

Slide aerobics in the physical preparation of table tennis players

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Abstract All kinds of aerobic exercise programs are extensively implemented in sports recreation. A trend to increased application of these exercise systems is noticeable in areas of physical education, kinesitherapy, and even in top-quality sport. Aerobics has therefore become generally interwoven through all areas of physical culture. It is well known that aerobic classes of whatever type are powerful training units with regard to the components of the work-out load volume. This explains significant changes in functional, motor and morphological features in individuals participating in systematic aerobic exercising.

The authors present a new form of aerobic training and its basic theoretical premise as a constituent part of physical conditioning. An aerobic training program is proposed that is appropriate as one segment of the physical conditioning of table tennis players.

On the basis of slide aerobics three aerobic training programmes have been designed which are respectively applicable to the three separate phases of the preparation cycle in table tennis. Since this is the first implementation of aerobics in table tennis training, the presented programmes are meant to be executed once within the weekly microcycle framework. The examples of the aerobic programmes are constructed so as to substitute largely for classical activities and forms of training. Since aerobics allows for the accurate determination of training intensity, each work-out session can be precisely programmed according to the fitness of a team. It is also possible to change intensity during work-out. Variations of intensity are produced by music rhythm changes or by changing the intensity of stepping, with no substantial change in choreography that is planned in advance.

(Key words: table tennis, slide aerobics, physical conditioning)

1 Introduction

The criteria for the evaluation of effects of the movement structures in different types of aerobics on primary anthropological dimensions have been, on the one hand, scientifically founded ever since their first application in the

training process both of the top athletes and of recreational participants, and on the other, supported by numerous research results.

After a skyrocketing success of aerobics in the 1980s, new types of this sport have appeared as the result of the wish to keep as many aerobics participants as possible in the gyms, and, on a general basis, to popularize aerobics to the largest possible extent. Some types of aerobics are primarily intended for those who participate in it on recreational basis.

However, aerobics started to make its way into the physical preparation of top athletes. There are two reasons for this: the first is that contemporary sport training demands a variation of content in order to avoid the saturation caused by an unvaried type of training, and the second is that different types of aerobics may be used to develop of some motor abilities more efficiently than may be done by classical methods. The selection of content depends on specific requirements of each particular sport, on working conditions, and also on the level of education of the coach and on his/her readiness to include new methods.

Bodybuilding and its application in the physical preparation of athletes may be used as a historical example. At first, bodybuilding was used in physical preparation of athletes exclusively in strength sports. Only after the bodybuilding method and the components of the training process in bodybuilding had become better known to sport experts were they applied in those sports in which strength is not a prerequisite of good performance. Consequently, today there exists almost no sport which does not, at least in one of its segments, use some of the training methods of bodybuilding.

When aerobics is applied in the physical preparation of athletes, one must bear in mind the motivation of athletes to accept new ideas. This depends, to a large extent, on their conditioning coach. Additionally, it is the coach who will select appropriate movement structures. He/she will do so according to his/her knowledge about the types of aerobic training.

HI/LO and STEP AEROBICS are among the types most frequently applied in the training process of top athletes in Croatia. However, SLIDE AEROBICS is one of those types that are rather rarely applied either in people who exercise on recreational basis or in the training of top athletes. The reason for this may be found both in a relatively small variety of movements in comparison with other aerobics types and in the higher standards regarding the acquisition of the movement technique. Perhaps this might be the very reason why aerobics efficiently influences not only the increase of aerobic capacity, but also the development of the strength of the legs and of the pelvic area, especially the strengths of the small, internal muscles of the pelvis.

2 Basic techniques and methods of work with the athletes

SLIDE AEROBICS is a low-impact type. It is performed on a smooth sliding surface, called the SLIDE BOARD, it would help if we know the dimensions of the board which has plastic stops on both ends. To be able to slide across the board surface an athlete must wear synthetic "socks" that are put over the athletic shoes. From the biomechanical point of view, the slide steps in slide aerobics are

most similar to the basic steps in speed skating. Apart from the basic step, combinations of some steps from classical low aerobics are possible. Because of this characteristic slide aerobics may be applied in the conditioning training in those sports in which lateral movement and repeated changes of movement direction and the height of the body position are frequent, that is, in all sports in which agility is significant for success (tennis, table tennis, skiing, football, basketball, handball ...).

When slide aerobics is applied in the work with athletes, the positive effects are as follows:

- development and improvement of cardiovascular and respiratory systems,
- strengthening and definition of muscles and tendons in the whole pelvic area, as well as strengthening and definition of abductors, adductors and the gluteal muscles,
- increase in muscular strength, balance, co-ordination (agility) and endurance,
- increase in muscle mass and reduction of fat body mass.

Additionally, by applying free weights slide aerobics helps strengthen the muscles of the arms, shoulders and the back. Appropriate weights used should be within the range 1 – 2.5 kg. Arm movements are executed simultaneously with the sliding movements across the slide board, and they are the same as the ones applied in new body aerobics. They should be performed in the tempo that is two times slower than the speed of sliding, so that the movement would be performed correctly, that the amplitudes of the movement would be controlled and that the maximal possible contraction of the muscles would be applied. In this way the possibility of injuries is reduced.

Apart from the possibility of putting the upper part of the body under load, during sliding across the board one may execute specific movements otherwise applied in other sports (throwing and catching a ball, punches and blocks in combative sports, etc.). Since a slide aerobics programme is performed with music at an optimal tempo between 100 and 138 BPM (beats per minute), the techniques specific for a particular sport may be practised in a particular rhythm and at a certain tempo.

Besides, the slide board enables the execution of strength exercises for abductors and adductors, for example the straddling and putting of legs together in the middle of a slide board or the execution of push-ups in such a way that the hands are placed on the stop and the legs simultaneously drawn up during the phase of lifting up the body (which strengthens the hip flexors), etc.

These examples of exercise that can be executed on a slide board lead to the conclusion that slide aerobics may be applied for each category of athletes, and that it may also help achieve the goals in every type of training.

When working with athletes the informative component should not be too high, especially if the goal is to increase the energy-related component of training (intensity). The movements executed on a sliding surface should be performed in a set sequence which should always be respected. Due to the specific characteristics of movement and the possible injuries, the training should be

conducted by an expert (aerobics instructor). If the exercises on a slide board are not done correctly, injuries to the knees, either acute or chronic, may occur frequently.

The basic sliding steps may be executed at three different tempos:

1. SLIDE-STOP – after each slide an athlete stops at the end of the slide board by putting one foot on the stop; the movement is executed at 4 BPM.
2. SLIDE – an athlete moves from one end of a slide board to the other without stopping and at 2 BPM.
3. QUICK SLIDE – an athlete moves from one end of the slide board to the other at 1 BPM and imitates the tempo of speed skaters in the final part of the race.

The application of one of the listed varieties of steps and the changing of tempo may be used to accurately control the intensity of training.

The energy-related component in slide aerobics may also be increased by arm action and by assuming one of the three basic positions during sliding:

1. high position of the body (standing)
2. medium-bent position of the body
3. low (bent) position of the body.

These positions are the basis of all movement in any sport activity.

Beginners in slide aerobics should learn the movements characteristic of this type of aerobics in the following order:

1. slow acquisition of leg movements (sliding),
2. execution of slide steps in a particular fast tempo,
3. slow execution of arm movements (with or without load), at a fast tempo of leg action,
4. execution of arm movements at a faster tempo (at a tempo half as fast or as fast as the speed of sliding).

An aerobics class consists of the same phases as the classes in other types of aerobics:

1. warm-up (this warm-up is not executed on the slide board) with or without prestretching,
2. main (aerobic) part of the class,
3. stretching and relaxing, which simultaneously help improve flexibility necessary for the prevention of injuries in all sports, thus also in table tennis.

3 References

- American council on exercise (1997) Personal trainer manual. A.C.E. San Diego, California.
- American council on exercise (1997) Aerobics instructor manual. A.C.E. San Diego, California.
- Furjan-Mandic G et al. (1995) Primjena aerobike u treningu sportasa. In,

- Proceedings of the International Symposium "Fitnes i sport", (pp. 81-83).
Zagreb: Fakultet za fizicku kulturu.
- Medved R (1980) Sportska medicina. Zagreb, Jugoslavenska medicinska naklada
– Jumeana.
- O'Brien TS (1997) The personal trainer's handbook. USA, Human Kinetics.
- Schwarzenegger A (1998) The new encyclopedia of modern bodybuilding. New
York: Simon and Schuster.
- Sharkey JB (1991) New Dimensions In Aerobic Fitness. Champaign, Human
Kinetics Books.
- Weider J (1999) Muscle & Fitness, publications, USA.