

THE IMPACT OF SPEED AND CHANGE OF DIRECTION ABILITY ON PLAYING TIME IN NCAA DIVISION 1 WOMEN'S SOCCER

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PURPOSE

- Women's soccer is a multi-directional sport that has multiple positions, and each position has specific tasks.
- Nearly every position in this sport needs to be able to achieve high velocity in sprinting and be able to change direction quickly.
- The purpose of this study was to evaluate if there are differences in sprinting and change of direction ability between positions as well as between skill level.



METHODS

- Subjects were 16 current student athletes on the soccer team (n=16, height= 1.67± 0.07m, age= 19.19± 1.05 years, body mass= 64.97± 8.15kg).
- Subjects performed two 30m sprints from a two-point stance using timing gates. An initial trigger gate was set used to start the sprint with additional gates at 5m, 10m, 20m, and 30 m.
- Two 505 tests for each direction. An initial start line was used. Subjects performed 2 505 change of direction tests per side. Subjects had 10m to build up to maximal speed before they crossed a timing gate which triggered the timer. The subjects then sprinted 5m, touching or crossing a line with their foot before performing a 180° turn and sprinting back through the initial timing gate.

Variable	Mean Starter (SD)	Mean Non-Starter (SD)	P	Observed Power	Effect Size (Cohen's D)
Force	10.53± 1.29 N	10.83± .81N	0.963	0.050	-0.42
Velocity	7.54± .34m/s	7.24± .48m/s	0.581	0.082	0.91
Power max	19.81± 2.03W	19.58± 1.72W	0.751	0.061	0.03
Max Speed	7.34± .28m/s	7.06± .43m/s	0.573	0.084	0.91
5m	1.22± .05s	1.24± .04s	0.329	0.157	0.00
10m	2.05± .06s	2.06± .07s	0.940	0.051	-0.16
20m	3.42± .07s	3.48± .12s	0.505	0.098	-0.36
30m	4.77± .10s	4.82± .17s	0.576	0.083	-1.53
505 Right	2.27± .08s	2.20± .11s	0.558	0.087	-0.19
505 Left	2.24± .08s	2.20± .08s	0.275	0.185	0.43
CODD	0.22± .11s	.13± .10s	0.627	0.075	-0.09
Right					
CODD Left	0.20± .09s	.14± .10s	0.284	0.180	0.57

RESULTS

- The results are listed in Table 1

CONCLUSIONS

- While there were no statistical differences between better and lesser players among the tested variables on the sprint and change of direction test, this may be due to the smaller sample size. However, while not statistically significant, maximum speed, in terms of the velocity, max speed, and 30m time all had large effect sizes(D>.91). Among the literature relevant to the age and sport, sprint speed was the major variable that differentiated great from good or lesser qualified players. Interestingly, for change of direction, while the change of direction deficit to the right had a minimal effect, the change of direction to the left had a moderate effect (d=.57). The reason for one direction being significant and the other not may be related to not everyone participating in testing due to injury or eligibility issues. While statistical significance was not achieved, the large effect size of the sprint variables pays credence to the potential differentiating impact that sprint speed has on playing ability.

PRACTICAL APPLICATION

- While change of direction and sprint speed are both important components to playing time, it appears that more time should be spent on speed development to enhance performance.
- Non-contact ACL tears occur during changes of direction, so this should be included to prevent injuries.