



What is FNSD/FND?

Functional Neurological Symptoms Disorder
Functional Neurologic Disorder

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Hypersensitivity
Drop attacks Tremors
Dystonia Fleeting sensations
Stroke-like symptoms Dissociation
Walking difficulties Spasms
Loss of bladder/bowel function
Cog fog Chronic pain
Limb weakness Speech impairment
Dizziness Anxiety Fatigue
Seizures Depression
paralysis Stress
Myoclonus



Disclosures



None



Learning Objectives

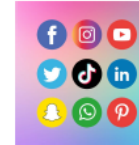
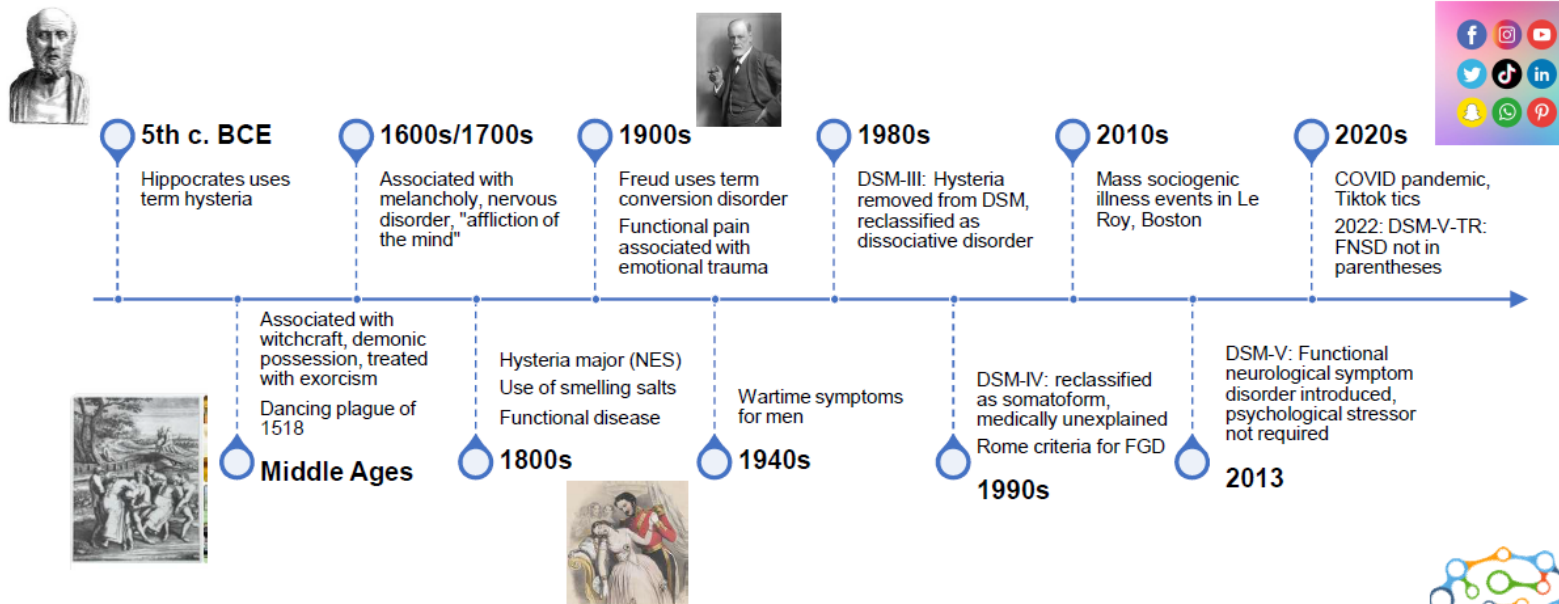


- Describe diagnostic features of FNSD
- Understand conceptual models of FNSD
- Physical Exam Pearls
- Improve communication about FNSD with patients and families
- Summarize current treatment approaches for FNSD



Historical

Historical Context



Media



Media Representation



Definition



Functional Neurological Disorders

- A neurological disorder, characterized by almost any type of neurological symptom, caused by a brain network dysfunction that does not exclude the possibility of normal function, sometimes due in part to a psychological cause, and not explained by other neurological pathology that may or may not be present. Symptoms may be inconsistent or incompatible with other known neurological disorders or human anatomy and physiology.

Definition



Fan and Williams Criteria from 1988 is outdated

BUT

Symptoms and **inconsistent** over time or **incongruent** with clinical presentation of an organic disorder

DSM -5 Criteria



- One or more symptoms that affect body movement or your senses
- Symptoms can't be explained by a neurological or other medical condition or another mental health disorder
- Symptoms cause significant distress or problems in social, work or other areas, or they're significant enough that medical evaluation is recommended



Functional Neurologic Disability



Categories:

- Psychogenic nonepileptic seizures (PNES)
- **Functional movement disorder (FND)**



Body



- Leg and arm weakness or paralysis
- Tremor
- Sudden, brief involuntary twitching or jerking of a muscle or group of muscles (myoclonus)
- Involuntary muscle contractions that cause slow repetitive movements or abnormal postures (dystonia)
- Problems with walking motion (gait), posture, or balance
- Spasms and contractures
- Muscle stiffness
- Tics



Brain



- Speech difficulties, such as sudden onset of stuttering or trouble speaking
- Problems with seeing or hearing
- Pain (including chronic migraine)
- Extreme slowness and fatigue
- Numbness or inability to sense touch



Functional Neurologic Disability



- 12 people per 100,000
- Early childhood trauma (especially sexual trauma) and early life stress.
- Stress
- more common in women
- Usually over age 10
- Association with depression and anxiety
- Possible association between the COVID-19 pandemic
- Second most diagnosed disorder in neurology clinics 10% of inpatient hospitalizations in neurology
- Patients present across a variety of specialty clinics and levels of care
Prognosis highly variable



Stressors



- Trauma present in one third of pediatric patients (Roelofs & Spinhoven, 2007)
- More likely to have experienced bullying, witnessed violence, undergone medical procedures (Plioplys, 2014)
- Some patients connect symptoms with stress triggers; others do not
- Higher rates of anxiety and depressive symptoms
- More somatic symptoms
- Lack of coping skills
- Heightened physiological experience of negative emotions



Predisposing Factors



Table 1: Overview of FNSD predisposing factors

Factor	Supporting evidence
Trauma/psychiatric symptoms	History of sexual abuse or trauma Increased stress Increased anxiety and panic symptoms Increased alexithymia Comorbid dissociative disorders
Somatic symptoms	Comorbid fatigue, chronic pain, irritable bowel syndrome Parent reinforcement and concern over physical symptoms, resulting in increased symptoms Impairment in sensory gating, allowing for excessive information loading
Illness exposure	Precipitating physical event or physical trauma Personal or family history of neurological disorder Personal or family history of other health disorder Profession in a medical or paramedical field Media exposure to neurological disorder
Symptom monitoring	Impairment in habituation Increased focus on external body features Increased self-monitoring
Neurobiological evidence	Abnormal attentional focus on affected area Beliefs and expectations about illness Deficits in sense of control over actions Interregional neural network deficits in limbic system, sensorimotor areas and prefrontal cortex Functional and structural brain abnormalities

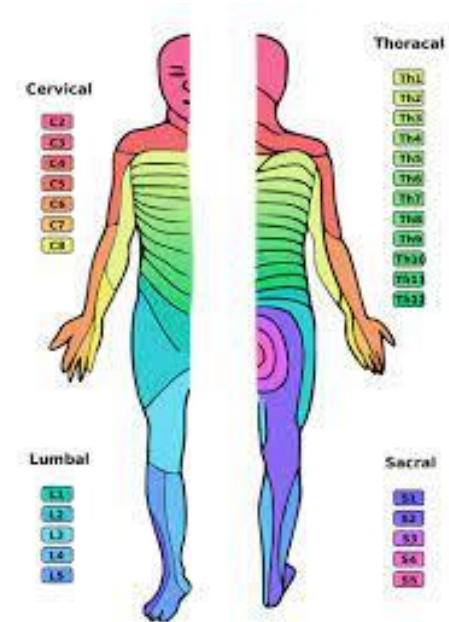
FNSD = functional neurological symptom disorder.



Physical Exam



- Inconsistent distribution of symptoms
- Inconsistency in presentation between people and situations
- Inconsistent performance between commanded and spontaneous tasks
- Symptoms decrease with distractibility, increase with attention
- Negative imaging



Hoover Sign



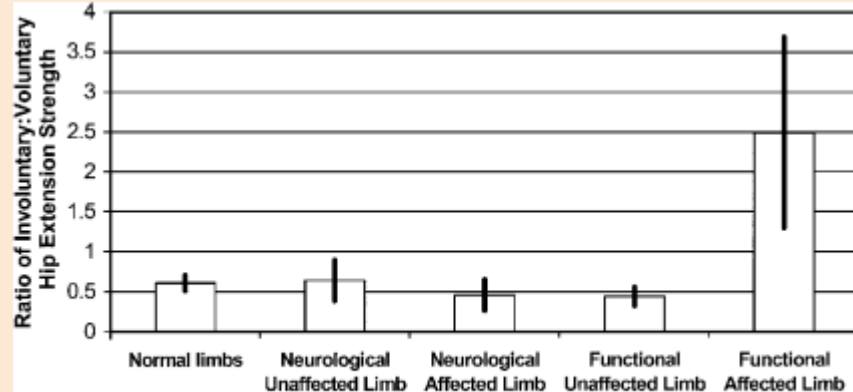
- “Dr Charles Franklin Hoover (1865–1927), a physician in Cleveland, Ohio, described his useful principle and two tests in the Journal of the American Medical Association in 1908 (Hoover 1908).”
- “His article ‘A new sign for the detection of malingering and functional paresis of the lower extremities’ (Hoover 1908) was based on four patients seen in two years”



Physical Exam

Hoovers Sign

- Differentiate weakness
From functional weakness



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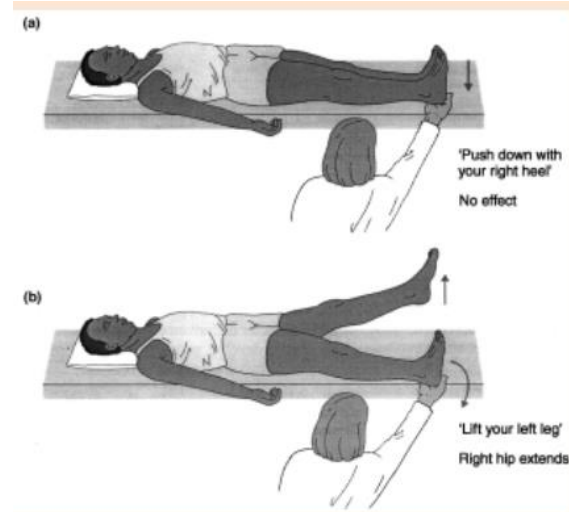
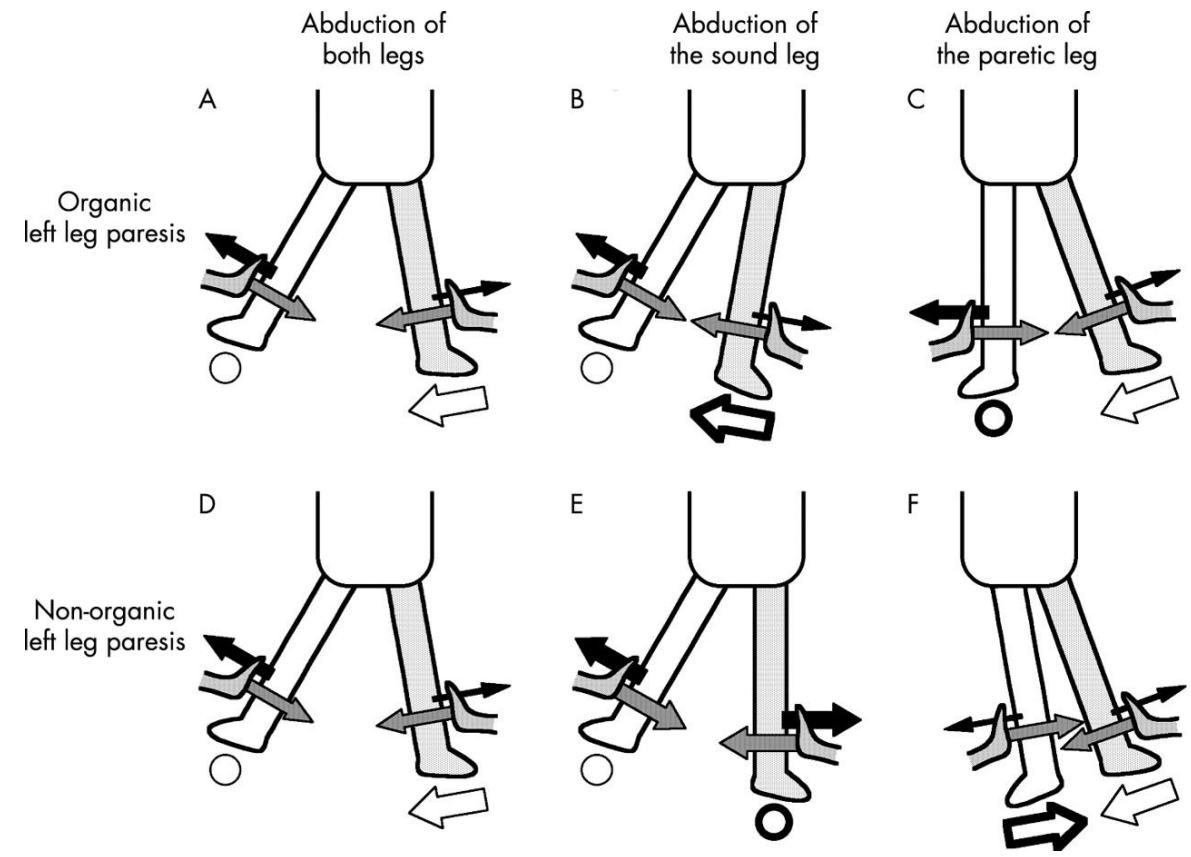


Figure 1 Hoover's sign – how to do it. (a) The patient is unable to extend the hip and to press the heel into the bed on request. (b) The hip is extended involuntarily when the opposite leg is lifted off the bed. Reprinted from *Neurology: an illustrated colour text*, Fuller and Manford, p116, 1999, by permission of the publisher Churchill Livingstone.

Abductor sign



Sonoo, M. J Neurol Neurosurg Psychiatry: first published as on 5 January 2004

Treatment



Medications

- Treat anxiety, depression, insomnia, stop anti-epileptics for PNES

Psychotherapy:

- CBT (focus on troublesome behaviors. Modify thought patterns to change emotions, mood and behavior.

Physical, speech, and occupational therapy

- Target deficits

Redirect Attention



Treatment



- Brain and the body are connected by the autonomic nervous system (ANS)
- Sympathetic (SNS), which is like the gas pedal, and the parasympathetic (PNS), which is like the brake pedal
- Body has a range of reactions that are normal/expected to different stressors when SNS gets activated
- If lots of stressors at one time (or a really big one), the brain gets mixed up and forgets how to slow body down



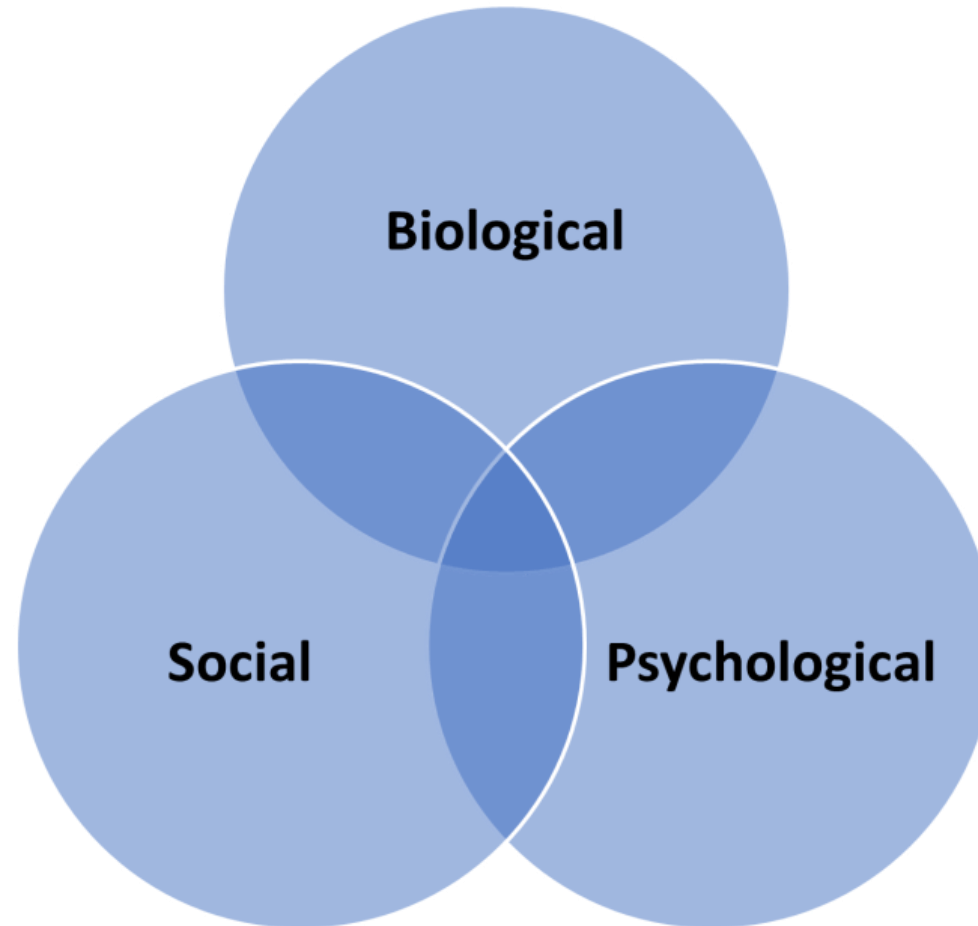
Treatment



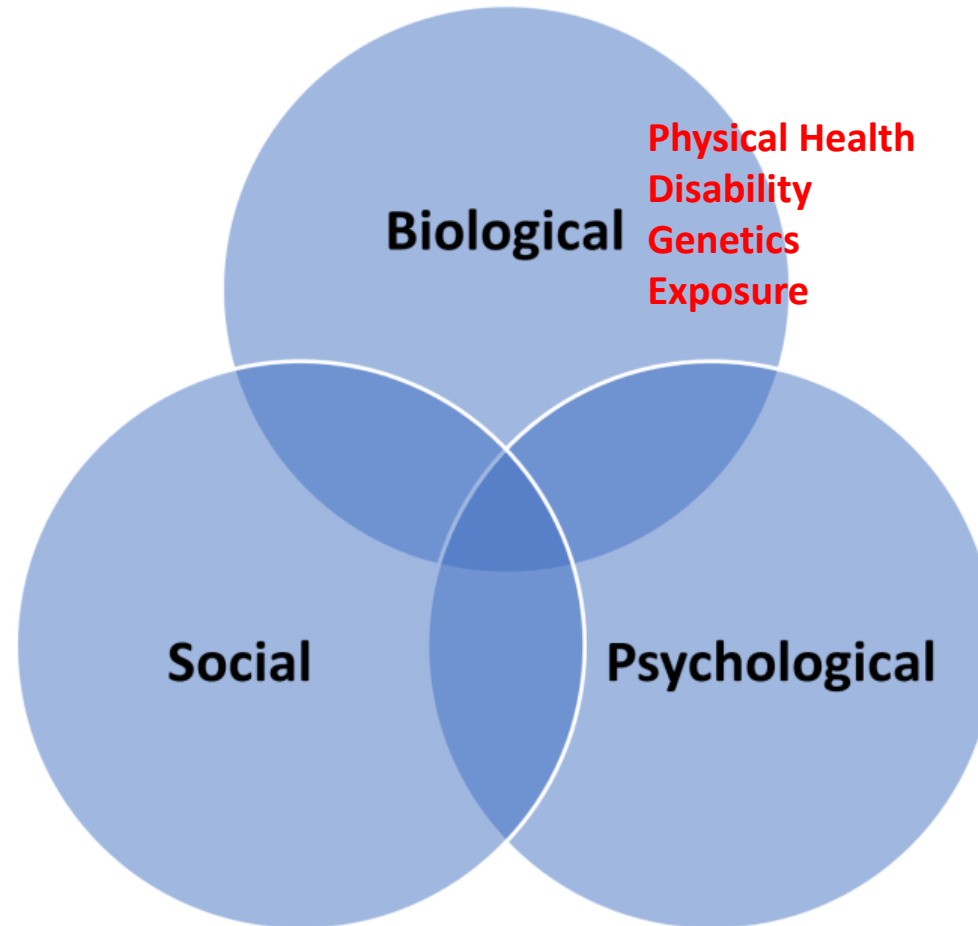
- Functional means symptoms that are due to how the nervous system "functions"
- coming from SNS being overactivated and brain misinterpreting stressors, causing extreme reactions
- Not being caused by something wrong in your body, not dangerous
- Something wrong with how brain and the body are communicating with each other through the nervous system.
- Know body is healthy and symptoms are real, involuntary
- Families can help by validating symptoms and encouraging coping
- Treatment standard is cognitive behavioral therapy



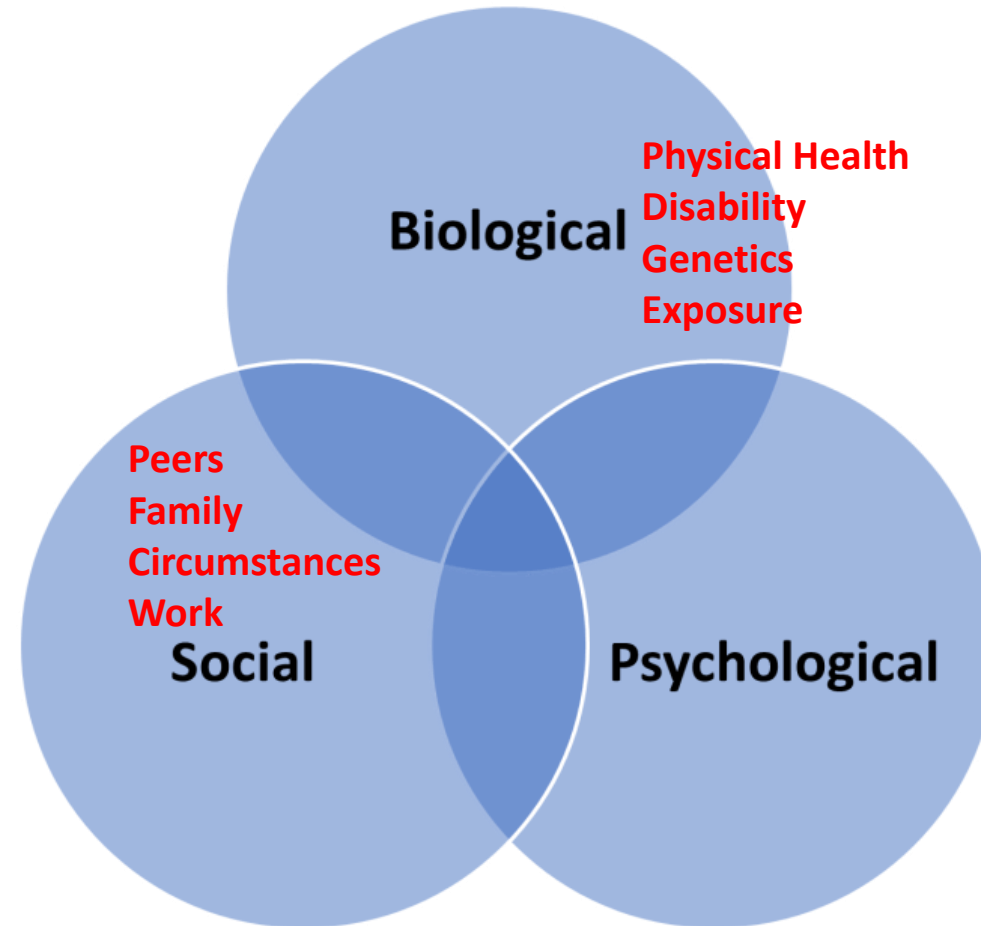
Biopsychosocial Model



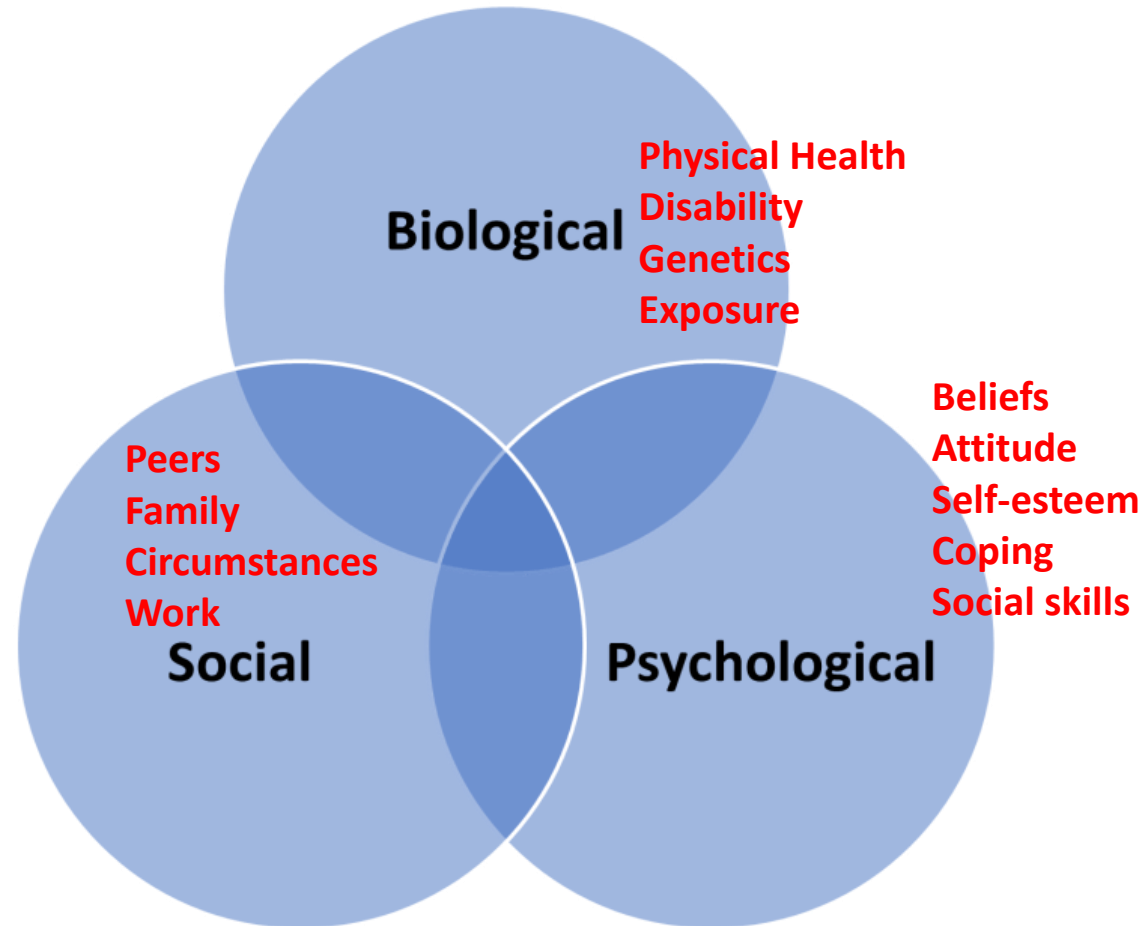
Biopsychosocial Model



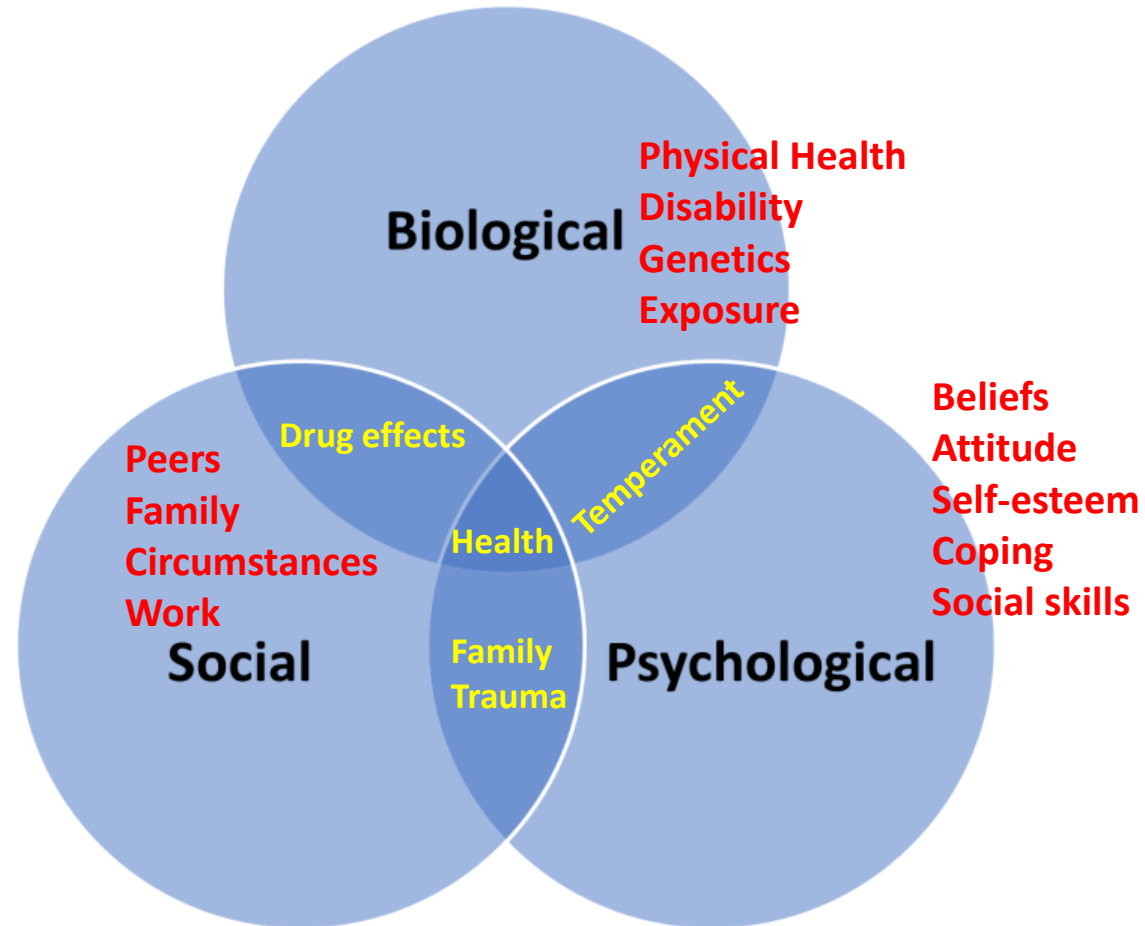
Biopsychosocial Model



Biopsychosocial Model



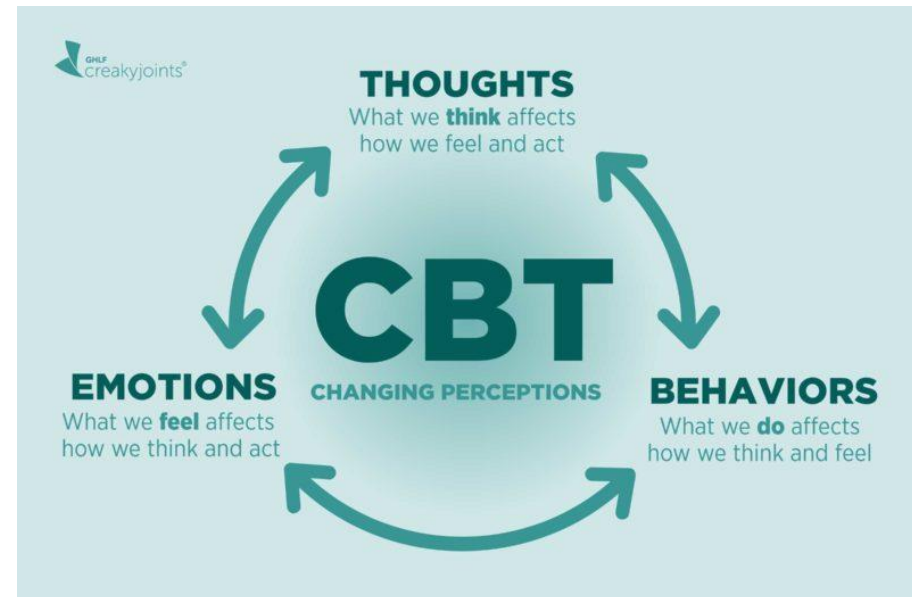
Biopsychosocial Model



Treatment



- Physical Therapy
- Occupational Therapy
- Psychological Therapy
- Family Therapy
- Partnership with school



<https://creakyjoints.org/living-with-arthritis/mental-health/cognitive-behavioral-therapy-for-arthritis/>

Resources and References



FNSD SIG

<https://fnsdsigsp.wordpress.com/>

FND Hope

<https://fndhope.org/>



Thank you



Katherine Hottinger PhD

