

DEVICES FOR TRAINING SWIMMERS AND WATER-POLO PLAYERS

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Training devices for developing specific strength qualities to diagnose special working capacity need to mimic the conditions of the competitive activity. This study developed devices for training swimmers and water-polo players.

KEY WORDS: devices for training, swimming, water-polo, strength qualities.

INTRODUCTION: Numerous problems which occur in the process of training sportsmen connected, including the development of physical qualities, diagnosis of working capacity, and the perfection of technique of the movements are being successfully solved with the help of devices for training (Platonov and Vaytsehovsky, 1985; Dal – Monte and Faina, 1995). This is possible only if the conditions of training are similar to those of the competitive activity of the sportsmen (Counsilman, 1977; Dal – Monte and Faina, 1995).

The aim of the investigations is to establish training devices for swimming which provide training conditions maximally similar to those of the competitive activity of a sportsman.

The device for training swimmers (figure1) consists of: the bed-1, having the possibility to move with the help of the roller-2 along the directings-3, which are fastened to the frame-4 above the baths - 5. The bed -1 is connected with the dynamometer –7 via the rope -6. The device can be used in such a way: a sportsman, being on the bed -1, which has the possibility to move with the help of the rollers-2 along the directings-3 which are fastened to the frame-4 above the baths-5, 'rows' with the hands simultaneously or alternately and moves ahead. The force achieved by the rowing movements of the hands is transmitted to the dynamometer –7 by the rope -6. The work done on the device can be determined by a formula: $A = F \cdot N$, where: F - rowing strength, N - number of rowing cycles.

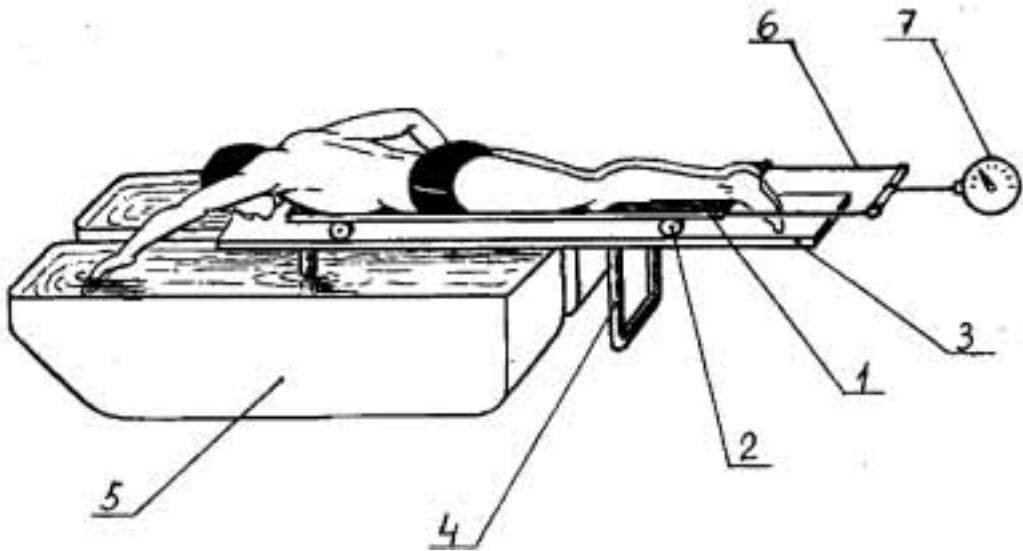


Figure - 1 Device for training swimmers

The device can be used for the development of special strength qualities, diagnosis of special working capacity, the perfection of technique elements and training swimming (Panarin, 1985).

The device for training breaststroke swimmers (figure 2) contains: the external **showel** -1, the inner **showel** -2, tied together by means of the axis -3, which is fastened to the insole - 4, which is also fastened to the foot with the help of the belts -5, the stop of the external **showel** -6, the stop of the inner **showel** -7 and the limits -8.

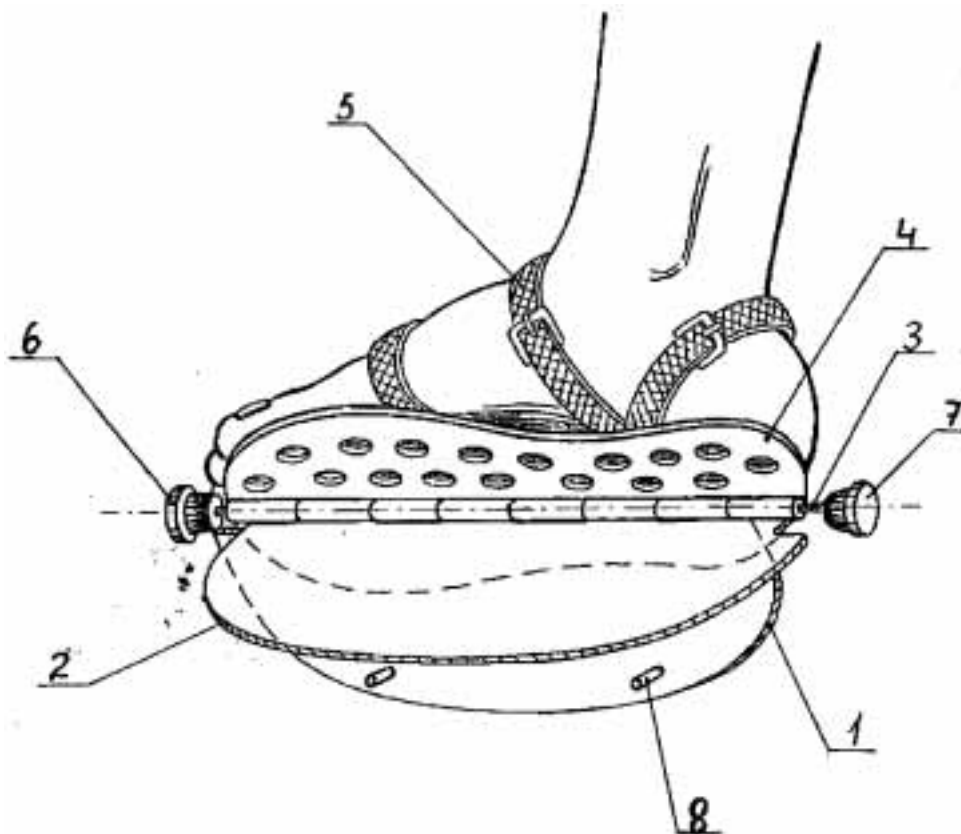


Figure 2 - Showels for the legs of breast-stroke-swimmers

The device is used in such a way that a swimmer, being fastened by the belts-5 on the feet insole-4 on the feet to which the **showels**-1, 2 are hinged, fulfils the movements of the feet of breast stroke. In the moment of pulling the feet the **showels**- 1, 2 are put together to the limits-8 and do not create the resistance for the preparatory movement. At the moment of fulfilling the rowing movement (pushing) the **showels**-1, 2 open and create resistance for the feet movement. The **showels** with the help of the stops-6, 7 can be limited under a certain angle to each other or with the respect to the **showel** which is rotated, giving the possibility to change the size of the loading and its character.

The device permits development of strength of the rowing movements by the feet in breaststroke swimming and also in water-polo.

The device for training water-polo players (figure 3) contains: a spherical surface-1, fastened to the cart-2 having the possibility to move to the contact with the shock-absorber-3, by means of the roller-4 along the directings -5, which are fastened on the posts -6 on the swimming - pool side. The set of loadings -7 is placed in the cart.

The device is used in such a way: a sportsman being in water and putting his palm on the spherical surface-1 fulfils the movement by the hand like in throwing. The cart-2 on which a spherical surface-1 by means of the rollers-4, moves along the directings-5, being fastened on the posts-6 on the swimming-pool board to the contact with a shock-absorber-3 which returns the cart-2 to the initial position. The size of burden is regulated by the loading-7. The speed of the cart movement and the strength throwing are determined with the help of the

registered apparatus. The power of throwing is determined by the formula: $N = F * V$, where F -strength of throwing, V - cart speed. The device permits to perfect technique and develop the strength of throwing by the hand in water-polo.

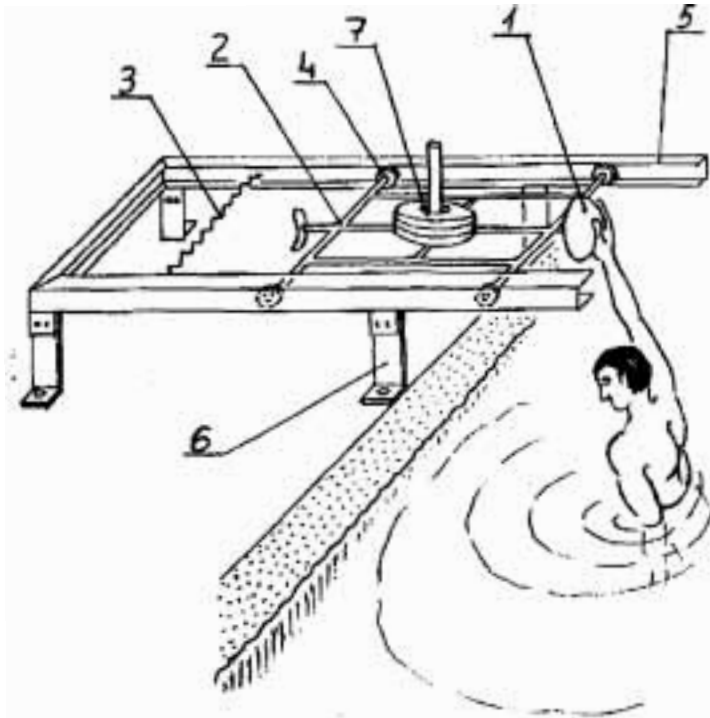


Figure 3 - **Device** for training water-polo players

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