

HURDLE EXERCISES IN GENERAL CONDITIONING

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The authors present practically tested hurdle exercises that are suitable for all track and field athletes, as well as hurdle specialists, for the development of speed, strength, flexibility and co-ordination. The article is a slightly edited translation from Legkaya Atletika, Moscow, USSR, No. 7, July 1987. Re-printed with permission from Modern Athlete and Coach.

There is a traditional division of general and specific exercises in track and field. The exercises presented in this text serve both, as general exercises in the preparation period and as specific developmental exercises, useful at all stages of the yearly training cycle in a quality warm-up.

The hurdles exercises described have a varied training effect that depends on the number of repetitions, the height of the hurdles and the distances between them. The selection of one or the other parameter depends largely on the physical and technical stage of preparation of the athlete. The principal advantage of the exercises is in their dynamic execution to develop speed, strength, flexibility and coordination, as well as hurdles technique.

There is another point in favor of the hurdles exercises when used by track and field athletes in general conditioning. It is in the development of power qualities that is rarely possible without a correct relationship between muscular capacity and the durability of tendons and ligaments. The lack of it leads almost certainly to injury.

In order to strengthen the tendon-ligament system (responsible for 14 to 16% of all track and field injuries) it is necessary to perform a large volume of specific exercises with a low intensity and the maximum range of motion. In the following selection of exercises we explain the use of them and give recommendations on the execution.

EXERCISES

Exercise 1

Movement over 10 closely placed hurdles with alternating left and right leg. 10 hurdles, 76.2cm high (fig.1). The task is to develop flexibility in the hip joint and to strengthen leg, back and abdominal muscles.

The exercise is performed slowly over up to 100 hurdles in the preparation period and up to 50 hurdles in a warm-up during the competition period. As the technique improves the hurdle height can be increased. Possible faults include:

- Too much knee bend in the supporting leg (fig. 1a).
- Leaving the pelvis behind (fig. 1a).
- Insufficient flexion of the trail leg over the hurdle (fig. 1b).
- Shoulders leaning backwards over the hurdle.

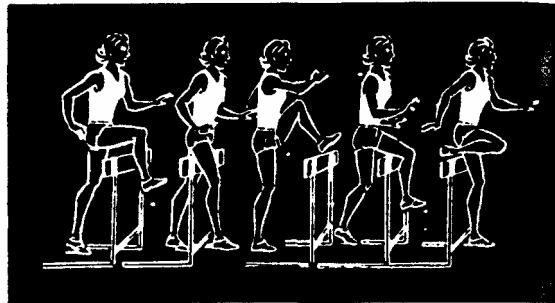
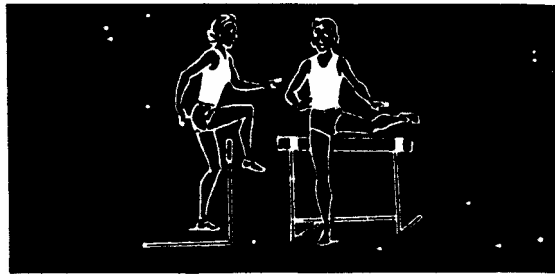


FIG.1.



(a) FIG.1. (b)

Exercise 2

Movement over 10 hurdles at a height of 76.2 to 100cm in hurdling technique. Begin with one leg only clearing the hurdle before changing to proper hurdling (fig. 2).

The task is to develop motor coordination and hurdling technique. The performance speed and the height of the hurdles are gradually increased. Attention is placed on the synchronized arm and leg movements. Possible faults include:

- Moving the lead leg over one side of the hurdle (fig. 2a).
- Squatting on the take-off leg (fig. 1a) and on the landing after the hurdle clearance (fig. 2b).

- The knee of the trail leg fails to reach the vertical (relative to the trunk) before the lead leg is placed (fig. 2b).

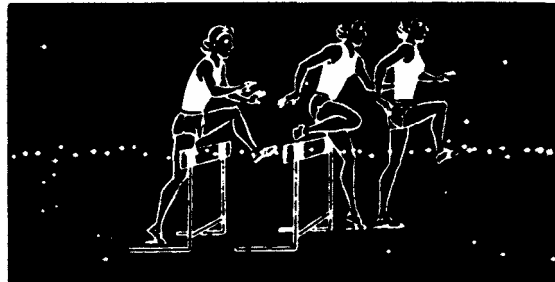
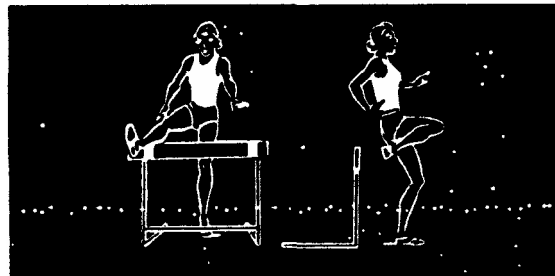


FIG. 2.



(a) FIG.2. (b)

Exercise 3

The same as exercise 1, but performed with a skip over 10 to 20 hurdles (fig.3).

It should be noted that these exercises are usually performed against the clock. It is recommended to perform during the preparation period up to 100 hurdle clearances (5 x 20) at moderate intensity and during the competitive season up to 50 hurdles (5 x 10) at maximal speed. Possible faults include:

- Carrying the trail leg over the hurdle without a maximal bend in the knee joint. "Whipping" the shin forward.

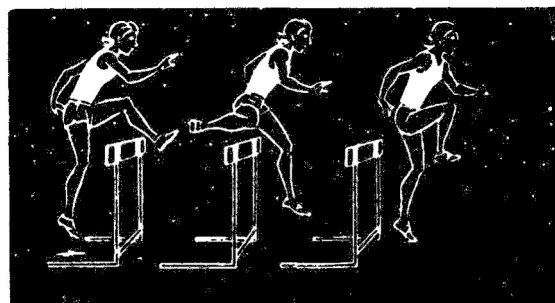


FIG.3.

Exercise 4

The same as exercise 2, but performed with a skip over 10 hurdles 76.2cm high as placed 170 to 200cm apart (fig.4).

The task is to imitate hurdling action with a shortened range of movement and the flight phase. The possible faults are as in exercise 2.

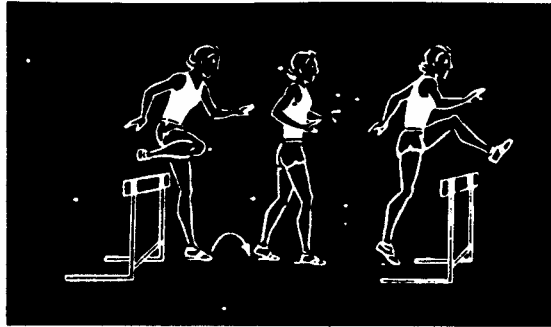


FIG.4.

Exercise 5

Hurdle clearances in which only the trail leg is carried over the hurdles. The hurdles (10) are 76.2 to 91 cm high and placed 120 to 400cm. apart (fig.5).

The task of the exercise is to develop coordination, jumping ability and power that improves the functioning of the foot in sprinting.

The exercise is performed in a one-stride rhythm with the lead leg going on one side past the hurdle. The landing occurs on the lead leg and the athlete remains "high" on the foot to execute the next take-off.

Athletes who have mastered the hurdling technique can perform the exercise with both legs clearing the hurdles. If the distance between the hurdles is shortened to 120-200cm, the lead leg must be grounded faster. In increasing the distance to up to 4m, attention should be placed on a more powerful take-off drive.

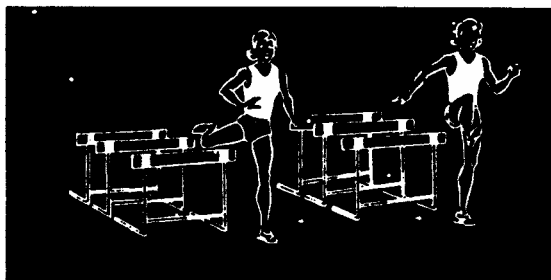


FIG.5.

Exercise 6

Sideways leg lifts over the hurdles, first using the left and then the right leg. There are 10 to 20 hurdles at the height of 76.2 cm, placed close to one another (fig.6). The athlete travels sideways in the direction of the movement.

The task of the exercise is to develop the foot muscles and the anterior surface of the thigh.

The exercise is performed with the leg, bent in the knee joint, lifted fast and lowered forcefully. In the preparation period up to 100 repetitions are executed. The number of repetitions is reduced to 50 in the competitive season but the speed of the execution is increased. Possible faults include:

- Lifting a straight leg over the hurdle (fig.6a).

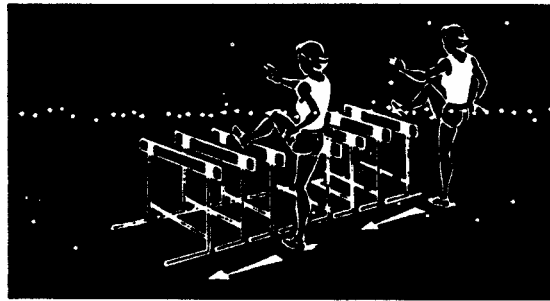


FIG.6.

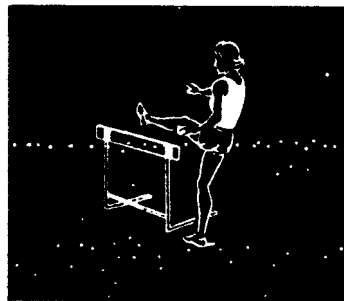


FIG.6a.

Exercise 7

Striding over the hurdles forward-backward-forward. The movement takes place over 10 hurdles at a height of 76.2 to 100cm (fig.7).

The performance is similar to the technique used in exercise 2, but made more difficult by the rotation in the initial position that follows after each clearance. Possible faults include:

- Bringing the lead leg over the side of the hurdle.

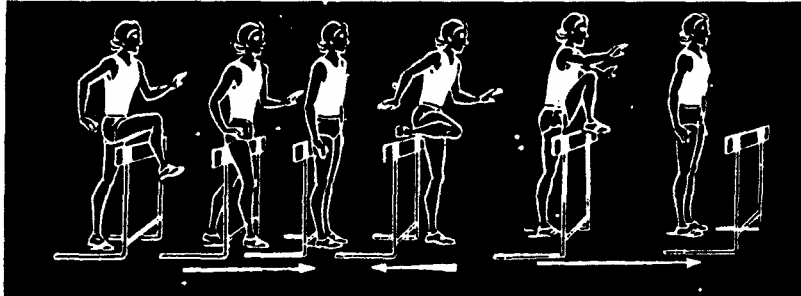


FIG.7.

Exercise 8

Double-legged jumps over the hurdles placed 100 to 150cm apart. The number and the height of the hurdles depends on the preparation level of the athlete (fig.8).

The task of this purely jumping exercise is to develop the muscles of the legs, back and abdomen, with a powerful training effect on the feet.

The exercise is performed energetically, emphasizing pre-tensed landings and the assisting arm action. Possible faults include:

- The legs are carried over the hurdle in a side-ways position.
- The shoulders are falling too far forward in the support phase.

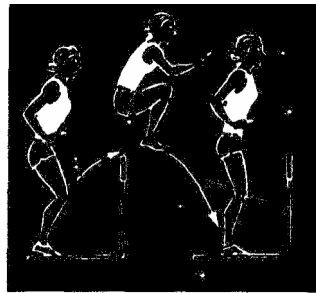


FIG.8.

COMMENTS

It appears that the most effective combination is the use of exercises 1-3 in the first stages of the preparation period.

The number of repetitions in each of the training sessions should not exceed 100 at this stage. After the athlete has mastered the technique of exercises 1-3 and can perform at least 200 repetitions without tension, the height of the hurdles can be increased and exercises 4 and 5 are added to the training program. Attention must now be directed to the technically rather difficult exercise 5 that requires

good physical preparation, It should be limited to only 40 to 50 repetitions in the first sessions.

When the training is aimed to develop speed qualities, it is useful to employ exercises 1, 3 and 4 against the clock. In sessions primarily aiming to develop strength endurance, the most suitable exercises are 3, 5 and 8. The number of hurdles is now increased to 20 at 76.2cm height with an optimal distance of 120cm between the hurdles.

Any of the described exercises, with the exception of exercise 8, can be used as warm-up drills for hurdle specialists in a limited number of repetitions (total of 150 to 200).

In summary, it can be said that all the recommendations are tested in practice and have proved to be successful. With up to 17,000 repetitions performed in a training year the exercises have substantially improved running, strengthened the support tendon-ligament system, raised the power level and increased the stride length through better mobility in the hip joint.