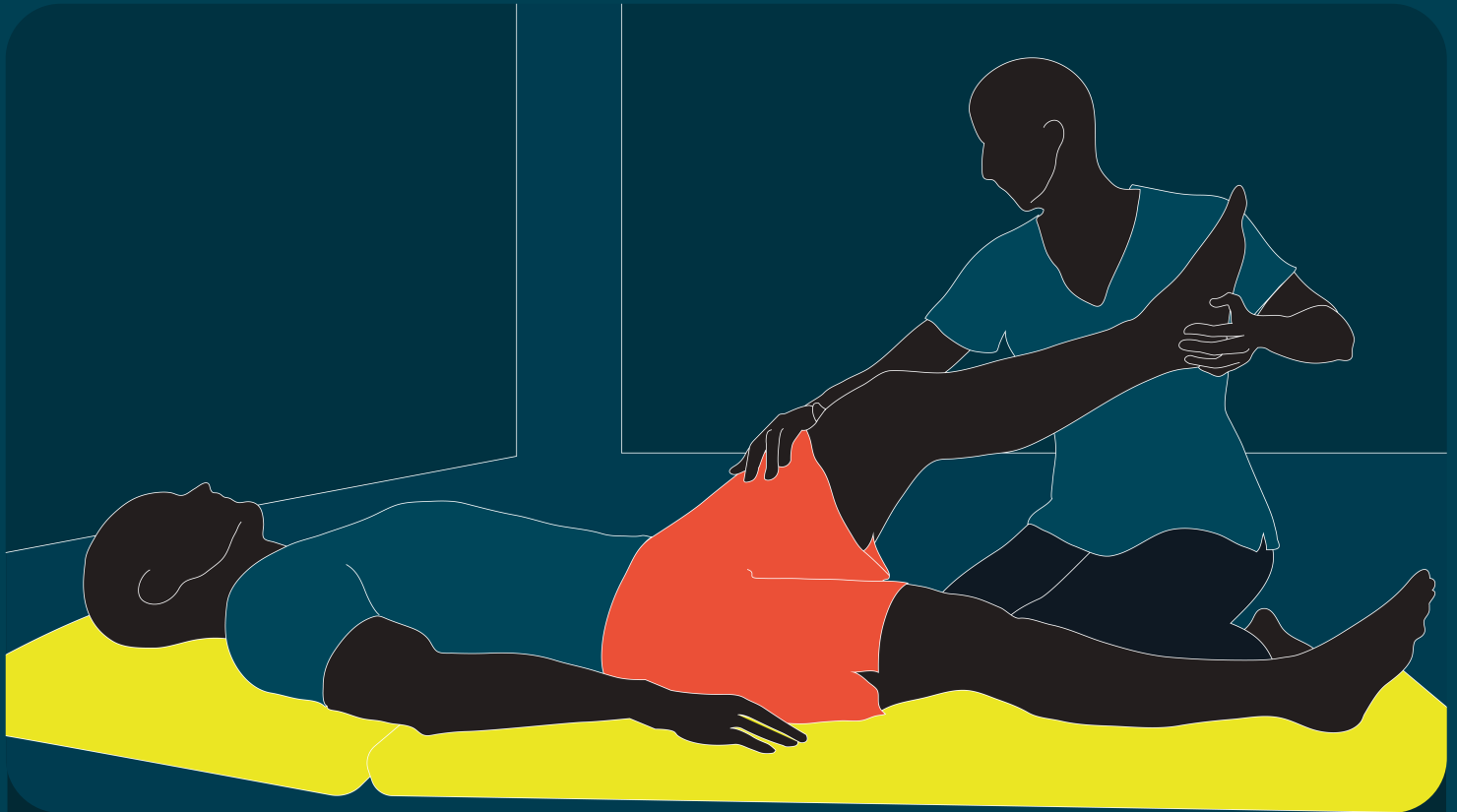




MINIMIZING HAMSTRING RE-INJURY MINI TOOLKIT

Adapted from Pete Galasso

[SEE PRESENTATION](#)

Prevent hamstring re-injury with effective rehab beyond the RTP

This toolkit details why setting distinct RTP criteria improves the quality of rehabilitation, aiding in reducing re-injury. Understand how to formulate, deliver, and progress a detailed and distinctive RTP framework which gets rehab right the first time.

MINIMIZING HAMSTRING RE-INJURY: GETTING IT RIGHT THE FIRST TIME ROUND

55% of all injuries in American football are hamstring related. 33% of the injured players suffered hamstring re-injuries (Jenkins et al., 2024). The mechanisms of these injuries are multifaceted and vary widely.

Yet the one question
we get asked remains:

“How fast can we
get them back?”

WHAT IS THE BASIS FOR FREQUENT RE-INJURY?

Common practice suggests asymmetries of <10% warrant RTP for an athlete. But these guidelines can be hugely misleading.

Nordic - Max force testing

Left

490 N

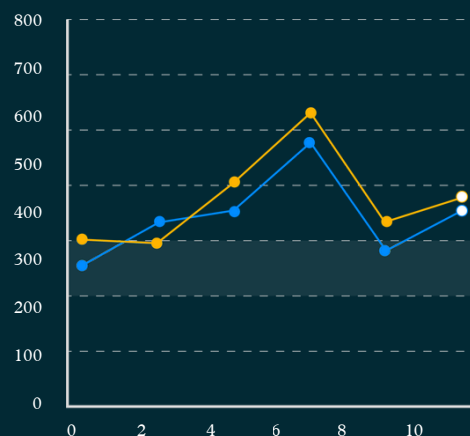
↑ 19.6%

Right

518 N

↑ 12.3%

Asym. 5.5% Right



92nd pct. 96th pct.

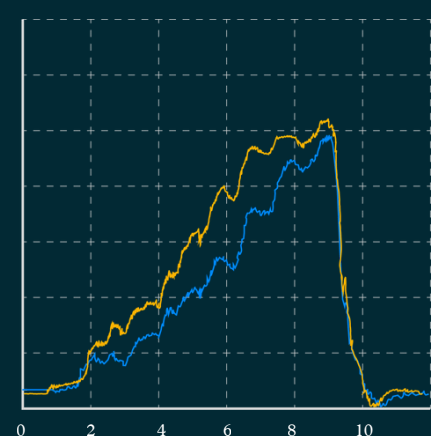


Figure 1. Hamstring testing data of the injured (left) and uninjured (right) limbs

Figure 1 portrays this; an asymmetry of 5.5% when testing max force. But, the force-time curve paints a different picture. Lesser impulse expressed by the injured hamstring outlines its inability to fire and express force comparative to the uninjured limb.

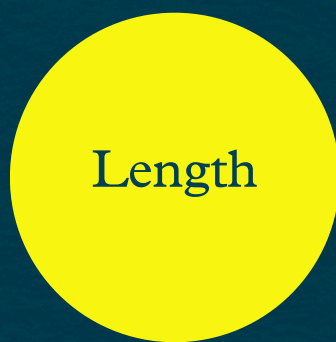
THEREFORE,

**ISOLATED STRENGTH
ASYMMETRIES
≠
RTP CRITERIA**

THE BIG THREE DETERMINING RTP TIMELINES

Determining RTP timelines requires establishment of the current functionality of the injured site. There are three key performance markers, and up to nine tests, to work through (Figure 2).

The number of assessments completed out of the nine available tests provide a great assessment of the state of the athlete, relative to their RTP timeline.



Length



Length/ROM tests:

- Passive straight leg raise
- Maximum hip flexion
active knee extension
- Leg swing



Gait



Gait tests:

- Ambulation
- Mach drills
- Accelerations



Strength



Strength tests:

- Prone 20 ISO
- BIODEX 90/20
- Nordic

Figure 2. Venn diagram of three key pillars of performance and their associated tests during hamstring injury RTP

Intensification of the tests is critical, intensity is ranked from least (top of the list) to most strenuous (bottom of the list).

Key markers of performance within the tests are symmetry and pain response. Good visual, kinetic, and kinematic symmetry, as well as pain $\leq 2/10$ is required for progression to the next test. Significant increases in pain with each test equal the end of the testing sequence.

Mach drills and accelerations are the greatest indicators of RTP timelines.

REHABILITATION OVERVIEW (ON FIELD WORK)



Figure 3. Holistic overview of Miami Hurricanes Football RTP phases

RECONDITIONING AND PERFORMANCE SAMPLE WEEK

Day	Exercise					
6	A-skip 2 x 10yd	Ankle dribble 2 x 10yd	Calf dribble 2 x 10yd	A-run 4 x 10yd	Accelerations: 2 x 10 x 10yd 2 x 7 x 15yd	Introduce deceleration drills
9	A-skip 2 x 10yd	Ankle dribble 2 x 10yd	Calf dribble 2 x 10yd	A-run 4 x 10yd	Accelerations: 1 x 5 x 10yd 1 x 5 x 15yd 1 x 5 x 20yd 1 x 4 x 25yd 1 x 3 x 30yd	Deceleration, CoD, and curvilinear running/drills

Speed drives prescription. Gradual and repeated exposure to increasing percentages of V_{max} are manipulated by increasing sprint distances. Every 5yd increase will roughly allow a further 5% expression of V_{max} . E.g., a 10yd acceleration affords for 75% V_{max} expression, 15yd affords for 80% V_{max} etc.

CLEARING THE ATHLETE FOR RTP HAVE ALL OF THE BOXES BEEN TICKED?

Clearing an athlete for RTP requires alignment of multiple metrics. Within this framework, meeting of all nine criteria is non-negotiable.

Weighting these metrics (denoted by circle size in Figure 3) offers valuable insight into the progression of an athlete's physiological and psychological state, relative to their RTP journey.

Ultimately if the player is not confident in their physical capabilities, then they are not ready. Which is why player confidence is weighted as the highest of all criteria.



Figure 3. Clinical performance rule applied to key RTP markers

Beyond the RTP there is a continuation of progressive rehabilitation, as well as close monitoring of internal and external loads, occurring for 8-weeks.

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