CHEAT SHEETS

The Quadrant of Boom Part 2

Sprint momentum and hamstring strength

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Athletes with higher sprint momentum have a **performance-injury trade-off.**

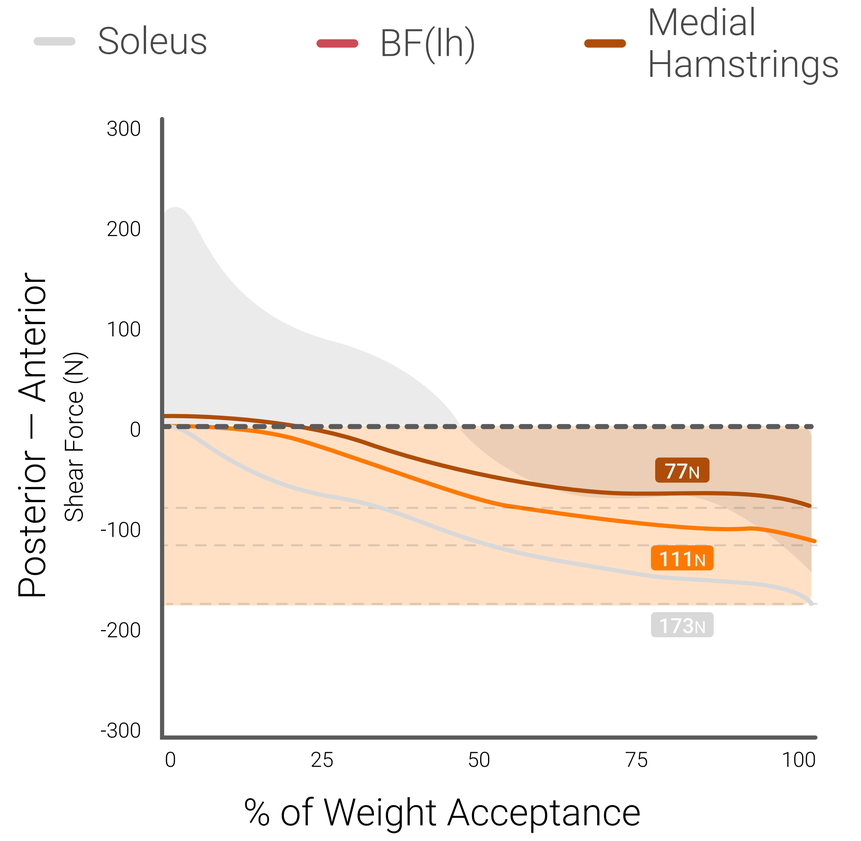
In collision sports, greater sprint momentum is associated with:

Improved ability to **deliver and withstand contact** during tackles.

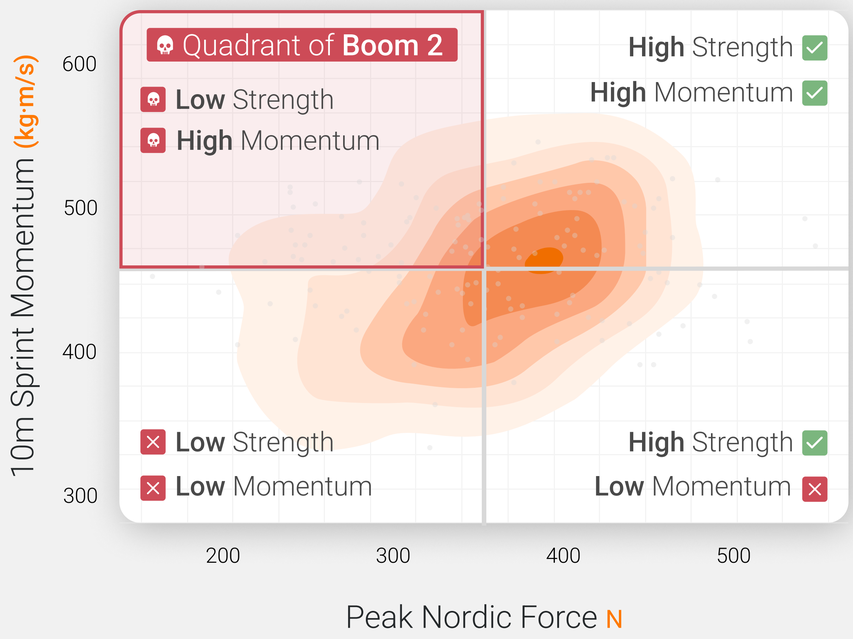
Greater forces during sprinting, potentially increasing **contact and non-contact injury risk.**

Greater sprinting momentum requires **greater levels of impulse and peak force to decelerate.** A lack of deceleration capacity may lead to increased risk of injuries like ACL ruptures.

The hamstrings provide **significant posterior shear force** during side-step cutting, directly opposing anterior tibial translation.



The **Quadrant of Boom 2** is a framework that combines **sprint momentum and eccentric hamstring strength** to assess an athlete's performance and injury risk.



How to calculate **sprint momentum:**

Athlete Body Mass (kg) × **10m Sprint Speed (m/s)**

Reference lines for quadrants can be created from:

Median values from participant data

Research-informed **cutoffs**

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