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ADVANCED STRETCHING: USING NEURAL INHIBITION TO ENHANCE THE STRETCH, PART 2

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In part 1 of this series, we discussed contract relax (CR) stretching, which involves neural inhibition to augment the mechanical stretch of the target musculature. Here, in Part 2 of this series, we will discuss agonist contract (AC) stretching, which also uses neural inhibition to augment the mechanical stretch of the target musculature.

AC Stretching

Similar to CR stretching, AC stretching also relies upon a neurologic reflex. However, whereas the Golgi tendon organ (GTO) reflex is the proposed neural mechanism for CR stretching, reciprocal inhibition is the proposed neural mechanism for AC stretching. The mechanism of RI is that whenever a mover muscle contracts and shortens to create a joint action, the antagonist musculature (that

is usually located on the other side of the joint) must lengthen to allow that motion to occur. RI reflex acts to facilitate the lengthening of the antagonists by inhibiting them from contracting. This inhibition causes a relaxation so that the antagonists more effectively lengthen. As with the GTO reflex, we can take advantage of this reflex to create a better stretch.

AC stretching is performed by creating a scenario in which the target muscle that will be reciprocally inhibited is the antagonist to the joint motion that is performed. The usual AC stretching protocol steps are carried out as follows. The right lateral flexor (RLF) musculature of the neck are used as the example (FIG. 1):

- a. Have the client begin in a neutral starting position.

- b. Ask the client to actively concentrically contract the left lateral flexion (LLF) musculature, moving the neck into LLF. By doing this, the target RLF musculature is the antagonist of the motion. Their stretch is begun and the RI reflex is triggered. The client usually exhales during the contraction (think e for exhale and e for exertion).

- c. The client then relaxes and we further stretch the client into LLF. The client usually completes the exhale during this step.

- d. The client continues to relax as we passively bring the client back to the starting position. The client inhales during this step so she is ready for the next repetition.

Typically eight to 10 repetitions

are performed, and we progressively increase the force of the stretch with each repetition. Because a large number of repetitions are performed with AC stretching, each repetition is usually performed fairly quickly. An entire repetition takes approximately 3–5 seconds.

Comparing CR and AC Stretching

To more easily learn these techniques, it can be helpful to compare CR with AC stretching. With CR stretching, the target muscle group isometrically contracts against our resistance. (Note: Part 1 of this series, the target right lateral flexors isometrically contract.) With AC stretching, the target muscle group is turned into the antagonist of the joint motion. Note that in Figure 1a of Part 2 here, the

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FIGURE 1: AC stretch of the right lateral flexor functional group of muscles of the neck. A, the client actively moves into left lateral flexion (LLF); B, the client relaxes and the therapist further stretches the client's neck into LLF.



FIGURE 2: CRAC stretch of the right lateral flexor (RLF) functional group of muscles of the neck. A, starting from a neutral position, the client isometrically contracts the RLF musculature against resistance; B, the client actively moves into left lateral flexion (LLF). C, the client relaxes and the therapist further stretches the client's neck into LLF.



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