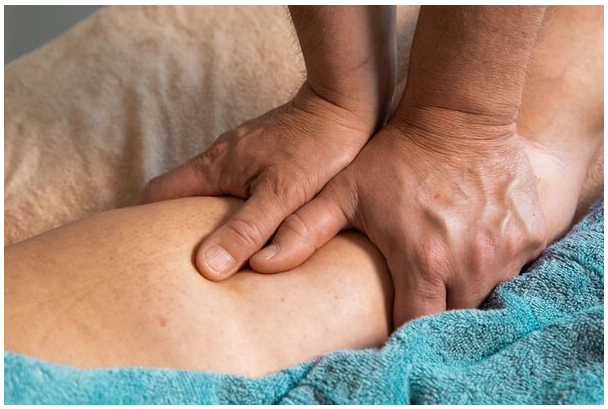
Manual Therapy

Description

Manual therapy has a long history within the profession of physical therapy and physical therapists have greatly contributed to the current diversity in manual therapy approaches and techniques. Mechanical explanations were historically used to explain the mechanisms by which manual therapy interventions worked. Contemporary research reveals intricate neurophysiologic mechanisms are also at play and the beneficial psychological effects of providing hands-on examination and intervention have been substantiated.[1]



The International Federation of Orthopaedic Manipulative Physical Therapists (IFOMPT) defines orthopaedic manual physical therapy as: "a specialised area of physiotherapy/physical therapy for the management of neuro-musculoskeletal conditions, based on clinical reasoning, using highly specific treatment approaches including manual techniques and therapeutic exercises. Orthopaedic manual therapy also encompasses, and is driven by, the available scientific and clinical evidence and the biopsychosocial framework of each individual patient."[2]

According to the American Academy of Orthopaedic Manual Physical Therapists (AAOMPT) Description of Advanced Specialty Practice (DASP) (2018), orthopaedic manual physical therapy (OMPT) is defined as: “an advanced specialty area of physical therapy practice that is based on manual examination and treatment techniques integrated with exercise, patient education, and other physical therapy modalities to address pain, loss of function, and wellness.

Early, consistent, and skillful manual physical therapy, combined with exercise and patient education, is central to the OMPT therapist’s practice. Advanced examination, communication, and decision-making skills that are built on the foundations of professional and scientific education facilitate the provision of effective and efficient care. Practitioners of OMPT provide patient management, consult with other health care providers regarding simple as well as complex neuromusculoskeletal (NMS) conditions, and provide recommendations and interventions in the area of health and wellness."[3][4]

Three Paradigms for Manual Therapy Therapeutic Effects

1. **Physiological:** A positive placebo response can be produced.
2. **Biomechanical and Physical:** Manual therapy facilitates tissue repair and modelling.

3. **Psychological:** Manual therapy can reduce pain which improves an individual's psychological state. This pain reduction is achieved by stimulating the pain-gate mechanism, muscle inhibition, reduction of nociceptive activity, and reduced intraarticular or periarticular pressure.[5][6]

Manual Therapy Frameworks

1. Cyriax

Approach: a system of examination and intervention that aims to address nonsurgical, soft tissue lesions through the concept of Selective Tissue Tension (STT) testing and differential diagnosis.[7]

Area: Spine and peripheral joints.

Treatment Methods: Deep transverse friction and traction or manipulation techniques.

2. Lewit Manual Therapy

Approach: dysfunctions are viewed as part of a chain of interrelated pathologies.

Area: Spine and peripheral joints.

Treatment Methods: Mobilising, manipulating and actively exercising.

3. Kaltenborn-Evjenth Manual Therapy

Approach: the concept uses translatory (linear) joint play movements in association with the treatment plane in both assessment and treatment. Translatory traction, compression, and gliding joint play movements are applied based on the convex-concave-theory to assess joint function, and translatory gliding and traction mobilisations are used to restore joint play to its usual state.[8]

Area: Spine and joint.

Treatment Methods: Transverse massage, functional massage, post-isometric relaxation, joint mobilisation, joint manipulation and neuromobilisation.

4. Maitland Manual Therapy

Approach: Prioritises "clinical evidence rather than a given diagnosis".[9] The clinician needs to develop high levels of skill in problem-solving and clinical reasoning to constantly develop the clinical hypothesis throughout examination and reexamination. Methods for techniques are nonprescriptive and can be modified, reversed, enhanced, and even invented. Common passive mobilisations use oscillatory movement and emphasise movement perception.[7][10]

Area: Spine and peripheral joints.

Treatment Methods: Rhythmic, passive, painless movements introduced into the tissue (mobilisations) and rapid movements (manipulations).

Decisions Which Need to be Made:

1. **The Direction** of the mobilisation needs to be clinically reasoned by the therapist and needs to be appropriate for the diagnosis made. Not all directions will be effective for any dysfunction.

2. **The Desired Effect** - what effect of the mobilisation is the therapist wanting? Relieve pain or stretch stiffness?
3. **The Starting Position** of the patient and the therapist to make the treatment effective and comfortable. This also involves thinking about how the forces from the therapist's thumb or pisiform will be placed to have a localised effect.
4. **The Method of Application** - The position, range, amplitude, rhythm and duration of the technique.
5. **The Expected Response** - Should the patient be pain-free, have an increased range or have reduced soreness?
6. **How Might the Technique be Progressed** - Duration, frequency or rhythm?

Each joint has a different movement arc in a different direction to other joints and, therefore, care needs to be taken when choosing which direction to manipulate; this is where the Concave Convex Rule comes into use, but for now consider the number of possible glides a clinician may use:

1. Anteroposterior (A-P)
2. Posteroanterior (P-A)
3. Longitudinal Caudad
4. Longitudinal Cephalad
5. Joint Distraction
6. Medial Glide
7. Lateral Glide

5. Mechanical Diagnosis and Therapy (McKenzie Method)

Approach: Use of repeated or sustained movements to decrease and abolish symptoms and return to function.

Main Area: Spine and peripheral joints.

Treatment Methods: Using specific movements a classification is made which directs the treatment.

4 Main Steps:

1. **Assessment:** The clinician takes a history of symptoms along with what activities either aggravate or relieve the symptoms. Next, a movement assessment is performed to determine if the patient has any movement loss, along with what the symptoms do with the movement. Then, the clinician has the patient perform specific repeated or sustained movements to determine the effect on the symptoms.
2. **Classification**: Based on assessment the symptomatic response during the repeated or sustained movement testing, a classification is given. Most patient's symptoms are classified into: derangement syndrome, dysfunction syndrome, postural syndrome or other. The choice of exercises in Mechanical Diagnosis and Therapy (MDT) is based upon the direction that causes the symptoms to decrease, centralise, or abolish.
3. **Treatment:** Treatment consists of performing specific movements that continue to decrease, abolish, or centralise symptoms. The goal it to maintain these improvements for a period of time while the patient is returning to their normal activities. Education on their symptoms is given throughout the treatment.
4. **Prevention:** The prevention step consists of educating and encouraging the patient to exercise regularly and self-care.

The exercise that is given will typically be in one direction based upon the symptomatic response. The exercise may be a repeated movement or a sustained position, it could also require reaching end range or sometimes mid-range, depending on what happens with the symptoms. A single direction of repeated movements or sustained postures leads to sequential and lasting abolition of all distal referred symptoms and subsequent abolition of any remaining spinal pain.

The four categories of Mechanical Diagnosis and Therapy (MDT) are:

1. Derangement Syndrome

2. Dysfunction Syndrome
3. Postural Syndrome
4. Other or Non-mechanical Syndrome

6. Mulligan Manual Therapy

System of Prescription: Mulligan's therapy is based on active patient movements combined with passive correction of the joint position held by a physiotherapist.

Area: Spine, and limbs, primarily to address pathologies affecting the periphery.

Treatment Methods:

- Painless, functional loading of the articular surfaces with the force of gravity
- Combining passive movement in the plane of the articular surfaces with active movement
- Applying overpressure at the end of the painless movement range
- Applying an appropriate number of repetitions

Types of movements:

- Natural Apophyseal Glides - NAGS
- Sustained Natural Apophyseal Glides - SNAGS
- Mobilisation with Movements - MWMS
- The concept of Mobilisations with Movement (MWM) of the extremities and SNAGS (Sustained Natural Apophyseal Glides) of the spine were first coined by Brian R. Mulligan

Mobilisation with movement is the concurrent application of sustained accessory mobilisation applied by a therapist and an active physiological movement to end range applied by the patient. Passive end-of-range overpressure, or stretching, is then delivered without pain as a barrier.

Techniques Include

- Traction
- Massage
- Trigger Point Therapy

- Active Release Techniques: A practitioner determines where adhesions are through touch, the practitioner then couples a patient's active movement with his/her touch.[11]
- Assisted Active Range of Motion (AAROM)

- Passive Range of Motion
- Lymph Drainage
- Stretches (muscle, neural tissue, joints, fascia)
- Instrument Assisted Soft Tissue Mobilisation

- **Joint Manipulation**: A passive, high velocity, low amplitude thrust applied to a joint complex within its anatomical limit* with the intent to restore optimal motion, function, and/ or to reduce pain.[12][13]
- **Joint Mobilisation:** A manual therapy technique comprising a continuum of skilled passive movements to the joint complex that are applied at varying speeds and amplitudes, that may include a small-amplitude/ high-velocity therapeutic movement (manipulation) with the intent to restore optimal motion, function, and/ or to reduce pain.[12]

The terms "**Thrust Manipulation**" and "**Non-Thrust Manipulation**" have been used in the literature:

- "Thrust Manipulation" is used to describe interventions described as Manipulation by IFOMPT
- "Non-Thrust Manipulation" would be synonymous with the term mobilisation as proposed by IFOMPT

> When, and only when movement is painless, applying overpressure at the end of the painless movement

Manual Therapy Application Framework

1. Speed
2. Location within range of motion (ROM)
3. Force direction - anatomical and/or biomechanical
4. Relative movement (anatomical or positional)
5. Subject position (both limb and gross)

The first two items (speed and location within ROM) feature heavily in Manual Therapy grading guides, including the two guides discussed below (Maitland and Kaltenborn).

Guide to Grading of Mobilisations/Manipulations

Maitland Joint Mobilisation Grading Scale:

- **Grade I -** Small amplitude rhythmic oscillating mobilisation in the early range of movement
- **Grade II -** Large amplitude rhythmic oscillating mobilisation in the midrange of movement
- **Grade III -** Large amplitude rhythmic oscillating mobilisation to point of limitation in range of movement
- **Grade IV -** Small amplitude rhythmic oscillating mobilisation at end of the available range of movement

- **Grade V (Thrust Manipulation) -** Small amplitude, quick thrust at end of the available range of movement

The grading scale has been separated into two due to their clinical indications:

- Lower grades (I + II) are used to reduce pain and irritability (use Visual Analogue Scale (VAS) + Severity, Irritability Nature (SIN) scores).
- Higher grades (III + IV) are used to stretch the joint capsule and passive tissues which support and stabilise the joint to increase range of movement.

The rate of mobilisation should be thought of as an oscillation in a rhythmical fashion at:

- 2Hz - 120 movements per minute
- For 30 seconds - 1 minute

Kaltenborn Traction Grading Scale:

- **Grade I -** neutralises joint pressure without separation of joint surfaces
- **Grade II -** separates articulating surfaces, taking up slack or eliminating play within joint capsule
- **Grade III -** stretching of soft tissue surrounding joint

Cyriax:

- **Grade A** – mobilisation within pain-free range
- **Grade B** – sustained stretch at end of range
- **Grade C** – high velocity/low amplitude manipulation at end of range

Additional Viewing

This 28 minute video gives a good overview of the hands-on/off debate and suggestions of when to use manual therapy.

[14]