



EXTENDING CHOICE

CONNECTING EXPERTS IN PD

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Parkinson's Disease Education Day 2023



Tremor in Parkinson's and Its Mimics



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Parkinsonian tremor and its mimics

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**The National Hospital for Neurology and
Neurosurgery**

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Declarations

- Consultancy work for SAGE, Ipsen and Jazz pharma.

This meeting has been organised and funded by Zambon UK Ltd. This presentation is non-promotional and does not mention Zambon UK products.

Plan of talk

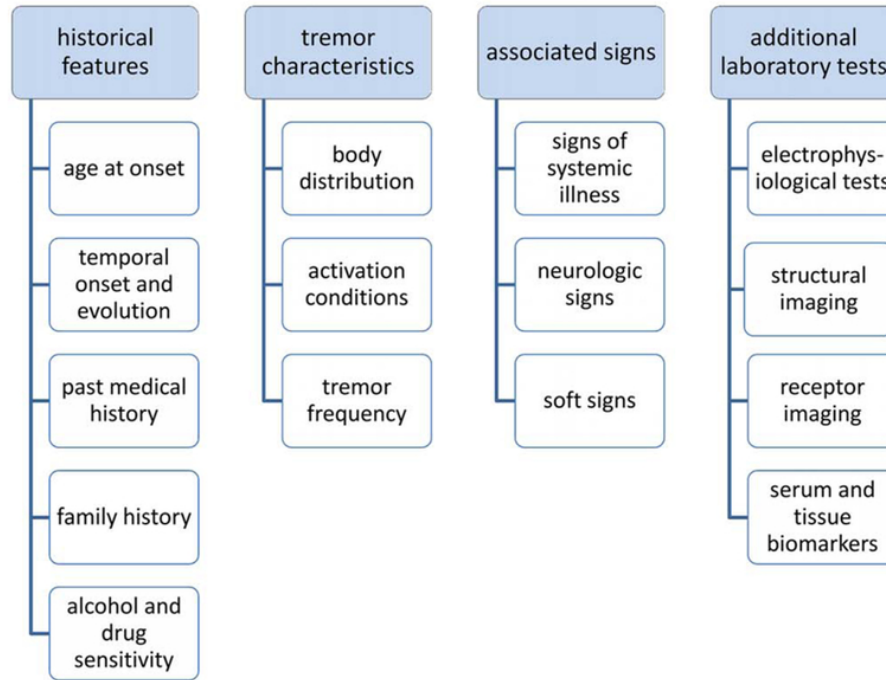
- What is tremor
- What are the tremor types seen in Parkinson's disease
- What are the mimics
- How to assess tremor in Parkinson's disease
- How to manage tremor in Parkinson's disease

What is tremor?

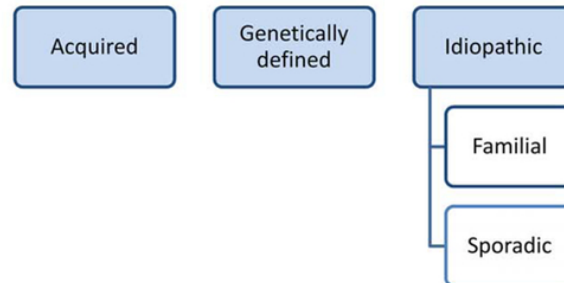
An involuntary, rhythmic, oscillatory movement of a body part

Consensus Statement on the Classification of Tremors. From the Task Force on Tremor of the International Parkinson and Movement Disorder Society. Bhatia et al 2018

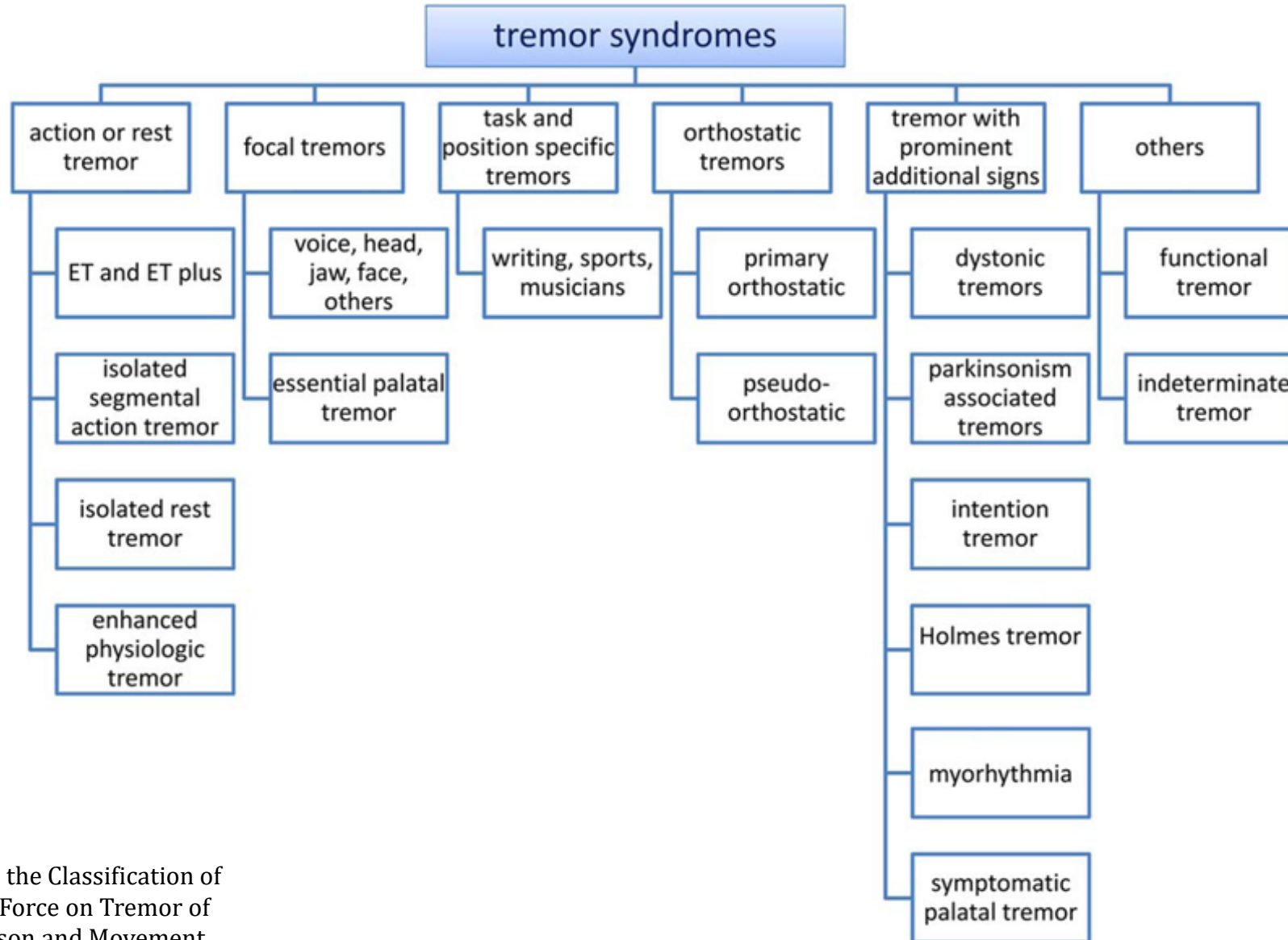
(A) **Axis 1: clinical features**



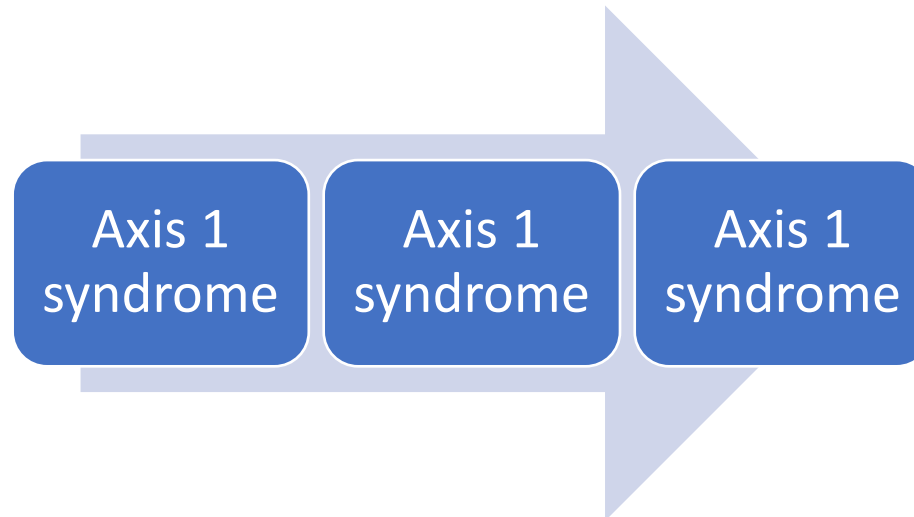
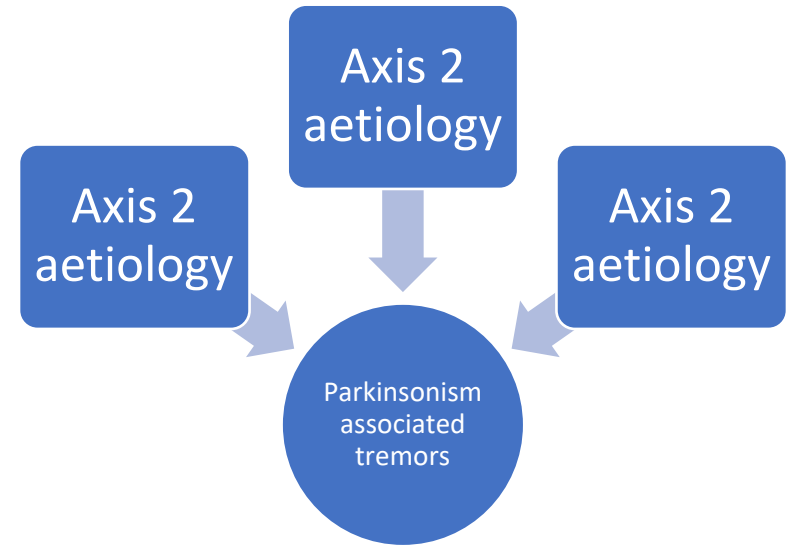
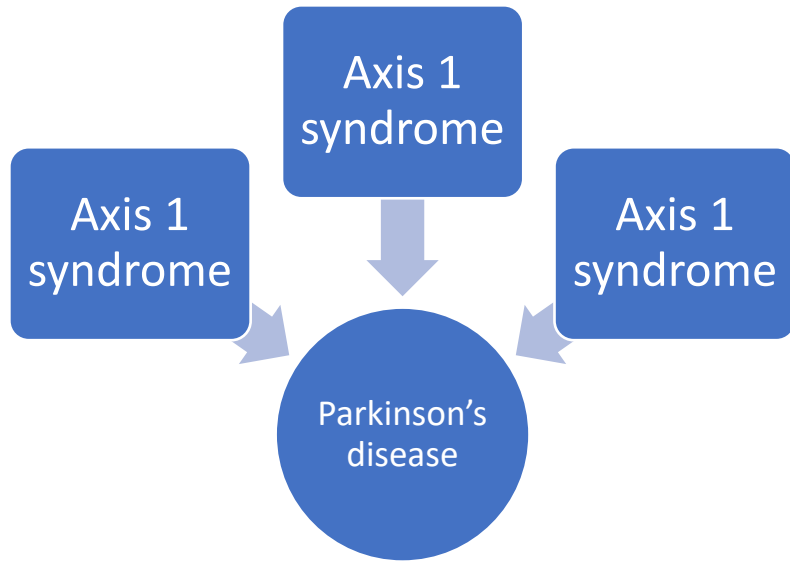
(B) **Axis 2: etiology**



Consensus Statement on the Classification of Tremors. From the Task Force on Tremor of the International Parkinson and Movement Disorder Society. Bhatia et al 2018



Consensus Statement on the Classification of Tremors. From the Task Force on Tremor of the International Parkinson and Movement Disorder Society. Bhatia et al 2018



Parkinsonian tremor is a unique motor symptom

- Doesn't increase at same pace as other motor signs
- Doesn't correlate with the severity of bradykinesia and rigidity
- “Wrong-sided tremor”
- Doesn't correlate with the degree of striatal dopamine
- Does not respond as well or as reliably to dopaminergic medication
- Tremor-dominant subtype often follow a more benign disease course

Is tremor important?



USEFUL IN DIAGNOSIS



PROGNOSIS?

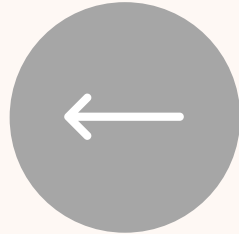


SOMETIMES DISABLING,
NEEDING TREATMENT

Clues



TREMOR OF STABILITY



COACTIVATION OF THE
CONTRALATERAL SIDE



TONIC COACTIVATION
OF CONTRALATERAL
SIDE

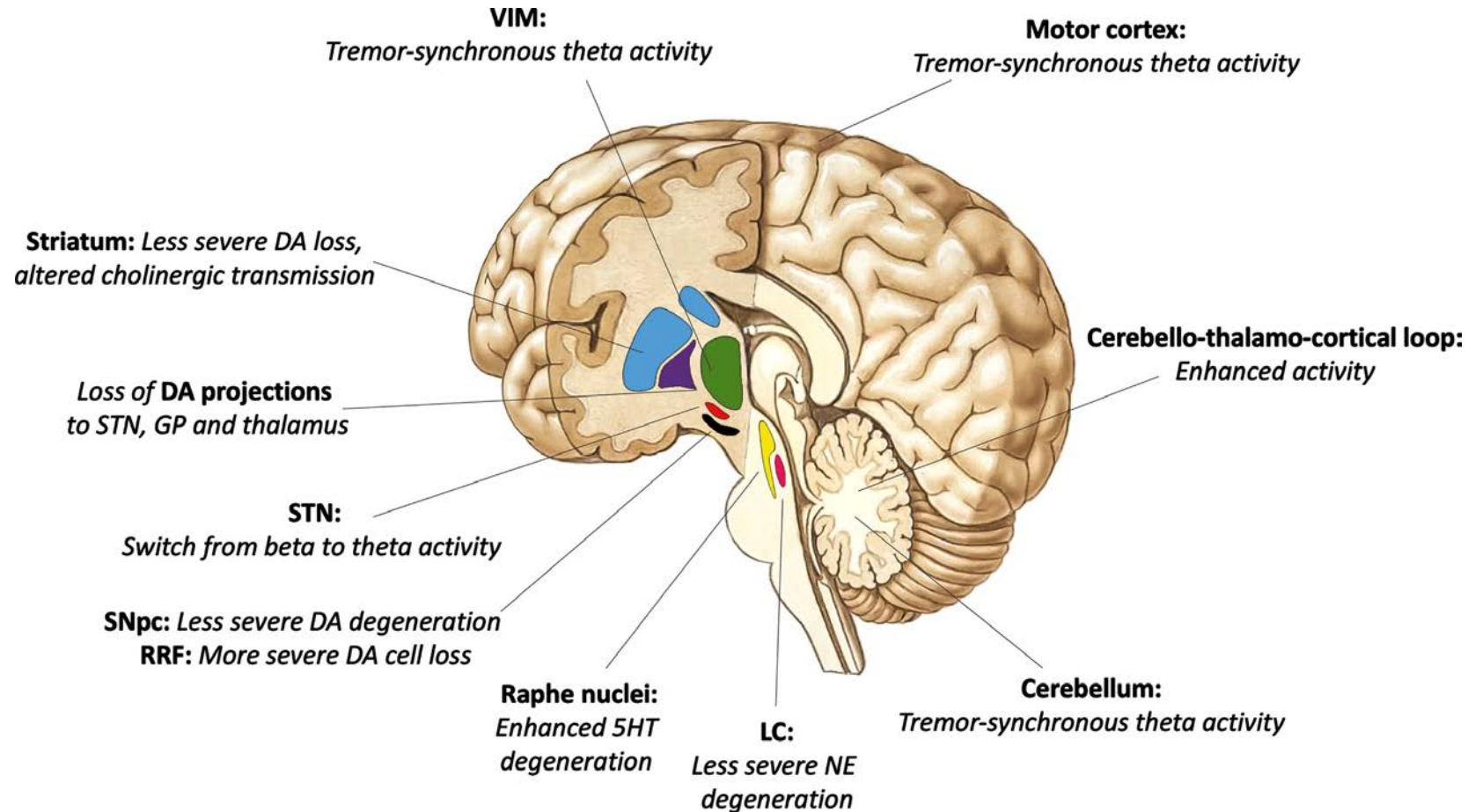


COGNITIVE
DISTRACTION



TREMOR IN OTHER
BODY PARTS
(INCLUDING JAW)

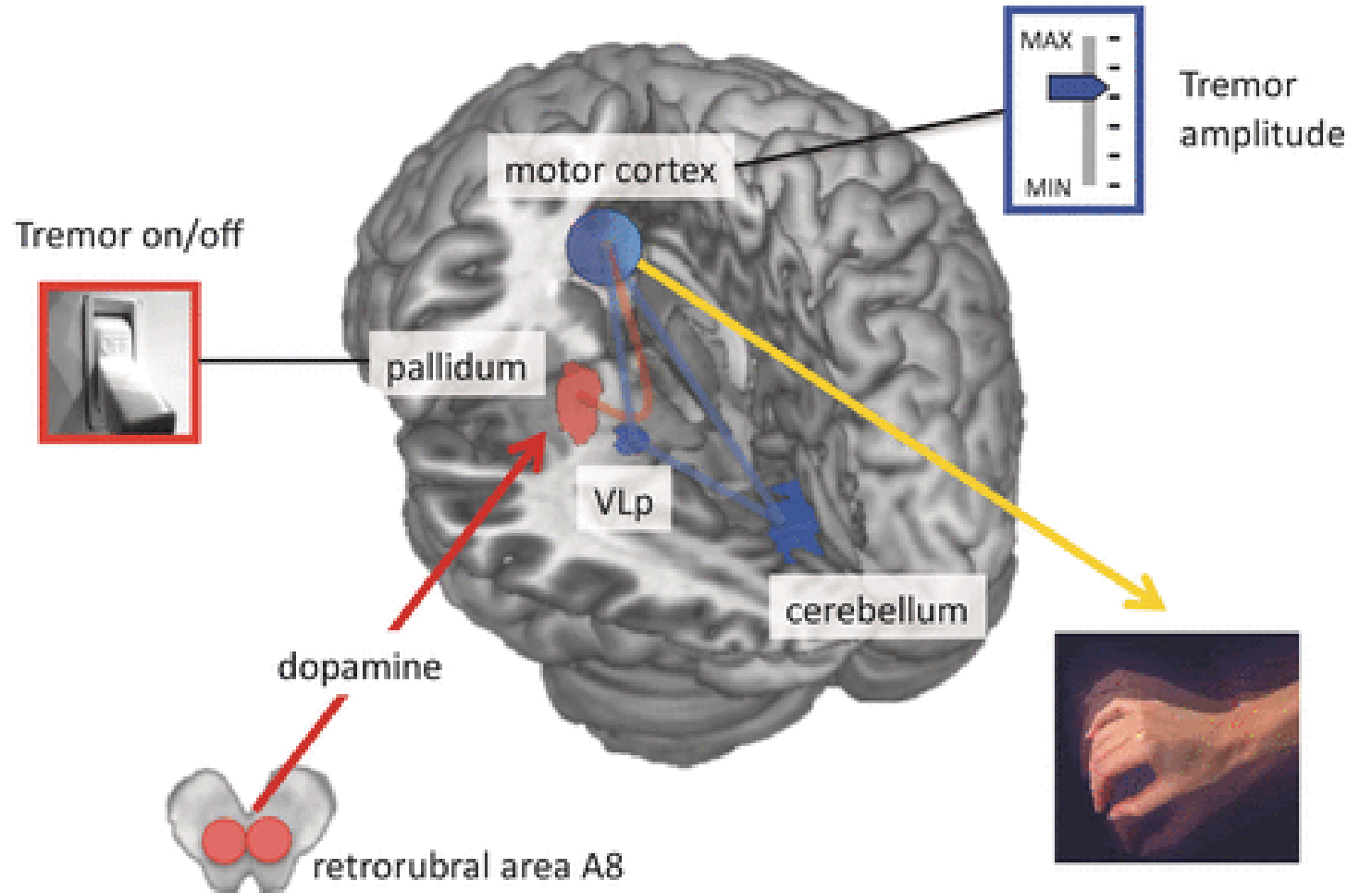
Tremor network in Parkinson's



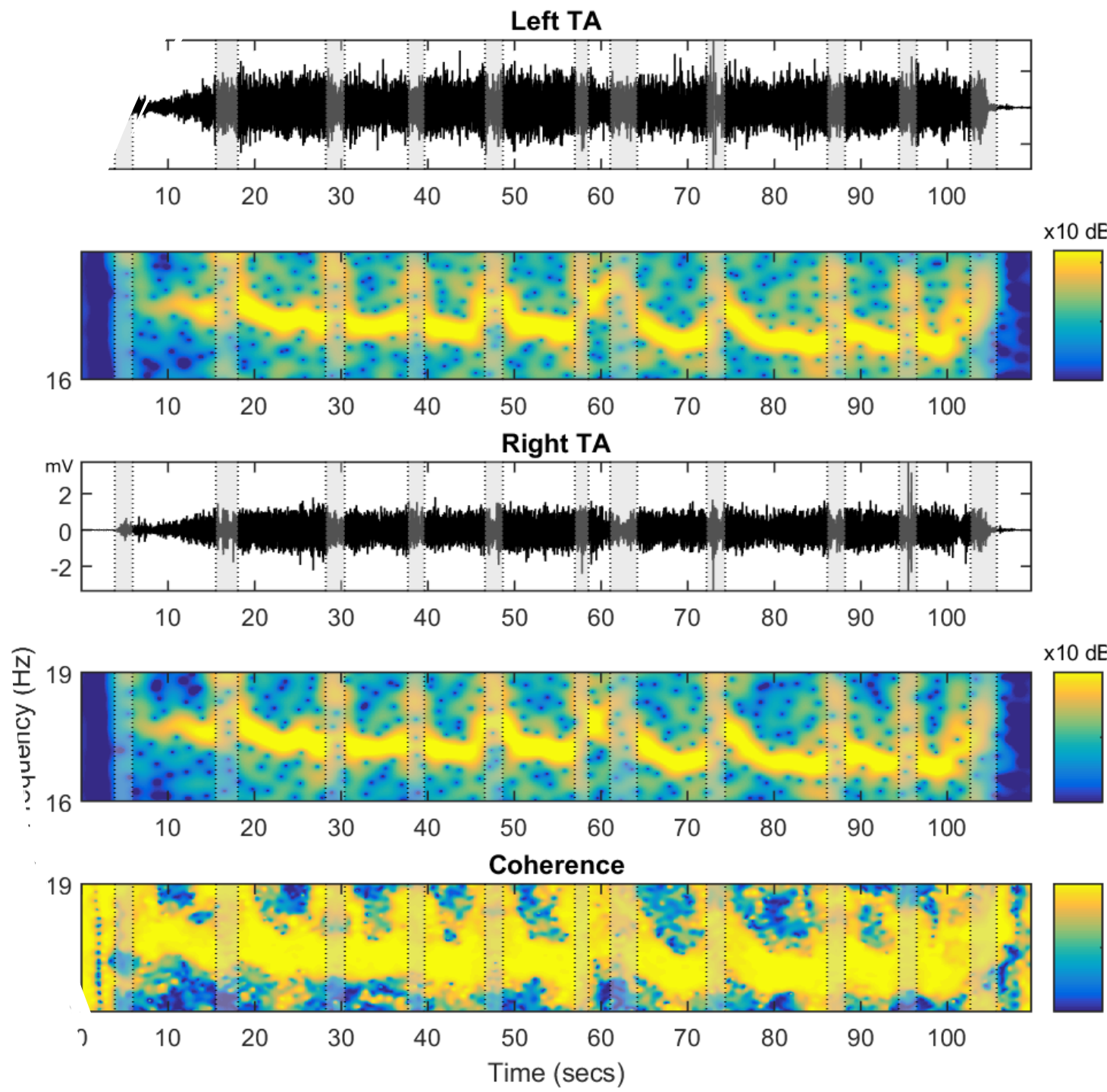
Walter et al. 2023

The 'dimmer-switch' model

- Helmich et al. 2012



EMG and coherence analysis



Orthostatic tremor

Unsteady standing (latency)

- Better sitting, walking or leaning

Falls uncommon (<25%)

Helicopter sign

13-18Hz leg tremor (EMG helpful)

Inter-limb coherence

Progressive

Consider secondary causes in small proportion (mainly PD)

Treatment

- Clonazepam
- (Propranolol, Gabapentin, Topiramate, Primidone)
- Deep brain stimulation
- Realistic expectations and lifestyle advice

What is *not*
tremor?

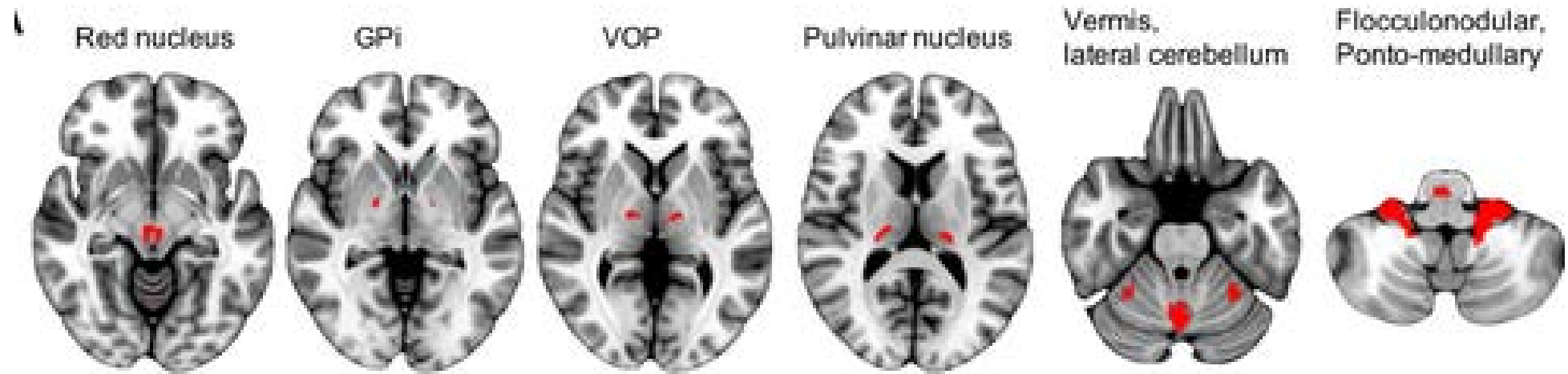
Polyminimyoclonus

Clonus

EPC

Asterixis

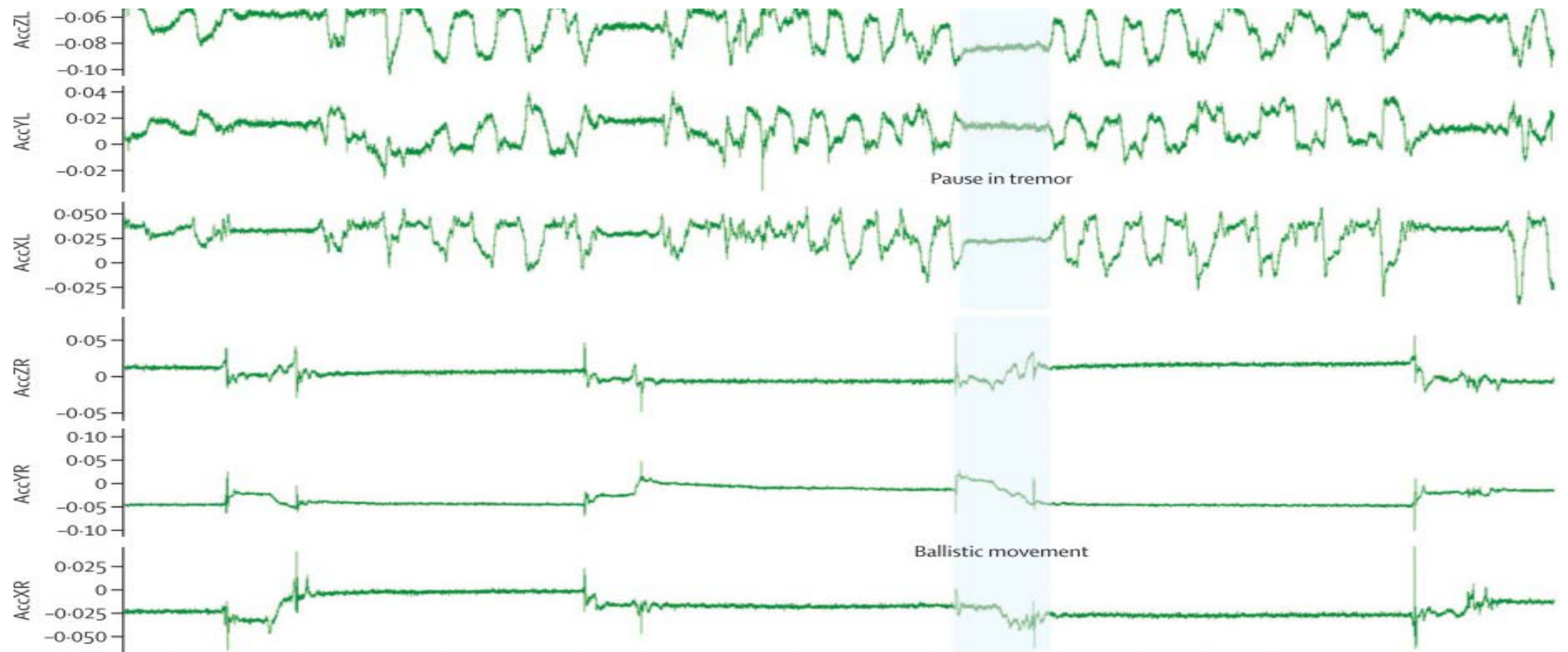
Myorhythmia



Joutsa et al. 2019

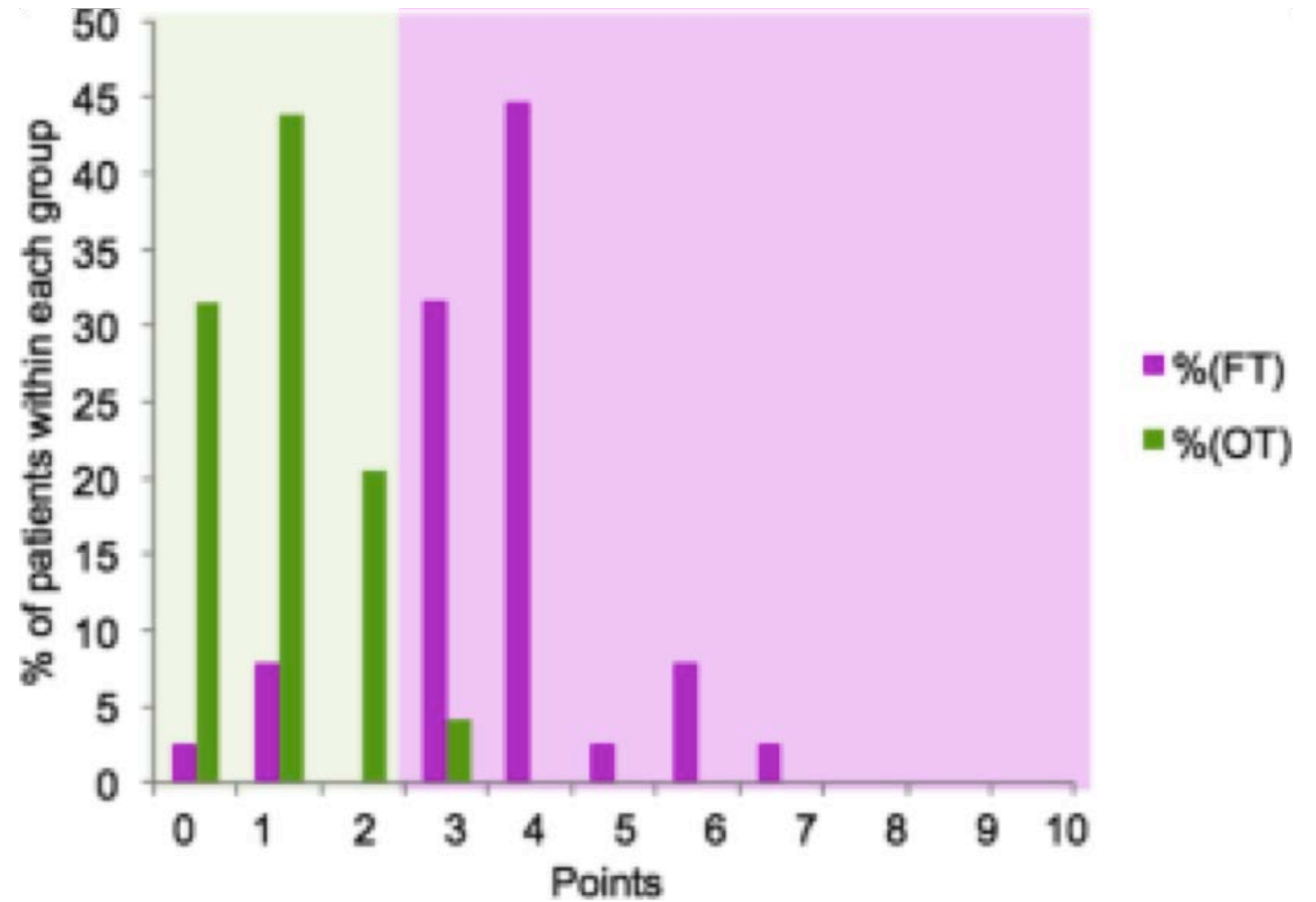
Functional (psychogenic) tremor

Precipitating factor	Large mismatch between perception and objective measurement	Acute onset	Rest, postural and kinetic
Variability	Distractibility	Fatigue/diaphoresis	Abnormal attention, poor task performance
Entrainment or large frequency shift	Pauses with ballistic movements of other limb (care with parkinsonian tremor)	High inter-limb coherence	Placebo response to treatment



Functional tremor score

- Schwingenschuh et al. 2016



Functional tremor treatment

- Avoid diagnostic delay
- Aim for positive diagnosis (rather than diagnosis of exclusion)
- Use clinical signs to aid communication of diagnosis
- Consider precipitating factors (including physical and psychological)
- Multi-disciplinary team approach including physical therapy and symptom-orientated CBT

Treating parkinsonian tremor

Levodopa

Consider alternative coexisting diagnoses and pharmacokinetic factors

MAOi, agonists (including apomorphine) and amantadine

Anticholinergics

Beta-blockers

Clozapine

Botulinum toxin

Deep brain stimulation or MRgFUS

Summary of assessment

Tremor distribution

Context

Manoeuvres to increase
amplitude

Entrainment and other
tests of functional tremor



Summary

Tremor in
Parkinson's is many
things

Parkinsonian tremor
is not always
Parkinson's disease

Think of
pharmacological,
non-pharmacological
and surgical options



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