

# Abstract

## *Structure of performance in high jump*

**Thesis objectives:** Structure of performance in high jump, to monitor somatotype by means of anthropometric examination; condition factors by means of motoric tests; elements of technique by creating a kinematic 3D analysis and psychic factors on the basis of completed global personality profile questionnaires. To evaluate the results of all individual high jumpers as a whole confront and those with theory.

**Method:** To obtain somatotype data we applied a modified Sheldon's method – the Heath-Carter method - in specialized laboratory using the WELLNESS software. Condition factors were determined by means of selected motoric tests and measurements suitable for high jump (30 m flying start, 50 m standing start, 5standing jumps on take-off leg, 5standing jumps on nontake-off leg, 10standing jumps bounding, standing high jump, high jump – scissors, high jump from four strides, shot backwards over head, vertical hop-up with run-up). Using the APAS software we performed a kinematic 3D analysis of technique. Psychic factors were observed using the psychological module developed by Casri Prague, a sport research institute, in cooperation with of Prof. O. Mikšík, DrSc.

**Results:** As regards somatotype two ectomorph-mesomorphs, one mesomorph-ectomorph, one well-balanced ectomorph and one ectomorph-endomorph were identified. The athletes' proportion of active body mass ranged from 89 to 93%. In motoric tests the youngest high jumper (15) achieved the best values in velocity (30 m flying start – 3.50 s) and in jumping explosiveness (10standing jumps bounding – 24.46 m), on the contrary one of the oldest high jumpers (17) had the best results in preparation jumps (standing high jump – 126 cm; scissors – 144 cm; high jump from 4 strides – 159 cm). In high jump technique considerable interindividual differences were identified e.g. the horizontal velocity of centre of gravity in last stride ranged from 5.23 to 6.5 m/s, the initial flight angle of centre of gravity perpendicular to the mat from 45.5 to 53° and the angle of the body lean from crossbar at the end of take-off could be determined in two high jumpers, the remaining leaned forward to the crossbar. The most frequent temperament was extroverted choleric (3 cases).

**Keywords:** sports performance, high jump, condition, technique, psychic.