

## Technical Characteristics and Strength Training of Sports Dancing

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**Abstract**—The thesis analyzed the internal mechanism of technique formation of all kinds of dance action in sports dance, and its movement technical features mainly presented in five aspects: First, the control technology to maintain the correct posture; Second, fast and rhythmic bouncing technique of the body weight; Third, the parabolic shape and spiral motion technology of the body center of gravity; Four, strong wiggler technology of hip, waist and abdomen; Five, the rhythm techniques of chest, back, shoulders and arms. Aiming at the technical features for sports dance project, we can summarize the methods and means of training control force, speed strength, strength endurance and relative strength of sports dancing athletes and raise several important principles that should be followed.

**Keywords**- sports dancing; technical features; strength training; training principles

### I. INTRODUCTION

Sports dancing project started late in China, from the status of domestic research, it is still in the level of the project promotion, the history, development, and teaching methods. This paper analyzes the technical characteristics of sports dance project, revealing the inner movement of the start of the project, systematically summarized the training methods, tools, and principles of the athletes for their special strength training, aiming at providing support for the majority of our coaches and athletes of sports dancing.

### II. SPORT TECHNIQUE FEATURES OF SPORTS DANCE PROJECT

#### A. Control technology of posture

Running in the dance, the dancers generate sufficient muscle strength by static contraction to control the neck, shoulders, arms, torso, and other parts of the body, in order to maintain the correct body shape and relatively stable grip hold posture, make part of the body in a natural state, tight but not stiff. If all aspects of the dancers' body muscle strength is not enough, there is not enough capacity to control the various aspects of the body. Then, in the run-time of dance, the dancer's body may occur pursed hip, loose waist or humpback and other undesirable phenomena, it is impossible to ensure that men and women can have a

naturally good interaction and cooperation. Therefore, body control technology is not only aesthetic requirements of sports dancing, but also the technical requirements of modern dance.

#### B. Fast and rhythmic bouncing technique of body weight

Some fast-paced dance, require palm, ankle, knee the three joints to do fast and rhythmic bouncing flexion. This bouncing technique is both light and flexible, and soft inside, there is a feeling of want to send but not completely released. When powering the muscle, often frequently accompanied by light cushioning, this approach not only allows the force to become soft and meaningful, and often reserve elastic potential energy for the fast stretch of next joints. This is the different place of dance from other sports, so we should pay attention to consider this issue when choosing the means of strength training.

#### C. Parabolic shape and spiral motion technology of body weight

This form of exercise is common in waltz and Viennese waltz, the center of gravity will usual make complex multidimensional space movement up and down, back and forth, left and right. When rotated forward, the center of gravity on the one hand should do periodic waves, on the other hand should fight or weaken the centrifugal force, and promote the flow of body sway and better by sideways and shoulder guides technology to create a spiral movement. In doing parabolic movement, foot must have "rolling" feeling, ankle and knee have soft flexion and extension. If the strength of the joints is not enough or the way of powering muscles is not correct, when the trajectory of the center of gravity will be as "ladder" or "jagged nature"; in doing spiral movement, there was a substantial body tilt and swing, in this case, on the one hand, it is required the trunk muscles static contraction to control the spine, in order to avoid excessive deviation from the vertical axis of makeup, and destroy the shape of the body. On the other hand, it is required to stress reflexive techniques to cause the body to produce a rotary, reflexive techniques is the most important technology in modern dance and also the most difficult point to master the technology. In the process of training, the dancers not only need to develop the strength of the ankle, knee, but also to develop hip strength, what's more, to pay attention to the development of both sides of muscles in the waist and spine.

#### D. *Strong wiggler technology of hip, waist and abdomen*

In the rumba, cha-cha, samba and other dance, hip and waist and abdomen do the movement up and down, left and right, forward and backward and switch technology in multidimensional spaces, requiring accurate and coordinated muscle force of hip, lower back. Meanwhile, it has higher requirements on different nature of the force of muscle coordination. Training should select some targeted means to develop these muscles, especially pay attention to the development and strength fast of small muscles and hip deep in the middle of the body muscle.

#### E. *Body rhythm technology formed by rhythmic contraction of muscles in chest, back, shoulder and arm*

This rhythm of technology on the one hand reflects interpretation function of the dance performance in the chest, back, shoulder and hip muscles; on the other hand, the traction generated by the rhythm of the trunk muscles will drive coordinated swing of arms, usually rhythm of the body drives the big arm, arms drive forearms, forearms drive wrist and fingers, and finally extending from the fingertips to the outside space, the wave of body can be integrated with the swing of arms, further increasing the body's interpretation of the features that make the dance look unity.

### III. SPECIFIC STRENGTH TRAINING OF DANCE SPORT

#### A. *Force in sports dancing*

According to sports technical features and different characteristics of the project required by different the power quality dance moves needed, dancers learn and master in order to have superb athletic skills, they must have a certain strength of body control, fast dynamic force and power endurance, meanwhile, sports dance as one of the most beautiful project, also learns to develop dancers' relative strength. Control power of the body can ensure that the dancers can remain stability and balance of the body, and can also ensure that the men and women dancing with the posture of the body is relatively stable and overall beauty; fast dynamic muscle strength is the ability to quickly power play, is the combination of strength and speed. This power is usually in the form of dynamic isotonic contraction, mainly divided into three kinds in the form of expression, that is heart restraint contraction, centrifugal concession contraction and super isometric force contractions. Among them, super isometric force is closest to the characteristics of sports dance.

#### B. *Training methods of special strength in sports dancing*

##### 1) *Static strength training*

Static strength training mainly uses isotonic contraction exercises. Exercise duration and the number of sets of duplicate number is determined by the size of the load intensity. In the process of training, it also needs to choose the means and load strength of exercises according to the role of different parts of the load bearing capacity and the site of the dance and the development status of the running part during practice. Meanwhile, it also needs to pay attention to the development of the dancers body's flexibility.

##### 2) *Speed and Strength Training*

It mainly use super isometric force contractions which do eccentric contraction of the muscles first, then the concentric contraction. This exercise can faster muscle force and obtain better training effect. According to the nature of training and characteristics of force, if the first step of jive steps is divided to dynamic concession and dynamic restrain, then the first half is buffer, the latter half is kicking. Given the muscle force of sports dancing project is not exactly the same as jumping or throwing events of track and field. To develop dancers' rapid strength, usually small loads or loads overcome their weight exercises are used, load intensity is generally maintained at about 30% to 60%, with repetitions for 3 to 5 times, duration of exercise is about 15 ~ 20 min, intermittent time should be considered according to the athletes' resilience and the size of bearing load, usually 1 ~ 3 min is appropriate. In addition, positive relaxation exercises can shorten the recovery time.

##### 3) *Endurance Training of Strength*

It usually uses 25% to 40% of the load strength. On the loading arrangements, it generally requires more repetitions, even to the limit, to reach at least the accumulation of fatigue. The number of repeating groups depends on the level and load strength of athletes. Interval can be controlled by heart rate, usually the heart rate returns to 110 to 120 beats / min, he next set of exercises can be conducted.

##### 4) *Relative Strength Training*

Development of the relative strength commonly used strength training method, which is a method of improving the volume and muscle fibers involved in the work and internal coordination. It requires fast action, high-load strength, but the total load is not large, and the power of dancers can be improved with the premise of effective weight control during training. Research shows that a moderate level of training load, it will obviously increase muscle size; using a larger load of training, will increase strength significantly, but the effect is not obvious in increasing muscle size. Meanwhile, in the development of relative strength, due to the larger strength, and higher demands on the central nervous system, long-term training may cause great psychological fatigue in athletes, so when it is necessary to strictly control the training intensity.

#### C. *Special Strength Training of different body parts*

It can use repeating training method with small load, such as breaststroke, beach running, grass running, continuously rope skipping and so on, until the practice muscles no longer shrink up. Circuit training method can also be used, is about several exercises arranged in a certain order, and strictly control the number of repetitions and groups as well as between the intermittent time, so that the body has been in a state of fatigue, this kind of match can effectively develop muscle strength, but also can improve the athletes' interests. These exercises should be closed to the characteristics of dance. When setting the times of repetition and groups and intermittent time, we should respect the principles of different strength training and athletes' own characteristics and different projects.

*D. Principles of sports dancing strength training should follow*

*1) Specific principles*

The purpose of developing power quality is to improve the special level, so strength training methods and means chose by sports dancing athletes should be highly correlated with the special motion technology, in other words, features of force, range of motion, speed, direction and other elements should match the special nature of dance .

*2) Uninterruptible principle of the System*

For dancers, the strength training is a gradual, long-term and ongoing process. They should follow the law of sports training and sum up their training experience. Studies have shown that athletes having strength training 1 to 2 times a week can keep the power which has been obtained; while 3 to 4 times a week, will be a significant increase in strength.

*3) The principle of individual differences*

Strength training should follow individual differences, not stereotyped. That is according to the physical condition of the players, the ability to withstand load, gender and age differences and technical characteristics and other factors to develop and implement training programs; at the same time, we cannot ignore the physical characteristics of women, with particular emphasis on the development of the woman's arm, back, abdomen, and pelvis and other weak links.

*4) The principle of diversity*

Using the same training methods or the same load training in the same part or the same muscle group for a long time, over time, the body will adapt to this stimulation training, the training effect is not obvious, so phased conversion or adjustment factors training is particularly

important. For example, strength training can be arranged content into a set of small ingenious combination under the accompaniment of music. Training should also involve different kinds of exercises.

#### IV. CONCLUSION

In recent years, according to the training situation of sports dancing athletes in China, many coaches and athletes have insufficient understanding of the importance of special strength training, the principles and methods. Some sports dancing athletes, including high-level players even have no concept of strength training; our sports dancing athletes have made great progress in their skills and expressive force from their performance in international sports dance competition. However, compared with European and American players, in the physical reserves, especially, in the special forces, there is still a large gap. Therefore, we should pay more attention to special strength training of our dancers, and we need to seriously sum up the past lessons in training and competition, continue to recognize the movement of the project, innovate our training methods to form our own set of effective physical training content and methodology.

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