Clinical Pearl: Dynamic Quad Sets

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Technique: Dynamic quad sets over pillows to increase quadriceps muscle strength, endurance, and coordination.

Indication: Significant weakness in quadriceps muscles for a variety of reasons including: acute injury, knee joint arthrosis, recent surgery, etc.

Positioning: At home the patient can perform this exercise on their bed (or on the floor if they have that level of mobility) in supine or a long-sitting posture. Thick pillows (approximately 8-10” high) are placed directly under the patient’s knee.

Instruction: The patient contracts their quadriceps muscles and actively pushes the back of their knee into the pillows, compressing them as much as possible, and then immediately relaxing and repeating. The goal is to have the client keep their heel down and not do a SAQ (short-arc quad) exercise. High repetitions (4 x 25 reps) are recommended and are usually well tolerated.

Note: Except in rare cases, anyone who is appropriate for isometric strength training of the quadriceps (traditional quad sets, SLR) can perform the dynamic quad set. The use of pillows is key to this exercise as it allows for a small amount of knee flexion and extension and it provides a comfortable level of resistance. Rolled up towels, rolled up yoga mats, and foam rollers are not appropriate for this exercise.