



**Scans,
X-rays**



&back

pain

+ About spinal conditions and back pain

- Many doctors and people believe that having a scan will show exactly the source and reason for their pain
- This is the case for more serious conditions like fractures or tumours but not for the 93% of back pain which is non-specific or mechanical
- Many scientific papers found abnormal findings on MRI scans of healthy pain-free people (in spines, shoulders, knees, brains)
- It's frustrating not to know where exactly the pain is coming from and there are many theories to explain the pain
- It's important not to get too worried about what the scan shows as long as this is nothing serious

“Patients often feel like they are getting better care if people are ordering fancy tests, and there are some patients who come in demanding an M.R.I. — that’s part of the problem,”

+ Scans do not always show what is hurting and it's not only in the spine...

Scans and the shoulder

- In asymptomatic pitchers of baseball: 90% have abnormal shoulder cartilage
- 87% have abnormal rotator cuff tendons
- 65% have joint osteoarthritis (Girish, 2008)

Scans and the knee

- In a large study of 995 people it was found that:
- Meniscal tears are just as common in people with knee arthritis but without knee pain as in people with arthritis and with knee pain (Englund, 2011)
- Also when scanning the brain, it is common to find abnormalities in healthy symptom-free people (Morris, 2008)

Scans and the brain



What about the spine and MRI scans? Can we see the pain?



- The situation is no more clearer when it comes to looking at scans of the spine

Up to 60% of adults with NO back pain have degenerative changes on MRI scans

Disc degeneration increases with age and is present in about 15% of people in their 20's and 87% of people over the age of 60 years

About 20-25% of people who get an MRI scan will have a herniated disc whether they have pain or not!

Up to 75% of people without back pain have facet joint effusion on a scan

+ So what does this mean?

- Medical technology and diagnostic imaging have evolved so much that they can detect any abnormality on a scan, x-ray, ultrasound or any other machine
- Most of the abnormal findings do not relate to the person's pain, they purely report ANY abnormality
- Our body and its many structures are constantly undergoing changes due to the stresses we put them under
- It is normal for these structures to change with time and as we become older, more degenerative changes are seen but these are very common and do not always explain the pain

“After injury tissues heal. But muscles learn, they readily develop habits of guarding that outlast the injury.” Janet Travell



So what does this mean?



- The high incidence of abnormal scans in healthy pain-free people suggest that the scan is not the most important piece of the puzzle
- The most important part is the patient's story
- With non-specific back pain, there is no medical reason to have a scan
- The examination must be done thoroughly and the treatment decision should not be based solely upon the scans
- It is important to focus treatment on movement patterns and look at the body as a whole

“The brain doesn't think of a specific muscle, it thinks of movement. “

+ Scans

If a person has had a serious accident (fall from height, vehicle accident etc.) and immediate pain, then imagining is fundamental to diagnose or exclude fractures

Do I need an MRI scan?

- Not everyone with non-specific back pain needs a scan or an x-ray. It has been shown that most changes occurring in your back are completely normal and the cause of your pain is very often not seen on a scan. The findings from these investigations most often **do not correlate** to the person's pain! We can usually predict what we will see on a scan. A scan can rule out a serious pathology although that occurs in only 1% of cases.

Do I need an X-ray?

- X-rays show bones and they are only useful to show their alignment, structure and integrity. X-rays are used to diagnose fractures, mal-alignment of vertebrae, scoliosis, disc height and other specific spinal conditions.

+ Summary

- Scans and other diagnostic imaging are not very good at showing the specific reasons for a general backache
- Many of the findings on MRI scans have been present for a long time and they can change over time (2/3 of disc herniations disappear within 6 months)
- If the imaging doesn't show anything specific, that is good news!
- The reason for pain is different in each person, it can be: a soft tissue injury, ligament or muscle strain, overuse injury, repetitive faulty movement patterns, incorrect technique, poor posture, not enough exercise and stretching etc.
- In order to understand your pain, a specialized doctor or physiotherapist will be able to properly examine you and tell you more about what is causing your pain and what you can do to reduce it





References

- Englund, M et al. (2008). Incidental meniscal findings on knee MRO in middle-aged and elderly persons. *The New England Journal of Medicine*. 359: 1108-15.
- Morris, Z. et al. (2008). Incidental findings on brain magnetic resonance imaging: systematic review and meta-analysis. *BMJ*. 339: 3016,
- Matsumoto et al (1998). MRI of cervical intervertebral discs in asymptomatic subjects. *The Journal of Bone and Joint Surgery*:80-B:19-24.
- Boden et al (1990). Abnormal magnetic-resonance scans of the cervical spine in asymptomatic subject: A Prospective investigation. *J Bone Joint Surg Am*. 72:1178-1184.
- Mainka (2013) Association between clinical signs assessed by manual segmental examination and findings of the lumbar facet joints on magnetic resonance scans in subjects with and without current low back pain – a prospective single-blinded study. *Pain*. ;154(9):1886-95.
- Girish et al, (2008). Ultrasound of the shoulder: Asymptomatic Findings in Men. *Musculoskeletal Imaging*.
- Park et al (2011). Incidental findings of the lumbar spine at MRI during herniated intervertebral disc disease evaluation. *Musculoskeletal imaging*. 196: 1151-1155.

