



Utilizing Video Analysis with Force Plates Assessments to Enhance Decision Making

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RAMS





RAMS



Agenda

Why Force Plates?

How to Implement Video Analysis

Case Examples

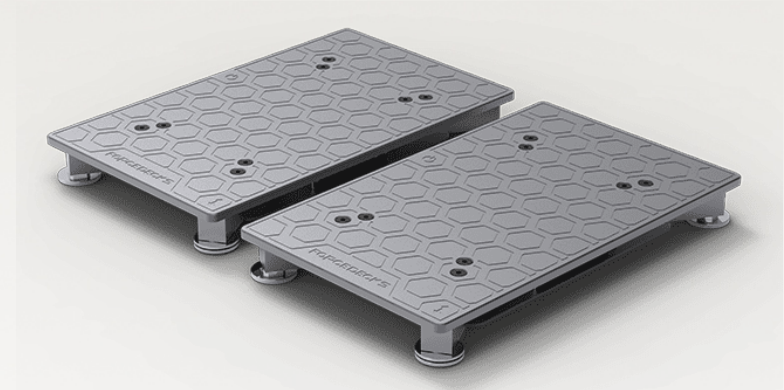


RAMS



Why Do We Use Force Plates?

- Football requires explosive qualities
- Consistent and reliable measure of power and force similar to the demands of football
- Provides objective data for baseline measurements and tracking neuromuscular fatigue
 - Breakdown plyometric movements
- Precision Care
 - Can we assess movement and prescribe exercise more accurately?



Video Assessment

- Supplements the information and gathered from the force plates
- Provides context to the metrics and numbers
 - JUST AS IMPORTANT AS THE METRICS
- Provides QUALITATIVE data that compliments the QUANTITATIVE data
- How do they EXPRESS this power and with what STRATEGIES?



Movement Analysis

KNOW WHAT YOU'RE LOOKING AT

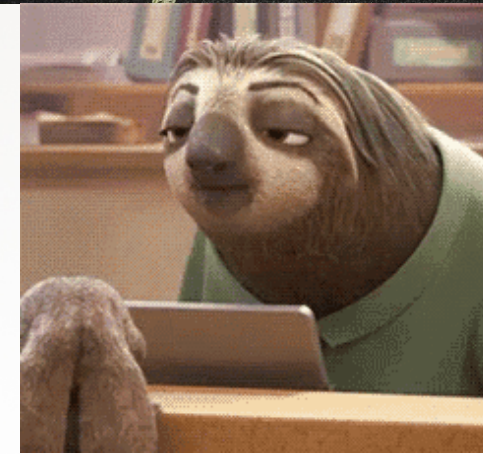
- Study movement patterns and their phases
- What SHOULD be happening
- Take a step back and observe total body movement

SLOW IT DOWN

- Allow your eyes to adapt to fast movement

IDENTIFY YOUR PROCESS AND STICK TO IT

- There's no cookie cutter way to perform your movement assessment



Simple Set Up



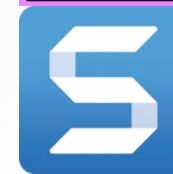
- Hardware

- Go-Pros (3)
- Go-Pro Remote (1)
- Tripods (3)



- Software

- Adobe Premiere Pro
- Snagit



Case Study 1

In-Season Example

22-year-old rookie

- Previous hx
 - College – Lumbar back spasms
 - 2020 – 2 re-aggravations of lumbar back spasms during training camp
 - College – R patella tendonitis
- Current status
 - Fully participating in practice
 - No on-going issues that require treatment or attention from the athletic training staff
 - Doesn't participate in pre-activity preparation

Force Plate Movement Analysis

In-Season Example

Weekly Jumps



Force Plate Movement Analysis

In-Season Example

LOADING PHASE

- *Observations*
 - Early heel raise
 - Good jumping ability, but movement leaks in ankle/knee alters loading patterns

LANDING PHASE

- *Observations*
 - Excessive R trunk lean and rotation
 - Decreased R shin angle
 - Self corrects, but initial landing exposes dysfunctional movement preference



Force Plate Movement Analysis

In-Season Example

PUTTING IT ALL TOGETHER

- ***Subjective and Objective***
 - Player has been dealing with significant R patella tendon discomfort for weeks and has not reported it to anyone
 - Consciously avoids certain positions due to pain – learned compensation
 - Position coach confirms altered movement patterns during practice
- ***Plan of Attack***
 - Don't need to be sick to get better!
 - Don't let this catch up to you!!
 - Comprehensive tendon health program



Case Study 1

In-Season Example

TAKEAWAYS

- Starts dialogue and opens line of communication with athlete
- Visuals expose athlete's pain-avoidance patterns
- Shows athlete interdisciplinary approach
- Facilitates athlete buy-in

Case Study 2

Return to Sport Example

23 year-old rookie

- Previous hx
 - 2020 – L ankle fibula fracture, grade 3 high ankle sprain, grade 3 deltoid sprain
 - Surgery within 2-3 days
- Current status
 - 12 weeks post-op
 - Alter G walk/jog progression
 - Lower body strength and hypertrophy
 - Early stage, low-impact plyometrics



Force Plate Movement Analysis

Return to Sport Example

Weekly Jumps





Force Plate Movement Analysis

Return to Sport

Baseline RTS Jumps



Force Plate Movement Analysis

Return to Sport Example

LOADING PHASE

- Good global triple flexion
- Slightly decreased L shin angle
- L heel rise



Healthy



12 weeks

Force Plate Movement Analysis

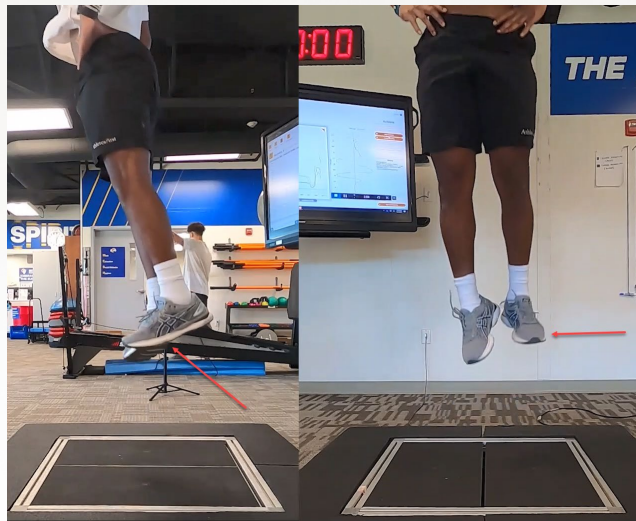
Return to Sport Example

TAKE-OFF PHASE

- Decreased overall jump height
- Decreased L plantarflexion



Healthy



12 weeks

Force Plate Movement Analysis

In-Season Example

LANDING PHASE

- Decreased L shin angle
- L heel rise
- L foot ER and abduction



Healthy



12 weeks

Case Study 2

Return to Sport Example

TAKEAWAYS

- “Don’t know where you’re going unless you know where you came from”
- Athlete can make correlation between kinetics and kinematics
- Facilitates athlete buy-in
- Gives us more precise exercise prescription

Summary

- Videos help provide CONTEXT for force plate jumps
- Set-up is SIMPLE, but EFFECTIVE
- Be ACTIONABLE

References

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THANK YOU