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Hand Therapy

During World War II, when surgeons were treating a high volume of hand injuries, it was recognised that dedicated therapists were required. A close working relationship between myself, the therapist and you is an integral part of your successful recovery.

You are likely to spend more time with your therapist than me. Patient education is their most important role and starts with your first session. Patients who follow hand therapy protocols are >3 times more likely to return to work in some studies.

Hand therapy after injury and surgery can be divided into steps, there can be considerable overlap.

1. Early: wound management and control of swelling.
2. Middle: soft tissue mobilisation and controlled motion.
3. Final: strengthening and functional conditioning.

Wound Management:

A 3 colour classification of wounds is useful as it tracks progress and guides treatment.
Black: Suggests necrotic tissue. If dry, it may act as a useful barrier and allow healing beneath. If infection develops, it needs removal.
Yellow: Slough and fibrous debris requiring frequent dressing changes and cleaning to prevent infection.
Pink: Suggests a healing wound. If it becomes red and proud (hypergranulation) this suggests bacterial contamination and may need more frequent assessment.

Scar Management:

Surprisingly there is little scientific evidence on how to avoid problem scarring. The best way to deal with problem scarring is by prevention. Meticulous technique, tension free repair, use of appropriate sutures and avoiding complications are important factors.

Protecting scars from the sun by using sunscreen and covering help prevent pigmentation. Firm massage with moisturising cream, gel or ointment in a circular pattern is recommended 3 times daily. Your hand therapist will show you how firm to be. No product has been proven to be superior. I believe it reduces discomfort, swelling and the time it takes for the scar to soften. This should continue until the scar has matured, when it is flat and pale, and can take up to 12 months.

If your scar becomes problematic your therapist will suggest the use of silicon sheets. They need to be worn for at least 12 hours a day and are expensive.

Control of Swelling:

Fluid at the site of injury or surgery leads to collagen deposition, scarring and reduced movement by blocking motion on the flexor side of your hand and restricting the mobile skin on the back of your hand. Elevation above the heart will reduce swelling as gravity aids drainage. Splints help prevent swelling within joints by holding them stretched. This reduces their potential volume. A combination of massage, taping and early motion has been shown to effectively reduce swelling.

Splinting:

Static splints provide pain relief, protect from injury and maintain bone and joint position during early and middle stages of recovery. Dynamic splints are sometimes used which allow motion while supporting healing structures.

Desensitisation and Sensory Re-education:

Hypersensitivity following injury, particularly nerves, is characterised by severe irritability or pain in response to normal stimuli (allodynia). Desensitisation sends messages to your spinal cord and brain in an effort to normalise nonpainful stimuli. You will be encouraged to stimulate the hand with a variety of methods 3-4x each day for at least 10minutes. Various modalities are used including massage, heat, compression and vibration. Heat is thought to overload the large fibre conduction of nerves and block the perception of pain. This process continues through all stages of recovery or until the allodynia resolves.

Sensory re-education uses exercises that simulate everyday textures and objects in skin affected by nerve injury to help recover sensation by reorganisation of the brain so abnormal messages are reinterpreted as useful sensory information.

Maximising Motion:

A combination of active (using the muscles in the same hand) and passive exercises (using the other hand or assistance) will commence as soon as tissue healing allows. This reduces swelling and adhesions. If stiffness persists, muscles and tendons shorten and can contribute to contractures. Early movement of tendon repairs not only reduces adhesions but also increases their healing potential and strength. Soft tissue massage and mobilisation techniques move tissue planes relative to each other. This is thought to stimulate nutrition, lubrication, prevent adhesions and improve joint motion.

Strengthening:

Strengthening is started following healing of wounds and repaired structures. Goals include improved grip, pinch and function. Increasing muscle strength helps stretch and break down adhesions as well as increasing range of motion.

Function and Work Conditioning:

Exercises that incorporate functional activities improve motion and strength. If your recovery is prolonged, an integrated hand therapy programme will incorporate activities of daily living and tasks you perform at work with the goal of returning you to work in a productive and safe way.

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