

ORTHOPAEDICS



FOR PRIMARY
HEALTH CARE



LION
LEARNING INNOVATION VIA
ORTHOPAEDIC NETWORKS

EDITOR: **MICHAEL HELD**

UNIVERSITY OF CAPE TOWN'S **ORTHOPAEDIC DEPARTMENT**

A general approach to orthopaedic history and examination

by Stefan van der Walt, Stephanie Roche & Stephen Roche

Learning objectives

1. Develop an approach to assessing a joint, history and examination.
2. Understand the terminology used to describe alignment.

General approach to assessment of any joint

Steps include taking a history, examining the joint, examining other systems if indicated (for example, general or respiratory examination), and investigations after that. This chapter will not focus on any of the investigations.

History

Common presenting complaints in orthopaedics include:

Pain

Using the approach taught in other disciplines can also be used to assess pain in a joint, for example, 'SOCRATES'

S: Site

Where is the pain?

Always consider referred pain when dealing with a joint, especially from the joint above or below.

O: Onset

When did it start?

Did it begin suddenly, or has it slowly been getting worse? (For example, acute onset in trauma or septic arthritis, or more chronic history in osteoarthritis).

C: Character

Is it a sharp, throbbing, dull or burning pain?

(For example, burning pain could suggest a neuropathic cause unrelated to the joint).

R: Radiate

Does the pain move anywhere?

Look for dermatomal or nerve root patterns.

A: Associated features

Do you have a fever?

(For example, fever in septic arthritis).

T: Time course

Is the pain worse in the mornings?

Does it get worse with activity? (This can help distinguish mechanical as opposed to non-mechanical or inflammatory joint pain).

E: Exacerbating or relieving factors.

Does the pain improve with analgesics?

(Often pain from a non-benign lesion is not relieved with analgesics). Is the pain worse in a specific position or with certain movements?

S: Severity.

A scale from 0-10 often helps.

Swelling

- Is the actual joint swollen or is the whole limb or part of the limb swollen?
- When did it start? Did it happen suddenly or over a longer time?

Deformity

- When did it start?
- Is it getting worse?

Instability

- What do you mean when you say your joint or limb feels “unstable”?
- When does your joint give way?
- What causes it to become unstable?

Stiffness

- What do you mean by ‘stiffness’?
 - Often deformities or previous surgery will limit the range of motion of a joint, which may be described as stiffness. Try to understand what your patient is referring to.
- When are your joints stiff? In the morning (how long) or after activity?
 - Prolonged morning stiffness may suggest an inflammatory process, whereas morning stiffness <30 minutes is usually less specific.
- Is there pain or swelling associated with the stiffness?
- Is your joint ‘locking’ or ‘jamming’?
 - This can point to mechanical obstruction.

Joint noises

- Crepitus: This suggests intra-articular roughness and is often a clue to osteoarthritis.

- Click: Intra-articular bands. Fibrosis from previous surgery can cause these bands.

Weakness

- Weakness is often used to describe a variety of problems; elicit the patient’s real concern.
 - Is the patient tired?
 - Is it only the limb affected or the whole body?
 - Is the weakness they describe a description of activity limitation due to stiffness?

Functional limitations

- What could the patient do before that they cannot do now?
- Ask about daily living activities; walking around in the house or to the shops, washing, completing tasks at work and exercising.

Besides the primary presenting complaint, the following questions should also be asked:

Systemic enquiry (see the chapter on Red Flags for more detail).

- Any associated constitutional symptoms?
- Any bowel and bladder changes?

Orthopaedic history

- Previous surgery?
- Previous injuries?
- Previous septic arthritis?
- Any rheumatological problems?

- Congenital abnormalities or childhood orthopaedic disorders?

General medical and surgical history

- Comorbidities, previous illnesses, previous operations.
- Medications, for example, Simvastatin can cause myalgia, Pyrazinamide may cause joint pain.
- Previous treatment plans and how well they worked for the patient (including physiotherapy, occupational therapy, surgery and medications).

Family history

- Cancer (could this patient have a malignancy or bone metastasis?).
- Rheumatological disorders.

Social history

- Smoking (can affect healing, anaesthetic risk, risk of lung cancer and metastasis).
- Alcohol intake (associated with gout).
- Hobbies, for example, sport (are they still able to do things that they enjoy?).
- Living conditions
 - Will this patient's home environment be safe for them post-operatively?
 - Are there environmental factors contributing to their illness?
 - Are there family members at home who can support or care for them?
 - Effects of symptoms on daily life (see functional limitation notes above).
- Financial

- Is this patient still able to work? Should they be booked off for light duty?
 - Does this patient qualify for a disability grant?

Examination

The examination begins from the moment the patient is seen. Observe the level of consciousness (particularly in trauma), and assess for any syndromic features, obvious deformities or gait abnormalities. You should immediately see if a patient is generally unwell (for example, septic arthritis, osteomyelitis) and the degree to which they can bear weight. Next, you must look, feel and move the joint.

Look

Ensure that your patient is adequately exposed; you must be able to see the entire limb and compare left to right. If possible, look at the joint from the front, back and side. If examining the lower limb, look at the joints while the patient is standing, seated or recumbent.

Skin

- Erythema, for example, septic arthritis.
- Sinuses.
- Scars from previous surgeries (open vs laparoscopic).
- Hairy patches, for example, occult spina bifida.
- Rashes, for example, psoriasis.

Swelling

- Try and identify if the joint, the surrounding area or the entire limb is affected.

Deformity and posture

- Assess for symmetry between left and right.
- Look for any obvious rotation or limb length discrepancy (see terminology below).
- Importantly, does the joint look anatomically normal?

Muscles

- Is there any obvious wasting?
- Are there any fasciculations? (Lower motor neuron sign).

Feel

Temperature

- Place your hand on the joint, and then above and below it, to feel if the joint itself is warm in comparison.
- Warmth suggests increased blood flow, for example, inflammation or vasodilation.
- The area may feel cool in cases of disuse or paralysis.

Tenderness

- Ask the patient to point to exactly where the pain is.
- Gently feel for the area of maximal tenderness, carefully observing the patient's reaction to palpation.

Anatomy

- Feel for any deformities, and localise important landmarks.
- Feel along the joint line, bony points relevant to the joint and the adjacent ligaments and tendons (you need to know your anatomy for this!).

Swelling/s

Try and determine where the swelling is (intra- vs extra-articular) and what it consists of:

- Fluid.
- Soft tissue.
- Hard tissue (for example, bone, calcifications).
- Gas.
- Foreign body.

Move

Active movement

The patient should move the joint/s themselves first; this is known as active movement.

- Active movement may be limited by pain, weakness (due to tendon, muscle or nerve pathology), stiffness, contractures or bony abnormalities.
- You should assess if there is a decreased or increased range of motion.

Passive movement

- You should then try to move the joints yourself; this is known as passive movement as the patient is not exerting any effort to move the joint.
- In cases of weakness or stiffness, the passive range of movement might be significantly greater than the active; therefore comparison between the two is important.
- Assess for any pain, paying attention to when the pain occurs.
 - Throughout the movement. Suggests acute inflammation or damage to the joint cartilage.

- At the end of the range of movement. May be due to stretching of the capsule, for example, joint effusion.
- Specific arc of movement. Usually a localised pathology, for example, rotator cuff tears of the shoulder.
- Feel the joint as you move it, to elicit crepitus (characteristic of osteoarthritis, felt as a crunching sensation below your hand and often with associated sounds).

Pitfalls

- Not taking a full history.

References

Luqmani R, Joseph B, Robb J, Porter D. Textbook of orthopaedics, trauma and rheumatology. Elsevier Health Sciences; 2012 Dec 20

Walters J. Orthopaedics: A guide for practitioners. 4th Edition. University of Cape Town; 2010.

Editor: Michael Held

Conceptualisation: Maritz Laubscher & Robert Dunn

Cover design: Carlene Venter
(Creative Waves Brand Design)

Developmental editing and design:
Vela Njisane and Phinda Njisane

ABOUT THE BOOK

Informed by experts: Most patients with orthopaedic pathology in low to middle-income countries are treated by non-specialists. This book was based on a modified Delphi consensus study* with experts from Africa, Europe, and North America to provide guidance to these health care workers. Knowledge topics, skills, and cases concerning orthopaedic trauma and infection were prioritised. Acute primary care for fractures and dislocations ranked high.

Furthermore, the diagnosis and the treatment of conditions not requiring specialist referral were prioritised.

* Held et al. Topics, Skills, and Cases for an Undergraduate Musculoskeletal Curriculum in Southern Africa: A Consensus from Local and International Experts. JBJS. 2020 Feb 5;102(3):e10.

THE LION

The Learning Innovation via Orthopaedic Network (LION) aims to improve learning and teaching in orthopaedics in Southern Africa and around the world. These authors have contributed the individual chapters and are mostly orthopaedic surgeons and trainees in Southern Africa who have experience with local orthopaedic pathology and treatment modalities but also in medical education of undergraduate students and primary care physicians. To centre this book around our students, iterative rounds of revising and updating the individual chapters are ongoing, to eliminate expert blind spots and create transformation of knowledge.

DISCLAIMERS

Although the authors, editor and publisher of this book have made every effort to ensure that the information provided was correct at press time, they do not assume and hereby disclaim any liability to any party for any loss, damage, or disruption caused by errors or omissions, whether such errors or omissions result from negligence, accident, or any other cause.

This textbook is not intended as a substitute for the medical advice of physicians. The reader should regularly consult a physician in matters relating to his/her health and particularly with respect to any symptoms that may require diagnosis or medical attention.

The information in this book is meant to supplement, not replace, Orthopaedic primary care training. The authors, editor and publisher advise readers to take full responsibility for their safety and know their limits. Before practicing the skills described in this book, be sure that your equipment is well maintained, and do not take risks beyond your level of experience, aptitude, training, and comfort level.

The individual authors of each chapter are responsible for consent and rights to use and publish images in this book.

© The Authors 2021



Licensed under a Creative Commons Attribution (CC BY) 4.0 International Licence.

ACKNOWLEDGEMENTS

This work was carried out with the aid of a grant from the International Development Research Centre, Ottawa, Canada. Thanks to Johan Fagan, Michelle Willmers and Glenda Cox for their mentorship and support.