

## CAUSES

- A stress fracture is a **small bone break** or **crack** and generally occurs as a result of excessive force and overload through abnormal loading.
- This is more common through sports that involve **high impact loading** such as running, gymnastics and basketball can affect the **feet** and **shins**. Conversely, sports that include **high repetitive loading** such as cricket and volleyball can stress certain structures such as the **lumbar spine**.
- When the body has been excessively loaded, the muscles can no longer take the required force, and therefore transfer of the load goes into the bones.
- Stress fractures often arise in the lower limbs due to their weight bearing capacity, including the foot, shin as well as the lumbar spine.

## SIGNS & SYMPTOMS

- When it comes to a stress fracture injury, **pain** is often **progressive**:
  - Early stages: pain after activity
  - Middle stages: pain with activity and walking
  - Later stages: pain with all of the above + rest
  - The pain behaviour may start initially as more of a dull ache, which then will turn into more persistent pain if not managed. As stress fractures **worsen**- the **pain** may become **more focal**.
  - May include; Swelling, loss of range of motion, inability to weight-bear, pain with prolonged postures.



## WHAT ELSE COULD IT BE?

- Soft tissue injury (chronic / long term)
- Infection or bone tumour
- Nerve related injury (neuroma)
- Arthritic changes

## ASSESSMENT & OUTCOME MEASURES

- Subjective examination addressing **mechanism of injury**, aggravating positions and 24hr pain.
- Assessment of **posture, range of movement, muscle length & strength**.
- Palpation of affected area.
- Assessment of **provocative functional movements**.

## MANAGEMENT

- Involvement of a **Sports Physician** to appropriately manage your recovery.
- Relative **rest & de-loading** from aggravating activities.
- A moonboot / crutches may be required to offload structures.
- An **individualised progressive rehabilitation program** will be developed once bone healing has commenced to address any deficits found in the assessment and ensure a safe return to activity.

Astur, D. C., Zanatta, F., Arliani, G. G., Moraes, E. R., Pochini, A., & Ejnisman, B. (2015). Stress fractures: definition, diagnosis and treatment. *Revista brasileira de ortopedia*, 51(1), 3–10.

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