# Contents

# Assessment

## Why do we assess?

*Patient's perspective*

- Identifying the underlying cause of their problems
- Prioritizing their problems
- Monitoring their progress.

*Clinician's perspective*

- Identifying underlying cause of the patient's problems
- Establishing an appropriate treatment programme
- Baseline for treatment
- Justification for treatment
- Monitoring effectiveness of treatment
- Provide patient feedback
- Identifying patients suitability for surgery
- Medico-legal reports
- Information for other clinicians.

## Types of assessment

*History*

- History:
  - When the injury/condition occurred
  - Mechanism of injury
  - Pattern of symptoms
  - Handedness
  - Patient's attitude towards injury/condition
  - Level of discomfort.
- Social information:
  - Work status
  - Home status
  - Hobbies
  - Mental state.
- Past medical history:
  - Drug history
  - Diabetes, rheumatoid, etc.
  - Surgery.

*Subjective observation*

- Body language/posture
- Skin colour/circulation
- Wound status
- Oedema
- Scars
- Deformity
- Muscle wasting.

*Tactile assessment*

- Joint/soft tissue tightness
- Sweating/drying of skin

- Temperature
- Sensitivity
- Scar tethering
- Nodules/thickenings
- Swelling
- Tenderness.

*Functional assessment*

- Patient Reported Outcome Measures
- Patient Reported Experience Measures.

*Investigations*

- X-rays
- Ultrasound (US)
- Magnetic resonance imaging (MRI)
- Computerized tomography (CT)
- Bone scan
- Blood tests
- Arthroscopy.

*Objective assessment*

This is part of the assessment that can be measured with specific assessment tools such as a goniometer, dynamometer.

## Principles of assessment

*General principles*

- The same therapist should assess the patient on each occasion.
- The repeat assessment should ideally be performed at the same time of day and at the same point in the patient's therapy session.
- Therapists in a department should assess in the same way and should develop local assessment protocols/assessment forms.
- Consider other factors that may affect the assessment (open wounds, oedema, scars).
- Previous activity levels should be considered.
- Alterations in weather conditions should be considered.
- Consider location of assessment: ideally, choose a quiet area free from distraction that maintains confidentiality.
- Be prepared! Ensure you have all the relevant tools and paperwork.
- Record carefully and accurately.
- Does the patient need glasses?
- Does the patient have a cognitive impairment?

*Equipment principles*

Ideally standardized tools should be used that meet basic criteria:

- Tools must be *reliable* and *valid*.
- Tools should have administration, scoring, and interpretation standards.
- Normative data should be available.
- Ideally a statement of purpose and a bibliography should be available.
- All tools should be regularly calibrated to ensure accuracy and also be handled and stored with care.

# Range of motion

The *available arcs of movement* within a joint are classified into:

- Active range of motion (AROM)
- Passive range of motion (PROM)
- Total active range of motion (TAROM), also known as total active motion (TAM)
- Total passive range of motion (TPROM), also known as total passive motion (TPM)
- Torque range of motion (TROM).

## AROM

Defined as the range of motion (ROM) that is achieved when an individual utilizes their own muscle power to initiate movement at a specific joint. This is typically measured first and can reflect the presence of joint irritability and an individual's willingness/ability to move a joint.

## PROM

Refers to the ROM that is achieved when an external force is used to move the joint, e.g. the clinician's hand.

## TAROM or TAM

Defined as the total ROM achieved when all three joints—metacarpophalangeal (MCP), proximal interphalangeal (PIP), and distal interphalangeal (DIP) of a digit are actively flexed or extended simultaneously, minus any extension deficit at any of the three joints (➔ see Fig. 1.1).

## TPROM or TPM

Analogous to TAROM; however, this measurement is achieved through passively moving the joint.

## TROM

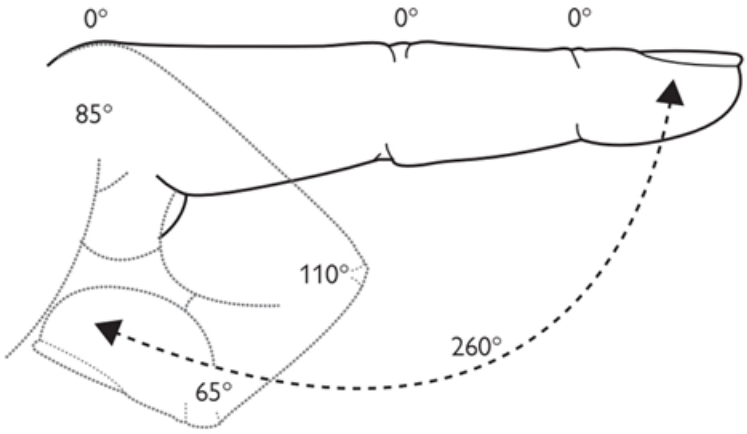
Refers to a joint being moved passively through its full available ROM with a known constant force applied. Brand advocates the use of a Haldex gauge, a calibrated spring gauge that can either pull or push and is measured in grams.

## Standard position for measuring

- For finger and wrist measurements, position the elbow on a table at 90° and wrist in neutral.
- For elbow pronation and supination, tuck arm into trunk with the forearm in mid-position.

## Instruments

- Goniometer
- Ruler/tape measure
- Solder wire
- Fluid goniometer
- MULE (microprocessor upper limb exerciser)—used as an assessment and rehabilitation tool.




| Normal | | |
|---|---|---|
| Active | Flexion | Extension lag |
| MCP<br>PIP<br>DIP | 85°<br>110°<br>65° | 0°<br>0°<br>0° |
| Totals | 260° | 0° |
| Total active motion (TAM) 260°–0° = 260° | | |

**Fig. 1.1** Total active motion of the finger.

## Goniometry

Several types of goniometer are available; choice depends on the type of joint being measured.

- Circular bodied goniometers will permit lateral placement.
- Half-circled goniometers permit lateral, volar, and dorsal placement.

There is no strong evidence to indicate the most accurate placement but consistency is essential. Critical points:

- The goniometer axis should be in line with the axis of the joint being measured.
- The arms of the goniometer should be parallel to the bones forming the joint.

## Recording ROM with goniometry

Typically recorded as extension/flexion, e.g. 15°/85°.

This indicates:

- An arc of movement of 70°.
- Either a fixed flexion deformity or an extensor lag of 15°.

If the patient is able to hyperextend this may be recorded as a minus, e.g. –15°/85°, with 15° of hyperextension achieved.