

## Chapter 2. Part 3. Treatment Modalities

### Chapter 2 • Basic Concepts in Physiotherapy

#### Part 3 • Treatment Modalities

(A “modality” is simply any method or tool we use to help a patient recover.)

#### 1 Therapeutic Exercise — *Using Movement as Medicine*

Question	Answer
<b>What is it?</b>	A planned set of movements that we prescribe just like a doctor prescribes tablets. The goal is to restore strength, flexibility, endurance, balance or coordination.
<b>Why does it work?</b>	Regular, graded movement tells muscles, bones and the nervous system to adapt. Muscles get thicker (hypertrophy), joints stay lubricated, blood flow improves and the brain relearns better movement patterns.
<b>How do we choose an exercise?</b>	We match the exercise to what the patient lacks. <ul style="list-style-type: none"> <li>• <b>Weak muscle?</b> → Strength exercise.</li> <li>• <b>Short muscle?</b> → Stretching.</li> <li>• <b>Poor balance?</b> → Balance drills.</li> </ul>
<b>How hard, how often?</b>	Use the FITT rule: <b>F</b> requency (how many days per week), <b>I</b> ntensity (how hard), <b>T</b> ime (how long each session), <b>T</b> ype (which movement). Start low and increase slowly <ul style="list-style-type: none"> <li>• Wall push-ups for shoulder strength.</li> <li>• Static calf stretch 30 s × 3 for tight Achilles.</li> <li>• 5-minute brisk walk for heart fitness.</li> </ul>
<b>Simple examples</b>	
<b>Safety checks</b>	Skip or modify exercise if the patient has severe pain, fever, dizziness, very high blood pressure, a fresh wound or a doctor’s restriction.

#### 2 Electrotherapy — *Using Controlled Energy to Help Healing*

Tool	What it Feels Like	What it’s For	Typical Settings (for reference)	Do NOT use when...
<b>TENS</b> (small battery box with sticky pads)	Gentle tingling on the skin	Temporary pain relief (low back pain, knee arthritis, labour pain)	Fast pulse (80-120 Hz), comfy intensity, 20 min	Pacemaker in chest, numb skin, over the throat
<b>NMES / FES</b> (stronger current)	Visible muscle twitch / contraction	Waking up very weak or “shut-off” muscles after surgery or stroke	35-50 Hz, on:off 1:3, comfy level	Fresh fracture, deep vein clot, open stitches
<b>Ultrasound</b> (moving metal head with gel)	Mild warmth deep inside	Speeding tendon or ligament healing, softening scar	1 MHz for deep tissue, 3 MHz for shallow, 0.8-1.5 W/cm², 5 min	Over eyes, pregnant belly, cancer area
<b>Infra-red / Laser</b>	Gentle warmth or none (low-level)	Reducing swelling, helping wounds close	4-10 J/cm², 2-3 sessions/week	Same CIs as ultrasound plus thyroid area
<b>Interferential (IFC)</b>	Deeper buzzing (crossing currents)	Deep joint or back pain, swelling	Beat 80-100 Hz (pain) or 20-50 Hz (muscle)	Same as TENS

**Easy rule to remember:** Electrotherapy *reduces pain and prepares tissue*, but does **not replace** active exercise. Always combine the two.

### 3 Manual Therapy — Helping with Skilled Hands

Group	What the Therapist Does	Why It Helps	Typical Feel for the Patient
<b>Joint Mobilisation</b>	Small, rhythmic glides or gentle sustained pulls on a stiff joint (e.g., shoulder capsule)	Frees up tight joint surfaces; stimulates joint lubricant (synovial fluid)	Feels like a stretch, often “looser” afterward
<b>Manipulation (HVLA “thrust”)</b>	A quick, small movement at the joint end-range (often makes a pop)	Resets local muscles, reduces pain via nervous system	Sudden but usually painless “click” and relief
<b>Soft-Tissue Techniques</b>	Slow strokes, kneading, trigger-point pressure, instrument scraping (IASTM)	Breaks minor adhesions, improves blood flow, calms over-active muscles	Mild soreness during, relaxed feeling after
<b>Neural Glides</b>	Guiding a limb so that a nerve slides smoothly (e.g., sciatic slump-slider)	Reduces nerve tension, tingling, pain	Gentle pull that eases as nerve moves
<b>Muscle Energy Techniques (MET)</b>	Ask patient to push gently against resistance, then relax and stretch	Uses the muscle’s own reflex to lengthen it safely	Light effort then deeper stretch

**Key safety check:** Stop manual therapy if the patient has sharp pain, numbness spreading, severe osteoporosis, infection or if the joint is unstable.

### 4 Putting It All Together — A Simple Treatment Recipe

- Warm-up the area**
  - 5 minutes of heat pack or light cycling to increase blood flow.
- Manual therapy (if joint or muscle is stiff)**
  - Gentle joint glide or massage to prepare tissue.
- Main therapeutic exercise**
  - Strength or stretch that corrects the identified problem.
  - Follow the FITT progression—add only **one** variable each session (e.g., a little more weight **or** more reps, not both).
- Electrotherapy (optional adjunct)**
  - Short TENS session if pain is high, or NMES if the muscle cannot contract well yet.
- Cool-down & home advice**
  - Easy range movements, ice if swollen.
  - Give 1–2 simple home exercises and a pain/effort diary.

### 5 Example Case Walk-Through

Step	Action	Reason
<b>Assessment</b>	55-year-old with knee pain, quadriceps weak, knee bends only 90°.	Need to gain strength <b>and</b> range.
<b>Session Plan</b>	1. Heat pack 5 min. 2. Patellar mobilisations (Grade I–II). 3. Wall sits 3×10 s at pain-free depth. 4. NMES on quads 10 min. 5. Static quad stretch 30 s × 3.	Heat warms tissues → easier mobilisations; mobilisations improve glide; wall sits load quads safely; NMES adds extra muscle work; stretching maintains new range.
<b>Home Work</b>	Seated knee extensions with light band, 2×15; ice after activity.	Continues strength at home and controls swelling.



## 6 Common Questions Students Ask

Question	Simple Answer
<b>“Which should I do first, manual therapy or exercise?”</b>	Usually manual first to reduce stiffness/pain, then exercise to lock-in the new movement.
<b>“Is electrotherapy outdated?”</b>	No, but it is <i>adjunctive</i> . Use it to control pain or activate a very weak muscle, then move on to active rehab.
<b>“How fast do I progress exercises?”</b>	Increase one variable (load, reps, complexity) when the current dose is comfortable <b>and</b> there is no increase in next-day pain or swelling.
<b>“What if a patient hates one modality?”</b>	Respect their preference; choose another evidence-based option. Many paths lead to the same goal.

## 7 Safety Checklist Before Any Treatment

1. **Review contraindications** (open wounds, pacemaker, unstable vitals, etc.).
2. **Explain and get consent** in simple language.
3. **Check equipment**: clean pads, correct settings, timer on.
4. **Stay within pain limit**: mild discomfort is okay; sharp pain is not.
5. **Monitor throughout**: ask how it feels; watch skin colour and breathing.
6. **Document**: what you did, dosage, patient response, and next plan.

## 8 Key Take-Home Messages

- **Exercise is the core treatment**—everything else supports it.
- **Manual therapy prepares; electrotherapy modulates; exercise changes tissue for good.**
- **Start simple, progress gradually, reassess often.**
- **Safety and patient comfort always come first.**