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Psychiatry and Addictions Case Conference

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UPDATE ON FUNCTIONAL NEUROLOGICAL DISORDERS

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DISCLOSURES

- I do not have any conflicts of interest to report.

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OBJECTIVES

- Discuss the terminology used to describe functional neurological disorder (FND)
- Describe the role of neurology in early diagnosis and unambiguous communication regarding FND
- Provide an update on comorbidities in FND
- Describe the current understanding regarding pathophysiology of FND
- Describe treatment, multidisciplinary teams, and the importance of treatment dissemination

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TERMINOLOGY: HOW DID WE GET HERE?

- Hysteria, conversion disorder – the 100-year disparaging drought
- DSM-IV and ICD-10 era: diagnosis of exclusion (not neurological, not factitious, feigning) and psychological factors appear to be operating
- The enlightened era, sort of: DSM-V Conversion Disorder (Functional Neurological Symptom Disorder) is a rule-in diagnosis

Kanaan, R.A.A. (2022). A historical perspective on functional neurological disorder. In K. LaFaver et al (eds). Functional Movement Disorder, Current Clinical Neurology. http://doi.org/10.1007/978-3-030-86495-8_1

MEANWHILE…THE FUNCTIONAL NEUROLOGICAL DISORDER SOCIETY

- 2017: Mark Hallett, Jon Stone, Alan Carson organize a 3-day international meeting in Edinburgh following publishing a volume on FND in the Handbook of Clinical Neurology. 550 people attended
- 2022 conference in Boston (306 in person, 852 online)
- 2024 conference in Verona (716 in person, 180 online; total membership 1,263
- 2026 conference in Baltimore – no data yet

SO, ON TO A DEFINITION OF FUNCTIONAL NEUROLOGICAL DISORDER

Functional neurological disorder (FND) is a condition in which patients experience genuine, involuntary neurological symptoms—affecting motor, sensory, or cognitive function—that arise from altered functioning of brain networks rather than from structural damage or disease of the nervous system.

Hallett M, Aybek S, Dworetzky BA, McWhirter L, Staab JP, Stone J. Functional neurological disorder: new subtypes and shared mechanisms. Lancet Neurol. 2022 Jun;21(6):537-550. doi: 10.1016/S1474-4422(21)00422-1.

COMMON PRESENTATIONS INCLUDE:

- **Functional seizures** (also called dissociative or psychogenic nonepileptic seizures)
- **Functional movement disorders** (tremor, dystonia, jerks, gait abnormalities)
- **Functional weakness/paralysis** and sensory symptoms
- **Persistent postural-perceptual dizziness (PPPD)**
- **Functional cognitive disorder**

Overlap among these presentations is common.

Hallett et al, 2022

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EPIDEMIOLOGY OF FND

- Second most common diagnosis in neurology clinics
- More common in women (60-75% of patient populations)
- Comorbidities (psychiatric, neurological, other) are common
- Evident in pediatric populations as well as adulthood

Espay et al, 2018; McCann et al, in press

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NEUROLOGY'S ROLE

- Establish the diagnosis based on positive criteria
- Communicate the diagnosis in an effective and unambiguous manner
- Maintain involvement in patient care (setting-dependent and whether other neurological disorders are present)

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ESTABLISHING THE DIAGNOSIS

Daum, C., Hubschmid, M., & Aybek, S. (2014). *The value of 'positive' clinical signs for weakness, sensory and gait disorders in conversion disorder: a systematic and narrative review*. *Journal of Neurology, Neurosurgery and Psychiatry*, *85*(2), 180–190. https://doi.org/10.1136/jnnp-2012-304607

Motor signs

- Hoover's sign
- Abductor sign
- Abduction finger sign
- Give-away weakness
- Variability and inconsistency

Sensory signs

- Midline splitting of sensory deficit
- Splitting of vibration sense
- Non-anatomical sensory loss
- Inconsistency

Abnormal gait signs

- Chair test

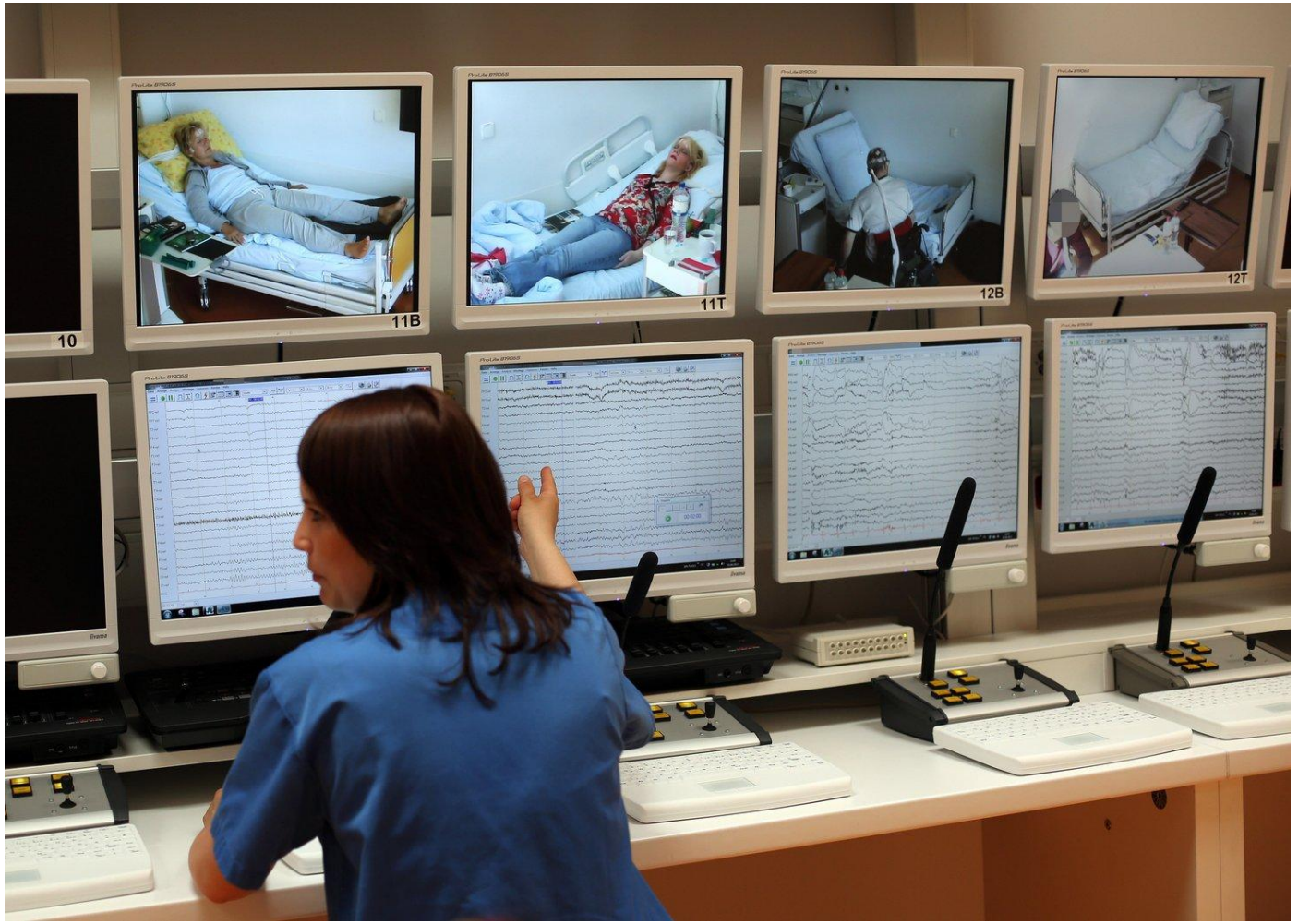
TABLE 1. SENSITIVITY AND SPECIFICITY OF SEMIOLOGIC FEATURES OF FUNCTIONAL AND EPILEPTIC SEIZURES		
	Sensitivity (%)	Specificity (%)
Features favoring functional seizures		
Fluctuating course	69	96
Asynchronous movements	44-96	93-96
Pelvic thrusting	31	96-100
Side-to-side head or body movement	63	96-100
Closed eyes	88	74-100
Ictal crying	14	100
Memory recall	63	96
Features favoring epileptic seizures		
Onset from sleep	31-59	100
Postictal confusion	61-100	88
Stertorous breathing	61-91	100

Viswanathan & Benbadis, 2022

DIAGNOSIS OF FUNCTIONAL SEIZURES

- Video-EEG Monitoring in a specialty unit (gold standard)
- Semiology – during Video-EEG or captured on smartphone
- Clinical History

Benbadis and Lafrance, 2018



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COMMUNICATING THE DIAGNOSIS OF FND

- Demonstrate or describe the positive finding(s) that confirms the diagnosis
- Address concerns about feigning symptoms – especially with family members
- Describe treatment options

Don't be weird.

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PSYCHIATRIC COMORBIDITIES

- **Mood disorders (51.6%)**
- **Anxiety disorders (51.2%)**
- **PTSD (16.0%)**
- **Borderline personality disorder (4.5%)**
- **Somatoform disorders (11.8%)**

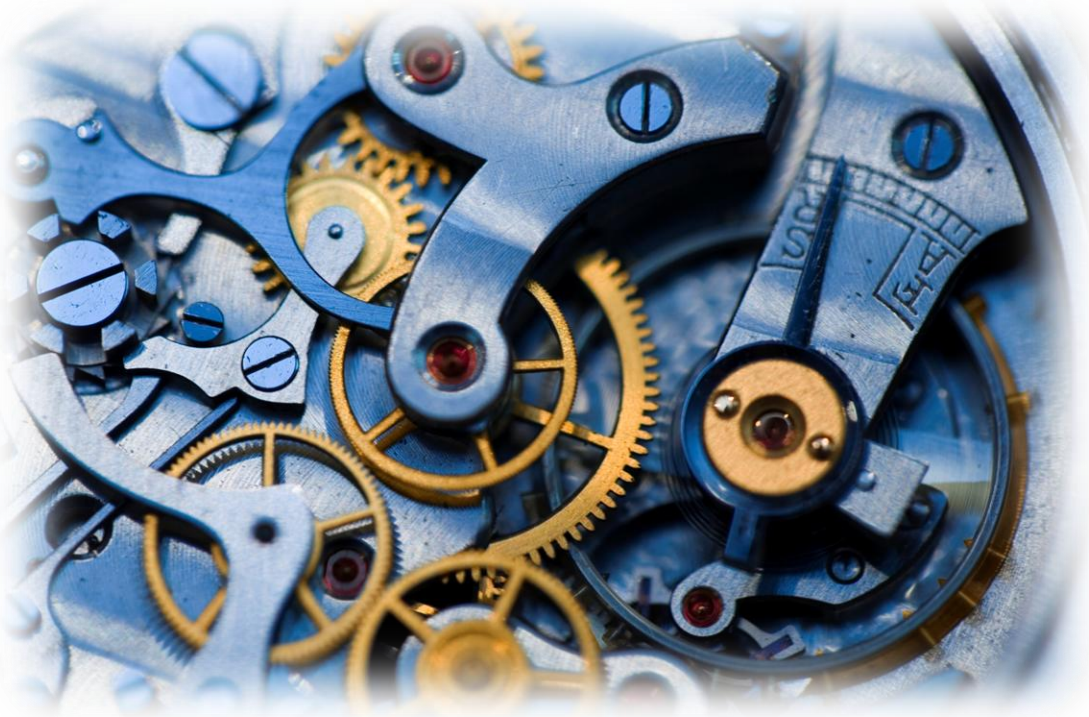
Asan, L., Lynch-Kelly, K., Berlot, R., Stanton, B., Nicholson, T., Pollak, T. A., & Edwards, M. J. (2026). Comorbidities and Outcomes in People With Functional Neurological Disorder. *JAMA Neurology.*, *83*(7). https://doi.org/10.1001/jamaneurol.2026.1040

BIOPSYCHOSOCIAL MODEL

- **Predisposing factors:** Adversity in childhood
- **Precipitating factors:** Injury, including TBI; other physical events such as illness and surgery; traumatic events (psychological, psychosocial); stressors more generally

PERPETUATING FACTORS:

- Abnormal attention to symptoms
- Maladaptive illness beliefs/threat processing
- Avoidance (similar to panic disorder)
- High levels of stress reactivity
- Iatrogenic factors
- Interpersonal and social factors



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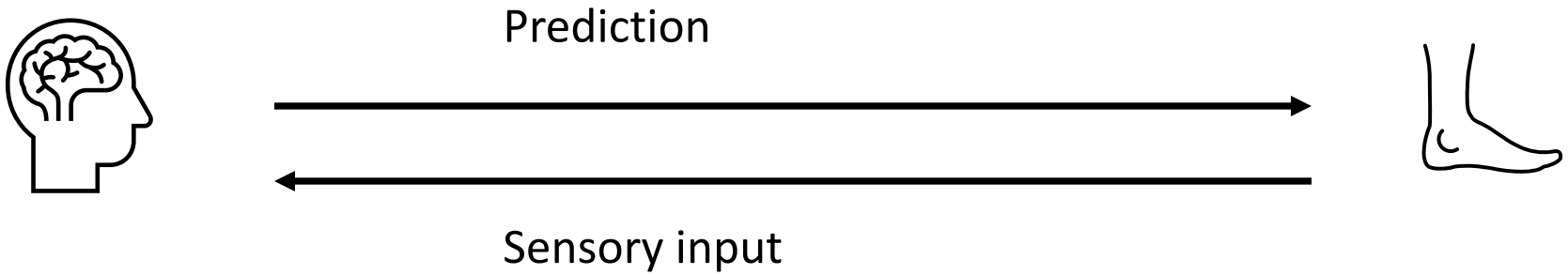
PROPOSED PATHOPHYSIOLOGY



Stress (physical, psychological, interpersonal, etc) amplifies negative prediction

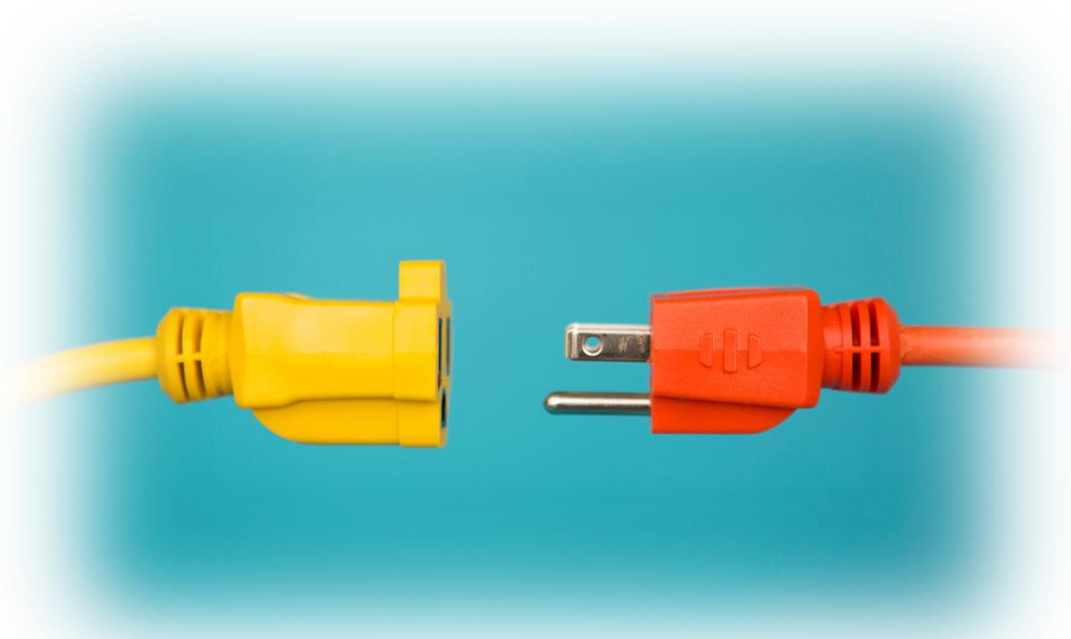
Attention, expectation, and emotion are key drivers

TREATMENT

- Targets movement and concomitant attention (physical therapy, occupational therapy, speech therapy)
- Addresses comorbid psychiatric conditions (therapy such as CPT or EMDR for PTSD, medications for depression and anxiety)
- Interrupts patterns that maintain avoidance behaviors, teaches skills (e.g., interpersonal), reduces arousal, enhances coping

EMERGING RESEARCH AND QUESTIONS

- Higher prevalence of FND among sexual and gender minority people
- Autism and associated neurodivergence is over-represented in FND
- Some evidence suggesting TMS may be beneficial, especially in motor symptoms
- Optimizing treatment delivery and dissemination; stakeholder involvement



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ADDITIONAL INFORMATION

- Functional Neurological Disorder Society
- FND Hope
- FND Guide at neurosymptoms.org (Jon Stone, MBChB FRCP PhD, Professor of Neurology, University of Edinburgh)