

# The Relationship between Core Training and Modern Dance and The Using Methods of Core Training for Modern Dance

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**Abstract—Purpose:** research using methods of core training for modern dance; **Methods:** research the recent advances about core training and the relationship between core training and modern dance; **Results:** Core training can improve the main technique of modern dance; **Conclusion:** Several core training methods can improve the training standards of modern dance.

**Keywords—**core training; modern dance; relationship; using methods

## I. THE PURPOSE OF THE STUDY

Study on the concept of core strength originated in the core stability research. The concept of core stability first began in the human anatomy and physiology of spinal theory, its main application is in the field of rehabilitation. With the development of research, scientists have found that, the core strength training can not only be used for the field of rehabilitation, but also improve sports level, reduce sports injury. For modern dance so that one to the body center of gravity control have height requirements, mainly rely on the transmission of motion information and power to express dance elements project. The core strength training to improve the athlete body control, improve the sports level, reduce the significance of sports dance major occupation injury.

## II. RESEARCH METHOD

Through the methods of documents, to understand the latest research progress of core strength training.

Through the analysis of modern dance and the technical characteristics and the force method and the source of strength, combined with the theory of core strength training, core strength training on modern dance training and its application method.

## III. RESULTS AND ANALYSIS

### A. Research progress of the force at the core concept

The general research has the understanding: the core usually refers to the human body, including the spine and pelvis and the surrounding muscles. The researchers on the definition of the core muscles are different, the main researchers such as Travis Brown thinks core refers to the human body below the ribs to the pelvic area of the muscle,

back, abdomen and pelvis all muscle groups, including the muscles have abdominal muscles, back muscles, diaphragm muscle, pelvic floor muscle, staggered pelvis and lower extremity muscles. Yu Hongyan thought that the core between the human diaphragm to pelvic floor muscle area, and the muscles of the terminal or starting or stopping point in the region between the muscle group known as the core muscles, so in some muscular thighs as the rectus femoris, stock two myo - as the starting point in the core area and so is listed as the core muscles, so a total of 33 plus 1 diaphragm constitute the core body muscles. The research results are widely accepted: region main body core is composed of lumbar, pelvis, hip circumference and three part structure, according to the classification of the purpose and basis, classification and the number of core muscle also each are not identical.

The core concept, there are many small differences in definition method. So there are also differences in the definition of the core concept. The author thinks, define the methods most of the mainstream of the research results of Li Yongming, Yu Hongjun: the core strength is to stabilize the core parts of the body, the control center of gravity transfer motion, upper and lower extremity strength as the main purpose of the force. It is not only the main strength of the formation of human core stability in sports, and it also can take the initiative to force, is an important source of all sports. Study of Feng Jianjun, Yuan Jianguo's general, they think: core strength is attached to the muscles and ligaments in the core parts of the body of the contraction produced under the control of the neural strength. Summarizing all the results, the author thinks that: core strength is attached in all muscle and ligament human core region under the control of the neural produced by contraction, in order to stabilize the body center of gravity, control the body balance, transfer of human motion forces required for the main purpose of power.

Some researchers believe that: the core strength training is the core body muscles and small deep muscle strength, stable pointer, balance ability training; Lin Hua, Wang Runsheng think: the core strength training is formed based on the traditional strength training, more comprehensive, system aiming at the deficiency of traditional core muscle strength training the development of scientific training. Comprehensive research data, the author thinks: the core

strength training is the core region of the body all muscle groups, including the large muscle and small group, which is characterized by small deep muscle training traditional training very hard to practice, is generally the exchange various muscle groups, to stabilize the body center of gravity, control the balance of the human body, transmission of motion required power as the main purpose of comprehensive, systematic and scientific than traditional strength training.

#### *B. The relationship between the main technical characteristics of modern dance and core strength*

Modern dance is the dance that need coordination between the partners to complete, in smooth, stretch movement shows body straight, beautiful and intimate cooperation movement between partners. Analysis of the dynamic source of modern dance, the main dancers from rest to exercise, the dancers began to roll supporting leg knee joint, this scroll, reflects two trends of body movement, first is the center of gravity drop, followed by the horizontal movement of center of gravity, center of gravity down power source to support the body muscles gravity control release, this is the main source of strength to modern dance down; and the horizontal movement of center of gravity is derived from the feet and the ground friction. The friction is mainly depends on the coordination of muscle, to the floor in the opposite direction of movement and force to achieve. The center of gravity rises force mainly comes from muscle contraction produced on the floor of the pressure. At the same time, the power must be the core area of the muscle to achieve the power will be transmitted to the dancer's body. In order to achieve both the transmission power, and keep straight posture, dancers stable double frame type, the smooth locus of gravity center.

The main characteristics of modern dance inherited from the European Court dance. Therefore it need the dancers keep elegant posture. Requests the whole body posture has a along the lumbar, cervical direct head erect effect -- that is, the longitudinal traction. This effect mainly depends on the abdomen flat exhibition chest, back shrinkage, waist hips, abdomen and hip these actions to achieve. Keep these actions require core area muscles in various power output condition remained relatively static posture.

The key of the movement of modern dance is that when moves horizontally, by foot power source push to transfer to the waist to hip, waist and hip push through and lead partner to mobile, portable pneumatic foot. Modern dance freely flowing style of writing, is mainly rely on the power flow transferring. Modern dance is the sole way to avoid the feet inside, and bear the weight, at the same time as far as possible to shorten the time sharing center feet, one foot to desalination feet, feet to the center of gravity on one foot alternately traces. There are some special steps such as step, and finally in place by foot or close together in the first moment complete gravity alternating. This has several requirements: a dancer is launched from the ground in strength, core stability to systemic delivery must keep a waist to hip, spine; the two is the core muscles to play a main role transfer ground forces, control of rhythms, maintain links and the overall strength of the force.

The so-called anti body is to rotate the spinal axis consciousness upper body, role is to keep beautiful dancing without deformation, gravity was in place, reflexive disappeared in the natural inclination, reflexive but spin dance prelude, and other steps between transition, reflexive technology, is a modern dance technique one of the most important techniques.

The main characteristics of modern dance is the body tilt axis deviation from the vertical axis, and its role is to the spinal axis force of promoting human flow. Vertical axis deviation from the vertical axis in stride, large means that people will be the focus of partial in vitro.

Swing is mainly realized by the waist to hip force. Its role is to increase the step step, strengthen the body flow, in order to obtain larger swing, need in the waist to hip as far as possible the earth push to use of the power of the feet, the biggest push and waist to hip force ability, make the body more clever.

Feng Jianjun, Yuan Jianguo et al. Study shows that, core strength training can improve the control ability of human body in non steady state, improve balance, better training human deep small muscle group, and coordination of muscle force output size, enhance motor function. Therefore, modern dance, swing and tilt deviation movement ability of vertical shaft and non steady state is very difficult through the traditional strength training to improve the steady state.

Lifting technology is one of the important techniques in modern dance. Its main purpose is to promote the shift of focus. Rise and fall are two different force process. The human body can keep upright state because the stock four myo - and dorsal rectus muscle against its own gravity and achieve the best effect, modern dance down the center of gravity is not achieved through towards the direction of gravity muscle contraction, but through the relaxation of the gravity against implementation. L is the active force to overcome gravity. Regardless of whether the rise or drop, are accompanied by horizontal movement and tilt, swing, reflexive action in the process of modern dance. At the same time in various complicated movement situation, to keep in the middle of the partner sustained and accurate information receiving and transmission requirements, need dancers middle -- namely core stability, core strength, power transmission capacity has reached a very high level.

Modern dance is double with dance, one of the main difficulty lies in the partner with the tacit understanding between. Modern dance lead and follow skills should be dancers all movement trend timely delivery of information and feedback, the force commander of all these information, at the same time, both sides must keep their center of gravity and stability is relatively independent, not the center keeps established partners help. Therefore, the dancers, its center of gravity to keep at the same time, we must promptly according to the partner's instant status, to lead the right in a very short time. And with the dancers must keep his center of gravity at the same time, have in a very short time understanding partner to bring information, and timely correct reaction. Core strength training is a very important method, is "unstable training". In modern dance, dancers gravity constant ups and

downs, body posture changes continuously. Without stable training method of core strength training can help dancers core into full play in biological motion in the chain.

#### IV. CONCLUSIONS AND SUGGESTIONS

##### A. Conclusions

Core strength training can pass through the unstable training methods to help the ballroom dancer fully play a stabilizing role in the core area in the kinematic chain; also can improve the stability of lifting technology through the middle control, but also can improve the non steady state equilibrium of human body and control ability through the core strength training, in order to realize the modern dance reflexive, tilt, swing and other technical characteristics; but also through the core strength training on the core areas of training, improve the ability of waist and hip, diaphragm and coherence transfer power, can realize the gravity flow in the process of modern dance movement continuity, momentum is maintained between the same receiving information and partner for dancers posture and transfer.

##### B. Suggestions

Because the core strength training in the main muscle rectus abdominal muscle, back muscle and abdominal oblique muscle, erector spinae, core region, although these muscles is essential to modern dance, but dance the biggest source of strength lies in the knee and ankle joints of Qu Shen, that is the quadriceps femoris and gastrocnemius muscle and leg muscles to complete the force point force. While the core muscle group to transfer power, locus of control, reduce unnecessary energy output and other functions. Therefore, the core strength training on modern dance, should be an effective complement, not replace the original training system. Core strength training functional exercise content should be used in the selection of special characteristics simulation of motion exercises.

Proprioception training refers to training feeling on exercise system, is through the conscious perception of joint position, rhythm and movement trend to improve joint proprioception training. The basic characteristics of proprioception training are the following: one is in an unstable state (the center of gravity of the unstable, unstable speed, strength and other unstable) training load effect; the two is the unstable condition of training should be from easy to difficult, and gradually induced proprioceptive sense organ perception, and should follow the "sensory system, nervous system and muscle system" comprehensive training process; three is the collaborative participation as well as the special features of emphasizing the variety of the training process of sensory organs.

Modern dance is a double project. Special features of follow the core strength training principle, double training is essential. There are a lot of double training form. The main speed consistency in training, double confrontation training (push, pull, belt, and so on proprioception), static balance training double specific posture. The main function of these training is conducive to modern dance with two couples, when the moving speed of the lead and follow in the wake of

pushing and blocking force perception and reaction. Balance can remain stable under various dance.

Pilates (Pilates) is a kind of sport fitness system in Germany by Joseph Prati in 1926 founded and promotion -- a static exercise. It will Westerners focus on the muscles and physiological function of the training, and the Oriental people pay attention to breathing and focused mind training, swallow anything and everything. In the training of modern dance, the intensity of exercise state of the muscle contraction and breathing and heart mind perfect fusion.

Suspension training refers to the body part or all of the sling suspension, the suspension to support the formation of the reaction was continuously in the dynamic change, forcing the body to adjust the unstable physical condition and continuous perception of different motor units, so as to improve the training method for nerve - muscle proprioceptive function. Suspension training mainly is on the trunk and limbs muscle strength training as the main characteristics of the. Suspension training equipment simple and controllable, training ways, the local stability of muscle for the focus of training and emphasize the whole exercise muscle training, in order to achieve the integral form a "chain" effect, highlight the sensory integration training, followed by progressive resistance principle in order to achieve the gradual development of comprehensive qualities of athletes.

Various kinds of instrument training on modern dance training is simple and the effect is good. Such as the Swiss ball, light weight lifting barbell, high bar, rings and other auxiliary equipment training, have great ability of modern dance balance ability, double feedback capabilities, a state of motion to maintain posture and so on auxiliary role.

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