Objective: To evaluate the effect of overweight and obesity on the sexual maturation (SM) in boys and girls. The objective of the study was to verify the hypothesis that obesity is associated with pubertal timing. Methods: We investigated pubertal development of 472 boys and 560 girls 12-18 yr of age participating in a cross-sectional survey in Moscow, who had complete anthropometry (weight, height, BMI) and SM data. The pubertal stages were determined by visual inspection, using Tanner's criteria. Overweight was defined as a body mass index (BMI) >=85th percentile, and obesity >=97th percentile. A high agreement was found between the pubic hair stages and stages of pubertal (genital and breast) development, but slightly more in boys than in girls. Based on each individual's age and SM status (Tanner stages: pubic hair for boys and breast stages for girls), the subjects were classified as: 1) early matures (those who reached a certain Tanner stage earlier than the median age for that stage), and 2) the others (average and later matures). Results: End of puberty in a population of adolescent of Moscow occurs in the terms corresponding modern parameters, specified in works of the European authors and the USA: median age at menarche was 12.4 yr [11.3; 13.5], breast stages 5 for girls was 16 yr [15; 17], pubic hair stages 5 for girls was 15 yr [14; 16]. Age of menarche was dependent on height, weight, and body mass index. The median age at which the various stages of pubertal development of girls were observed has decreased from 12.9 to 12.4 during the period 1989-2005. Pubic hair stages 5 for boys was 16 yr [16; 17]. Early SM was positively associated with overweight and obesity in girls, but the associations were reverse for boys. The increase of the age at stage G2 and Pb2 of overweight and obese boys is probably owing to high basal level of E2 and SHBG. However this phenomenon does not influence late stages of puberty at overweight and obese boys. Conclusion: Maturation status should be taken into consideration when assessing child and adolescent obesity. Obesity is associated with sexual maturation in both boys and girls, but the association differs. There is positive association in girls, but a negative one in boys.