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INTRODUCTION

Athlete testing and monitoring has become increasingly common at the collegiate level. Researchers previously compared the countermovement jump (CMJ) performances between NCAA Division I athletic teams and found unique jump strategies for each team (2). Despite these findings, athletes generally perform additional tasks such as changes of direction and upper body movements during competitions. Thus, additional tests may be needed to assess the overall performance of an individual as each test may not be related to another (3). Although some data exist in Division I athletes, further information on NCAA Division III athletes, especially women, is needed. Therefore, the purpose of this study was to compare the differences in CMJ, 5-10-5 (1), and single-arm seated shot put (3) performance between NCAA Division III female athletes who compete in different sports.

METHODS

- This retrospective analysis included 264 NCAA Division III female athletes from various teams including basketball, soccer, softball, and volleyball.
- Athletes attended preseason testing sessions during their 2021-2022 and 2022-2023 seasons which included CMJs, 5-10-5, and single seated shot-put tests.
- CMJs were performed on force plates, the 5-10-5 agility test was performed on a basketball court surface and was measured using a handheld stopwatch, and the shot-put throws were performed using a 4 lb medicine ball.
- A series of one-way ANOVA with Bonferroni post hoc tests were used to compare CMJ heights, 5-10-5 times, and seated shot-put distance between teams.



Figure 1. Counter movement jump sequence.

RESULTS

Table 1. Countermovement jump heights (JH), 5-10-5 times, and seated shot-put distances for NCAA Division III basketball, soccer, softball, and volleyball female athletes.

Teams	JH (cm)	5-10-5 (s)	Shot put (cm)
Basketball	22.6 ± 5.0	5.25 ± 0.27	422.4 ± 46.7 ^c
Soccer	23.1 ± 3.9	5.40 ± 0.32	374.1 ± 50.0
Softball	22.7 ± 4.6	6.00 ± 0.40 ^b	353.5 ± 63.9
Volleyball	26.4 ± 5.2 ^a	5.30 ± 0.21	360.2 ± 27.3

a = significantly greater than basketball, soccer, and softball (p<0.001)

b = significantly greater than basketball, soccer, and volleyball (p<0.001)

c = significantly greater than soccer, softball, and volleyball (p<0.002)

CONCLUSIONS

- The greatest jump height and shot-put performances were produced by the volleyball and basketball teams, respectively.
- The slowest 5-10-5 times were produced by the softball athletes. The differences shown between sports may be explained by the movement patterns unique to each sport.

PRACTICAL APPLICATIONS

- When assessing the performance characteristics of athletes, sports scientists would benefit from acknowledging the unique movements performed within each sport.
- Incorporating regular performance monitoring may provide an indication of what characteristics may need to be improved.

REFERENCES

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Figure 2. Seated shot-put throw.



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