#Characterization of FOG_2013

Decision tree to refine freezer/non-freezer classification by identifying 3 categories:

(1) a “self-reported freezer",

(2) a “probable freezer” when FOG is confirmed by a third person (caregiver)

(3) a “definite freezer” when freezing is actually observed during formal objective testing.

FOG is defined as a “brief, episodic absence or marked reduction of forward progression of the feet despite having the intention to walk.”

Freezing episodes never occur at rest but at “the wish to move.” This intention to engage in voluntary action combined with the need to adjust movement to external circumstances or to internal motor commands seems to jam the system.

Four models of Freezing Episodes:

The “threshold model” of FOG

Principle --> accumulation of motor deficits until threshold is reached and freeze occurs

Prediction --> increase motor cycle frequency, decrease amplitude, increase coordination complexity

The "interfence model" of FOG

Principle --> Competition for common central processing resources induces breakdown

Prediction --> increase number concurrent tasks, increase difficulty level tasks, increase load on executive function

The "cognitive model" of FOG

Principle --> Deterioration in processing of response conflict induces block

Prediction --> increase incongruency level, increase response speed, increase load on executive function

The "decoupling model" of FOG

Principle --> decoupling between motor programs and motor response induced block

Prediction --> increase strength stratle stimuli, increase frequency stratle stimuli, increase postural load or instability

Maybe, combining some of the previous model, the results obtained could be better

#FOG and Falls

FOG and falls have similar risk factors, such as axial motor disability and cognitive impairment, and FOG is one of the most common causes of falls

absence of tremor, the presence of a gait disorder, and the development of balance and speech problems are associated with the occurrence of FOG

FOG predominantly occurs in the “off” state, whereas falls occur in the “on” state

Impaired automaticity would explain why FOG frequently occurs during performance of secondary cognitive or motor tasks (dual tasking)

The most characteristic feature of FOG is knee trembling

multiple anticipatory postural adjustments (APAs) produce knee trembling, and that FOG associated with a forward loss of balance is caused by an inability to couple normal APAs to the motor programs for stepping

PD patients have difficulty in passing through narrow spaces such as doorways

a fall in the past year, abnormal axial posture, cognitive impairment, and freezing of gait were independent risk factors for falls and predicted 75% of future falls within a year

the best prediction was reached by combining disease-specific measures, such as PD severity, freezing of gait severity, and occurrence of symptomatic orthostatic hypotension, with balance measures, such as the Tinetti total score and the extent of postural anterior-posterior sway

freezers showed poor directional control during voluntary rhythmic weight shifting and The impaired voluntary COG control may be a factor contributing to loss of balance during a freezing episode

the most distinct feature of FOG from falls is that FOG never occurs at rest but at “the wish to move”, whereas falls may happen spontaneously

#Freezing of Gait Practical Approach_2014

There are three clinical patterns:

- Trembling in place, with alternating rapid knees movements (knee trembling)
- Shuffling forward, with very short, shuffling steps
- Complete (or total) akinesia, with no limbs or trunk movement.

Cause of Freezing --> turning (most provocative), initiation of gait, narrow space or immediately before reaching destination, time pressure

Several methods to overcoming FOG --> verbal or auditory stimuli (soldier's marching command), visual stimuli (another person's foot)