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Functional Neurological Disorder

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Neuropsychiatry: A Comprehensive Update

October 22-24, 2026

Disclosures

The opinions expressed in this presentation do not represent the opinion of the US government.

Medications named in the presentation are not approved for their use in FND.

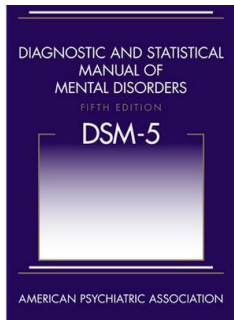
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Objectives

- Formulate an updated biopsychosocial understanding of FND.
- Learn a model of care for patients with FND from initial visit to long-term outcomes.
- Acknowledge current state of evidence-based treatment for FND.

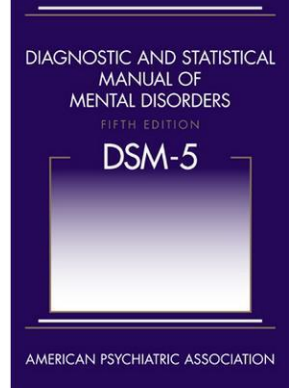
Functional Symptoms are Ubiquitous

- Gastroenterology:
irritable bowel syndrome
- Urology: overactive
bladder syndrome
- Rheumatology:
fibromyalgia
- Infectious diseases:
chronic fatigue syndrome
- Immunology: multiple
chemical sensitivities
- Cardiology: atypical chest pain
- Pulmonary: chronic cough
- ENT: globus
- Gynecology: pelvic pain
- **Neurology: *functional seizures, functional weakness or movements, functional cognitive disorder/ symptoms, postural perceptual persistent dizziness (PPPD), etc***



Somatic Symptom Disorders

DSM-5: Conversion Disorder (Functional Neurological Symptom Disorder)



- A. One or more symptoms of altered voluntary motor or sensory function.
- **B. Clinical findings provide evidence of incompatibility between the symptom and recognized neurological or medical conditions.**
- C. The symptom or deficit is not explained by another medical or mental disorder.
- D. The symptom or deficit causes clinically significant distress or impairment in social, occupational, or other important areas of functioning or warrants medical evaluation
- Specifier: with weakness or paralysis, with abnormal movement (FMD), with swallowing symptoms, with speech symptom, with attacks or seizures (functional/dissociative seizures, FDS), with anesthesia or sensory loss, with special sensory symptom, with mixed symptom, **cognitive deficits, dizziness.**
- Specifier: acute episode (< 6 months), persistent (> 6 months).
- **Specifier: with psychological stressor, without psychological stressor.**

American Psychiatric Association, 2013

FS: Functional Seizures; FMD: Functional Movement Disorder.

Trick or treat?

Showing patients with functional (psychogenic) motor symptoms their physical signs

Internal inconsistency

(variability, distractibility, enhancement with attention)



Diagnosis



'Keep your left heel on the ground – don't let me lift it up'

LEFT hip extension is weak



'Lift up your right leg. Don't let me push it down'

LEFT hip extension returns to NORMAL



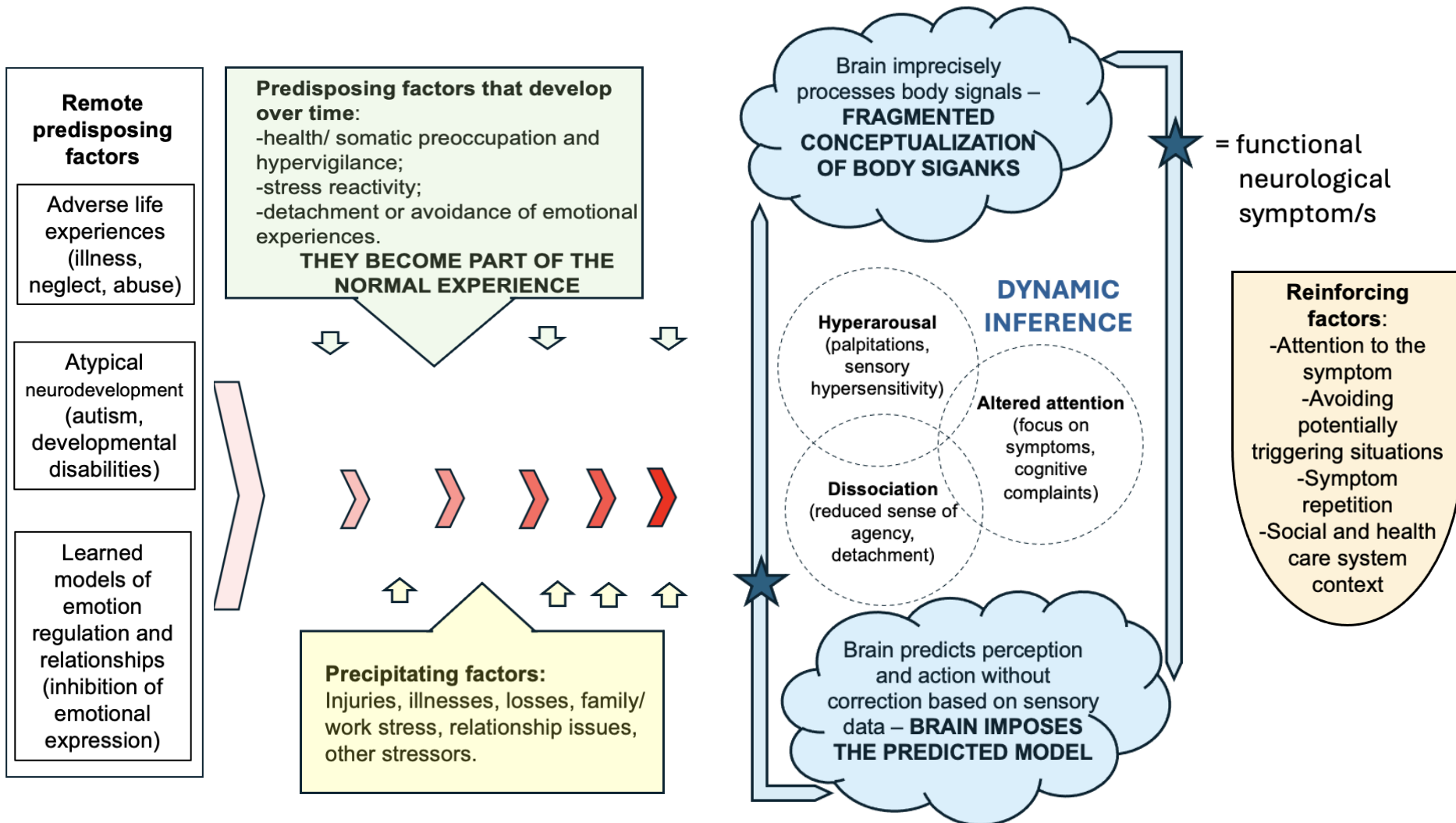
Adapted from: Stone and Edwards, Neurology 2012

Epidemiology and Impact of FND

- Incidence: 10-22/ 100,000/yr¹
- Prevalence range 50-1600/100,000¹
- Second most common dx made in ambulatory neurology; 30% of initials assessments have a functional component²
- Female preponderance (3:1 F:M)³; *children/elderly F=M*^{4,5}
- Adolescence → midlife onset
- Health Care Utilization is costly ^{6,7} ~ **1.2 bill. (adults)⁸; 88 mill.(peds)⁹**
- ↓ QOL (= or > other neuro disorders)¹⁰
- Stigma¹¹ and Caregiver burden¹² same or worse than ES
- **Increased risk of death (SMR 2.5x gen. pop)¹³⁻¹⁴**

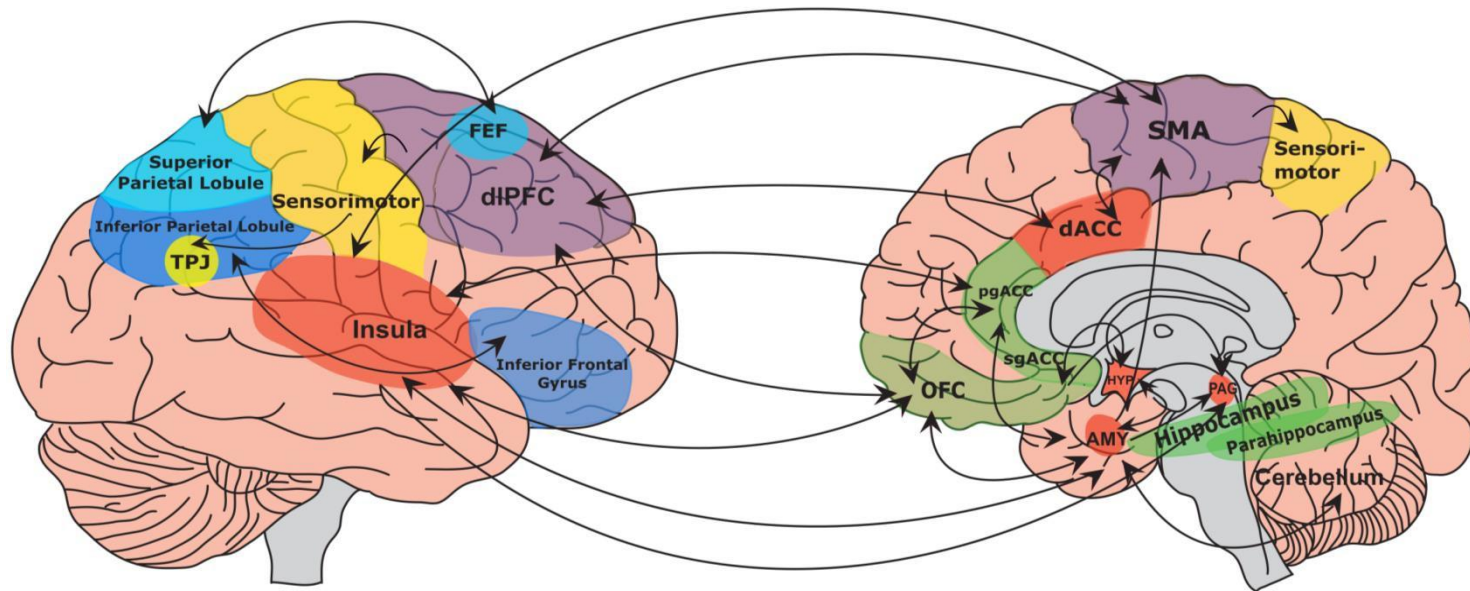
1. Finkelstein et al, JNNP, 2024; 2. Stone et al, Brain 2009; 3. Lesser, Neurology, 1996; 4. Duncan et al, Neurology, 2006; 5. Huang et al, J Chin Med Assoc, 2009.; 6. Martin et al, Seizure 1998; 7. Seneviratne et al, Epilepsia 2019; 8. Barsky et al, Arch Gen Psych, 2005; 9. Stephen et al, JAMA 2021; 10. Szaflarski and Szaflarski, Epilepsy and Beh 2004; 11. Robson et al, Seizure 2018; 12. Karakis et al, Seizure 2014; 13. Jennum et al, E and B, 2019; 14. Nightscales et al, Neurology 2020.

Predictive-conceptual model of FND



Tenreiro and Baslet,
In preparation

In FND, there is **alteration in the connectivity between neuronal networks** distributed in different parts of the brain.



Saliience/ limbic networks

These networks detect salience, emotion, arousal, homeostatic demands



Alteration in the association with motor networks

Agency / Attention networks

They integrate expected versus actual action/ behavior

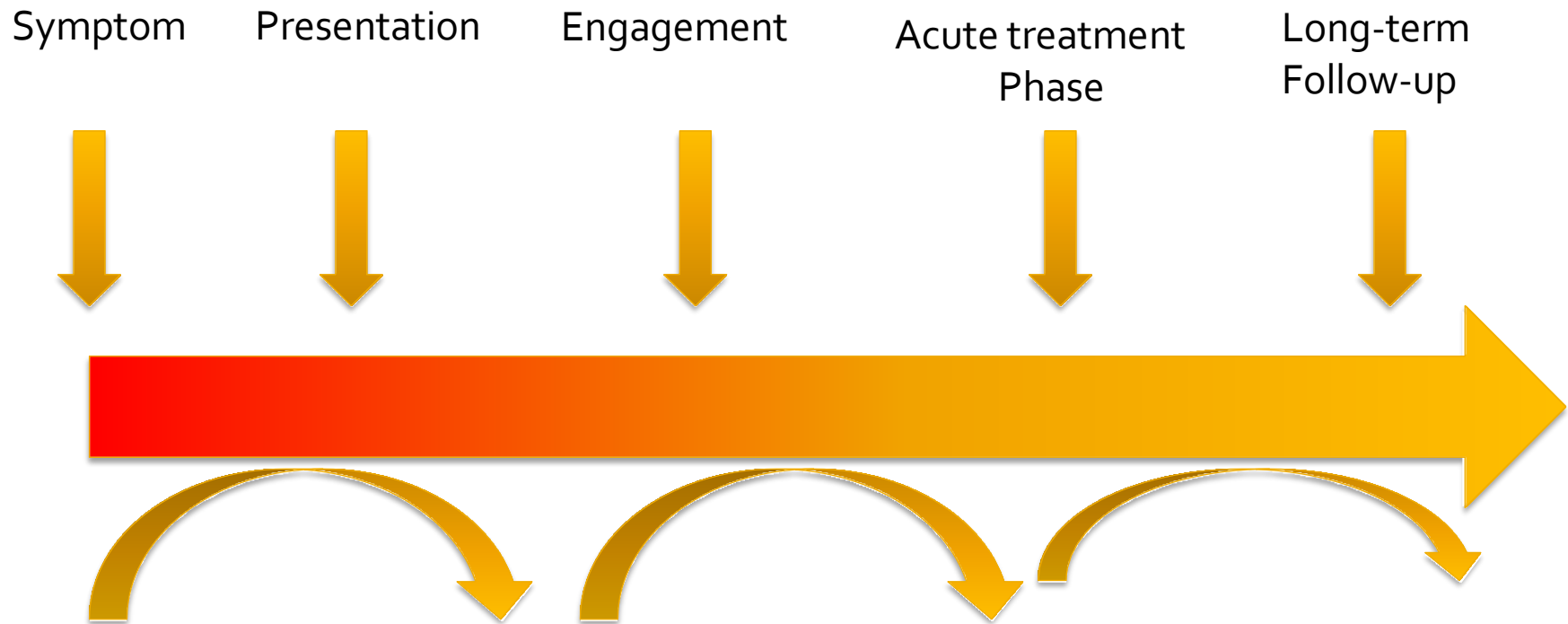


Dysfunction contributes to a reduced sense of agency and attention focused on symptoms

Sensorimotor/ Default mode networks

Sensorimotor control is associated to internal models and context-dependent predictions

Course of treatment in FND



FND: Functional Neurological Disorder

Baslet et al, *Clin EEG Neurosci*, 2014



Treatment in FND is multidisciplinary



ELSEVIER

Contents lists available at [ScienceDirect](https://www.sciencedirect.com)

Seizure

journal homepage: www.elsevier.com/locate/yseiz

Psychological interventions for psychogenic non-epileptic seizures: A meta-analysis

Perri Carlson*, Kathryn Nicholson Perry

Australian College of Applied Psychology, Level 11, 255 Elizabeth Street, Sydney, NSW 2000, Australia

Occasional essay

Occupational therapy consensus recommendations for functional neurological disorder

Clare Nicholson ¹, Mark J Edwards,² Alan J Carson,³ Paula Gardiner,⁴
Dawn Golder,⁵ Kate Hayward,¹ Susan Humblestone,⁶ Helen Jinadu,⁷ Carrie Lumsden,⁸
Julie MacLean,⁹ Lynne Main,¹⁰ Lindsey Macgregor,¹¹ Glenn Nielsen,² Louise Oakley,¹²
Jason Price,¹³ Jessica Ranford,⁹ Jasbir Ranu,¹ Ed Sum,¹⁴ Jon Stone ³

Neuropsychiatry

VIEWPOINT

Physiotherapy for functional motor disorders: a consensus recommendation

Glenn Nielsen,^{1,2} Jon Stone,³ Audrey Matthews,⁴ Melanie Brown,⁴ Chris Sparkes,⁵
Ross Farmer,⁶ Lindsay Masterton,⁷ Linsey Duncan,⁷ Alisa Winters,³ Laura Daniell,³
Carrie Lumsden,⁷ Alan Carson,⁸ Anthony S David,^{9,10} Mark Edwards¹

General neurology

Review

Management of functional communication, swallowing, cough and related disorders: consensus recommendations for speech and language therapy

Janet Baker,^{1,2} Caroline Barnett,³ Lesley Cavalli,^{4,5} Maria Dietrich,⁶ Lorna Dixon,⁷
Joseph R Duffy,⁸ Annie Elias,⁹ Diane E Fraser,¹⁰ Jennifer L Freeburn,¹¹
Catherine Gregory,² Kirsty McKenzie,¹² Nick Miller,¹³ Jo Patterson,¹⁴ Carole Roth,¹⁵
Nelson Roy,^{16,17} Jennifer Short,¹⁸ Rene Utianski ^{19,20} Miriam van Mersbergen,²¹
Anne Vertigan,^{22,23} Alan Carson,²⁴ Jon Stone ²⁴ Laura McWhirter ²⁴

Presenting the diagnosis: Communication Protocol

Item	Say to Patient
Anticipation	Include in list of differential dx if appropriate
Validation	Common, real, not faking
Label	Functional neurological disorder
Diagnostic method	Positive features (Hoover's sign, vEEG capture)
Cause & Maintaining factors	Your brain's miscommunication to the body in the context of biopsychosocial risk factors; immediate trigger often not obvious
Treatment	Effective treatments, " retrain the brain " by learning new skills
Expectations	Takes time, symptoms can resolve

Reuber, 2003; Hall-Patch, et al Epilepsia 2010

Education about diagnosis

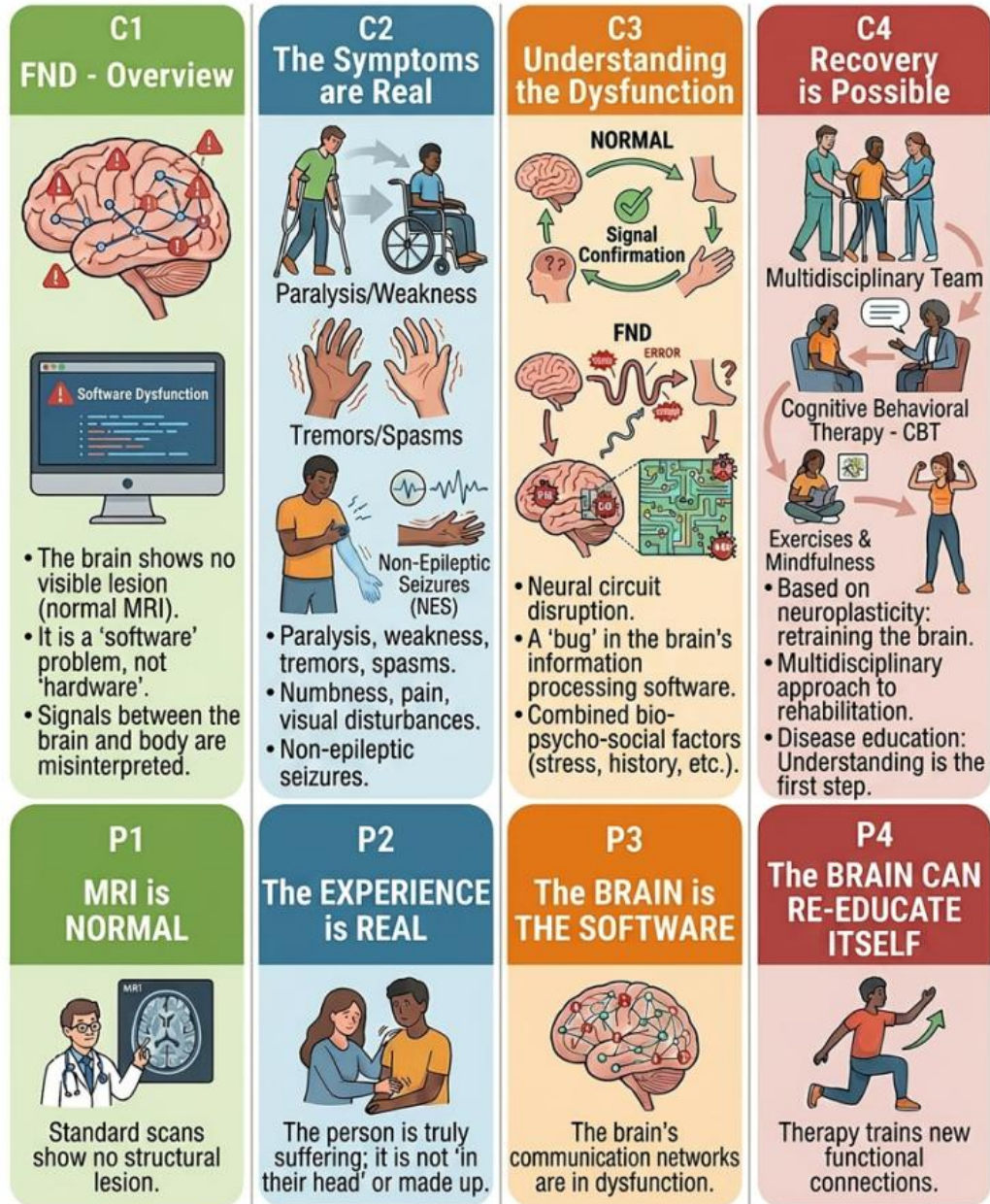
- www.neurosymptoms.org (UK) (FND)
- www.fndhope.org (US, UK, Australia) (FND patient support website)
- www.nonepilepticseizures.com (US – includes info in Spanish)
- www.nonepilepticattacks.info (UK)
- Self-help book:
Psychogenic non-epileptic seizures:
A guide (Lorna Myers, Ph.D.)
- Documentary: *dis-sociated* (first feature documentary on FS)
– available free on YouTube <https://youtu.be/MA1EYAggy5k>



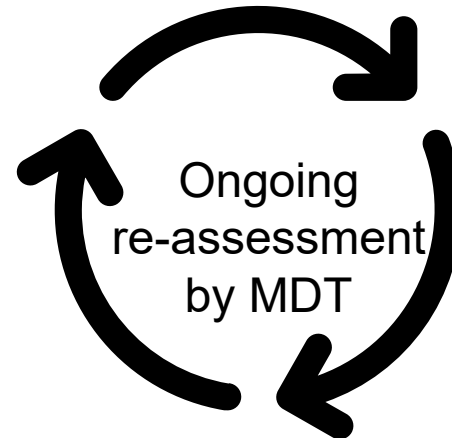
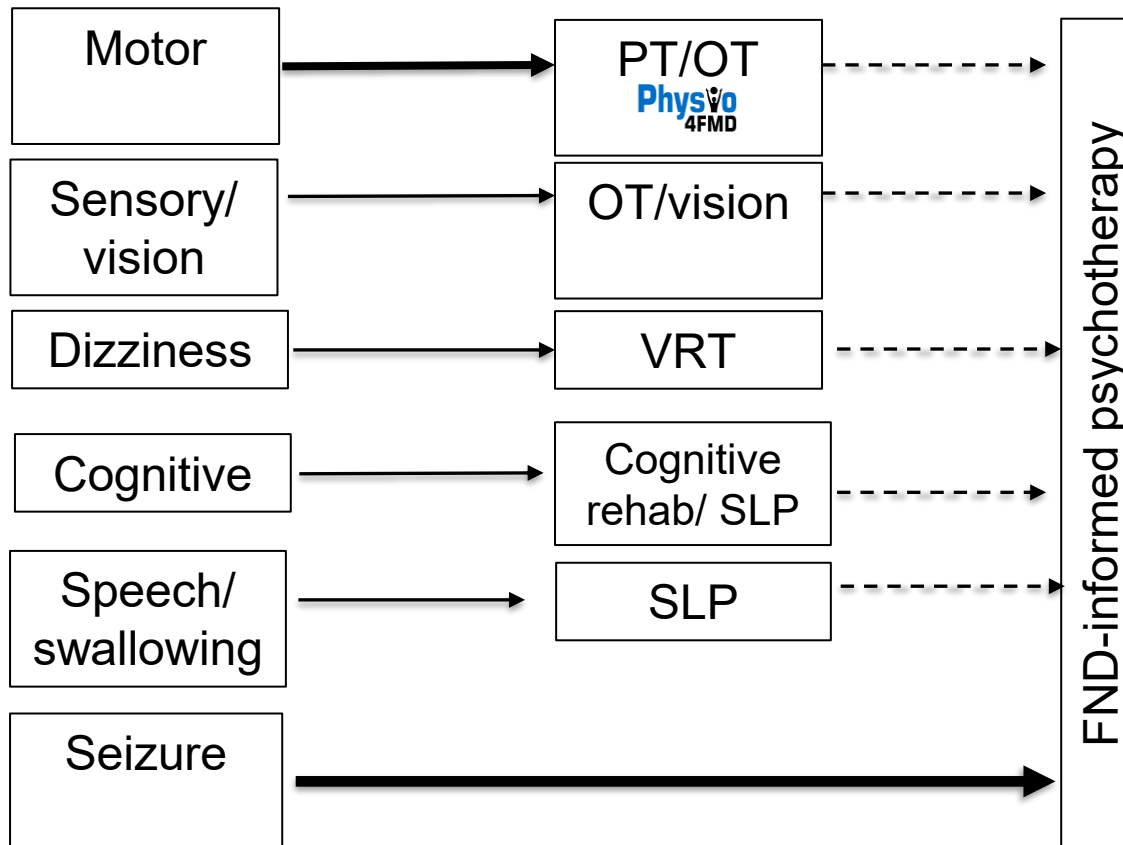
FND: Functional Neurological Disorder

Use existing resources!

Functional Neurological Disorders - The Brain in Dysfunction, Not Lesion



Multidisciplinary intervention in FND: treatment selection based on symptom



PT: Physical Therapy
OT: Occupational Therapy
VRT: Vestibular Rehab Therapy
SLP: Speech Language Pathology
MDT: Multidisciplinary Team

Psychological interventions in FND

Table 3 Psychological interventions for functional neurological disorder

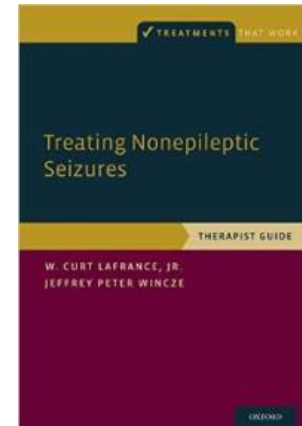
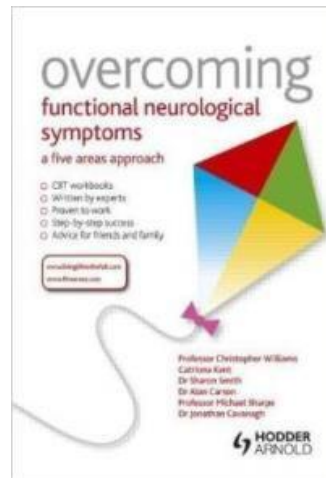
Modality		Core features	Relevant studies
Psychoeducation		Provides information about diagnosis, hypothesized etiology, identification of triggers and basic symptom management.	75,76
Cognitive behavioral therapy (CBT)		Targets maladaptive thoughts/behaviors; manualized, time-limited, skill-based.	34,35,37,38,40,74–76
Neurobehavioral therapy (NBT)		Multimodal, manualized therapy integrating psychoeducation, CBT, seizure management skills.	44–48,50–52
Psychodynamic therapy (PDT)		Focus on unconscious processes, relational patterns, therapeutic alliance.	54–57
Mindfulness-based therapies (MBT)	Integrative	Cultivates nonjudgmental awareness and acceptance of related symptoms. Manualized, multimodal using concepts of various mindfulness approaches.	61,62
	DBT	Skills-based emphasis on emotion regulation, distress tolerance, interpersonal effectiveness, mindfulness.	63
	ACT	Emphasizes psychological flexibility and values-based action.	64–66
Trauma-focused therapies (PE, EMDR)		Direct processing of traumatic memories or related symptom triggers.	69,123
Habit reversal-based therapy, e.g., ReACT		Behavioral-based approach targeting conditioned responses.	71
Group psychotherapy		May be based on different therapeutic modalities (psychodynamic, CBT, mindfulness, etc.).	63,72–76
Hypnosis		Uses focused attention and suggestion to alter symptom experience.	77



Manualized psychotherapies for FDS/FND



ReACT
RETRAINING AND CONTROL THERAPY



MINDFULNESS-BASED PSYCHOTHERAPY FOR PSYCHOGENIC NON-EPILEPTIC SEIZURES



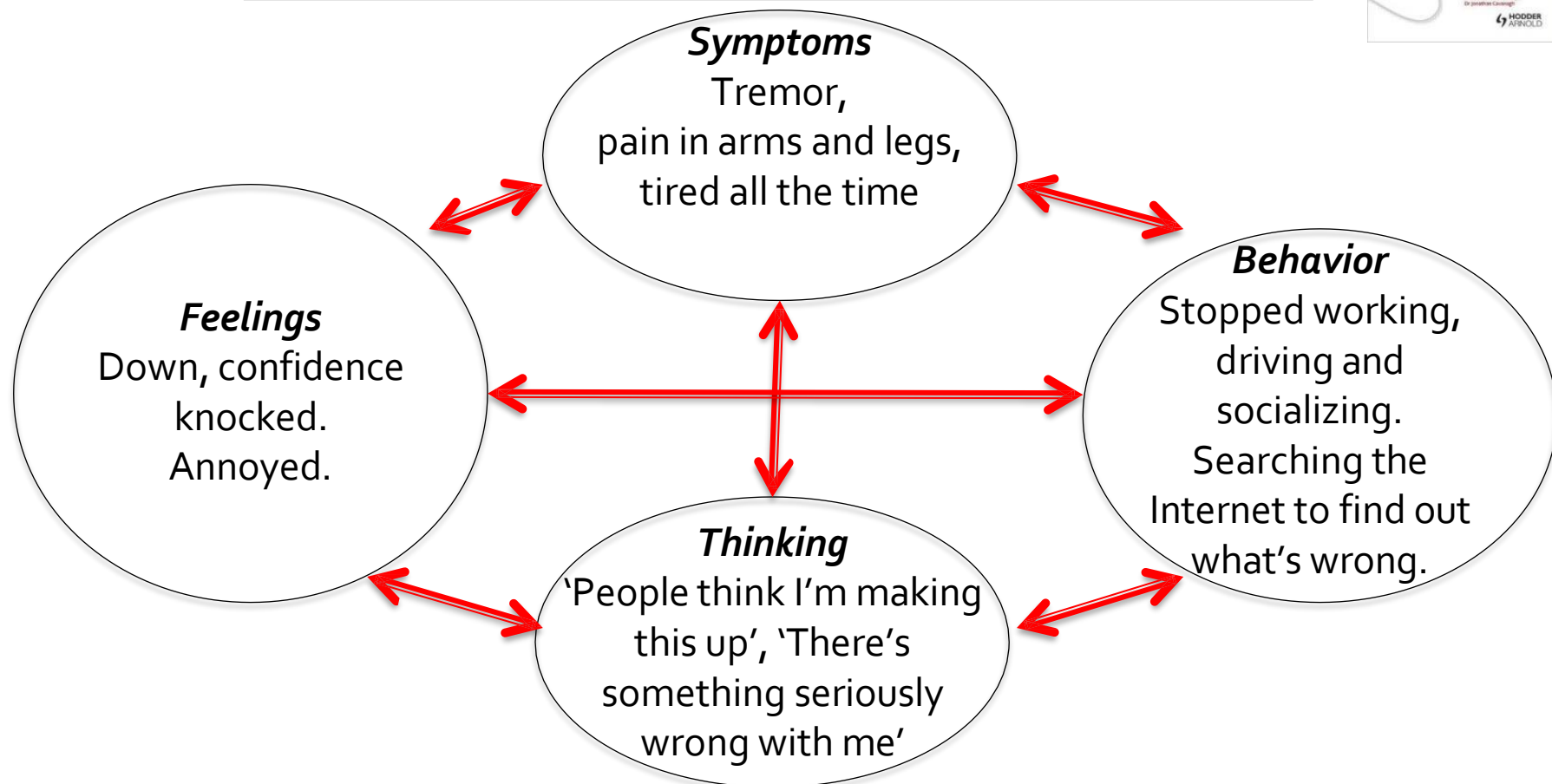
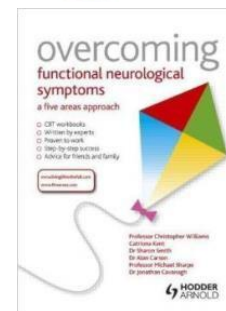
Gaston Baslet, M.D.
Megan Oser, Ph.D.

FND: Functional neurological disorder
FDS: Functional/dissociative seizures

Cognitive Behavioral Principles in FND

Situation, relationship, resources and practical problems

Good marriage; husband, mother and father supportive; income currently reduced



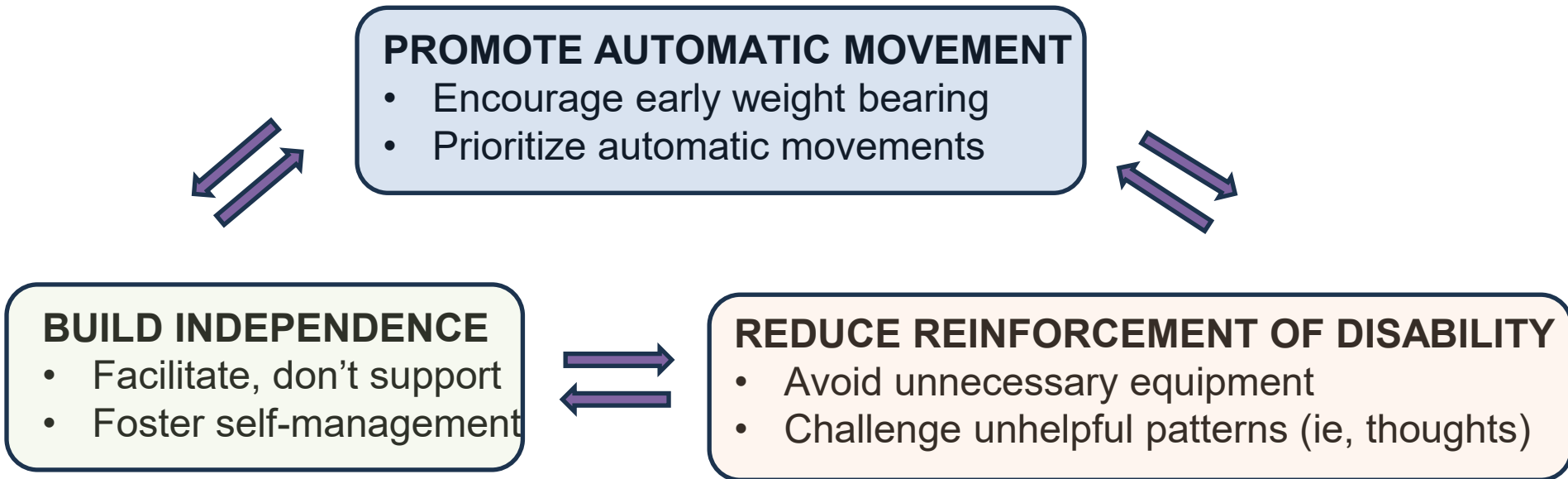
Why mindfulness in FND?

- For change to happen in FND, there has to be a change in how the brain is processing information from internal states (body signals, emotions, thoughts).
- Attention re-training in mindfulness helps:
 - 1) **increase awareness;**
 - 2) **re-direct attention to the present moment;**
 - 3) **accept reality willingly.**
- Values exploration is important to help direct behavioral choices.



Specialist physiotherapy for functional motor disorder: principles

Shift attention away from impairment and towards meaningful, automatic movement and independent.



Adapted from Nielsen et al, JNNP, 2014

Psychopharmacological treatment in FND

- Very limited evidence: negative DB, PC trial in FDS, few limited case series, case reports.¹⁻³
- Extrapolated evidence from related disorders (somatic symptom disorder)⁴
- Careful removal of non-indicated ASMs in the case of FDS.
- When psychotropic agents prescribed, identify primary and secondary targets.
- Beware of placebo and nocebo effects and development of unexpected side effects and new functional symptoms.
- Remove ineffective agents.

FDS: Functional/dissociative seizures; ASM: anti-seizure medications.

1. LaFrance et al, *Neurology*, 2010; 2. LaFrance et al, *JAMA Psychiatry*, 2014; 3. Voon et al, *J Clin Psychiatry*, 2005; 4. Kleinstäuber et al, *Cochrane Database Syst Rev*, 2014

Other treatment modalities in FND (for the future)

- Neurostimulation: limited evidence for widespread use; has been used most effectively in demonstrating preserved functioning.¹
- Psychedelics: evidence limited to observational study designs.²

1. Gonsalvez et al, Epilepsy Beh Rep, 2021; 2. Bhagavan et al, Prog Neuropsychopharmacol and Psychiatry, 2026

Barriers to Care

Patient Related Barriers

- Lack of patient acceptance of diagnosis (stigma of psych factors)
- Avoidance tendencies
- External locus of control
- Symptom migration, heterogenous presentation
- Disability benefits
- Social isolation

Clinician Related Barriers

- Lack of knowledge and understanding by clinicians
- Lack of empathy and negative attitudes
- Concern for malingering or misdiagnosis, liability concerns (afraid of being wrong)
- Lack of collaboration with other professionals
- Lack of ownership for management of treatment

Healthcare System Related Barriers

- Lack of access to care (not just a problem in under-resourced areas)
- Lack of care co-ordination
- Lack of communication among different health care systems
- Lack of communication between providers.
- Highly specialized care may interfere with need for coordination

Tolchin and Baslet, 2017 in Dworetzky & Baslet: PNES: Toward the Integration of Care

Take-home messages

- FND is common in neurological practice.
- Our understanding of FND has expanded in recent years with increased identification of neurobiological and cognitive processing mechanisms.
- Multidisciplinary collaboration allows for treatment of patients with FND with complex needs which can change over time.
- Evidence-based treatment for FND is limited but slowly growing.

FND: Functional Neurological Disorder