The study also noted that short pre-workout static sessions can reduce the risk of muscle strains and tears.

of dynamic stretching.

performance.

In early 2016, the journal Applied Physiology, Nutrition and Metabolism published a study analyzing more than 200 studies on stretching and exercise. (The study is summarized in this New York Times article, and the original paper can be found here.)

A dynamic or ballistic warm-up can have benefits. For example, if the workout is going to include squats or deadlifts, a dynamic warm-up might include air squats, leg kicks, lunges or jump squats. The Applied Physiology, Nutrition and Metabolism report found about a 1.3 percent performance improvement as a result

Dynamic stretching has benefits beyond performance. The study found dynamic stretching "can elevate the core temperature ... which can increase nerve conduction velocity, muscle compliance, and enzymatic cycling, accelerating energy production." A few studies showed dynamic movements can have a 4.9 percent improvement on vertical jumping.

Proprioceptive neuromuscular facilitation (PNF) is the third type of stretching: It involves both stretching the muscle and contracting it against resistance. PNF stretching is typically done with a partner or immovable object. For example, the athlete lies on the floor and a partner moves the athlete's extended leg to a point of mild discomfort. The athlete then pushes against the partner's resistance before relaxing and allowing the partner to take the stretch further. The consensus in the study is PNF stretching improves range of motion (ROM) but has no positive effect on

"Stretching is not going to help you with your movement patterns in a workout," Larson said. "Ballistic stretching and PNF will



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stretches for 180-300 seconds.



help muscle activation, but they aren't going to help you with the movement patterns you are about to do in the workout. You need to have a good warm-up, do dynamic stretching and PNF, and then do movements that are going to prepare you for the workout."

The authors of the Applied Physiology, Nutrition and Metabolism study acknowledge that such variability among studies in terms of type of stretching makes it difficult to reach a firm consensus, but studies across the board show pre-workout static stretching doesn't demonstrably improve performance.

This information has not reached the masses—Larson said she often encounters people who stretch before a workout with the idea that it will positively affect their performance.

"It's not going to help you improve your skill in the sport," she said.

Post-Workout Flexibility

If static stretching is best saved for after a workout, how long and how often should you stretch post workout?

First, determine if you should be doing any post-workout stretching. As Larson told her overly flexible client with low-back pain, "Not everyone should be stretching."

If you can bend over with your legs straight and put your elbows or palms on the ground, Larson said flexibility should not be your focus.

"You should do more stability work," she said.

She's found people with too much mobility often have lowback or sacroiliac-joint pain and don't know how to activate their glutes. Larson said these are often the people who tell her, "I only feel my guads when I squat."

Such people lack tension in the back of their body, and they are often the ones unnecessarily doing stretching programs.

"(The back side of your body) actually protects your backthat's going to cause problems down the road with decreased tension," Larson said.

Larson has a program that includes a movement assessment for those looking for more information about low-back pain associated with too much mobility.

A lack of stability does not mean a problem with balance; it's an inability to control the joint. If a joint has too much motion, it can lead to a weak rotator cuff, back pain and so on.

Instead of yoga classes or hour-long flexibility sessions, those who are too flexible should be doing stability drills such as pause squats with a band around the knees, holding the end range of the squat.

"If they can squat using a band, it will give them tension in



If you're very flexible, skip the stretching session and do isometric work to increase stability and foam rolling to decrease stiffness.

their glutes," Larson said. "If they squat and hold the bottom position, the body becomes more aware of what that should feel like. People who are missing stability need more motor-control drills, activation drills and tissue smashing."

Those who are not overly flexible can benefit from daily static stretching after a workout.

"When you increase the time of the stretch, 180 seconds to 300 seconds, you are going to increase the flexibility of the muscle tissue. ... The 180-second mark is going to decrease stiffness and increase range of motion," Larson said.

"You are not going to increase force production and muscle activation in the tissue, but you are going to increase flexibility, which will help prevent injury."

Larson recommends holding each stretch for the full 180 seconds, accumulating about an hour of stretching overall.

She also recommends PNF over static stretching "because (with

static stretching) you can only go so far before you run into a stop," she said.

"With PNF, you contract the muscle," Larson said. "Say I'm stretching my hamstring. I contract my hamstring in a gentle stretch position. The Golgi tendon organ in the tendon itself inhibits the activity of the muscle spindle so you can go a little bit further into the stretch. All of a sudden there's a relaxation in the muscle ... you are contracting, relaxing, contracting, relaxing."

Beyond increased range of motion and flexibility, post-workout stretching has another benefit, especially for people who practice a fast-paced sport such as CrossFit. Just as we need to move our body quickly, we also need to spend time deliberately slowing down. Spending an hour stretching helps down-regulate the body, which, if you also concentrate on your breathing, can be a form of meditation.

For those who are overly flexible, Larson suggests passing on stretching and instead spending the time doing isometric drills

or self-myofascial release (tissue smashing) with a foam roller or lacrosse ball.

"You'll hear someone who is super bendy say, 'Well, my hips are tight or my quads are tight," Larson said, "but they are not tight. They are missing stability, so their muscles are overactive. They need to get in there and gently bring blood flow and nutrients to the muscles.

"So by smashing it helps decrease the knotted feeling, and ... that will help decrease stiffness over stretching because they don't need more length. They simply need blood flow to the tissue."

Daily Dose

"You need to understand what your body needs," Larson said, "tightness doesn't mean more stretching, and stretching doesn't mean improved performance."

Prepare your body for the workout ahead with a dynamic warmup, and then spend your post-workout time addressing your body's individual needs.

About the Author: Hilary Achauer is a freelance writer and editor specializing in health and wellness content. In addition to writing articles, online content, blogs and newsletters, Hilary writes for the CrossFit Journal. To contact her, visit hilaryachauer.com.

For those who are overly flexible, Larson suggests passing on stretching and instead spending the time doing isometric drills or self-myofascial release.

Isometric exercises are movements you hold under tension, such as a plank, a hang from a bar or a pull-up hold, or a glute bridge.

Self-myofascial release, or tissue smashing, involves rolling on a foam tube or lacrosse ball, concentrating on the muscle rather than the bones or joints.

Whatever your particular needs—whether it's improved flexibility or stability-you need to dedicate time each day to see a change.

Those who need more flexibility should work on stretching every day. The overly flexible should spend that time doing isometric exercises and tissue smashing.