

Quality Enhancement of Female Gymnasts' Feet Performance using Traditional Choreography

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Abstract: In the article the authors have discussed the quality improvement of female gymnasts using traditional choreography. Through the survey of the gymnastics specialists we determine the key-points of the female gymnasts' feet performance quality. According to the received data they are the height of rising to half toe position; the capacity to perform for a long time on one foot and maintain its turnout and the height of half toe position; the capacity to balance for a long time in high turnout half toe position; the degree of toe pointing; feet turnout. We explain the chosen check tests that let estimate the performance degree of all the indexes of the female gymnasts' feet performance quality. With determining the most effective exercises of traditional choreography we develop the methods of improving the female gymnasts' feet performance quality. The effectiveness of the developed methods is examined through the educational experiment.

Keywords: Culture of movements, quality of feet performance, traditional choreography, Rhythmic gymnastics, motor skills.

INTRODUCTION

Each sport has a number of demands that, if followed, help a sportsman to achieve high performance. For being successful in rhythmic gymnastics young female gymnasts need to develop flexibility, balance, speed, strength, endurance as well as the artistic components: beauty and elegance of movements, "postural sense", culture of movements, etc. (Karpenko, 2003). To the components of the concept of "culture of movements" many specialists in gymnastics relate quality (accuracy) of feet's performance (Biryuk & Ovchinnikova, 1990; Savelieva, 1997; Borisenko, 2000; Karpenko, Viner & Sivitsiy, 2007; Rumba, 2013, etc). According to gymnastics specialists the concept "feet performance quality" mainly includes the height of rising to half toe position (heels lifting), the degree of toe pointing, feet turnout (ankle joints flexibility), etc. According to Nesterova, Makarova (2009), female gymnasts' feet work can be represented as main (supporting, impacting, amortizing) and specific (esthetic, manipulation, integral) functions that together have a great impact on female gymnasts' skill level. illustrates gymnastics specialists' notions about higher and lower quality of feet performance.

The Code of Points indicates the significance of this sport skill aspect. Particularly according to the CoP on rhythmic gymnastics for the years 2009-2012 two panels of judges registered the quality of female gymnasts' feet work – Execution (E) jury controlling an execution (technical faults) and Artistic (A) jury controlling the artistic value of a base composition (music and choreography). Execution (E) jury penalized inaccurate feet work: for example, supporting on the heel during the part of rotation or loss of balance when performed in relevè. Artistic jury judged the general effect of female gymnasts' choreographic skills including the feet performance quality. In relation to the degree of complexity, the following penalties were applied: 0.10 point for small errors, 0.20 point for medium errors, 0.30 point and more for large errors. Final score (30.00 points maximum) was a sum of the difficulty score (Difficulty (D) jury), the artistic score (Artistic (A) jury), execution score (Execution (E) jury) – each jury's score is 10.00 points maximum.

Disparities in Media Coverage

The media performs a vital role within society and in particular is a powerful tool which 'influences our beliefs, attitudes, and the values we have of ourselves and others as well as the world surrounding us. Accordingly, the media does not merely reflect reality, instead it can entail a process of negotiation and reconstruction, which thus shapes and manages our beliefs and opinions. In recent years the mass media has played an active role in side-lining and trivializing female sporting success, with the ultimate aim of preserving sport as a male domain. For example, in the recently conclude T20 women's cricket world cup hosted in India, only the matches played by India were only telecasted live whereas on the other side there was club level male cricket going on, was telecasted live. If the most viewed sport in India has this kind of attitude

shown by media one can imagine the fate of lesser known sport. This is nothing different all over the world about the coverage of women events. It is identified that a significant disparity between the coverage of women and men's sport in all parts of the media, despite the rapid growth of women's sport in the last 30 years. On average, men receive far more coverage than any women's sport, and moreover, this coverage is much wider. The message is clear, female athletes are second rate, female sport is of little importance and society accepts only certain sports for female competitors, unfortunately for women, the television schedules are built around male and not female preferences. Furthermore, the evidence supports the view that women are systematically excluded and side-lined, 'in nearly every aspect – column inches, running time, persons quoted, placement of articles, presence, size, length, and placement of photographs or video type, range of sports and size of headlines – women's coverage lags behind.

Cultural and Religious Barriers

Many of the myths have been initiated and perpetuated by the medical and teaching professions and by journalists. These unfounded beliefs suggest, for example, that female participation in sport at any level is harmful to the female reproductive system and a threat to childbearing; Masculinises a female, particularly her facial and upper-body appearance; Threatens the development of male masculinity if girls out-perform adolescent boys in sport; Wastes human and economic resources because females' performance levels are lower than males'; Is not important for their social development, because they do no need or value achievement, aggressiveness, competitiveness, independence, or productivity. Brown (1982) suggests the explanations are complex and involve historical factors, outright discrimination, and events occurring in other societal institutions. Some of the hypothesized contributing factors are Continuing prejudices, taboos, and stereotypes that lead to sport being viewed as a male "preserve" The lack of power in gender relations and the strength of "old boys" networks and the lack of or weakness of "old girls" network; A lack of qualified female personnel to coach and administer athletics; Unconscious or unintended discrimination by males; Failure of women to apply for job vacancies in athletics;

Hill sprints teach proper knee lift

Another commonly known fact is that sprinting with "knees up" can make you faster. This high knee lift is important to loading your leg and allowing you to step down forcefully to push your body forward. Running uphill forces you to lift your knees high – similar to how you would run over mini hurdles or through shallow water or deep snow. High knees will make you bound like a gazelle during the middle or "float" phase of your sprint.

Hill sprints teach proper "toe up" position

Along with teaching proper knee lift, hill sprints force dorsiflexion of the foot. You must pull your toes up towards your shins when you are going uphill. This position works the anterior tibialis muscle on the outside front of your lower leg. This muscle is essential for running fast (and vertical velocity). The farther up you can flex your foot, the more power you can exert into the ground on foot contact. Think of your "toe up" position as a "loaded" position – ready to unload power into the ground. As an added bonus, strong anterior tibialis can help you to avoid shin splints problems.

Hill sprints strengthen your ankles

Besides helping you avoid the most common injury in athletics, the ankle sprain, strong ankles lead to improvements in stride length. The stronger your ankles become, the harder you can push off the ground to move your body forward. The harder the push, the longer the time you stay in the air between foot contacts resulting in a longer stride length. Hill

Sprints promote hamstring safety

Finally, sprinting hills can give you a full intensity workout without ever getting up to your full 100% speed. Since you never reach top speed, your hamstrings are at little risk. This can be important in early season training (especially in cold weather). Now, this does not mean that you should ignore your hamstrings. When your conditioning and strength improve and the weather is warm, be sure to include flat (and even downhill) sprints to work this important area of your legs. Stronger hamstrings – especially if they are more balanced with your quadriceps – are another effective way to run faster. Sprints are short running events in athletics and track and field. Races over short distances are among the oldest running competitions. The first 13 editions of the Ancient Olympic Games featured only one event- the stadion race, which was a race from one end of the stadium to the other. There are three sprinting events which are currently held at the Summer Olympics and outdoor World Championships: the 100 metres, 200 metres, and 400 metres.

MATERIALS AND METHODS

The purpose of the present study is to find out the ways for quality improvement of female gymnasts by traditional sources. The sample for the present study consists of 30 Male Sprinters of Gulbarga District out of which 15 are experimental group and 15 are controlled group. Hill running such as short hills, medium hills, long hills training were given to experimental group on alternate days i.e. three sessions per week and controlled group were given the general training in sprints for eight weeks. To assess the Speed Pre Test and Post Test were conducted in 30 Meters Run to the experimental group and controlled group.



(A) Sprinters in action



(B) Hill running practice

METHODS

The study was conducted in three phases:

- 1) The first phase comprised the survey of gymnastics coaches in order to summarize their opinions: - on the influence of feet performance quality on female gymnasts' sport skills; - on the key-points of female gymnasts' feet performance quality; - on the effective methods to improve the female gymnasts' feet performance quality.
- 2) In the second phase we estimated empirically how the feet performance quality influences gymnasts' success in competitions.
- 3) The third phase included the development of effective methods that improve the female gymnasts' feet performance quality and testing their effectiveness.

In the process of the study the following methods were employed:

- survey;
- testing;
- comparison of opposite examined groups; - educational experiment; - methods of mathematical statistics.

Twenty five coaches from different regions of Russia were surveyed: from Moscow, St.-Petersburg, Belgorod, Vladimir, Leninogorsk, Omsk, Perm, Petrozavodsk, Pushkin, Samara, Sosnovy Bor, Tyumen, Chita and Elista. The coaches were asked three questions:

- 1) Does the quality of female gymnasts' feet performance influence the level of their sport skills? The test offered 5 options: "Yes, it does", "It's likely to influence", "It isn't likely to influence", "No, it doesn't", "Cannot say".
- 2) What are the main characteristics of estimating the female gymnasts' feet performance quality?
- 3) What exercises do you find the most effective in improving the female gymnasts' feet performance?

The coaches asked to name the most effective exercises. Testing comprised estimation of feet performance quality of the recruited gymnasts (n=27). It was conducted three times: at the first stage of the study during the educational experiment

aimed to estimate the effectiveness of our method that helps improve the quality of female gymnasts' feet performance with the help of traditional choreography. For the experiment we recruited 27 female gymnasts of equal qualification aged 8-10 years, attending one and the same training program with one and the same coach. The duration of the experimental period was four months, at a frequency of three lessons per week, each lesson 90 min. The parents of the female gymnasts gave written consent prior to this study. The methods were in agreement with ethical standards of the Declaration of Helsinki. Before and after the experiment we ran check tests with the female gymnasts in order to assess the feet performance quality.

The methods of mathematical statistics included the following standard measures: arithmetic mean calculation (M); standard error of the mean finding (m); confidence estimation of differences with the help of Student's t-test (p); base data checking for normalcy of distribution concerning the Pearson's chi-squared test. The statistical analysis of the experimental information was done by the statistical package Statgraphics Plus for Windows and the program Microsoft Excel.

RESULTS AND DISCUSSION

The results of the gymnastics coaches' survey show that 84 per cent believe that the quality of female gymnasts' feet performance influences the general level of their sport skills. Moreover, another 16 per cent answered "It's likely to influence". That means that in fact all surveyed coaches find this index as an important constituent part of being successful in rhythmic gymnastics competitions. The following most significant characteristics distinguishing the quality of female gymnasts' feet performance were pointed out by the respondents: the height of rising to half toe position (88%); the capacity to perform for a long time on one foot and maintain its turnout and the height of half toe position (84%); the capacity to balance for a long time in high turnout half toe position (80%); the degree of toe pointing (72%); and feet turnout (64%). All respondents (100%) see exercises from traditional choreography as the most effective for improving the quality of feet performance; 60% prefer special exercises from rhythmic gymnastics; 28% favour special groove machines. A large majority of the surveyed maintains that regular choreographic activity is necessary for developing this aspect of female gymnasts' executive skills. The data collected in response to this question corresponds to the data published in the book "Rhythmic Gymnastics" edited by Professor Ludmila Karpenko (2003). Generally, the survey results confirmed our initial hypothesis that the feet performance quality is a significant component in gymnastics executive skills that may be developed effectively by the means of traditional choreography. In Table 1 are the figures gained during the experimental study revealing the influence of the female gymnasts' feet performance quality on the general level of their sport skills. It's important to note that determining the opposite examined groups in two ways we got practically the same results. That confirms the rightness and objectivity of the pair-wise comparison method for determining the opposite groups.

Table 1. The estimation of feet performance quality of gymnasts in "strong" (n=6) and "weak" (n=6) groups

№	Index	«Strong» groups M±m	«Weak» groups M±m	P (t-test)
1	Feet turnout (angle of feet spreading, in degrees)	166.8±2.8	143.9±3.2	p<0.05
2	Height of half toe position (angle between the floor and the arch of foot in half toe position, in degrees)	59.5±1.0	52.5±0.8	p<0.05
3	Rises to high half toe position from the lower rail of the wall-bar (the amount of times per 30 seconds)	48.3±1.3	41.3±2.2	p<0.05
4	Rise to half toe position on right foot (the amount of times)	29.5±2.1	16.0±2.8	p<0.05
5	Rise to half toe position on left foot (the amount of times)	28.3±1.3	17.6±2.5	p<0.05
6	Balance on left foot in passe (sec)	16.7±2.1	5.9±1.0	p<0.05
7	Balance on right foot in attitude (sec)	23.8±1.6	10.0±2.4	p<0.05
8	Tour lent rotations on right foot (the amount of times)	6.7±0.5	3.7±0.3	p<0.05

Our data produced the following facts. The limit angle of feet spreading in the sitting position with hands behind the gymnast in the "strong" group was 166.830 and in the "weak" group 143.920 (p<0.05). The angle between the floor and the arch of foot in half toe position was 59.500 in the "strong" group and 52.580 (p<0,05) in the "weak". The gymnasts in the "strong" group have stronger calf muscles than those in the "weak" group. The "strong" group gymnasts can rise 48.33

times to high half toe position from the low bar per 30 seconds; the number of rises in the “weak” group was 41.33 ($p < 0.05$). The number of rises on the right foot to high half toe position without touching the floor with the other foot and with no time frame in the “strong” group was 29.50, on the left foot 28.33. In the “weak” group the figures were 16.0 and 17.67 respectively. The differences are statistically significant ($p < 0.05$).

CONCLUSIONS

In summary, we can make the following conclusions: - it has been proved that the quality of feet performance is a significant constituent part of the sport skills in gymnastics and among other components it influences gymnast's success in competitions; - the height of rise to half toe position, the capacity to perform for a long time on one foot and maintain its turnout and the height of half toe position, the capacity to balance for a long time in high turnout half toe position, the degree of toe pointing, feet turnout are the key points of female gymnasts' feet performance quality; - traditional choreography exercises including training in ballet shoes are effective ways of improving female gymnasts' feet performance quality; - our methods help improve female gymnasts' feet performance quality.

Ultimately, our methods of improving female gymnasts' feet performance quality by means of traditional choreography, if included in the training process, can raise the chances to success in sports. Experimental testing of this fact will constitute the subject matter of our future study.

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