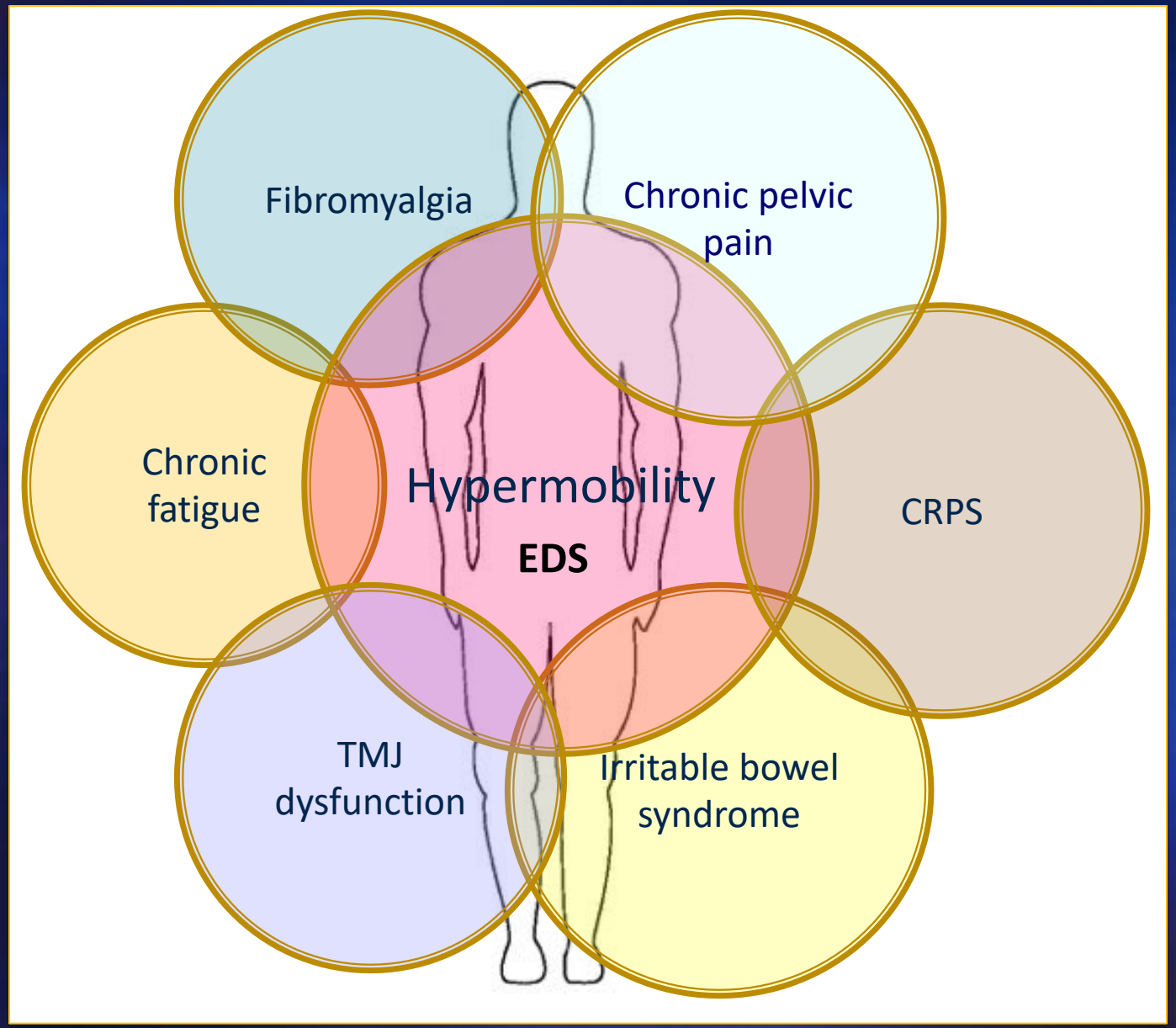
SPEAKER

Dr Helen Cohen

PRESENTATION

Pain Management in EDS

The Venn Diagram Conundrum



What is pain?

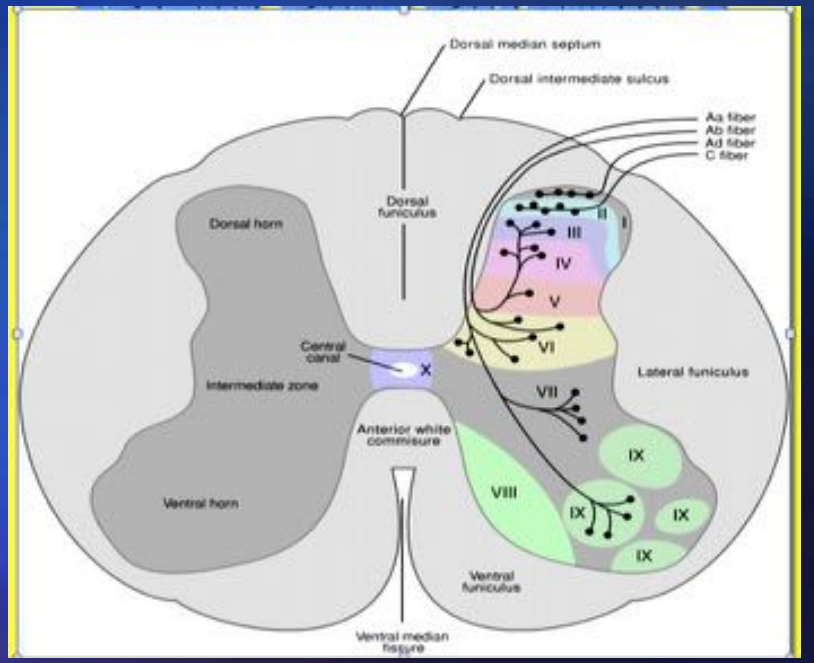
How does it work?

- “an unpleasant sensory and emotional experience associated with actual or potential tissue damage, or described in terms of such damage” (IASP)
- Acute pain
- Chronic pain
- Multiple complex mechanisms involved

Nociception

- Primary afferent small myelinated A-δ and unmyelinated C-fibre nociceptors
- Transmit impulses to the dorsal horn of the spinal cord.

- A- δ terminate primarily on neurones in laminas I, V and X
- C-fibres terminate in laminas I – V (mainly I and II).
- C-fibres transmit to spinal second order interneurones
  - wide dynamic range (WDR) respond to pain & touch
  - nociceptive specific neurones



https://www.studyblue.com/notes/note/n/pain/deck/2258421

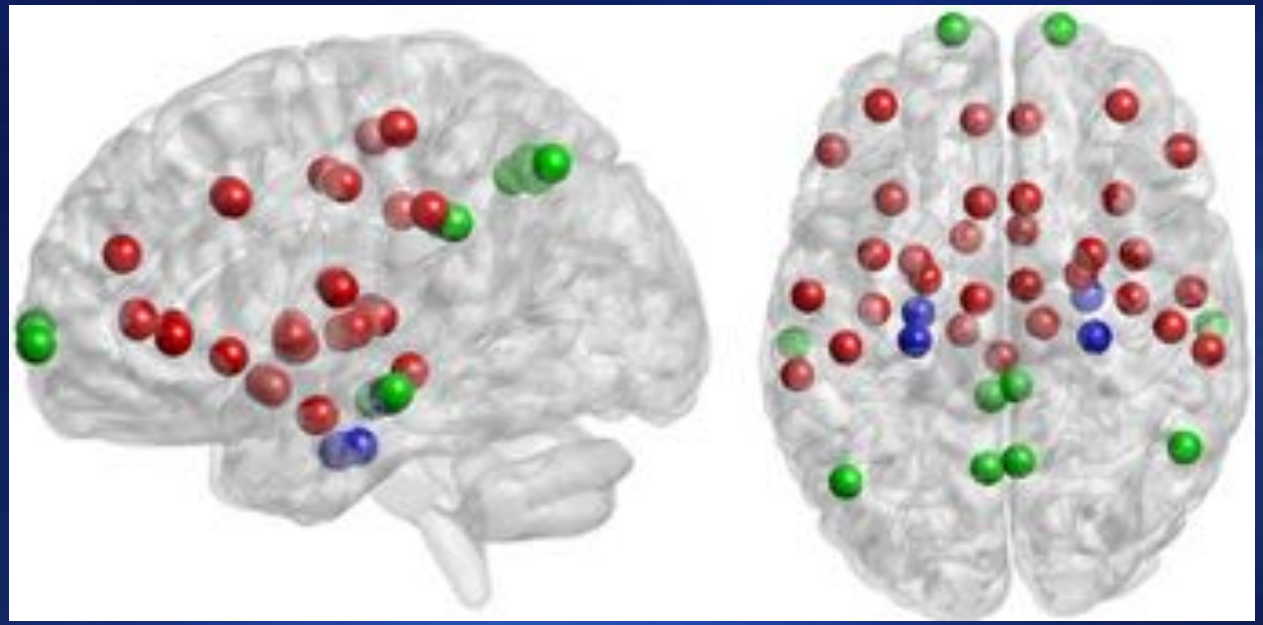
Ascending tracts

Nociceptive impulses ascend by two main pathways:

- The more modern neospinothalamic anterolateral system
  - A-delta fibres
  - Pain & non-painful temperature
  - connects to spinothalamic tracts; pass to the lateral thalamus
  - connections to the sensory cortex allowing the localisation of pain
  - Discriminative pain – quality, intensity, location; ‘fast pain’
- The primitive spino-reticulo-diencephalic tract in the posterolateral cord
  - c-fibres
  - connects to reticular system of the brainstem
  - other connections to the thalamus and hypothalamus
  - Affective/arousal/emotional aspects of pain; ‘slow pain’
  - Sympathetic outflow connections

Central Processing

- Chronic pain as a network dysfunction
- No single ‘pain centre’
- Many brain areas can be activated



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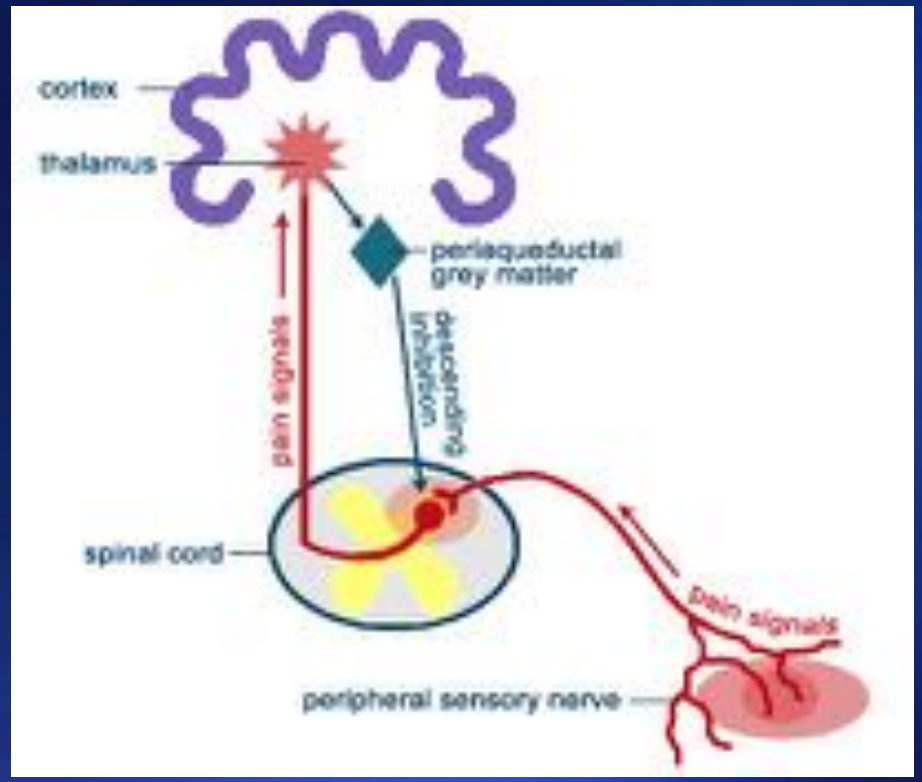
Pain mechanisms in EDS

Descending control

- Brain stem centres (medulla, pons)

- These systems can be inhibitory or facilitatory
- Many different neurotransmitters



https://brainchemist.files.wordpress.com/2010/11/painpathways.gif. Accessed Nov 2018.

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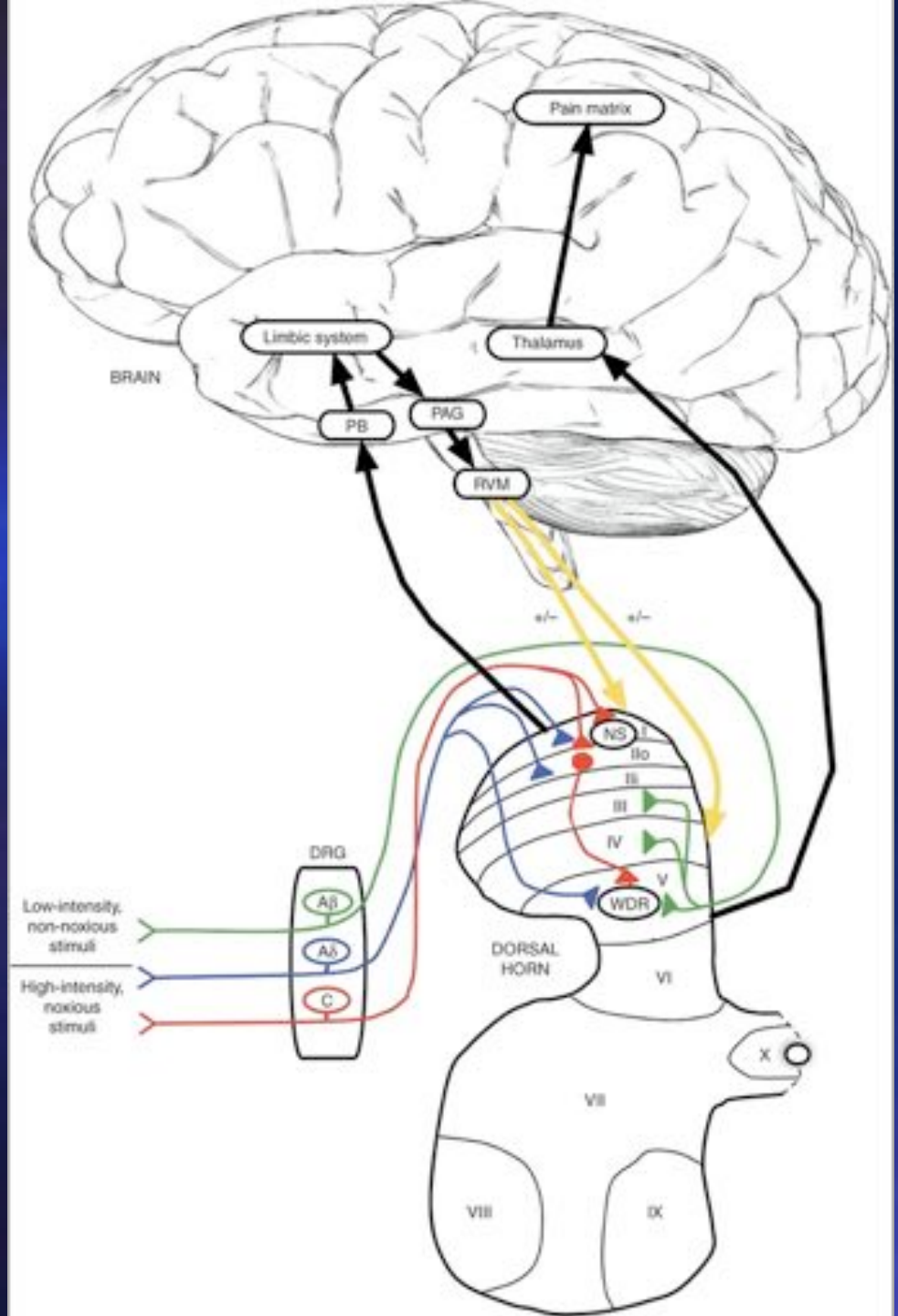


Spinal cord mechanisms of pain

R. D'Mello* and A. H. Dickenson

British Journal of Anaesthesia 101 (1): 8–16 (2008)

Peripheral sensitisation

- Peripheral sensitization is a reduction in threshold and an increase in responsiveness of the **peripheral ends of nociceptors** though peripheral nerves to the central nervous system.

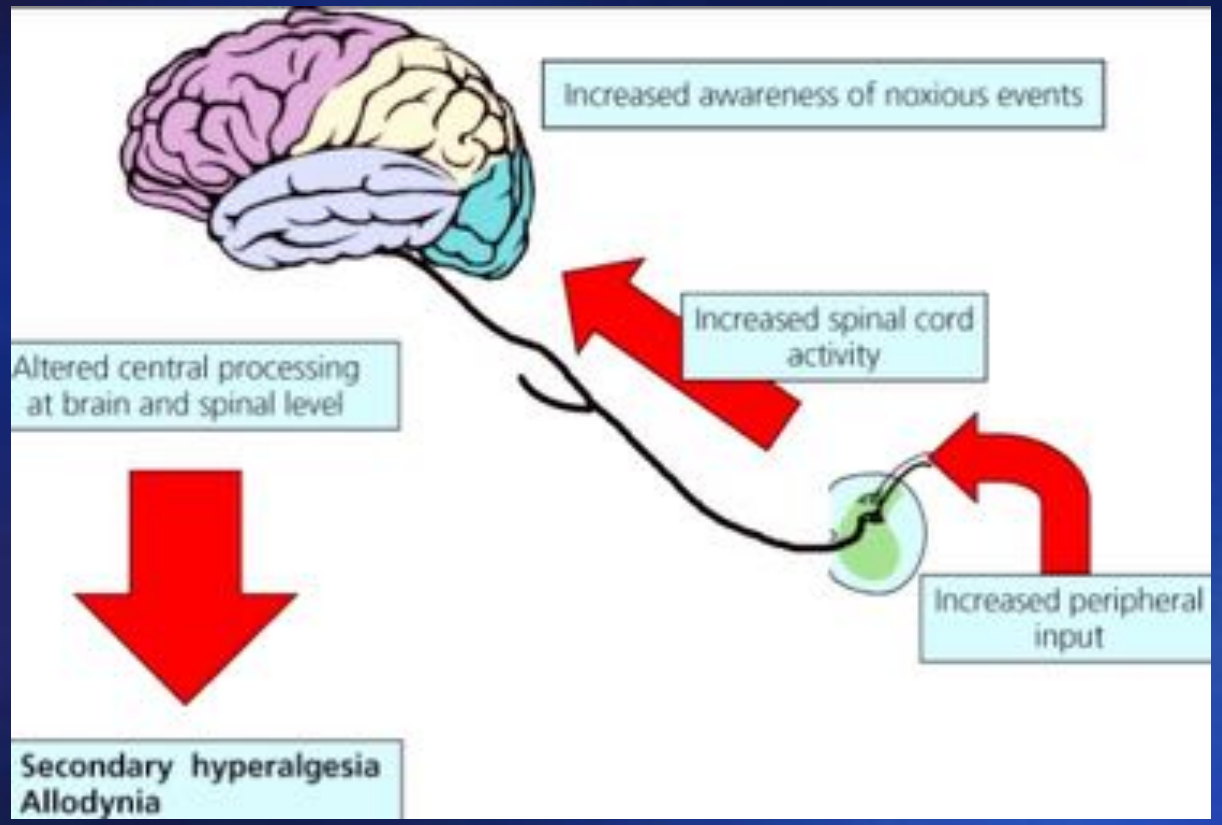
- Previously ‘silent’ c-fibres become active

Central sensitisation

- Central sensitization is an **increase in the excitability of neurons within the central nervous system**, so that normal inputs begin to produce abnormal responses.

- After nerve injury or conditions of inflammation, shifts can occur in excitatory and inhibitory mechanisms which modulate spinal excitability, often resulting in the heightened response of dorsal neurones to incoming afferent signals, and increased output to the brain

‘Centralised’ pain



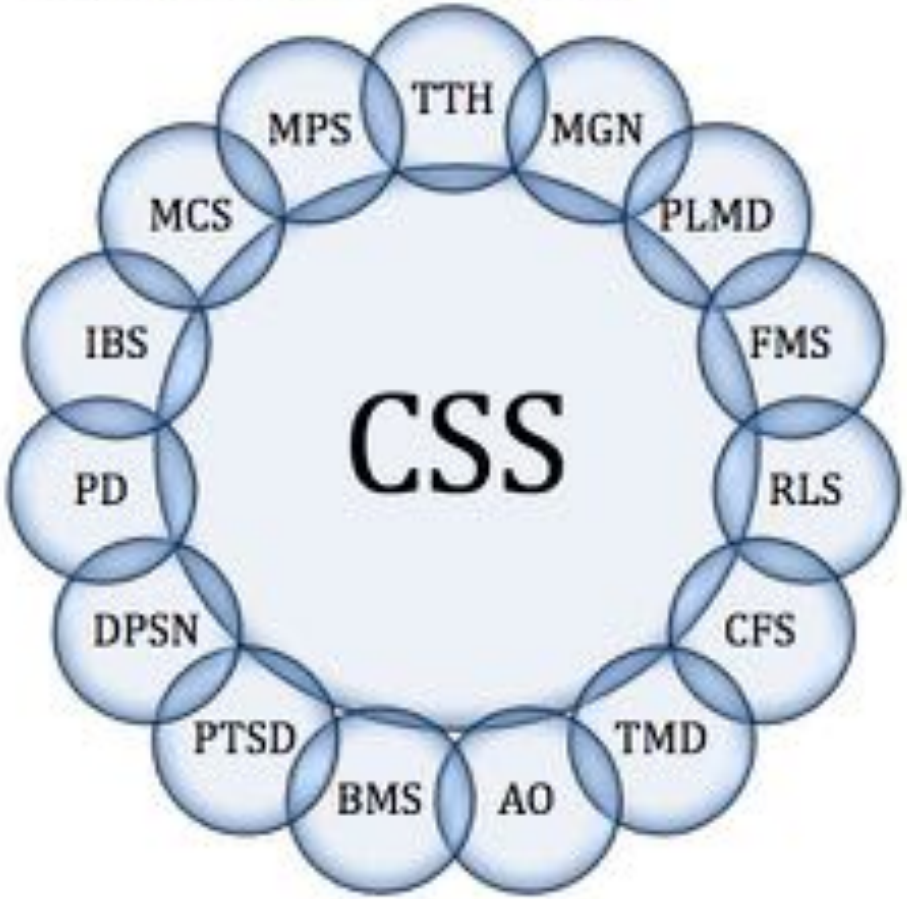
Central Sensitization in Chronic Pain
Pain itself can change how pain works, resulting in more pain with less provocation

https://anjumsultanablog.wordpress.com/tag/central-sensitization/

https://www.painscience.com/articles/central-sensitization.php

Central Sensitization Syndromes (CSS)

Adapted from Wallace and Clauw [2]



Tension-type HA
Migraine
Limb Movement Disorder
Fibromyalgia
Restless Leg Syndrome
Chronic Fatigue Syndrome
TMD
Atypical Odontalgia
Burning Mouth Syndrome
Post Traumatic Stress Disorder
Depression
Primary Dysmenorrhea
Irritable Bowel Syndrome
Multiple Chemical Sensitivities
Myofascial Pain Syndrome

Arthur S. Roberts DDS, MD, MSc
Indiana Craniofacial Center, PC

Pain is an emotion and a sensation

Brain

AFFECTIVE

SENSORY

attention

Amygdala
hypothalamus

Somatosensory
cortex

Painful
stimulus

Parabrachial

Thalamus

Lamina I

Lamina V

Skin

A-delta
C-fibre

Substance P
glutamate

Spinal Cord

Thanks to Tony Dickenson for these slides!

Pain perception

Pain mechanisms in EDS

- Biomechanical
- Musculoskeletal pain
- Nerve impingement / compression
- Peripheral & central nervous system
  - Brain pain mechanisms

Approach to pain management in EDS

Acute dislocations, injuries

- Treat as any other acute musculoskeletal injury
- ‘RICE’ Rest, ice, compression, elevation
- Analgesic medication eg NSAIDs, paracetamol, cocodamol
- AVOID prolonged immobilisation
- Judicious use of splints

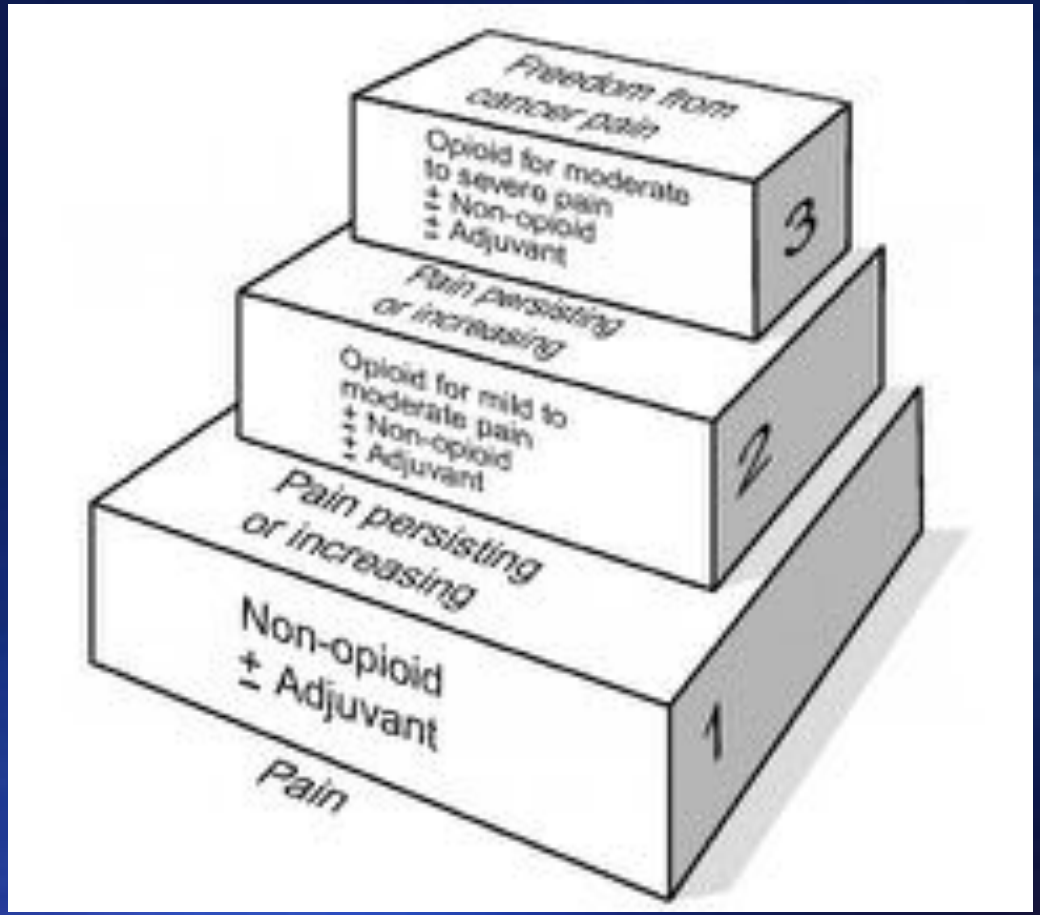
Chronic pain in EDS

- Behaves more like fibromyalgia and neuropathic pain
- Poorly responsive to analgesic medications

- Treatment is not as simple as giving a pill
- Medications have a limited benefit
- Medication benefits have to be weighed against short and long term adverse effects
- Patient expectations may need realigning
- Importance of non-pharmacologic approaches

Medication

- WHO pain ladder not appropriate – opiate rung
- Where are opiates are used – caution, monitoring, pain clinic involvement



http://www.sign.ac.uk/guidelines/fulltext/136/section5.html

Medications

Chronic widespread pain

- Keep it simple
- Avoid high strength opiates or use with caution and close monitoring
- Neuromodulatory medications may help
  - Amitriptyline
  - Gabapentin/pregabalin
  - Duloxetine
- ‘Muscle spasms’ – avoid diazepam, or use short doses with close monitoring

Medications

- Above all, balance benefits against short & long term side-effects
- If drugs don't help, or side effects outweigh benefits, STOP them
- Drugs have only a very limited role in this condition
- Doped patients do not rehabilitate

https://upload.wikimedia.org/wikipedia/commons/thumb/1/1c/Italian_traffic_signs_-_fermarsi_e_dare_precedenza_-_stop.svg/1200px-Italian_traffic_signs_-_fermarsi_e_dare_precedenza_-_stop.svg.png. Accessed 22.3.21.

Pain Management

- Depression & anxiety

- Are very common
- It is not ‘madness’ or ‘weakness’
- Part of the brain stress response to pain
- If not tackled, will continually feed into the pain cycle
- Sometimes does need counselling &/or drug treatment to allow a regain of control

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Medical Rehabilitation Principles

- The ‘Western’ model
- Education
- Rehabilitation
  - Pain control
  - Physical and vocational rehabilitation
  - Psychological support
- ***Self-management***

- Rooted in a biopsychosocial model

Principles of a pain management programme

Medical rehabilitation: Education

Patient

- Understanding the condition
- Understanding chronic pain and how this is different to acute pain ie. this pain is not due to damage
- Decatastrophisation
- Demedicalisation
- Education of patients family & friends

Physiotherapy

- Need an experienced and confident physio
- Don’t over-face the patient
- PACING
- Muscle recruitment
- Learning limits of joint ROM
- Proprioception
- Posture
- Core, hip girdle, gait
- Orthotic considerations
- Hydrotherapy

https://www.google.com/url?sa=i&url=https%3A%2F%2Fwww.csp.org.uk%2F&psig=AOvVaw14hx97GvjqZ5ZsC0Y0_diZ&ust=1616498421045000&source=images&cd=vfe&ved=0CAIQjRxqFwoTCMCH8ITkw-8CFQAAAAAdAAAAABAJ. Accessed 22.3.21.

Physiotherapy

- Re-education of movement patterns & motor control
- Postural alignment – static, then dynamic, to specific tasks
- Proprioception & balance work
- Closed-chain exercises
- Muscle endurance training – reps & hold time
- Muscle strength training
- Stretching avoiding hypermobile range
- Biofeedback eg mirrors, video

Hypermobility, fibromyalgia and chronic pain. Eds Hakim AJ, Keer R, Grahame R. Churchill Livingstone / Elsevier 2010.

Occupational therapy

- Need an experienced and confident OT
- Social challenges
- Work place considerations
- Mobility aids & adaptive equipment
- The bracing conundrum
- Relaxation techniques
- Sleep hygiene

https://www.rcot.co.uk/sites/all/themes/custom/cot/logo.png. Accessed 22.3.21.

Psychology/psychiatry

- Psychological comorbidity can be a major impediment to successful rehabilitation
- Many patients fearful to admit to problems for fear of being told it is ‘all in your head’ or that they are ‘making it up’
- The problem of mind/body dualism
- Work with chronic pain is at the mind/body/physiology interface – especially in HMS/EDS
- Paucity of psychological support services

RNOH programme

Sessions include:

- Making changes & maintaining change
- Pacing
- ‘Your move’ stretch programme
- Pain education
- Coping skills
- Sport & recreation
- Postural management
- Anatomy & healing
- Goal setting
- Foiling a flare up
- Relaxation
- Nutrition
- Work support
- Medicines & future medical management
- Friends & family group

Pain in HMS

- Complex
- Multiple potential sources
- Mechanisms & patterns of pain will vary between individuals
- Mechanisms & patterns of pain may vary over time
- Medications have a limited role
- Holistic, biopsychosocial approach is required

http://www.keepcalm-o-matic.co.uk/p/keep-calm-this-is-the-end-of-my-presentation-36/