



INVOLUNTARY MOVEMENT EVALUATION

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OVERVIEW

- **Definitions**
 - types of muscles
- **Assessment of Involuntary Movements**
 - commonly used scales
- **Medications/medical conditions that increase risk of involuntary movements**
 - timing; history; interventions
- **Some treatment strategies**
- **Importance of communication, raising questions, looking for etiologies**
- **Ground rule: *Ask questions, now!***



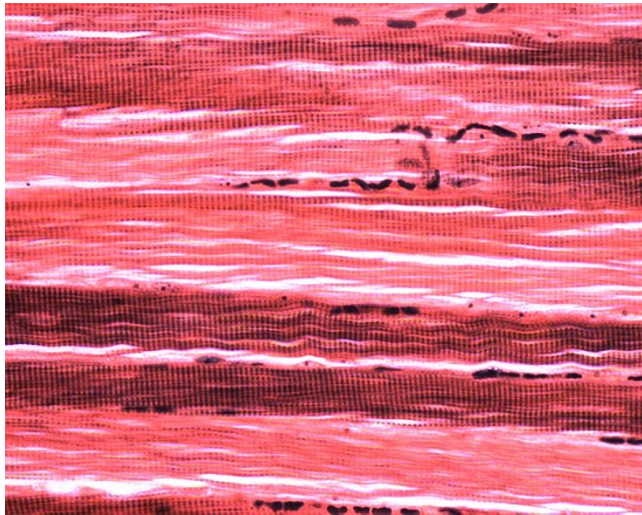
DEFINITIONS...

- **Muscle in humans**
 - **Skeletal**
 - **Fast twitch**
 - **Slow twitch**
 - **Smooth**
 - **Rhythmic contractions**
 - **Cardiac**
 - **Features of both**
- **Movements**
 - **Voluntary**
 - **Intentional**
 - **Practice improves performance**
 - **Central Nervous System provides the cues**

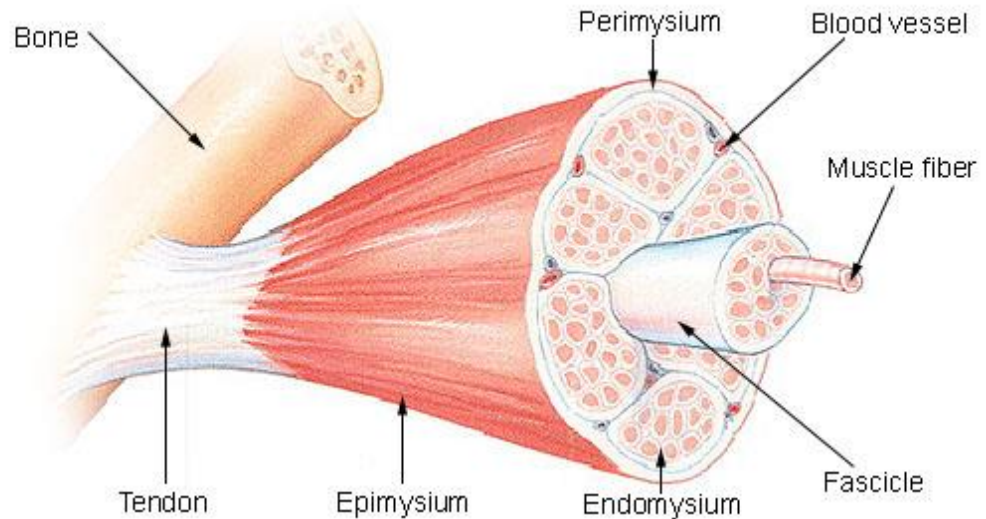


SKELETAL MUSCLE

- **CNS (PNS) control; Striate (transverse streaks); each acts independently of neighboring muscle fiber.**

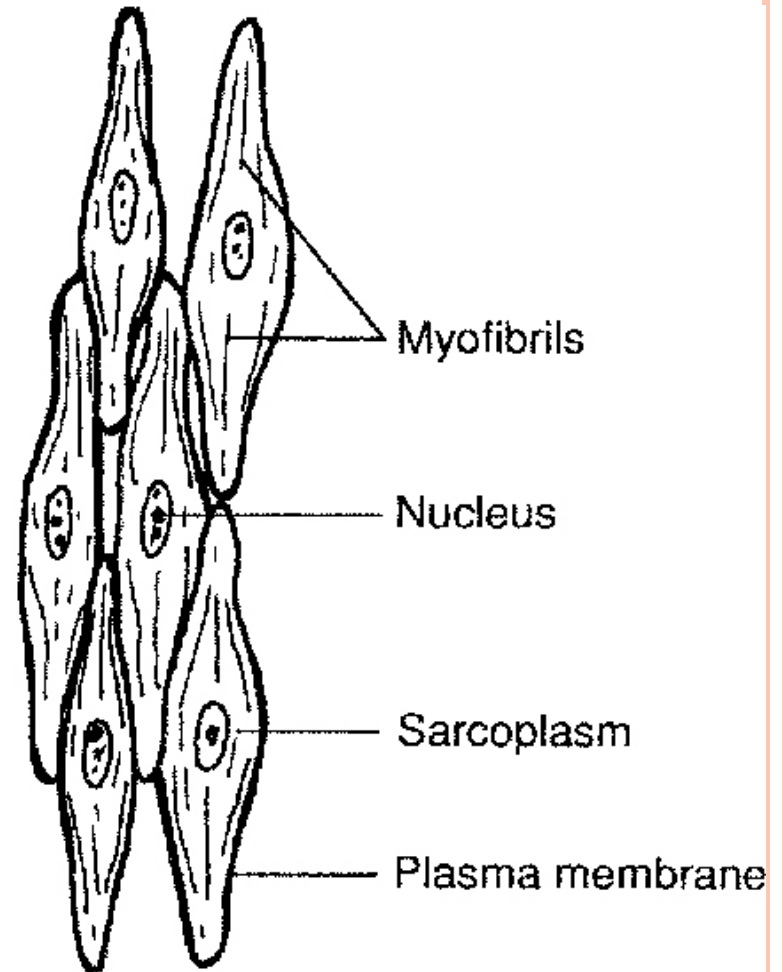
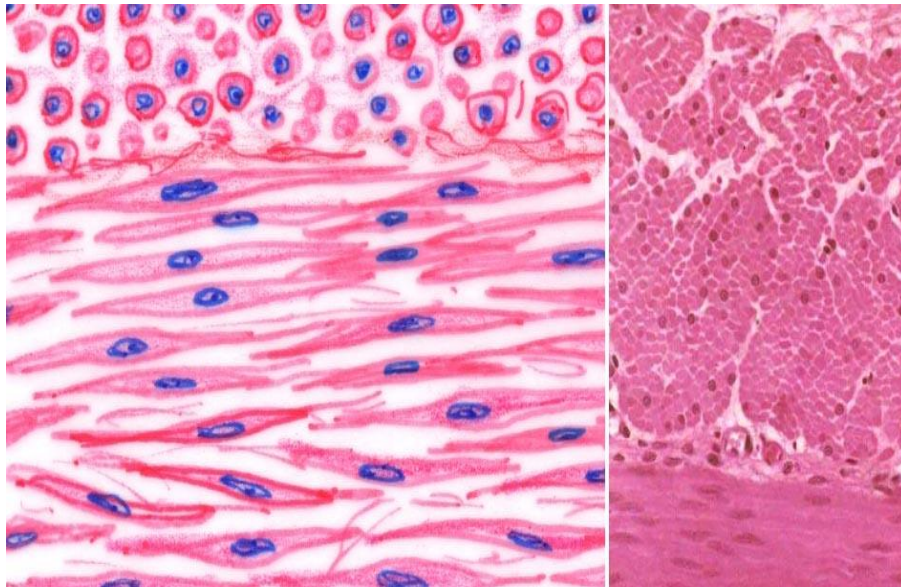


Structure of a Skeletal Muscle



SMOOTH MUSCLE

- ANS control; spindle-shape with one central nucleus; contracts smoothly & rhythmically



DEFINITIONS

- **Involuntary Movements**
 - **Smooth muscle: normal internal organ fx**
 - **Skeletal muscle: abnormal; can it be treated?**
 - **New onset: offending agent; risk of progression**
 - **Degeneration: unmask control of movement**
- **May/may not have awareness of movement**
- **Habits; Mannerisms**
 - **Repeated fixed patterns of movement**
 - **Often out of context of utility**
- **Senile dyskinesias**
 - **Involuntary movements associated with aging**



INVOLUNTARY MOVEMENT ASSESSMENT

- **Systematic Examination**
 - Scan whole body; w/ & w/o activation
 - Compare sides; speed; range; functionality
 - Note bracing, communication elisions
- **Tardive Dyskinesia**
 - Choreo-athetotic movements
 - Neuroleptic-induced; other medications
- **Tremor**
 - Equal and opposite contractions; note speed, amplitude, exercise or effort



VIDEO: OLB

- The Treatment of Tardive Dyskinesia with ... MORE Drugs! - YouTube



INVOLUNTARY MOVEMENT ASSESSMENT

○ **Akathisia**

- **Internal restlessness; motor driven**
- **May cause serious weight loss, dehydration**

○ **Dystonia**

- **Sustained (painful) muscle contraction**
- **Impairs function**
- **Worse with stress**



VIDEO: JAW DYSTONIA

- <http://www.youtube.com/watch?v=b9roso9B1F0>



INVOLUNTARY MOVEMENT ASSESSMENT

○ Repeated measures

- **AIMS (scale: 0 - 4)**
 - **Abnormal Involuntary Movement Scale**
 - **Facial & Oral movements**
 - Muscles of facial expression, Lips and peri-oral area, Jaw, Tongue
 - **Extremities: upper & lower**
 - **Trunk movements: neck, shoulders, hips**
 - **Global adjustment**
 - severity
 - incapacity
 - patient awareness
 - **Dental**
 - dental problems
 - dentures



INVOLUNTARY MOVEMENT ASSESSMENT

- **DISCUS**
 - **Dyskinesia Identification System: Condensed User Scales.**
 - **Current medications**
 - **Type of examination**
 - **Face**
 - **Eyes**
 - **Oral**
 - **Lingual**
 - **Head/neck/trunk**
 - **Upper Limb**
 - **Lower Limb**
 - **Scale: 0 - 4**



INVOLUNTARY MOVEMENT ASSESSMENT

- **SIMAS**
 - **Sonoma Involuntary Movement Assessment Scale**
 - **Observe**
 - **Interaction**
 - **Dyskinesia**
 - **Tremor**
 - **Gate**
 - **Range (severity)**
 - **Frequency**



DOCUMENTATION

- **Readily accessible**
 - legible
 - location useful for clinical management
- **Repeat intervals**
 - initiation of medications
 - major changes in dose (including discontinuation)
 - annual – every two years
- **Reliability**
 - systematic application; same ratings
- **Understood**
 - education about meaning



MEDICATIONS – POTENTIAL CAUSE

○ Antipsychotics

- **Typical**
 - Thorazine (low potency)
 - Haldol (high potency)
 - Prolixin (high potency)
- **Atypical**
 - Clozapine
 - Zyprexa
 - Geodon
 - Risperdal
 - Quetiapine
 - Abilify
 - Invega



MEDICATIONS – POTENTIAL CAUSE

○ Antiemetics

- Chlorpromazine
- Prochlorperazine
- Promethazine
- Metaclopramide (gastroparesis)

- Better to use antihistamines
 - Meclizine
 - Diphenhydramine
- or 5HT₃ receptor antagonists
 - Dolasetron
 - Ondansetron



MEDICATIONS – POTENTIAL CAUSE

○ Mood Stabilizers

- **Lithium**
 - tremor
 - confusion, delirium...
- **Anticonvulsants**
 - tremor
 - sedation
 - impulsivity and delirium in toxic range
- **Abilify**
 - is an antipsychotic
 - dyskinesia, akathisia



MEDICATIONS – POTENTIAL CAUSE

○ Medical Risk Factors

- **Multiple medical conditions**
 - Multiple medications/ drug-drug interactions
 - GI motility drugs
 - Masking side effect profiles of medications
- **Brain injuries**
 - Disinhibition of movement control
- **Renal & hepatic problems**
 - Metabolic toxicity
- **Cardiovascular events**
 - Small hemorrhages
 - Secondary degeneration



TREATMENT STRATEGIES

- **Minimize exposure**
 - lowest possible dose, shortest time
 - no ingestion (!)
- **Anticholinergic: Cogentin (benztropine)**
- **Antihistaminergic: Benadryl (diphenhydramine)**
- **Amantadine**
- **Benzodiazepines: Ativan (lorazepam)**
- **Masking**
 - increase dose of antipsychotic
- **More experimental**
 - Deep Brain Stimulation
 - Transcranial Magnetic Stimulation?



CONCLUSIONS

- **Develop systematic method for documenting repeated examination**
 - **Effective**
 - **Clear**
 - **Simple**
 - **Readable**
 - **Do not delay notating observations**
 - **Same format across users**
 - **May be established tool; may be devised (de novo) to document a new behavior that is unclear whether it is a mannerism...**



CONCLUSIONS

- **Communicate results of concerns within team and consultants**
 - **Make no assumptions**
 - **Bring reports back for review**
 - **Note changes in medications, other interventions, and dates of treatment**
 - **Note changes in behavior as related to changes in medications, medical condition, external stressors, activities**



CONCLUSIONS

- **Address patient discomfort**
- **Support function**
 - **Reduce risk of falls**
 - **Maintain independence**
 - **Promote integration in public society**
 - **Diminish pain**
 - **Foster good health**



CONCLUSIONS

- **Ask questions when something doesn't seem right**
 - **Everyone has responsibility and accountability to promote the welfare of person with I/DD who is involved in providing supports**
 - **Involuntary movements wax and wane; therefore are not always apparent when the expert is in the room**
 - **Medically trained people are not solo observers of involuntary movements**

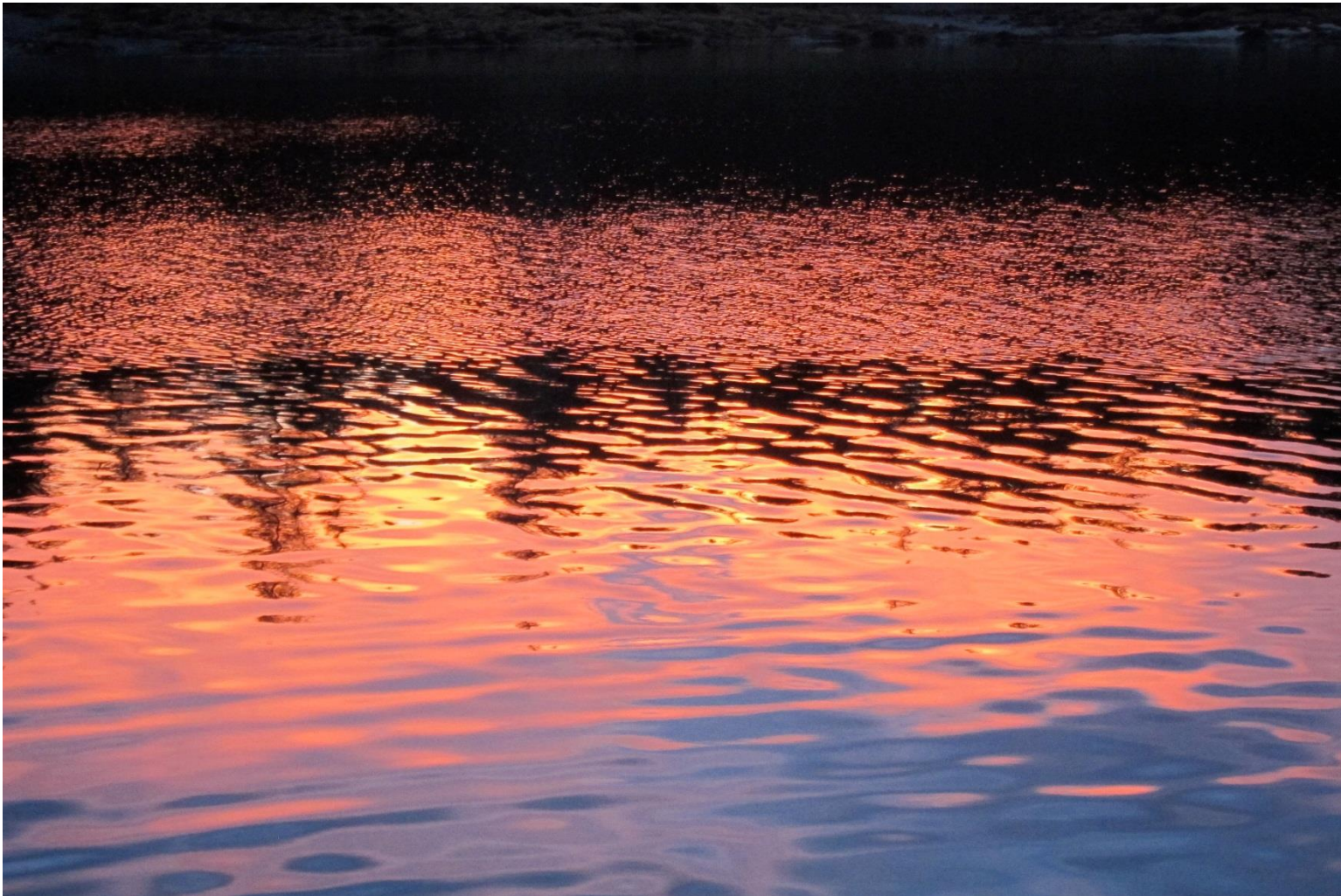


CONCLUSION – PATIENT PERSPECTIVE

- **GIMME:**
 - **the lowest amount of medication**
 - **the benefit of the doubt**
 - **an appropriate evaluation**
 - **a chance!**



**WHEN DOING ASSESSMENTS, DO NOT RUSH;
REFLECT...**



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