

LUNGE AT IT

Looking at ligament forces during short- and long-step forward lunges

As a strength and power sport athlete, you engage in many weight lifting exercises in an effort to strengthen your lower body. Some of the most effective exercises are closed chain exercises, where your feet are in contact with the ground or otherwise planted, such as the squat, step-up, leg press, and lunge. When you are injured, these exercises can be of benefit, too. And even if you undergo cruciate ligament surgery, these exercises can play an important role in your rehabilitation. As you are well aware, these exercises can be modified and so the question becomes, what happens to your knee's ligaments during such modifications? The lunge, as an example, is a major strength and power exercise. You can perform it while striding forward or not and while taking a short or a long step. How might those modifications affect your knees? Ex-powerlifter Rafael Escamilla, PhD, PT, CSCS, FACSM, from the Andrews-Paulos Research and Education Institute in Florida, set out with several colleagues to explore that question.



Variations of the lunge do indeed impact your knees. But not to the extent many trainers would want you to believe.

Original Research

Escamilla, R., et al. Cruciate ligament forces between short-step and long-step forward lunge. *Medicine and Science in Sports and Exercise* 42(10):1932-1942, 2010.

Power Key: lunge, ligaments, EMG, force, knee rehabilitation