The wrist and hand

Chapter 19
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It functions to control the length tension relationship of the multinarticular muscles of the hand as they adjust to various activities. The wrist is often considered the most complex joint of the body. Both from an anatomical and physiological perspective. However, there are 2 points of consensus regarding the wrist (1) the structure and biomechanics of the wrist, as well as the hand vary significantly from person to person and (2) even subtle variations can produce differences in the way a particular the functional activity occurs.

Read pages 658-701

Exercise interventions for the wrist and hand

Techniques for musculotendinous mobility

Active muscle contraction and specific motions of the digits and risks are used to maintain or develop mobility between the multijoint musculotendinous units and other connective tissue structures in the wrist and hand. Because adhesions between the various structures can be restrictive or incapacitating, tendon gliding, exercises and tendoned, blocking exercises are used whenever possible to develop or maintain mobility. This is particularly important when there has been immobilization after trauma. If surgery or fracture and scar tissue adhesions have developed if restrictions occur as a result of scar tissue adherence between tendons or between tendons and surrounding tissues, mobilization techniques may be necessary. General stretching techniques also may be necessary. The tendon-gliding and tendon-blocking exercises may also be used to develop neuromuscular control and coordination movements.

Tendon-gliding and tendon-blocking exercises

Page 701

Place-and-hold exercises

Flexor tendon-gliding exercises

Flexor tendon-blocking exercises

Exercises to reduce an extensor lag

Extensor tendon-gliding exercises

Scar tissue mobilization for tendon adhesions

When there has been inflammation and immobilization during the healing process, following trauma or surgery, scar tissue adhesions may perform may form and prevent gliding of tendons. Contraction of the muscle does not result in movement of the joint or joints distal to the site of the immobile scar.

Techniques to mobilize the adhesive scar tissue include the application of friction massage directly to the adhesion. This is superimposed on active and passive stretching techniques and the tendon-gliding techniques. To apply friction massage, hold the tendon in its lengthened position, apply pressure with your thumb, index, or middle finger and massage perpendicular to the tendon and longitudinally in proximal and distal directions. The sustained force against the adhesion allows for creep and eventually, movement of the scar techniques to mobilize the flexor and extensor tendons follow.

Page 704

To mobilize the long finger flexor tendons

To mobilize the extensor tendons and the extensor mechanism

Exercise techniques to increase flexibility and ROM

General stretching techniques

Page 705

To increase wrist extension

To increase wrist flexion

To increase flexion or extension of individual joints of the fingers or thumd

Stretching techniques for the intrinsic and multijoint muscles

Page 705

Self-stretching the lumbrivals and interossei muscles

Self-stretching the interossei muscles

Self-stretching the addiction pollicis

Manual stretching of the extrinsic muscles

Self-stretching the flexor digitorum profoundly and superficiality

Self-stretching the extensor digitorum

Exercise to develop and improve muscle performance, neuromuscular control, and coordinated movement

Techniques to strengthen muscles of the wrist and hand

Page 706

To strengthen wrist musculature

To strengthen weak intrinsic musculature

To strengthen weak extrinsic muscles of the fingers

Mechanical resistance techniques for combined intrinsic and extrinsic muscles function

Dexterity and functional activities

Page 708

Fine-finger dexterity

Functional activities

Indepent learning activities page 709 due next class