FSHD 101: What every patient needs to know

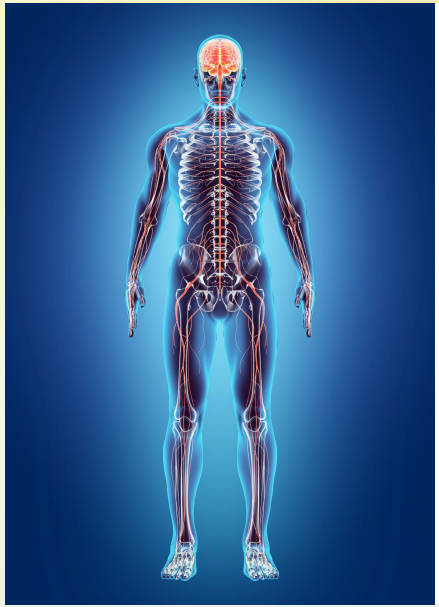
Mario Saporta, MD, PhD, MBA

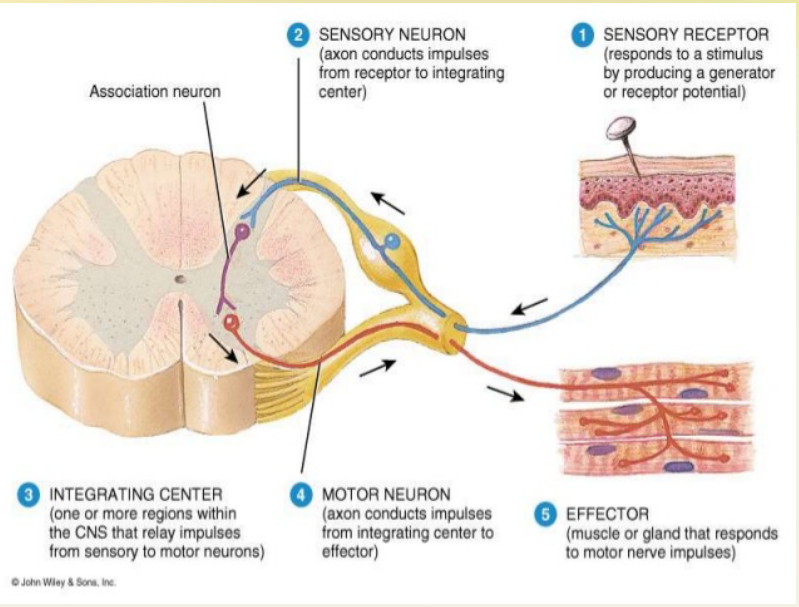
FSHD 101

- FSHD is a muscular dystrophy
- Biology of FSHD
- Clinical presentation
- What to monitor
- Genetics and Risk estimation
- Management

UHealth
UNIVERSITY OF MIAMI HEALTH SYSTEM

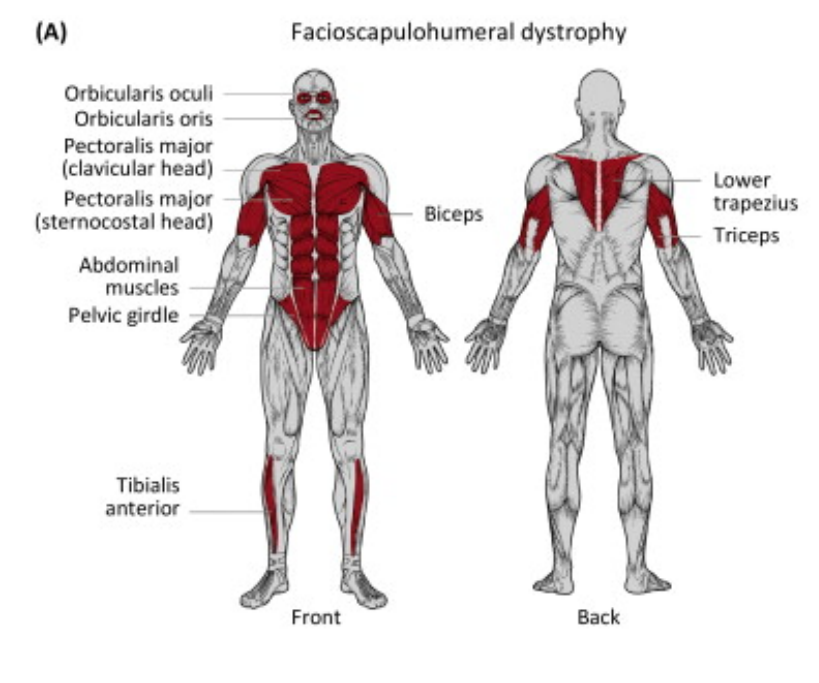
FSHD is a muscular dystrophy





UHealth
UNIVERSITY OF MIAMI HEALTH SYSTEM

Clinical Presentation



F – Facio - Face

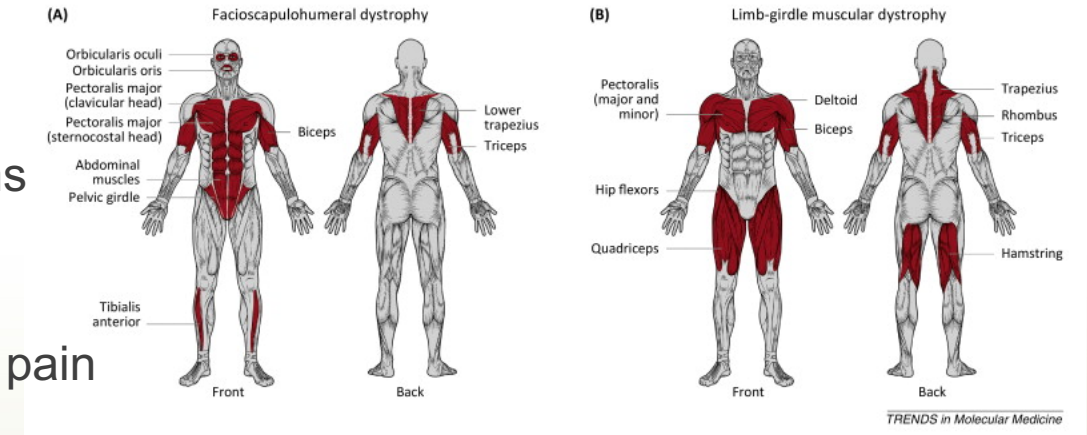
S – Scapulo - Shoulder

H – Humeral - Arm

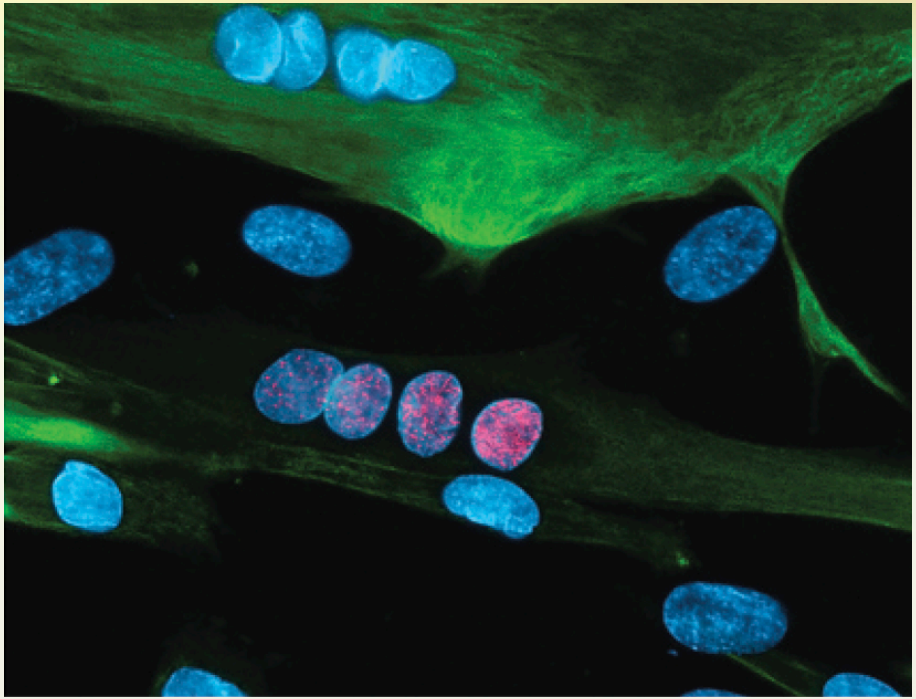
UHealth
UNIVERSITY OF MIAMI HEALTH SYSTEM

Clinical Presentation

- One of the most common muscular dystrophies (2 – 7 per 100,000)
- Approximately 21,000 in the USA
- Can be diagnosed at any age
- High degree of variability
- Asymmetry
- Two clinically identical forms
  - FSHD type 1: 95%
  - FSHD type 2: 5%
- Chronic shoulder and neck pain



Biology of FSHD



UHealth
UNIVERSITY OF MIAMI HEALTH SYSTEM

DUX4 expression in adult muscles

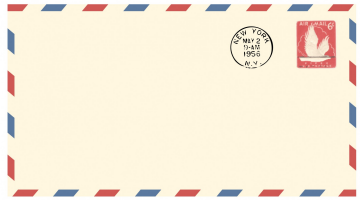
D4Z4 contractions
(1-10 repeats)

SMCHD1
mutation

Loss of methylation of D4Z4
Chromatin opening
4q polymorphism A

+

DUX4 expression
in muscle



UHealth
UNIVERSITY OF MIAMI HEALTH SYSTEM

What to monitor

UHealth
UNIVERSITY OF MIAMI HEALTH SYSTEM

What to monitor

- Respiratory involvement: Present in <10% of patients
  - Pulmonary function testing and sleep studies
- Cardiac involvement: <5% of patients
  - Mostly asymptomatic arrhythmia. ECG
- Retina disease (Coats syndrome): <1% of patients
  - Vascular changes leading to retinal detachment and vision loss. Annual ophthalmology evaluation
- High frequency hearing loss: approx. 16% of patients
  - Mild and usually asymptomatic. Audiometry.
- These complications are usually present only in FSHD type 1 patients with large deletions

UHealth
UNIVERSITY OF MIAMI HEALTH SYSTEM

Genetics and Risk Estimation

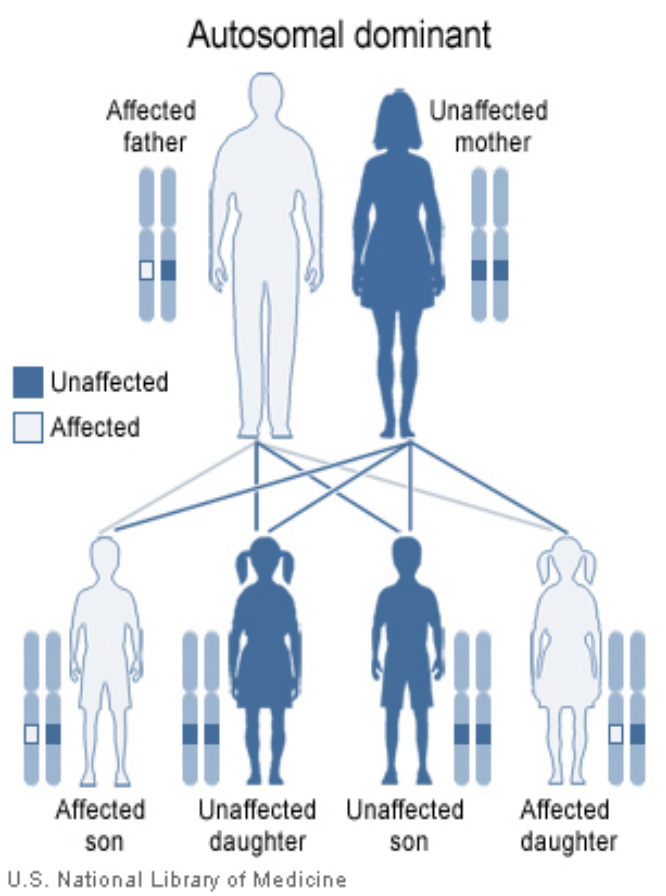
UHealth
UNIVERSITY OF MIAMI HEALTH SYSTEM

ESTIMATING RISK IN GENETIC CONDITIONS

UHealth
UNIVERSITY OF MIAMI HEALTH SYSTEM

HOW DO WE INHERIT OUR LIBRARY OF GENES?

UHealth
UNIVERSITY OF MIAMI HEALTH SYSTEM



Autosomal Dominant

- FSHD type 1
- Mutation in one copy is enough to cause disease
- Risk for passing disease on is 50%
- Risk does not depend on gender
- Up to 30% of cases are new, spontaneous mutations

UHealth
UNIVERSITY OF MIAMI HEALTH SYSTEM

Guidelines for the treatment of FSHD

- Multidisciplinary care
  - Stretching and rage of motion exercises
  - Assistive devices (braces, mobility)
- Respiratory evalution
- Dilated eye exame
- Pain management
- Scapular fixation?

UHealth
UNIVERSITY OF MIAMI HEALTH SYSTEM

QUESTIONS?

UHealth
UNIVERSITY OF MIAMI HEALTH SYSTEM