

Introduction

Although force platforms have become a more common assessment tool across collegiate programs due to decreased cost, there is limited research investigating the differences between starters and non-starters in a countermovement jump. Therefore, **the purpose of this study was to explore the relationship between the discrete variables derived during the countermovement jump and playing status within position groups.**

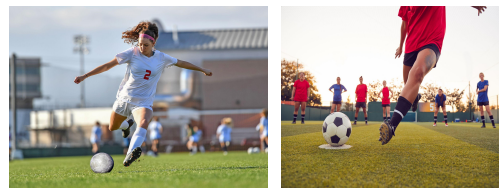
Methods

25 Collegiate Women's Soccer players
 height = 1.66± 0.04m, weight =65.24± 7.45kg
 CMJ and IMTP on bilateral force platforms
 Dynamic Strength index calculated by CMJ peak force divided by peak force of IMTP
 Starters were determined by having played ≥ 633 minutes

Results

Both offensive and midfield non-starters had a better dynamic strength index (DSI) compared to the starters. For the defensive group, the non-starters had greater force production on the mid-thigh pull compared to the starters, in addition to a greater relative braking impulse. However, the defensive starters had greater values for mRSI, peak relative braking force, and peak relative propulsive force. The coefficients for the significant variables, the mean of the starters and non-starter groups, along with the Cohen's D values are in Table 1.

Offense and midfield non-starters had a **better DSI**. However, defensive starters had **greater mRSI, relative braking impulse, peak relative braking force, and peak relative propulsive force.**



Practical Application

Due to the small team size and that the starters on this team were mainly freshmen, the conclusions are appropriate for the data presented here. Other teams' player makeup and playing style could impact the different CMJ variables.

Table 1. Results Table

	Offense DSI	Midfield DSI	Midfield EUR	Defensive mRSI	Defensive IMTP	Defensive Relative Braking Impulse	Defensive Peak Relative Braking Force	Defensive Peak Relative Propulsive Force
Significance	0.035	0.009	0.001	0.059	0.072	0.026	0.036	0.034
Mean Starter	0.904±0.1729	0.799±0.1672	1.3018±0.18326	0.3727±0.08205	0.3727±0.08205	1.927.8±16.5617 N	2.6265±0.35 N	233.14±41.2269 N
Mean Non-Starter	0.774 ± 0.0623	0.6115 ± 0.036	1.1014±0.0417	0.3068±0.0215	0.3068±0.0215	2.134±2.288.26 N	2.9264±0.51 N	214.84±2.9626 N
Cohen's D	1.28	1.85	2.0345	1.00	-0.94	-0.8717	0.5606	1.0393

Conclusions

Within this team, the non-starters typically had better values compared to the starters except for the defensive group's mRSI, peak relative braking force, and peak relative propulsive force. Examining the DSI for the offensive and midfielder group, it demonstrates that non-starters can produce their full force potential during explosive movements. Defensive starters had higher values for mRSI, peak relative braking force, and peak relative propulsive force compared to the non-starters. These values could be a better indicator of athletic performance due to the reactive nature of the defensive position.

References

1.Magrini MA, Colquhoun RJ, Sellers JH, Conchola EC, Hester GM, Thiele RM, et al. Can Squat Jump Performance Differentiate Starters vs. Nonstarters in Division I Female Soccer Players? The Journal of Strength & Conditioning Research. 2018;32(8):2348-55. doi: 10.1519/jsc.0000000000002053. PubMed PMID: 00124278-201808000-00029.
 2.Bishop C, Jordan M, Torres-Ronda L, Loturco I, Harry J, Virgile A, et al. Selecting Metrics That Matter: Comparing the Use of the Countermovement Jump for Performance Profiling, Neuromuscular Fatigue Monitoring, and Injury Rehabilitation Testing. Strength & Conditioning Journal. 2023;45(5):545-53. doi: 10.1519/ssc.0000000000000772. PubMed PMID: 00126548-202310000-00003.

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