The purpose of this work was to prepare a model for training elite handball players that would allow anticipating a model of sport performance. One alternative experiments of training Kaunas Granitas team have been pursued every year during the period of 1981–2006. Change of training program content and extent of loads made an essence of the experiments. Kaunas Granitas handball team has trained and participated in matches averagely 251±30 days during the season; it has trained 309±60 training sessions, played 98±8.4 matches; the total load falling on them consisted of 857±144 hours. Training types formed the following structure (in per cents): integral training (32±2.9%), tactical (26.8±2.1%), technical (20.3±2.4%), physical (13.8±3.1%), and theoretical (7.1±2.5%). Sport performance was characterised by the efficiency of defence (51.4±1.8%), distribution of the position attacks (84±4.7%) and their efficiency (60.7±32%), distribution of the counterattacks (15.2±1.8%) and their efficiency (35±3%). Efficiency of the attack was 46.8±6.4%; distribution of the position attacks (79.1±3.1%) and their efficiency (42.4±3.6%), distribution of the counterattacks (20.9±3.1%) and their efficiency (47.4±3.9%). The most significant effect on the efficiency of the handball team attack and defence had a number of matches played per year. The essential effect on the efficiency of the attack had a number of played matches (r=0.437), a number of training sessions (r=0.457), a number of the training session days (r=0.488). A great link was established between the efficiency of the attack and training hours (r=0.734). A slight effect on the efficiency of the attack had a theoretical training (r=0.312) and a physical training (r=0.323). Essential significance to the efficiency of the defence had an integral training (r=0.425) and a number of played matches (r=0.367). Structure of the training loads and training types expressed in per cent still does not allow establishing precisely handball playing quality and to estimate about sport performance of the team.