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PHYSICAL THERAPY

What is…

Isometric Exercise?

Isometric exercise is a form of exercise that produces tension on a muscle without changing the length of the muscle and does not produce a change in the range of motion (ROM) in a joint. While isometric exercises do not provide as much strength gain as concentric or eccentric exercises, it is a useful form of exercise with some patients. Isometric exercises can be useful to increase strength or slow down muscle atrophy with patients who have limited ROM or when pain creates limited ROM in a joint.

Resistance against an immovable force is required to perform an isometric exercise. Typical isometrics can be performed in a variety of means and can be done easily without equipment, which makes isometric exercises convenient.

A health professional can provide outside resistance. For example, if a patient wants to work on the biceps, the health professional can grasp the patient's wrist or forearm, and instruct the patient to try to pull up or bend the elbow, while the clinician firmly holds the forearm to prevent movement.

A patient also can use his or her own body or opposite limb as resistance. Using the same bicep example, the patient can start with his or her right arm at his or her side with the elbow bent to 90 degrees. The patient then places his or her left hand over the left wrist. The patient tries to pull upward with the right arm while pushing down with the left arm to prevent movement.

A patient also can use an immovable object for resistance. To work on the right bicep, the patient can sit at a table with his or her elbow bent to 90 degrees, place the right hand under a heavy table, and push up against the table.

Isometric exercise produces strength gains as long as the patient pushes at least 60% to 80% of maximum contraction for at least 6 seconds. Another factor to consider is that strength gains are produced only in the position of the joint while performing the isometric exercise. For this reason, perform isometric exercises in several different ranges or positions. For example, isometrics can be performed with the elbow joint at 20, 45, 60, 90, and 120 degrees to provide for gains throughout the full range if it is appropriate for the patient.

Isometric exercise can be an easy and convenient form of exercise type in the early stages of rehabilitation to produce strength gains or to prevent muscle atrophy in patients presenting with pain produced with movement or limited ROM.