(Physical) therapy for shoulder dyskinesia in FSHD

Weakness versus discoordination

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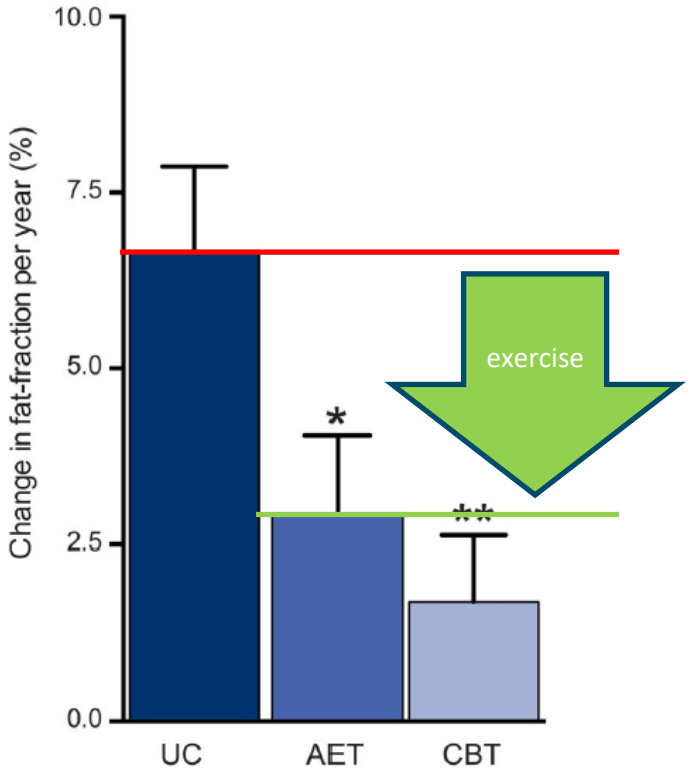
Upper extremity dysfunction in FSHD

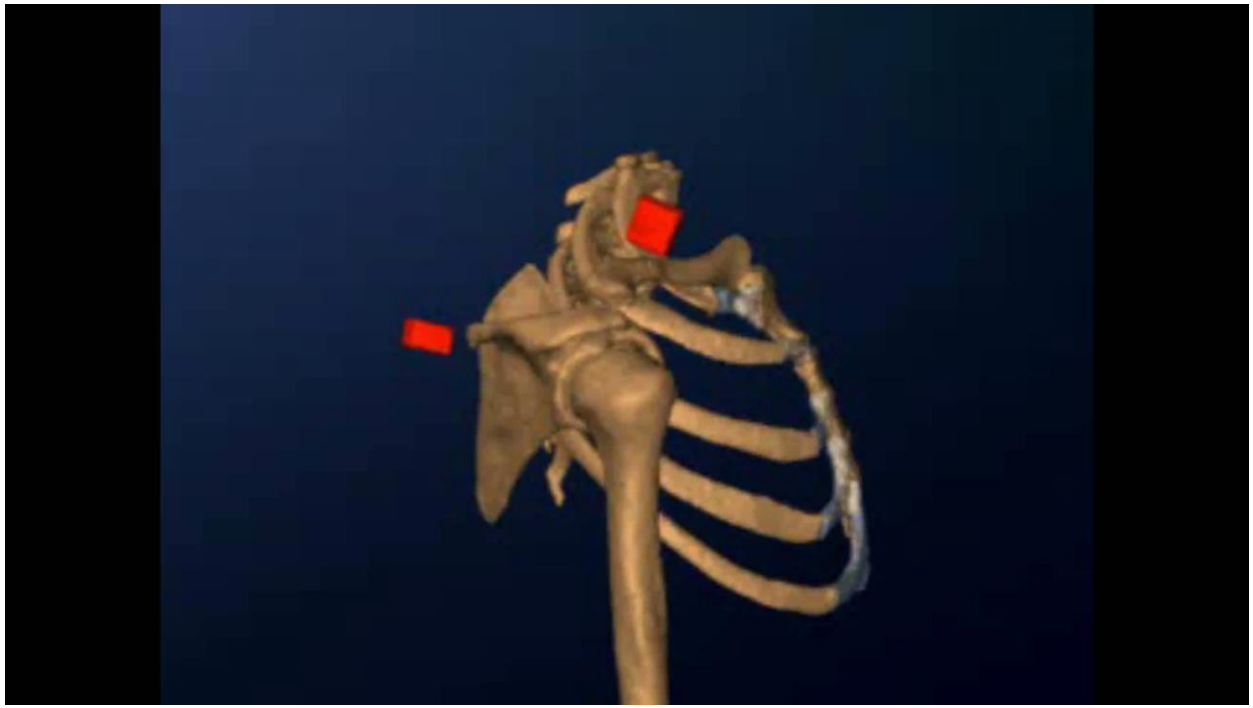
- Scapular instability is a well known sign of FSHD
- 96,9% of patients experience problems when using shoulders and arms (Hamel et al 2019)
- Most exercise interventions target lower extremity function (Voet et al., 2013)
- In FSHD exercise = medicine
- Only 44,4% of patients exercise the upper extrimities (Faux nightingale et al 2021)

Figure 3 Treatment effects of aerobic exercise training and cognitive-behavioral therapy on MRI-derived fat fractions of the individual thigh muscles in patients with facioscapulohumeral muscular dystrophy (FSHD)



Janssen et al. 2016

(normal) Scapular movement



Scapula alata in FSHD

- Bilateral winging scapula
- Almost no scapular support for the arms
- Low muscle strength of scapular pivoting muscles
- Normal muscle strength of Arm muscles and scapular bracers

Radboudumc shoulder expertise

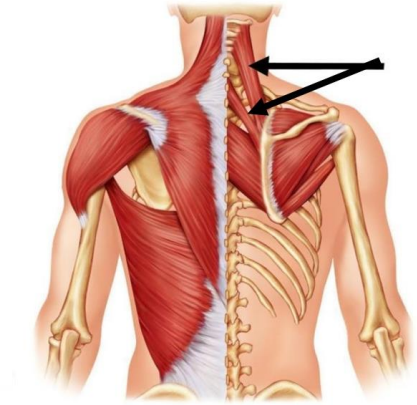
- 22 years old man
- At age 16: Parsonage Turner syndrome (neuralgic amyotrophy)
- Effects before and after physical- and occupational therapy (6 months, 12 sessions)
- **Scapula alata caused by diskinesia, not weakness**

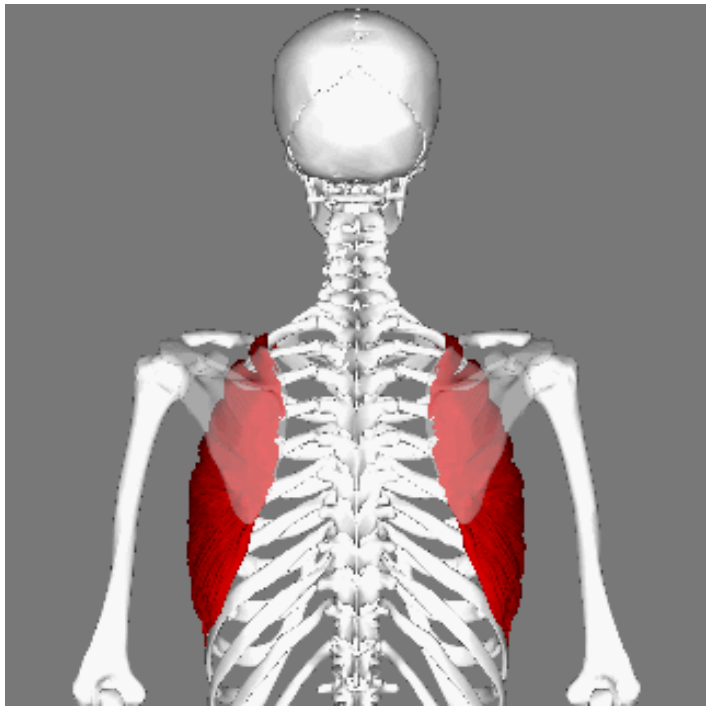
Muscular inbalance in recruitment

Scapular stabilizing muscles

Scapular bracing against impact
- Levator scapulae
- Rhomboïdeus minor/ major
- Pectoralis minor

Scapular pivoting with arm use
- Trapezius, pars ascendens
- Serratus anterior
- Trapezius descendens





Scapular musculature function

Scapular bracing against impact
- Levator scapulae
- Rhomboïdeus minor/ major
- Pectoralis minor

Scapular pivoting with arm use
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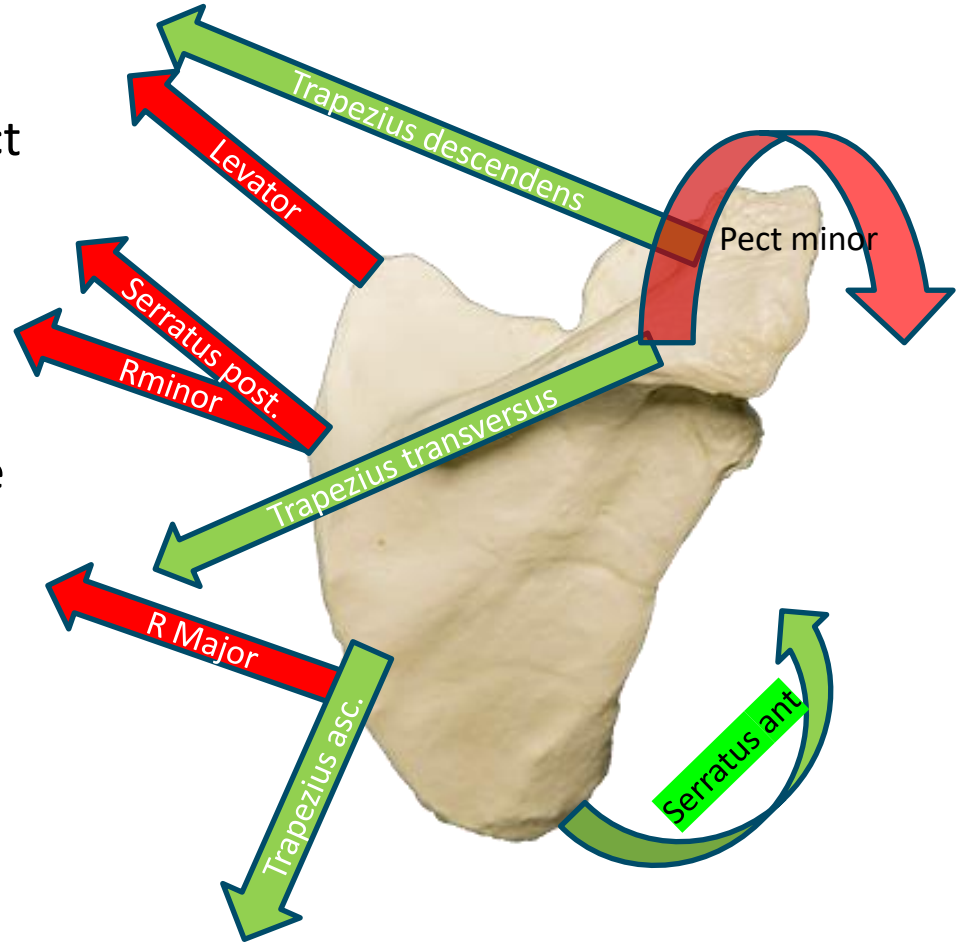
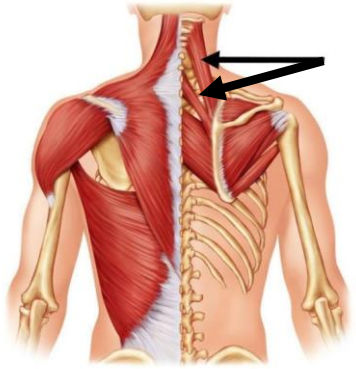
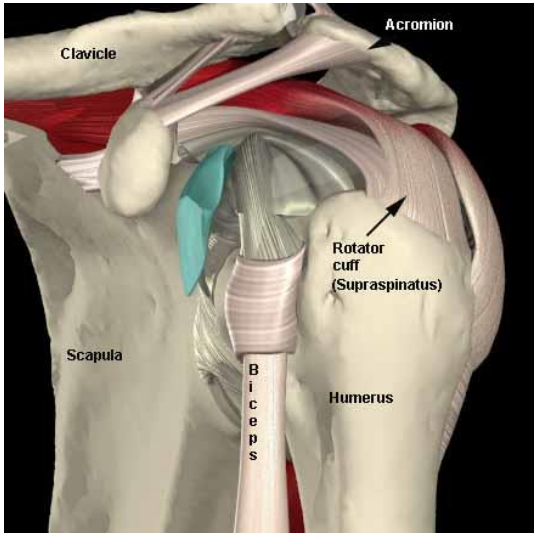
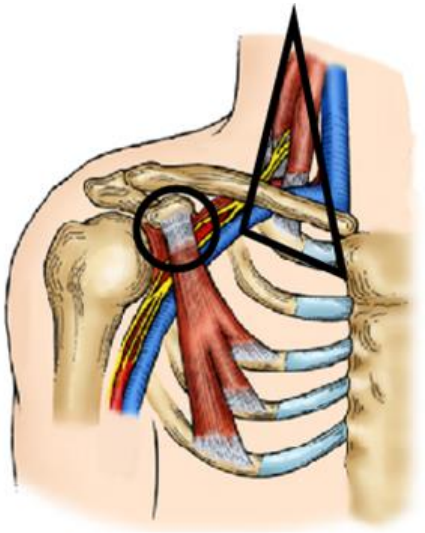


Consequences of scapular dyskinesia
Surmenage Impingement Entrapment







What can be achieved for muscles targeted by FSHD?

Flexibility

Strength

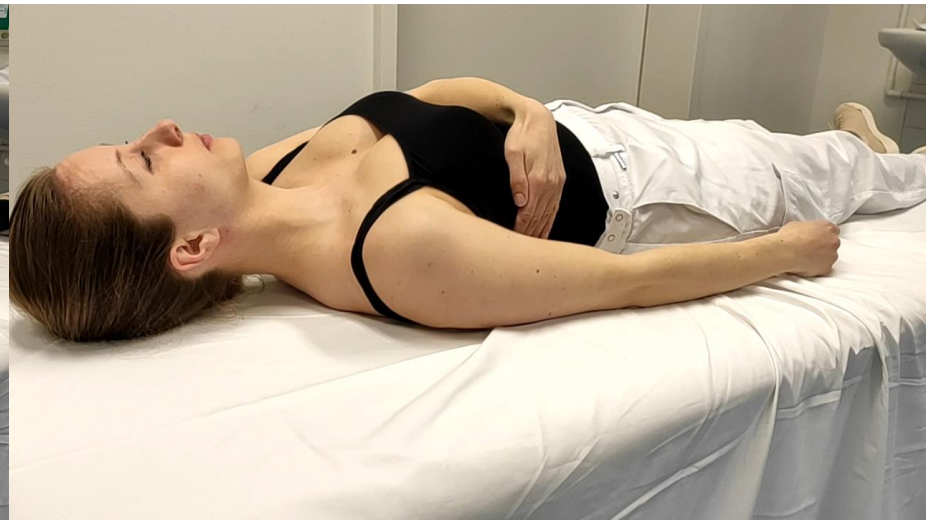
Endurance

Technique

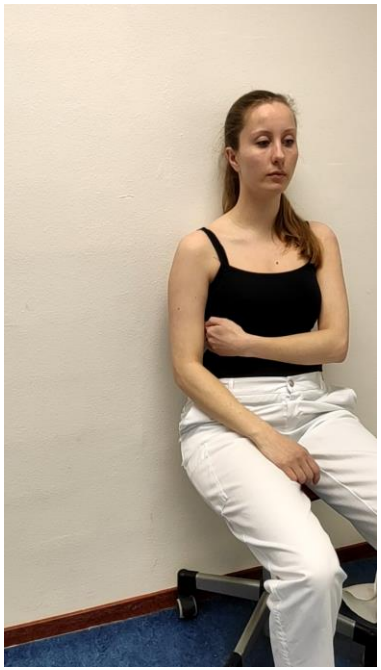
Muscular discoordination test in FSHD

- 38 years old male
- Genetically confirmed FSHD
- Scapula alata with adequate serratus anterior strenght

Explicit Scapular training supine



Explicit Scapular training seated

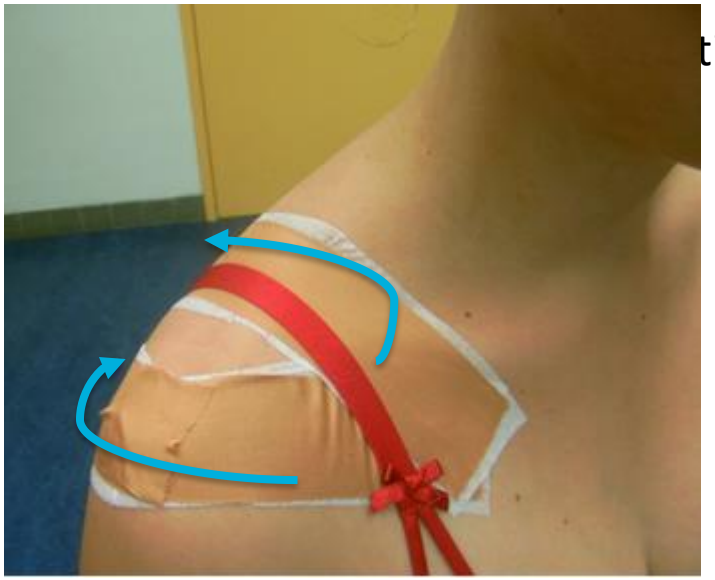


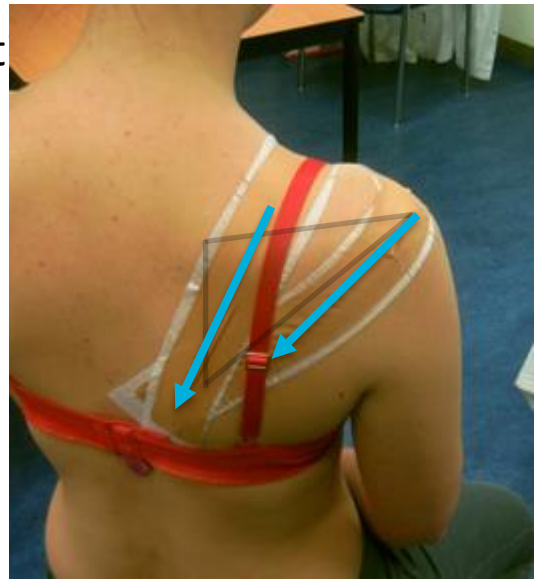
Implicit scapular training suggestion

Implicit scapular training suggestion

Scapulataping

- Taping aimed at providing exoceptive feedback for scapula propriocepsis
- Helps maintain scapular posterior tilt while using the arm
- Use non stretchable taping (in this case a combination of fixomull stretch and leukotape)
- Apply ventrally without strenght and increase resistance when posterior of the acromion and scapular spine.
- The two strips intersect at the inferior angle of the scapula





Discussion

Scapular Discoordination (dyskinesis)

OR

Scapular coordination training

Less disuse and limitations?

Slowed fatty infiltration??

Disuse in daily activities

Acceleration of fatty infiltration
(Janssen et al. 2013)

Muscle weakness

Limitations in daily life

Take home message

- Scapular coordination might be more influencal in arm movement restrictions than loss of muscle strenght in part of the FSHD population

- Normal use of scapular muscles might protect from rapid progression of FSHD in the shoulder girdle

- However, clinical experience shows that scapular coordination is more difficult to influence in FSHD than in NA

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- The authors have nothing to disclose

- Thank you for your attention

- Questions?