

Summary of Mechanical Force Modalities

Mechanical Force Modalities	Transfer Method	Physiologic Effects	Indications	Contraindications
Spinal Traction	Mechanical (Potential energy), Distracting Force	Reduce compression, pain, and irritation of nerve root and disc. Reduce tension of ligaments, muscles, and facet joints	-Disc herniation with nerve impingement -Spondylolisthesis -Narrowed intervertebral foramen -Degenerative facet joints - Joint Hypomobility -Discogenic pain -Muscle Spasms	-Spine malignancy -Spinal instability -Spinal deformity (congenital) -Cord compression -Osteoporosis -Fractures -Acute sprain/strain -Pregnancy -Uncontrolled HTN -Cardiovascular disease
Light Touch	Mechanical sensory (somatosensory input, balance output) <sup>72</sup>	Prevent falling, swaying, tactile feedback, improves balance, correct posture	-Neurological rehabilitation for gait and balance dysfunction -Older adults with gait impairments -Autistic children with poor postural control <sup>82</sup>	-Personal preference -Hypersensitivity to touch -Open wounds -Ulcers -Gangrene -Infected skin
Superficial Massage	Mechanical (Kinetic and potential energies), Distracting Force(s)	Reduce pain, edema, muscle spasms, blood flow, and inflammation	-Myofascial layer dysfunctions, pains, and spasms	-Hypersensitivity to superficial pressure and/or pains -Thrombophlebitis -Bleeding disorders -Malignancy -Open wounds -Skin atrophy, ulcers, gangrene, -Fever, or acute inflammation
Deep Tissue Massage	Mechanical (Kinetic and potential energies), Distracting Force(s), May involve compression	Reduce pain, edema, muscle spasms, blood flow, and inflammation	-Disc herniation with nerve impingement -Spondylolisthesis -Narrowed intervertebral foramen -Degenerative facet joints - Joint Hypomobility -Discogenic pain -Muscle Spasms	-Hypersensitivity to deep pressure, pains -Blood disorders -Aneurysms -Malignancy -Fractures -Osteoporosis -Open wounds -Pregnant -Gastrointestinal problems -Severe organ failure
Extracorporeal Shock Wave Therapy (ESWT)	Vibrational (shock waves) to Mechanical (kinetic energy)	Improves wound healing, reduce pains and inflammation, release trigger points, breaks up calcifications	-Chronic Recalcitrant Tendinopathies -Plantar fasciitis -Trigger points -Pseudoarthrosis -Lateral epicondylitis	-Hypersensitivity to deep pressure, pains -Neuropathy -Open wounds -Skin infections -Seizure -Epilepsy -Pregnant -Pacemaker
Manual Lymphatic Drainage (MLD)	Mechanical (Kinetic and potential energies), Torque, Stretching, Compression	Facilitate and remove toxic substances in lymphatic system, reduce pains, improve functionality and range of motion	-Breast cancer-related lymphoedema (BCRL) -Burns -Fractures -Palliative comfort -Dependent edema -Sinusitis -Lyme disease -Common cold -Post-surgical procedures	-Hypersensitivity to deep pressure and/or pains -Malignancy -DVT, thrombosis, thrombophlebitis -Bleeding disorders -Fever, acute inflammation -Severe organ conditions (such as failure of heart, lungs, kidneys, or liver).
Complete Decongestive Therapy (CDT)	Mechanical (Kinetic and potential energies), Torque, Stretching, Compression Non-mechanical (self-care)	Same as MLD but may be more holistic in facilitating improved lymph drainage, pain, and functionality	Same as MLD	Same as MLD