**Protocol**

1)  **Title:** Correlation of Functional Movement Screen™ Score and Injury History in National Football League Scouting Combine Attendees

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2) **Abstract:**

The Functional Movement Screen™ (FMS) is an increasingly used screening tool that aids the clinician in assessing the fundamental movement patterns of an individual. This assessment tool consists of seven basic movements used to generate a “screen score” and to discern asymmetries in motion between the participant’s left and right sides. The test is often used in pre-participation screenings to evaluate individuals in a dynamic and functional capacity. It seeks to identify compensatory movement patterns- or movement “asymmetries”- that may lead to an increased risk of future injury. The FMS is used to assess all athletes at the National Football League (NFL) Invitational Scouting Combine and is currently used by several NFL teams to track individual movement patterns and asymmetries in their athletes.

We plan to retrospectively review the FMS scores and injury histories of all attendees of the NFL National Invitational Scouting Combine from 2008-2012. A statistical analysis of these data will attempt to discern correlations between certain FMS asymmetries and injury.

3) **Introduction and Background:**

The FMS is an evaluation tool that is used to assess the fundamental movement patterns of individuals. It is comprised of seven fundamental movement patterns that require a balance of mobility, stability, and proprioceptive abilities. This assessment tool is used to identify any compensatory movement patterns or asymmetries during pre-participation screenings. These asymmetries can result in biomechanically disadvantageous movement patterns and ultimately the potential for injury. The FMS may be an effective screening tool to quickly identify any deficits in mobility and stability that can lead to injury. Once these deficits are identified, prevention strategies can be initiated to optimize movement patterns and potentially reduce the risk of injury.

4) **Objectives:**

The aim of this study is to determine the effectiveness of the FMS in identifying injury susceptibilities from NFL Scouting Combine attendees over a four year period.

5**) Study Design and Methods**:

The study will be a retrospective review. Data will be directly obtained from the NFL database for all attendees at the NFL National Invitational Scouting Combine from 2008-2012. The NFL has approved this protocol and granted permission for the investigators to use the data. This data is not available publicly. Subjects previously provided consent to the NFL to allow their information to be used for research purposes. Information we will collect will include age, FMS score, number and type of injuries, and length of time missed due to injury. All subjects have previously undergone baseline testing. We will then evaluate whether the FMS is an effective screening tool for identifying injury susceptibilities. There will be a potential benefit as we will know if asymmetries identified in the screening leads to an increased risk of injury. There will be no specimens collected, no randomization, and no blinding. The data will be saved in a spreadsheet document on a password protected computer. The data will be stored in a de-indentified format.

Descriptive statistics (mean ± SD or median or percentage) will be given for all variables. Mann-Whitney test will be used to compare FMS score between the injured group and non-injured group for each of specific injuries or any type of injury. Chi-square/Fisher exact test will be used to test whether a significant relationship between asymmetry and any specific injury or any type of injury. A logistic model with variables like FMS score, asymmetry, or age as the predictors may be used for the prediction of injury. Comparisons were considered significant at a p level of less than 0.05.

6) **Participant Selection**:

All athletes who attended the NFL National Invitational Combine from 2008-2012 (approximately 1,300 athletes) and received a FMS score will be evaluated.

7) We are not performing any interventions thus adverse event reporting is not required.

References:

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