

**3° Jornadas Nacionales de actividad física
y deportiva en el niño y el adolescente
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Sede: Centro de Docencia y Capacitación Pediátrica "Dr. Carlos A. Gianantonio"

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Success in youth sport is underpinned by a range of age- and maturation- related factors which influence performance in a gender- and sport-specific manner. Biological clocks run at different rates and during adolescence boys who mature early are taller, heavier, and more muscular than boys of the same chronological age who mature later. Earlier maturing boys benefit from a marked increase in strength during late adolescence. The muscle enzyme profile needed to promote the anaerobic generation of energy is enhanced as children move through adolescence into young adulthood and this is reflected by a surge in anaerobic performance, particularly in boys. Aerobic fitness benefits from age- and maturation-related increases in stroke volume and muscle mass. As selection for youth sport is based on chronological age, few later maturing boys are successful during early adolescence. Earlier maturing girls do experience an adolescent spurt in physiological processes such as muscle strength and muscle power which promote sport-performance but the differences in physical and physiological characteristics associated with maturity are less pronounced in girls than in boys. The linear physiques, with less weight for height, less fatness, relatively longer legs and lower hip-to-shoulder ratios of later maturing girls are more suitable for success in some sports. Elite young athletes present higher levels of fitness than their untrained peers. Young athletes of both sexes engage in intensive training from an early age but there is no convincing evidence to show that training affects the timing or tempo of growth and maturation. The presence of overtraining syndrome in elite young athletes is, however, now recognized. This presentation will use recent insights into developmental exercise physiology to analyze the physical and physiological characteristics of elite young athletes. It will also comment on the challenges faced on the journey from playground to podium.