BODY COMPOSITION DIFFERENCES BETWEEN BIG SKILL POSITION GROUPS OF FCS AND FBS AMERICAN COLLEGE FOOTBALL TEAMS

K. Hines[1,3], A. Rodriguez[2], M. Spillane[2,3]
[1]Texas A&M University,[2] Sam Houston State University,[3] McNeese State University

Purpose

Purpose: This study assessed the body composition differences between the big skills/mids position groups from a Division I FBS team to a Division 1 FCS American football team.

Methods

Sixteen (n=16, 7 FBS and 9 FCS) American football players that would be considered a part of the big skills or mid group (LB, OLB, TE) participated in the study. The participants arrived at the lab in the morning (0500-1000) in a fasted state (>10 hours). Anthropometric and body composition measurements were taken via Dual-Energy X-ray Absorptiometry (DXA), and height was measured via an ultrasonic stadiometer. Fat mass ratio is calculated by dividing trunk fat percentage by leg fat percentage. Data was analyzed using an independent sample T-Test (SPSS 28.0.0.0) with normality checked by Levene's test for equality of variances. Cohen's d effect sizes were calculated for each body composition value.

Results

Means and standard deviations can be found in Table 1. The T-test analysis revealed no significant differences for height (p=0.258, d=0.595), weight (p=0.925, d=0.048), body mass index (BMI) (p=0.432, d=-0.407)total percent fat (p=0.352, d=0.485), waist circumference (p=0.998, d=-0.001), and fat mass ratio (p=0.141, d=-0.787). However, there was a significant difference in cavity width (p=0.025, d=0.-1.260), and outer wall width (p=0.007, d=-1.600). In addition, visceral fat (VFAT) area (p=0.099, d=-0.890), VFAT mass (p=0.099, d=-0.890), and VFAT volume (p=0.099, d=-0.890) although not significant would be considered a trend.

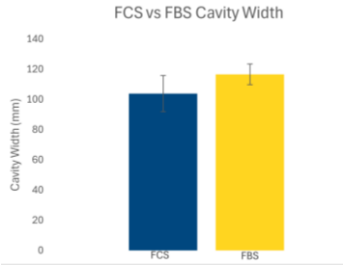
Table 1. Results Table

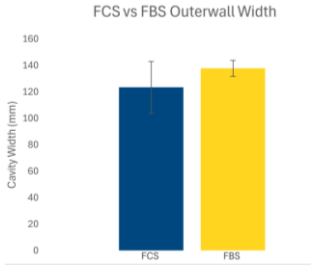
Table 1. Body Composition Values

Metrics	FCS Mean	FCS Standard Deviation	FBS Mean	FBS Standard Deviation
Height (cm)	187.4238	5.93709	184.0429	5.33193
Weight (kg)	103.1217	10.49591	102.6714	7.46921
Body Mass Index (kg/m^2)	29.3593	2.72017	30.2998	1.60335
Total Percent Body Fat (%)	20.7712	3.33901	18.7919	4.90072
Waist Circumference (cm)	98.642	7.4579	98.6515	7.76638
Fat Mass Ratio	0.8088	0.08978	0.8903	0.11958
Cavity Width (mm)	103.8889	11.93152	116.5714 *	6.82781
Outer Wall Width (mm)	123.4444	10.56067	137.7143 *	6.07493
VFAT Area (cm^2)	63.2409	21.2822	82.1175‡	21.11926
VFAT Mass (g)	304.9025	102.60757	395.9117‡	101.82198
VFAT Volume (cm^2)	329.6243	110.9271	428.0127‡	110.07781

*= significantly greater than FCS group ($p < 0.05$), ‡= trend of being greater than FCS group ($0.05 < p < 0.1$)

Figures





Conclusions

This data reveals that the big skills groups don't differ in common body composition parameters, like total body fat percentage, weight, waist circumference, and fat mass ratio. However, FBS players had a larger abdominal cavity and outer wall width, along with the VAT trends, it can be concluded that FBS players have increased cavity width to house greater VAT. Although waist circumference and body fat percentage were not different, FBS players had a greater cavity size to house a higher amount of VFAT that could possibly provide them additional organ protection. A larger sample size would aid additional investigations to examine if there is a significant difference in VFAT values between groups, as well as the fat mass ratio, which had a 9.5% difference, and the incorporation of blood samples to further investigate cardiometabolic health effects of increased VFAT in football players.

Practical Application

This data can provide additional insight that highlights differences between skill levels of players as well as highlights the additional awareness both strength and conditioning coaches and athletic trainers need to maintain for big skill players at FBS schools due to heightened levels of VFAT.