

## Tubing Exercises<sup>†</sup>

*Tubing exercises can be useful in the rehabilitation of many musculoskeletal conditions. These exercises do not require costly equipment and are relatively easy to learn and perform.*

There are a number of ways to apply tubing exercises, also called isotonic band exercises. They can be introduced when the patient becomes subacute or later in the rehabilitation phase.

One rule of thumb is that isotonic band exercises may be started once the patient has achieved greater than 20 to 30 degrees of pain-free active range of motion.

Begin with the least resistant bands and eventually progress to bands of higher resistance—always staying within the pain-free range of motion. Patients may do a specified number of repetitions and sets (e.g., 3 sets/10, 3 times a day) or use the time designations below.

When exercises at on level can be done successfully, move the patient to the next level.

The following exercises, especially Levels 2 through 5, should create a muscle “burn,” *but not reproduce symptoms*. It is important to emphasize smooth controlled movement, good form, and posture with as little re-recruitment as possible.

**Level 1:** Slow, mid-range for 60 seconds or until fatigue (This level is optional.)

**Level 2:** Fast, mid-range for 60 seconds or until fatigue (goal: facilitation)

**Level 3:** Slow with full range; hold at end range up to 30 seconds; release through eccentric range in slow, controlled manner. (goal: strength)

**Level 4:** Fast, full range for 60 seconds or until fatigue (goal: endurance)

**Level 5:** Repeat above phases, using movements that mimic the sport or job to which the patient is returning. For example, attach tubing to a racket and have patients go through the motions of their swing. (goal: functional training)

It is suggested that if a patient takes more than one week to progress from one level to the next, then an alternating day rather than daily schedule should be followed.<sup>‡</sup>

### Optional Applications

In later rehabilitation phases, these exercises can be repeated while standing on a rocker or wobble board to enhance proprioceptive training.

If appropriate to the joint, PNF cross-patterns can be given as home care with tubing resistance.

In cases of instability, rapid mid-range tubing activities just outside the unstable range may be good proprioceptive training.

If emphasizing *eccentric* training is the goal, assist the limb being exercised through the concentric phase and have the patient perform the eccentric phase very slowly.

**NOTE:** It is important that eccentric training be preceded by a period of free weight training so that the muscles are first properly conditioned.

For more specific advice, see the appropriate Care Pathways.

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†Much of this protocol is based on this reference:

Souza T. *Sports Injuries of the Shoulder*.  
Churchill Livingstone, New York 1994. pp.  
543-544.

‡Christensen, K. *Clinical Biomechanics*. Foot  
Levelers, Dubuque 1984.