

STRENGTH DEVELOPMENT

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From: Die Lehre der Leichtathletik (West Germany). Vol. 26, No. 11, 1987.

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This very brief synopsis is from an address by Prof. M. Buhle at the International Seminar on Javelin and Hammer Throw in East Berlin in 1987 which attracted considerable interest. His address, based on the scientific work conducted at the University of Freiburg, covered the following important aspects involved in strength development:

The maximal strength, as well as explosive strength, is a basic quality of power. This makes it clear that there is no conflicting influence between maximal strength and power. In other words, a high level of maximal strength has no negative influence on movement speed.

The development of maximal strength takes place in two different ways. On one hand, through an increase of the cross section of the muscle, on the other through the activation of the largest possible number of muscle cells.

Different training methods are used in the development of these two areas. The cross section of the muscle is increased by using a large number of repetitions in strength training. About 12 repetitions, in which the last can just be performed, can be used as a guide. The load ranges between 75 and 85% and the work is carried out until exhaustion.

The development of the activation potential takes place by employing short maximal loads (1 to 3 repetitions) against high resistance (95 to 100%), performed explosively with long recoveries.

A large number of series and repetitions is responsible for a deterioration of the activation potential. This means that the difference between the "theoretically" possible contraction performance of a muscle and the actual contraction structure is very large. ("Strength deficit"). Using the explosive maximal contraction method, on the other hand, allows an optimal exploitation of the activation potential.