

Movement Disorders in Dogs and Cats

Irene Munárriz Goizueta



Final degree project

UAB
Universitat Autònoma
de Barcelona

June 2024

OBJECTIVES

1. Classification of movement disorders in dogs and cats.
2. Correct terminology.
3. Diagnostic approach.
4. Therapeutic options.

CLINICAL APPROACH

1. FIRST THINGS FIRST

- Motive of consultation.
- Signalment and clinical history: breed, age of onset...
- Physical examination.

2. CHARACTERIZATION OF THE MOVEMENT

- ☐ Is it hyperkinetic or hypokinetic?
- ☐ Is it paroxysmal or persistent?
- ☐ Is it exercise induced or not?
- ☐ Is it bilateral or unilateral?
- ☐ Is it rhythmic or irregular?
- ☐ Is it purposeful or not? If it is → Which purpose?
- ☐ Can any triggers be identified? → Which ones?
- ☐ Autonomic signs and/or neurological examination deficits?

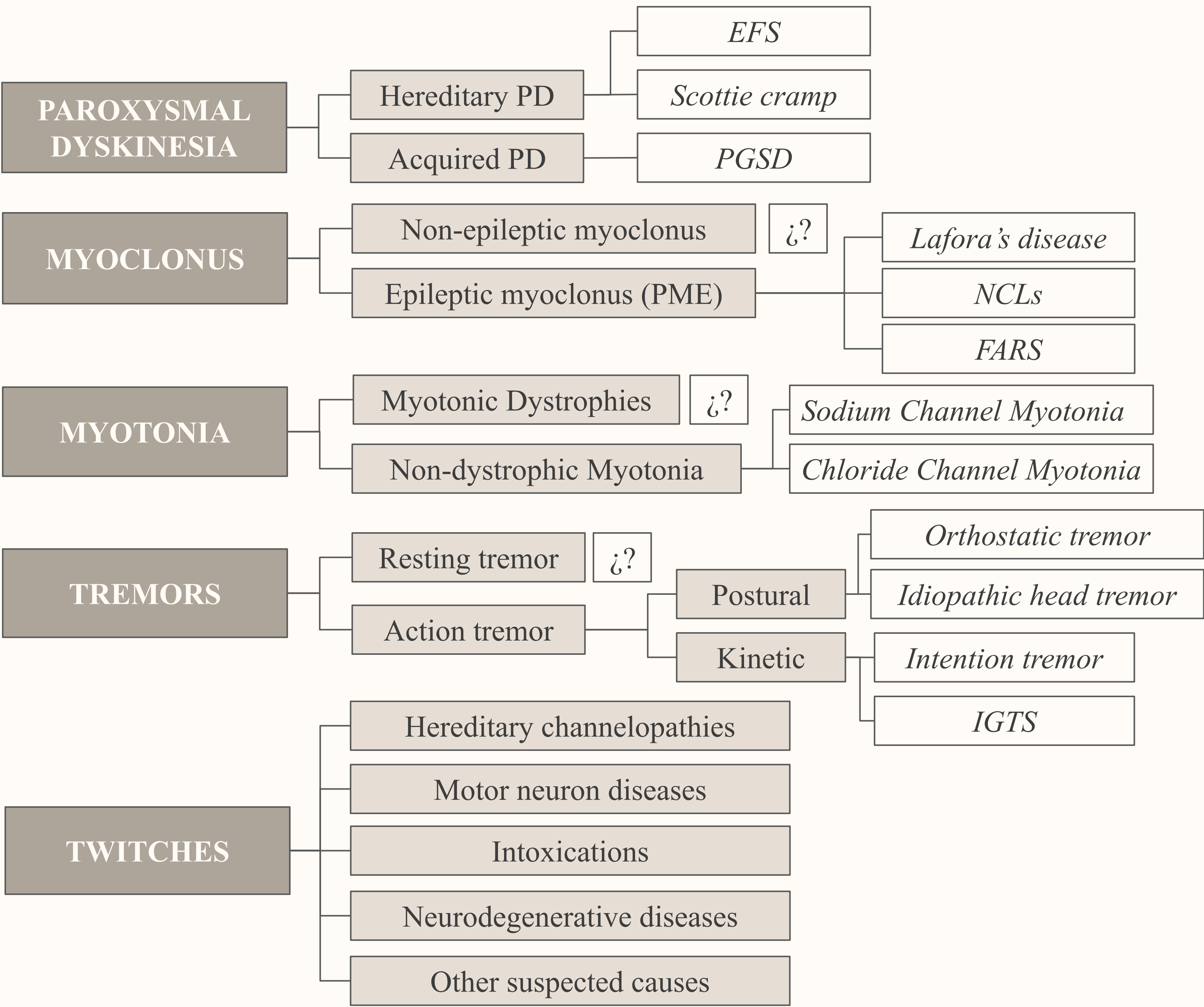
3. SECONDARY OR HEREDITARY DISORDER

- ☐ Any drug, medication or toxic mentioned in the medical history?
- ☐ Any other neurological signs?
- ☐ Intracranial or extracranial? → Imaging (MRI).
- ☐ Breed predisposition to a familial disorder? → Genetic tests.
- ☐ Other test → Blood work, EMG, CSF analysis, antiepileptic drug trial.

CONCLUSIONS

1. Great variety of etiologies and triggers / Diversity of causes.
2. Advanced diagnostic tools: MRI, serology, genetic tests.
3. Multidisciplinary and personalized treatment.
4. Importance of research and collaboration.
5. Role of caregivers in the pet’s quality of life.

INVOLUNTARY MOVEMENT DISORDERS



	TRIGGERS	AT REST	MUSCLE AFFECTION	RESULTING MOVEMENT/POSTURE
DYSTONIA	Voluntary movement, standing, adopting particular postures...	No	Sustained or intermittent, slow, involuntary muscle contraction.	Abnormal movement and/or twisted posture of limbs/trunk/neck.
MYOCLONUS	Precipitated or worsened by movement and stress.	Yes	Sudden and brief muscle contraction and relaxation.	Shock-like, fast appendicular movement.
MYOTONIA	Voluntary movement, physiological or external stimulus. Exacerbated after a period of rest.	No	Rapid sustained muscle contraction and altered muscle relaxation.	Stiffness (bunny-hopping) and rigid gait +/- falling sideways. Improvement with continuous activity.
TREMOR	Kinetic - during active movement. Postural - maintaining posture.	No	Muscle contractions at regular frequencies and variable amplitude.	Involuntary, oscillatory and rhythmic movement of a body part.
FASCICULATIONS	Stress, exercise, hypocalcemia, toxics...	Yes	Brief spontaneous contraction of a few muscle fibers.	Does not induce appendicular movement. Vermicular movement under the skin.
MYOKYMIA	Stress, exercise, excitement...	Yes	Focal or generalised continuous muscle contractions.	Vermicular or rippling muscle contractions of the skin above the affected muscle.
NEUROMYOTONIA	Spontaneous and voluntary muscle contractions, nerve percussion, stress or excitement.	Yes	Persistent muscle contraction and delayed relaxation.	Evolution from myokymia to generalised muscle stiffness.
TETANUS and TETANIA	Aggravated or provoked by auditory or light stimulus.	No	Sustained extensor muscles contraction without relaxation.	Persistent extensor rigidity in the affected body segments without obvious movement.

ABBREVIATIONS

CSF - Cephalo spinal fluid	MRI - Magnetic resonance imaging
EFS - Episodic falling syndrome	NCL - Neuronal ceroid lipofuscinosis
EMG - Electromyography	PD - Paroxysmal dyskinesia
FARS - Feline audiogenic reflex seizures	PGSD - Paroxysmal gluten-sensitive dyskinesia
IGTS - Idiopathic generalised tremor syndrome	PME - Progressive myoclonic epilepsy

BIBLIOGRAPHY

Cerda-Gonzalez, S., Packer, R. A., Garosi, L., Lowrie, M., Mandigers, P. J. J., O'Brien, D. P., & Volk, H. A. (2021). International veterinary canine dyskinesia task force ECVN consensus statement: Terminology and classification. *Journal of Veterinary Internal Medicine*, 35(3), 1218–1230. <https://doi.org/10.1111/jvim.16108>

Lowrie, M., & Garosi, L. (2016). Classification of involuntary movements in dogs: Tremors and twitches. In *Veterinary Journal* (Vol. 214, pp. 109–116). Bailliere Tindall Ltd. <https://doi.org/10.1016/j.tvjl.2016.05.011>

Lowrie, M., & Garosi, L. (2017a). Classification of involuntary movements in dogs: Myoclonus and Myotonia. In *Journal of Veterinary Internal Medicine* (Vol. 31, Issue 4, pp. 979–987). Blackwell Publishing Inc. <https://doi.org/10.1111/jvim.14771>

Lowrie, M., & Garosi, L. (2017b). Classification of involuntary movements in dogs: Paroxysmal dyskinesias. In *Veterinary Journal* (Vol. 220, pp. 65–71). Bailliere Tindall Ltd. <https://doi.org/10.1016/j.tvjl.2016.12.017>