

Soft tissue injury and Return to Sport

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Soft tissue injury and Return to Sport

1. Mechanisms of Soft tissue injury
2. Understanding demands of sport
3. Rehabilitation Pathway
4. Return to training and playing criteria
5. Apply to Hemophiliac patient



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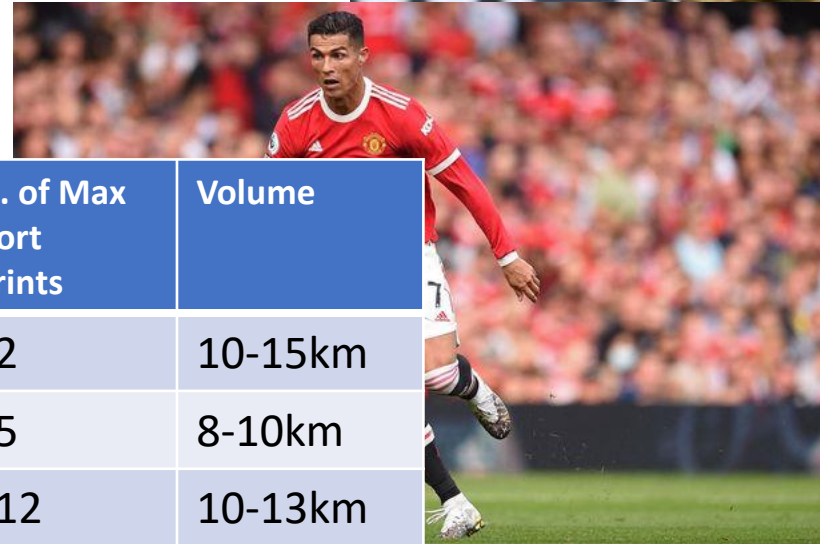


Mechanism of Soft Tissue Injury

- Different for each muscle group
 - Hamstring
 - High speed running
 - Extensive lengthening +/- trunk rotation (high kick, sliding tackle)
 - Quadricep
 - Sprinting – acceleration (early swing phase) and decelerations (COD / sudden stopping)
 - Kicking
 - Calf
 - Soleus most commonly injured – due to dominant contributor to upward and forward mass centre acceleration at all running speeds
 - Older population (tennis / squash) - medial head of gastrocnemius
 - Adductor
 - Kicking across body, change direction (eccentric loading)



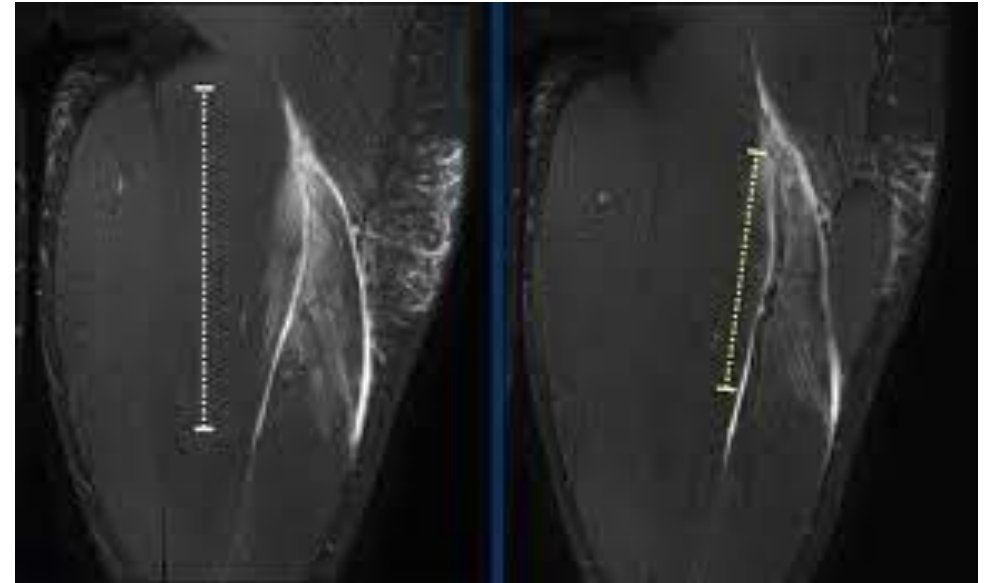
Demands of the Game



	Metres per min	HSR (m)	No. of Max Effort Sprints	Volume
AFL	110-125	150-400	1-2	10-15km
NRL	80-82	80-120m	1-5	8-10km
EPL	115-125	2000	1-12	10-13km

MRI – what can it tell us?

1. Strain present???
2. Length of strain
3. Cross sectional area
4. Distance from origin
5. Involvement of tendon+++
 - Higher risk of injury recurrence



MRI – Clinical Challenges

- No addition of MRI helping to predict return to play timeline
- Significant bias in classification studies
- Can increase anxiety in athletes
- Progression best made of clinical markers!!!

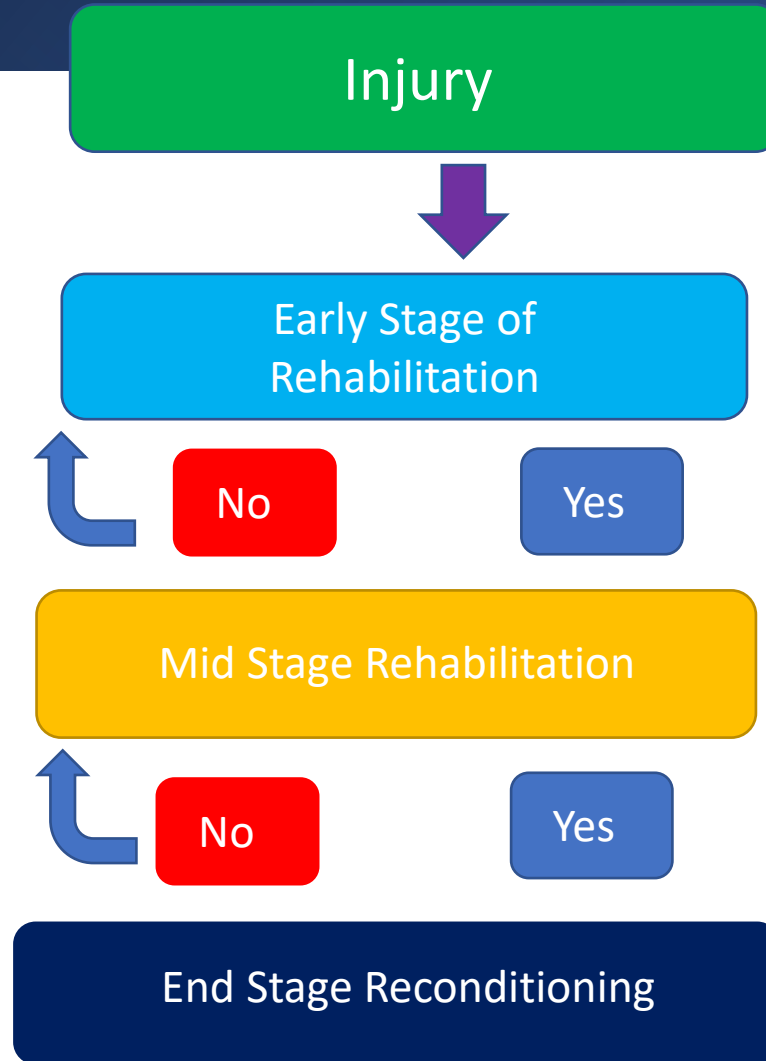
Rehabilitation Principles

- Need to be careful to NOT overload compromised tissue
 - Pain-threshold rehab does not accelerate rehab RTP clearance when compared to pain-free rehabilitation
 - Greater recovery of isometric knee flexor strength and fascicle length
- **Early Mobilising**
 - More rapid and intensive capillary in growth
 - Better regeneration of muscle fibers
 - More parallel orientation of regenerating myofibers
- **Strengthening**

Rehabilitation Principles

1. Hip dominant vs Knee dominant
2. Medial column vs lateral column – under worked or over-compensating?
3. Adaptation: Capacity vs Max strength vs Rate of Force Development
4. Criteria Based Progressions

Criteria Progression How do we apply this to rehab process?

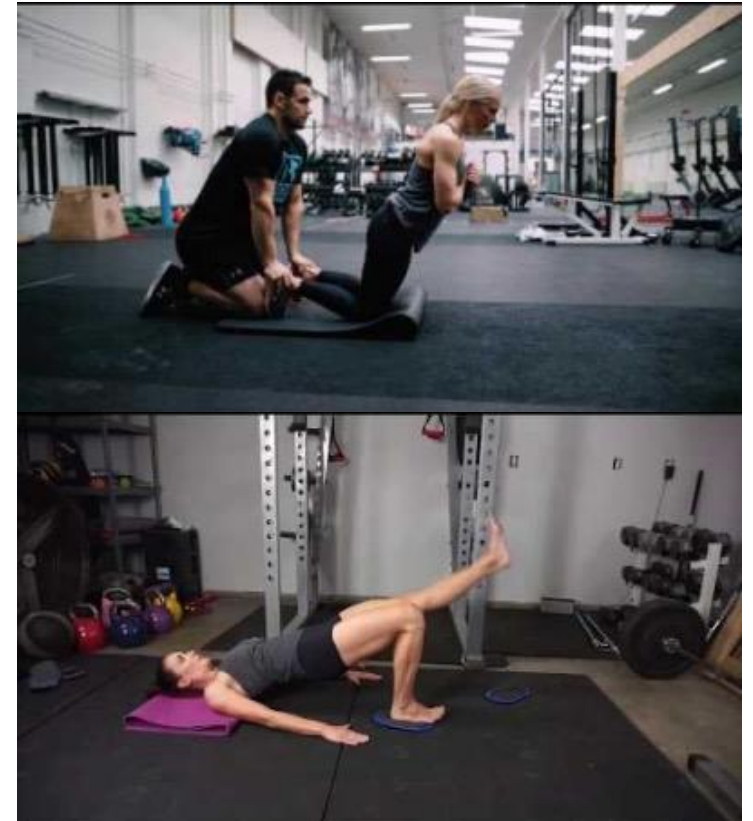


Early Rehab

- Inflammatory Stage
- POLICE
 - P- Protection
 - OL- Optimal loading
 - I – Ice
 - C – Compression
 - E – Elevation
- Isometric Exercise – 48-72 hours

Early Rehab

- Strong focus on eccentric exercises early as possible
 - Nordics – knee
 - Bridge slide board
- Progress strength through range
 - Romanian Deadlift
 - Donkey Kick
 - Leg Press
- Running
 - Can start slow up to 14km/h, 1-2km @ day 4-5 post injury



Mid Stage - Rehab

- Continuing to progress strength
 - Single leg RDL
 - Single Leg Good mornings
 - BB Step Ups
 - Prone Hamstring curl

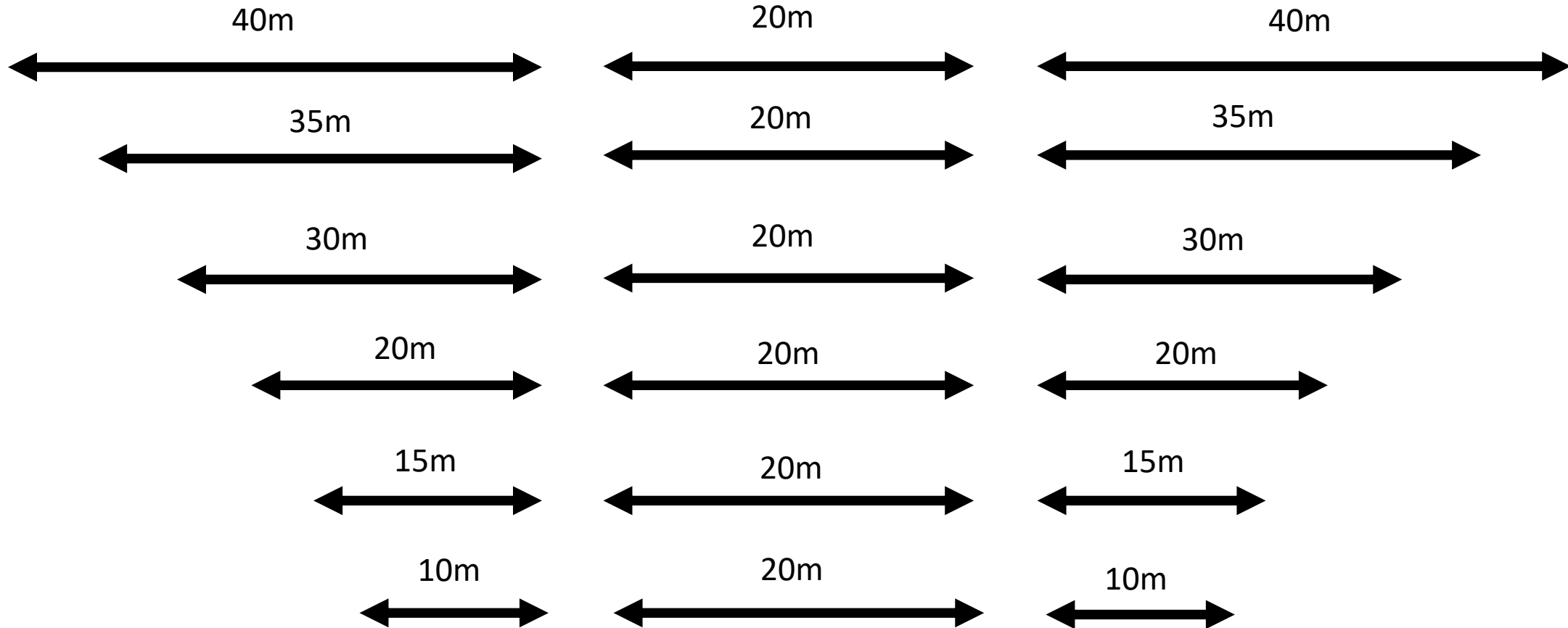


End Stage - Rehab

- Continue strength
- Plyometrics
- Speed



Speed Work - Progressions



Return to Training

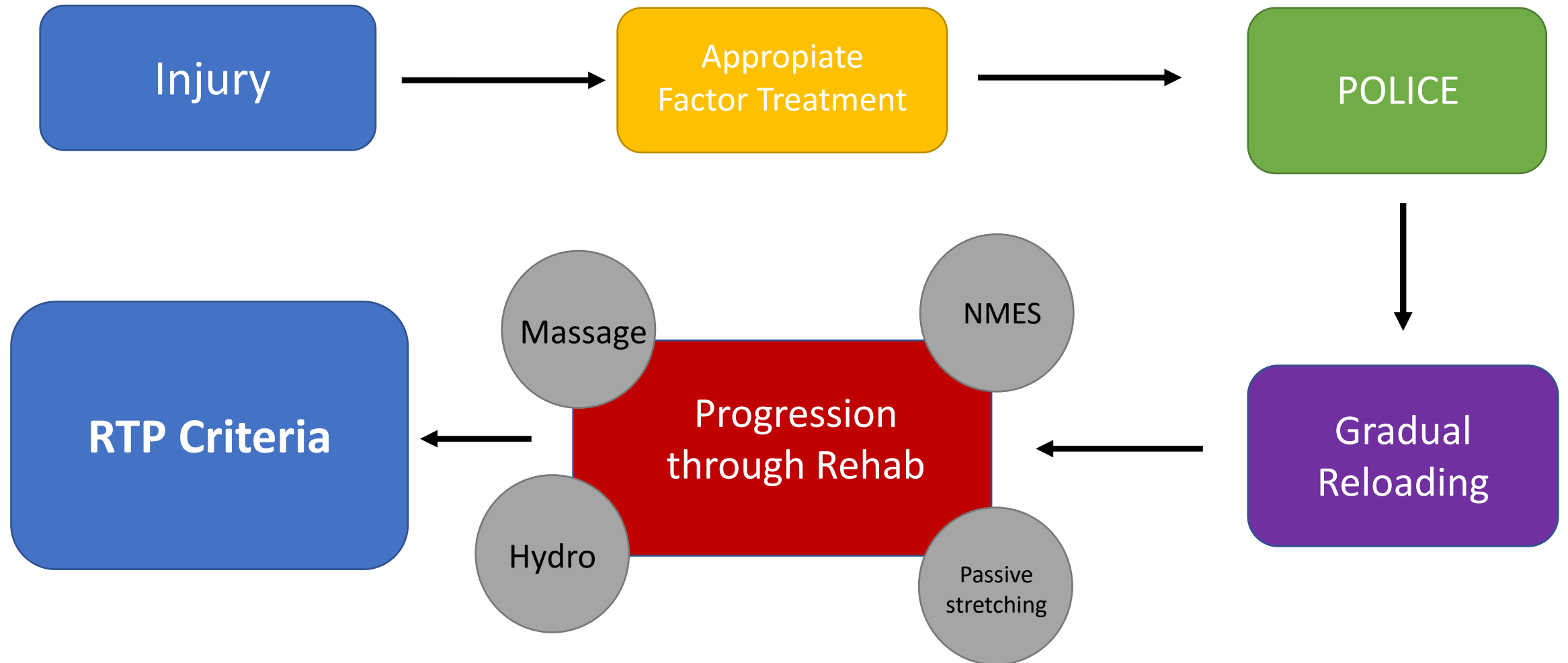


Return to play Criteria

- Strength no <5%
- Length test –MHFAKE, AKE
- Max Velocity (x 2 efforts)
- High speed meters (match load)
- Acceleration (x 2-3 efforts)
- Match simulation



How to relate to Haemophilia



Thank You!