

Using Fuzzy Logic Decision Support System to Predict the Lifted Weight for Students at Weightlifting Class

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Abstract : This study aims at being acquainted with the using the body fat percentage (%BF) with body Mass Index (BMI) as input parameters in fuzzy logic decision support system to predict properly the lifted weight for students at weightlifting class lift according to his abilities instead of traditional manner. The sample included 53 male students (age = 21.38 \pm 0.71 yrs, height (Hgt) = 173.17 \pm 5.28 cm, body weight (BW) = 70.34 \pm 7.87.6 kg, Body mass index (BMI) 23.42 \pm 2.06 kg.m-2, fat mass (FM) = 9.96 \pm 3.15 kg and fat percentage (% BF) = 13.98 \pm 3.51 %.) experienced the weightlifting class as a credit and has variance at BW, Hgt and BMI and FM. BMI and % BF were taken as input parameters in FUZZY logic whereas the output parameter was the lifted weight (LW). There were statistical differences between LW values before and after using fuzzy logic (Diff 3.55 \pm 2.21, P \geq 0.001). The percentages of the LW categories proposed by fuzzy logic were 3.77% of students to lift 1.0 fold of their bodies; 50.94% of students to lift 0.95 fold of their bodies; 33.96% of students to lift 0.9 fold of their bodies; 3.77% of students to lift 0.85 fold of their bodies and 7.55% of students to lift 0.8 fold of their bodies. The study concluded that the characteristic changes in body composition experienced by students when undergoing weightlifting could be utilized side by side with the Fuzzy logic decision support system to determine the proper workloads consistent with the abilities of students.

Keywords : fuzzy logic, body mass index, body fat percentage, weightlifting

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