



JOURNAL OF EXERCISE SCIENCE AND PHYSIOTHERAPY

Indexed, Peer Reviewed, Referred

Since 2005



Age-Related Variations in Body Height, Weight and Body Circumferences among Preadolescent Boys: A Cross Sectional Study

Manoj Kumar Goyal and Ashok Kumar

Abstract

Aim: The present study aimed to assess age-related differences in body height, weight, and body circumferences among preadolescent boys and to observe the significance of these differences across age groups. **Materials and Methods:** A cross-sectional study was conducted on 1040 preadolescent boys aged 6 to 12 years. Body height, weight, and seven anthropometric circumferential measurements were recorded - chest, upper arm, forearm, thigh, calf, waist, and hip. Descriptive statistics including mean and standard deviation were computed for each age group. One-way analysis of variance (ANOVA) was performed to determine overall age differences, followed by Scheffe post hoc tests for pairwise comparisons. **Results:** All variables increased significantly with age ($p < .001$) from 6 to 12 years. Mean height increased from 112.24 ± 6.2 cm at 6 years to 143.59 ± 7.3 cm at 12 years, and mean weight from 19.10 ± 1.6 kg to 42.79 ± 6.0 kg. ANOVA revealed significant differences for height [$F(6, 1033) = 457.33$], weight [$F(6, 1033) = 564.45$]. The mean chest circumference increased from 57.00 ± 0.08 cm at age 6 to 70.66 ± 1.26 cm at age 12. Waist circumference demonstrated the largest absolute increase from 51.60 ± 0.09 cm to 65.54 ± 1.54 cm. ANOVA revealed statistically significant differences across age groups for all variables - chest $F(6, 1033) = 1789.03$, $p < .001$; waist $F(6, 1033) = 1620.10$, $p < .001$; hip $F(6, 1033) = 1148.03$, $p < .001$, among others. Scheffe post hoc analysis indicated that most pairwise age comparisons were significant ($p < .05$). However, non-significant differences were observed between 11 and 12 year for upper arm, calf, and hip circumferences, suggesting a plateau in growth in late preadolescence. **Conclusion:** The findings indicate that body height, weight, and body circumferences increase significantly with age from 6 to 12 years during preadolescence, with trunk circumferences showing greater growth compared to limb circumferences.

Manoj Kumar Goyal

Ph.D. Scholar

Department of Sports Science

Punjabi university Patiala (Punjab) India

E-mail: manojkgoyal23@yahoo.in

Ashok Kumar

Professor

Department of Sports Science

Punjabi university Patiala (Punjab) India

Key words: Anthropometry; Body circumference; Pre-adolescent boys; Growth

DOI: 10.18376/jesp/2026/v22/i2/47765