YOUTH SPORTS
GROWTH, MATURATION AND TALENT

MANUEL J. COELHO E SILVA
ANTÓNIO J. FIGUEIREDO
MARIJE T. ELFERINK-GEMSER
ROBERT M. MALINA
EDITORS

2.ª EDIÇÃO
INTRODUCTION

Biological maturation is the process that marks progress toward maturity or adulthood. The process varies in tempo, i.e., rate, and timing, i.e., when certain events occur. Inter-individual differences in the tempo and timing of maturation are considerable. Differences among methods for assessing maturation are also apparent and can be considerable. Maturation of the skeleton spans the entire interval from the prenatal state to a fully ossified or mature skeletal. Sexual maturation refers to the secondary sex characteristics which become initially apparent in late childhood and progress towards the mature state during the adolescent years. As used in growth studies, somatic maturation refers to either the percentage of mature height attained at a given age or the timing of maximum growth in height during the adolescent spurt. When a youngster is observed at a single point in time, indicators of skeletal or sexual maturation provide a record of his/her maturity status. Longitudinal observations that span adolescence are needed to obtain an estimate of somatic maturation (Malina et al., 2004). Protocols for the estimation of mature or adult height have a long tradition in growth studies, but prediction equations required an estimate of skeletal age. More recently, equations for the prediction mature height that do not require an estimate of skeletal age and for the prediction of age at maximum growth in height (peak height velocity) have been developed (Roche et al., 1983; Khamis & Roche, 1994; Mirwald et al., 2002). Skeletal, sexual and somatic maturation are reasonably well-related during adolescence (Nicolson & Hanley, 1953; Bielicki et al., 1984; Bayer and Bayley, 1959; Malina et al., 2004); however, studies incorporating estimates of somatic maturation based on the more recently developed prediction protocols are not available.