

Call with Dustin 2/19

What do you **envision** this project consisting of? What are your **goals** for this project?

- Read outline briefly
- Hamstring strains are the biggest injury they face
- Best way to bulletproof hamstring is to implement high velocity sprint program
- Use weight room to support what goes on out on the field
- Look up **inverse leg curl** - because there's no assistance with nordbord and glute ham machine
- Nordbord has ability to measure force output - peak force, right to left, but no assistance or back extension or adjustability to adjust femur angle/length
 - If they mention nordbord and glute-ham, we can ask more, if they don't, we ask
 - Tell me how you use the nordbord.
 - Everyone uses the nordbord
 - Frequency depends on what phase we are in during the year
 - Off season twice a week, in season once a week
 - Offensive and defensive linemen struggle with it because of their weight
 - The linemen just fall - can't control themselves down to the ground
 - At glute ham machine they adjust femur length and how far back they are on the pad so that they can get that motion profile
 - Symmetry below 15%
 - At least 2x body weight
 - They develop a norm for each athlete for benchmarking and fatigue management
 - Peak force up to 90% of baseline
 - Asymmetry develops in certain positions and they try to get them down to 15% but most important is back to "normal"
 - Can't get this data for linemen
 - Nordbord creates a lot of soreness in the hamstring which can lead to injury
 - Tell me how you use the glute-ham raise.
 - Nordbord has been heavily researched but movement pattern isn't similar to running pattern
 - Look up roman chair - another exercise for glute ham
 - Isometric hold for 10 seconds while holding weight
 - If we were able to measure the roman chair then we could get more specific to what people are trying to get at
 - Do you use a seated/leg curl?
 - No - leg curls are dying out like the dinosaurs
 - Hamstrings and the hip work together
- Recovery metrics
 - Walk us through how you're currently determining whether a player is ready to play.
 - What are the metrics you use to determine health?
 - Force and symmetry are the only metrics that really matter
 - What measurements do you take?
 - Do different types of testing need to be done in different stages?

- Does the nordbord give you the exact data that you are trying to get?
 - Nordbord is bluetooth and synced to an ipad and they like that
 - Where are problems coming up in the current process?
 - What would you like to know or be able to answer that you can't today?
 - Tell me more about what testing means in your environment
- Follow-up / misc
 - Counterweight
 - How do you use them
 - On the glute ham
 - They don't have any sort of counterweight
 - 1080 quantum - look it up
 - Wear a vest and clip in and it provides a force from behind you that supports you
 - Portability
 - Tell us about the last time...
 - Do you actually take it anywhere? How often do you do that?
 - Must have? Or Want?
 - The nordbord is a small unit so it is portable
 - It would be great if they could bring something to the east coast to get data while they are there
 - They didn't have room for the nordbord
 - Feedback from players
 - Are there any common comments or feedback from athletes about these machines?
 - Nordbord creates a lot of soreness
 - Isometric curl so down on the ground and then just pull up gets some data (less valuable) without the soreness
 - Eccentric (going down) isn't measured in this technique
- Logistics / ending questions
 - Are there any other folks we should loop in on this process before we start designing?
 - Are there any common comments or feedback from athletes about these machines?
 - If we could only do 1 or 2 things out of this list, what would they be?
 - Is there anyone else should we talk to?
- Versatility of glute ham (ability to change femur length and support the hip) with data analytics of nordbord that can fit in a truck
- Priorities: data collection and ability to change the femur length are most essential