

PAIN PUZZLES - as a way of helping understanding that pain is complex

Pain without peripheral stimulus (phantom limb pain) - LM story of man and knife in leg and then visualising scratching his prosthetic foot

This is LM ted talk on this <https://www.youtube.com/watch?v=-3NmTE-fJSo>

This is really useful for simply revealing that pain is NOT SIMPLE – most patients have heard of phantom limb pain. I refresh the description of it and then ask them " *so what can this tell us about pain – if you can feel it in your foot but don't have a foot then what is happening?* - This pushes the patient towards an understanding that the BRAIN INTERPRETS signals and sometimes even generates signals. AND that the Brain has a map of the body , and that this map is not always accurate.

The pain in foot story (LM and the stimulus in the outside of the L foot

– The key here is that the information being sent up to the brain - is " *there is a possibility of danger coming from the outside of the left foot*" (nocioception) and it is not until these messages are processed in the unconscious brain, that a message may or may not go to the mind saying THIS IS PAINFUL..

See Lorimer Moseley TED talk

This is a story about how the brain 'learns' about what might be considered dangerous. So that when a "there could be danger" signal is sent (NOT a PAIN signal, never a pain signal, always a 'there could be danger' signal) then " *the Brain needs to decide if it really thinks there IS danger - and this depends on previous experience.*" AND "*this experience goes way back to childhood. You can be taught to regard more signals as dangerous.*" "*If family members 'ignored signals' and then ran into trouble this may make you more like to pay attention to signals.*" "*Sometimes if bad things happened in your childhood – this sets up the brain to be more likely to interpret signals as dangerous and therefore generate pain*" – "*could this be something relevant to your experience?*"

Pain when you visualise someone else in pain

This is the phenomenon that some patients may recognise that you can feel pain when you see someone else in pain and this helps demonstrate that pain can occur with only visual stimulus and no tissue damage

Anxious pains might be similar or stomach pains when anticipating a challenge etc

Can also explore how thinking that something might be painful is likely to increase the pain experience

Finishing the 100m with broken leg/ Not noticing someone has bitten off your ear in the middle of a fight/ not noticing whatever caused that bruise on your leg that you spotted the next day

These are examples of distraction. *"Your brain receives millions of signals all the time – it has to choose what to alert your mind to. Sometimes even when you have had significant tissue trauma - the brain will spare you the information if it judges you have better things to do with your mind."*

The Gorilla and the basket ball story

The story about not noticing the gorilla walking across the basketball court when asked to watch how many times the ball has been bounced is *another great example of the power of the unconscious brain to decided what to tell you*

Hypervigilance is the REVERSE – the moment when you ASK THE BRAIN to pay close attention ...just in case etc

Cold hand with blue and red lights experiment that links stimulus with cultural association

A controlled experiment. Two groups of people given identical potentially painful stimulus – skin on hand being touched with a very cold object. One group are shown a red light at the time the other a blue light. There is no explanation for this. They then rate the pain experience. Ask the patient what they think the result shows... That the red-light people experience more pain – *again this has nothing to do with tissue damage or nerve fibres and all to do with the unconscious processing of signals by the brain.* – Associations, prior beliefs, previous experiences will all influence how the brain decides on level of pain. Wasps are not black and yellow by chance! Or rather they probably are black and yellow by chance but there is a widespread association of these colours with danger due to pass experience AND cultural learning

The reflection that your Pain varies when you are depressed/ or tired/ or fearful

Exploring VARIATION in peoples experience of pain and seeing if you can find connections between tiredness , mood, fearfulness and level of pain – this can most usefully be done using the pain cycle

Or using 'scaling ' questions. *ON your best day what do you scale your pain as - if 0 is no pain and 10 is maximum pain?* And then compare that with today and speculate what might contribute to the difference

Mismatch degree of pathology and pain level

Examples include the complete lack of ability of OA on xray to predict patient pain experience

Or

MRI 100 people with out ANY pain and find a significant range of disc bulges and degenerative changes – similar to those of people with low back pain

"SO what can we learn from this – it turns out that degree of damage is NOT^ a good guide to how much pain your BRAIN tells you about "