



Skeletal And Chronological Age Relationship In Young Soccer Players Prior To The Growth Spurt

Presenting author: Artemii Lazarev,¹ MD
Eduard Bezuglov,^{2,3} MD, Anton Emanov,³ Georgiy Malyakin,^{2,3} MD,
Ryland Morgans,² MD, Elizaveta Kapralova,² MD, Vyacheslav Kolesnichenko,³ Andrei Burlakov³

1. Mount Sinai Hospital, Chicago, IL
2. Sechenov First Moscow State Medical University, Moscow, Russian Federation
3. High Performance Sports Laboratory, Sechenov First Moscow State Medical University, Moscow, Russia

**2024 AMSSM
ANNUAL MEETING
13 - 15 APRIL 2024**

**BALTIMORE CONVENTION CENTER
BALTIMORE, MD**

Purpose:

to correlate the relationship between skeletal and chronological age in soccer players from elite and sub-elite youth soccer academies and to assess any differences between competition standards before the growth spurt.



Methods and Study Design:

this cross-sectional study involved 51 elite (age 139 \pm 5.8 months, height 152.2 \pm 12.8 cm, weight 41.0 \pm 12.8 kg, BMI 17.6 \pm 3.7 km/m²) and 103 sub-elite (age 140 \pm 6.8 months, height 150.2 \pm 14.2 cm, weight 39.9 \pm 12.5 kg, BMI 17.5 \pm 3.8 km/m²) youth soccer academy players. Anthropometric measurements, somatic maturity status (Khamis-Roche Formula), and skeletal age were calculated.

Results:

chronological age, weight, and height were comparable across both groups. Skeletal age in both elite and sub-elite groups was significantly higher than chronological age (146 \pm 11.7 months, $p=0.037$ and 142 \pm 12.1 months, $p=0.042$ respectively). Moreover, skeletal age was significantly higher in elite than sub-elite players ($p=0.031$). The somatic maturity status was higher in the elite group of soccer players when compared with the sub-elite group (81.6 \pm 2.5 % and 80.4 \pm 2.7 %, respectively, $p=0.014$).



Conclusions:

the skeletal age of young soccer players from elite and sub-elite youth academies is significantly higher than the chronological age before the growth spurt. Elite players demonstrated higher skeletal age and somatic maturity than sub-elite players.

Significance of Findings:

the skeletal age of young soccer players from elite and sub-elite youth academies is significantly higher than the chronological age before the growth spurt. Elite players demonstrated higher skeletal age and somatic maturity than sub-elite players.

