The role of anthropometric, growth and maturity index (AGaMI) influencing youth soccer relative performance

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ABSTRACT

The main purpose of this study was to develop Anthropometric, Growth and Maturity Index (AGaMI) in soccer and explore its differences to soccer player physical attributes, fitness, motivation and skills. A total 223 adolescent soccer athletes aged 12 to 18 years old were selected as respondent. AGaMI was develop based on anthropometric components (bicep, tricep, subscapular, suprailiac, calf circumference and muac) with growth and maturity component using tanner scale. Meanwhile, relative performance namely physical, fitness, motivation and skills attributes of soccer were measured as dependent variables. The Principal Component Analysis (PCA) and Analysis of Variance (ANOVA) are used to achieve the objective in this study. AGaMI had categorized players into three different groups namely; high (5 players), moderate (88 players) and low (91 players). PCA revealed a moderate to very strong dominant range of 0.69 to 0.90 of factor loading on AGaMI. Further analysis assigned AGaMI groups as treated as independent variables (IV) and physical, fitness, motivation and skills attributes were treated as dependent variables (DV). Finally, ANOVA showed that flexibility, leg power, age, weight, height, sitting height, short and long pass are the most significant parameters statistically differentiate by the groups of AGaMI ($p<0.05$). As a summary, body fat mass, growth and maturity are an essential component differentiating the output of the soccer players relative performance. In future, information of the AGaMI model are useful to the coach and players for identifying the suitable biological and physiological demand reflects more comprehensive means of youth soccer relative performance. This study further highlights the importance of assessing AGaMI when identifying soccer relative performance.

KEYWORDS:

Anthropometry; Gallium compounds; Health; Motivation; Physiological models