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Manual therapies are commonly used by clinicians in patient care to decrease pain and increase range of motion (ROM). Instrument-assisted soft tissue mobilization (IASTM), indirect myofascial release therapy (MFR), and active release techniques (ART) are manual therapy methods similar in mechanism of action, theoretical bases, and proposed fascial effects. Since the therapies are related in several respects and often lack research support of the proposed benefits, choosing the most effective course of treatment in an individual patient context may be difficult.

The purpose of this article is to elucidate similarities and differences while exploring current research, theoretical mechanisms of action, and reported clinical effectiveness of IASTM, MFR, and ART. Clinicians who understand these concepts may make more informed decisions regarding manual therapy options.

**Key Points**

- Delineating the most effective manual therapies may be possible by utilizing patient presentation criteria.
- Treatment time and application of force may influence manual therapy choice.
- Similarities and differences of indirect myofascial release therapy, instrument-assisted soft tissue mobilization, and active release techniques impact clinical decision making.

**Myofascial Release Therapy**

MFR therapy is defined as “…the facilitation of neural, mechanical, and psychophysiological adaptive potential as interfaced via the myofascial system.” The therapy is based on theories postulated by John Barnes, which propose that morphological changes occur in both connective tissue (fascia) and the neuromuscular system. These changes are believed to influence plastic, elastic, viscoelastic, and piezoelectric properties of
connective tissues. Viscoelasticity possesses attributes of viscosity and elasticity (i.e., connective tissue) during deformation. Piezoelectricity is produced by mechanical pressure on mineralized and nonmineralized structures. Meltzer et al. investigated Barnes’ theory of cellular and molecular effects and discovered strained fibroblasts treated with indirect MFR exhibited improved attenuation of programmed cell death compared with untreated fibroblasts. Researchers have also used the spring and dashpot model to determine the stress–strain behavior of tissues and found evidence that supports viscoelastic property change due to tissue deformation. Indirect MFR applies minimal (i.e., a few grams) pressure to myofascial tissue while moving through the path of least tissue resistance in a three-dimensional setting to ‘meet the barrier’ in all three planes. Low mechanical force combined with long hold duration (90 s to several minutes) provides tissue deformation. The clinician and patient mutually provide feedback during indirect MFR treatment.

Researchers examining the clinical application of indirect MFR found positive outcomes for headaches, chronic low back pain, lateral epicondylitis, fibromyalgia symptoms, and limited shoulder ROM. Contraindications to MFR include: malignancy, acute rheumatoid arthritis, severe osteoarthritis, healing fractures, advanced diabetes, open wounds, aneurysm, and highly-sensitive skin. The clinical effectiveness of indirect MFR is difficult to validate in the literature due to a broad variety of application methods and treatment parameters that include: force applied, length of treatment time, movement across intended tissue, use of external tools, and inclusion of complementary modalities. Despite the varied parameters, researchers have demonstrated that indirect MFR produced positive outcomes in patient pain and pelvic girdle, foot, and hip function.

Instrument-Assisted Soft Tissue Mobilization

IASTM therapy is based on Cyriax’s theories that deep friction tissue massage improves tissue movement, prevents scar tissue formation, and produces local inflammatory response. The method differs from other massage techniques by using specially-designed instruments to apply multidirectional pressure to soft tissues. The instruments theoretically provide a mechanical advantage by allowing clinicians greater force transmission than with hands alone. The advantage may facilitate a clinician’s ability to detect altered tissue properties. Silbaugh found moderate evidence to support the notion that instruments improved a clinician’s ability to locate myofascial restrictions and adhesions.

External mechanical load affects the extracellular matrix (ECM) of connective tissue and is responsible for fibroblast proliferation and orderly collagen fiber arrangement. Soft tissue healing after injury or immobilization results in irregular collagen fiber arrangement with increased random cross-links between fibers and fiber bundles. Weaker collagen proteins in healing connective tissue are substituted for the original collagen. Lower water content in the tissues diminishes movement between fibers. Hammer theorized that altered collagen fiber composition produces tissue adhesions, and instrument use allows better detection of these soft tissue restrictions.

Instrument-induced mechanical load produces microfailure and realignment of the collagen fibers. Increased stimulation of fibroblast production initiates earlier healing and return of function. The inflammatory process appears to be facilitated by introducing a controlled amount of microtrauma to the affected area, resulting in a healing cascade that causes optimal collagen deposition and maturation.

Contraindications to using IASTM include, but are not limited to: open wounds, thrombophlebitis, uncontrolled hypertension, kidney dysfunction, hematoma, and myositis ossificans. Patient tolerance, skin conditions, and certain medications are considered cautionary factors for IASTM use. Treatment can also cause hyperemia with petechiae formation.

The definitive efficacy and long-term effects of IASTM have not been firmly established, due to a lack of research examining lasting fascia structural changes and patient outcomes. Treatment protocols for IASTM are also not universally defined and vary between clinicians. A variety of case studies and series do support IASTM use through positive outcomes in clinical practice (e.g., improvement in pain, ROM, and function). Perle et al. conducted a prospective case study with 1,004 patients treated with IASTM and found statistically and clinically significant improvements in pain, numbness, and function for (but not limited to): plantar fasciitis, carpal tunnel, and fibromyalgia. Hammer and Pfefer observed favorable results treating lumbar compartment syndrome, and Hammer reported positive outcomes on degenerated tissue using IASTM for supraspinatus...