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Weight does relate to sprint performance as treadmill resistance increases.

Differences did not exist between position groups during treadmill sprint performance.

Title: Impacts of Weight and Position on Treadmill Sprinting Speeds in Football Players

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Background

Strength and conditioning has become an essential, off-season element of preparation for professional football players. Incorporated in these strength and conditioning protocols includes weightlifting, plyometric training, agility drills, and sprinting. Current trends in sprint training have included the application of resistance utilizing a non-curved, non-motorized treadmills. Previous research has demonstrated correlations between non-curved, non-motorized treadmills and specific aspects of the 36.58 m dash (40-yard). There is a lack of research exploring the impacts of weight and position in regards to treadmill sprinting speeds. Therefore, we proposed to compare sprinting speeds during different settings of non-curved, non-motorized treadmills between positions. We also proposed to explore relationships between weight and peak sprinting speeds.

Figure 1: Sprinting bout on a non-curved, non-motorized treadmill (SHREDmill, Boca Raton, FL, USA

Materials and Methods

13 male, professional football players (26.9 ± 3.1 years, 183.2 ± 8.4 cm, 97.6 ± 12.2 kg), with previous training utilizing a non-curved, non-motorized treadmill were tested during off-season training. The football players were randomized and counterbalanced between four different sprinting bouts on a non-curved, non-motorized treadmill (SHREDmill, Boca Raton, FL, USA). Those sprinting bouts included settings of a 15% incline and a resistance of eight (15R8), a 15% incline and a resistance of five (15R5), a 20% incline and a resistance of three (20R3), and a 20% incline with a resistance of 1 (20R1). Sprinting speed (m/s) was documented for each of the four non-curved, non-motorized bouts.

Results

All descriptive data including age, height, weight, and sprinting speeds was calculated for the group of male, professional football players. T-test analysis was utilized to compare sprinting speeds between position groups at different incline/resistance settings. T-test results demonstrated non-significant findings for sprinting speeds between position groups (Skill vs. Big Skill) at 15R8 (P = .304), 15R5 (P = .118), 20R3 (P = .542), and 20R1 (P = .295). Correlations analysis demonstrated significant strong positive relationship between weight and 15R8 (r = 0.784, P = 0.002). Correlations analysis also demonstrated a strong positive relationship between weight and 15R5 (r = 0.805, P < 0.001). No other relationships existed (P ≥ 0.05).

Subjects	Age (yrs.)	Height (cm)	Weight (kg)
N=13	26.9±3.1	183.2±8.4	97.6±12.2

Table 1: Participant Data

Treadmill Settings	Peak Speeds (m/s)	P-Value
15R8	Skill 6.5±0.2 Big Skill 6.9±0.3	P = .304
15R5	Skill 7.0±0.2 Big Skill 7.4±0.4	P = .118
20R3	Skill 7.7±0.3 Big Skill 7.7±0.2	P = .542
20R1	Skill 8.2±0.1 Big Skill 8.2±0.2	P = .295

Table 2: Between Group Analysis *denotes significance P ≤ 0.05

	15R8	15R5	20R3	20R1
Weight (kg)	R=.784 P= .002*	R=.805 P< .001**	R=.190 P= .533	R=-.080 P= .794

Table 3: Correlations Analysis *denotes significance P ≤ 0.05 ** P < .001

Conclusions

Our data demonstrates non-significant differences between position groups and sprinting bouts utilizing a non-curved, non-motorized treadmill in football players. Our data demonstrates relationships between weight and two bouts of incline/resistance settings (15R8, 15R5). These findings may provide better application to non-curved, non- motorized resistance settings in relationship to football player weight.