

RELATIONSHIP BETWEEN AGILITY AND BODY FAT PERCENTAGE OF RUGBY PLAYERS

K.P.I. Silva*, M.A.S. Udayanga, S. Weerasinghe, A.M.G.C.P. Adikari and L.H.M.P. de Silva

Department of Sports Science, University of Sri Jayewardenepura, Nugegoda, Sri Lanka

**pasindusilva@sjp.ac.lk*

Agility is an essential skill in rugby. It is important to look at the factors affecting players' agility levels so that players can be better prepared for competition. However, the lack of bio-motor data is a hurdle in incorporating proper performance analysis in skill development and implementation of training systems by coaches. Hence, this study was designed to initiate a systematic collection of performance data and to assess the relationship between body fat levels and player agility levels using the data collected. The participants were subjected to an inclusion criterion and were given a familiarization session. The relevant body composition measurements (Bodivis Bio-impedance BMR Body Composition Analyzer BCA-2A) were taken. The participants underwent a structured warm-up session consisting of light treadmill running and mobility, and dynamic stretching. Finally, the Modified Change of Direction and Acceleration Test (M-CODAT) was administered. Twenty-five total participants (Forward =13, Back =12) took part in the study and had an average M-CODAT time of 5.46 ± 0.40 s. Strong positive correlations were observed between M-CODAT test times and body fat percentages ($r=0.644$, $p=0.001$), left arm fat ($r=0.581$, $p=0.002$), right arm fat ($r=0.619$, $p=0.001$), trunk fat ($r=0.606$, $p=0.001$), left leg fat ($r=0.569$, $p=0.003$), and right leg fat ($r=0.634$, $p=0.001$). Additionally, a strong negative correlation was recorded between M-CODAT test times and fat-free mass percentage ($r=-0.644$, $p=0.001$). The findings indicated that upper body fat levels, along with trunk and lower body fat levels, significantly affect player agility. These findings suggest that player agility could be improved by maintaining lower fat levels in the entire body, which may result in improved rugby performance.

Keywords: Agility, Body composition, Fat levels, Performance, Rugby