

ASPECTS OF DESCENT METHODS AND BIOMECHANICAL BY TRIPLE JUMP BACK TO BAR FIXED MALE GYMNASTICS

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Abstract

This writing is meant to set the biomechanical basis of this extremely difficult element represented by the triple back flip dismount. Considering the difficulty, the extremely high risk that this dismount presents, the writing is not going to resume at just setting the basis, but is also suppose to solve the psychological difficulties-physiological, giving the gymnasts and their coaches the movement technique, the true mechanics of this move with superior mathematics calculations, the biomechanical analysis (of the muscular actions) and finally based on all this factors the learning methodic is going to be elaborated.

Keywords: biomechanical analysis, motion technique, triple jump back, coordination, technical elements.

Introduction

This paper aims at laying the foundations biomechanical element of difficulty that you have this down by triple bar jump back to fixed.

Given the high degree of difficulty, particularly high risk that he presents this work does not stop just down the implementation of these bases, but resolves issues raised by difficulties psycho - physiological, providing athletes and trainers movement technique, proper analysis of mathematical calculations superior mechanical, biomechanical analysis (muscle actions) and finally to develop methods based on their learning.

All these were established by calculation from the study chino-gram and conturogram and has been verified in practice the gymnastics section Arad School Sports Club and other clubs in the country based on the double jump.

Also in this work we want to optimize and enrich heritage

difficulty elements to ensure success and increased value of exercises in this unit of Romanian athletes in competitions of great responsibility in the new code of points where this element has value is very rarely executed.

The paper consists of 5 sections:

head. I - Introduction and brief history

head. II - movement technique (technical description)

head. III - Analysis of biomechanics

head. IV - Methodology of teaching

head. V - General psycho — physiological

Conclusions, Annexes.

The TECHNIQUE MOVEMENT

Triple jump back to the flat bar is a rotating category rotating large rotation which the shares gymnast include:

1. Rotation around a fixed axis (codified the basic preparatory and final).

2. Free rotation around the axis, the phase of the complex motion running triple jump moving subject and how to integrate all previous actions.

DESCRIPTION OF TECHNIQUE

After a gigantic accelerated (Adjusted) vertically above the body through a slightly closed position with a rounded back then gymnast performs an extension of the body while maintaining speed rotation (wave motion in succession).

After continuous horizontal rotation body slightly coxo closed joint - the femur (the position is maintained until the vertical below). You are running an extension of coxofemoral joint (whipping motion, sweeping). Brake runs almost horizontal leg movement by corbetare.

Push bar, speed is balancing segments, gymnast leaves through - a strong push bar, passing the phase of flight. In phase one, the rotation axis is done free of his own CG.

After 2 complete revolutions and the third at an angle of 169 degrees, takes place-grouping and preparing landing.

BIOMECHANICAL ANALYSIS

Include:

a) physical-mathematical analysis (mathematics mechanical considerations) and

b) biomechanical analysis (actions muscle).

a) physical-mathematical analysis has several mechanical considerations of physical and mathematical calculations segments taking part in effecting movement especially in the action bar using fixed axis.

In the periods of introduction to the head. II, here we see a series of changes to speed segments taking part in the movement, namely the ankle joint and CGG.

In stock using omega speed changes and the linear. In addition to making mechanical and biomechanical basis we need to establish various important moments of action gymnastics, kinetic energy, the optimum time to escape the path and height after leaving, parameters were calculated accurately based on conturogram study. Moment of separation is of great importance, it depends ultimately enrolling in a course to ensure performance of the three rotations around the axis of CGG free, it also depends on landing.

Based on these considerations mechanical and mathematical calculations done I realized biomechanical analysis (muscle actions) taking into account the technical description of the head II you actually include it.

b) Biomechanical analysis (muscle actions) satisfying the following systematization:

- Analysis of actions taken in gigantic movement adapted (rotation around fixed axa). - Analyze their execution jump - said. Movement starts sitting on hands (vertical up) with a rounded back, provided the ventral muscle contraction.

At an angle of 39 degrees, Box 2, make a motion muscle chains surround ensure extension of total body extension (omega speed, being of 10.2 rad. Per sec footing, and 9.42 rad. / sec for CGG). This is followed in succession flexion action performed by ventral muscle chains and conditional branches action! Town, a movement that is performed at 62 degrees, frame 3.

Still maintain its body bent down until the vertical and effort

ventral and dorsal muscle chains is static consolidation. Because of this speed omega C.G.G. is greater than the legs, dial 3, omega speed is 6.02 rad. / sec leg and 7.85 rad. / sec. for C.G.G. Dial 4-7.85 rad / sec, foot and 9.68 rad / sec for CGG.

Vertical crossing is made back then is achieved by the action of beating feet back chain generalized extension of the body. The movement is driven by gravitational and centrifugal force. Speed of leg segments amount to 9.66 rad. / Sec. and 9.14 rad / sec the CGG, the kinetic energy of 196.5 kg.

The vertical passing through muscular effort is the maximum dynamic action chain extension due predominantly to the thigh on the pelvis extension chain. Continuous body rotation in extension to near horizontal. Speed CGG legs and begins to decrease, being 6.78 rad / sec, feet and 5.74 rad. / Sec, the CGG Once near the horizontal has been a series of actions to leaving fixed axis.

There is a vigorous flexion of the hip joint flexion on the thigh chain made the pool accompanied by action on anteduction, dial 10. Because of this action, speed angle CGG exceeds the legs being 5.23 rad / sec, compared to 3.15 rad. / sec to the feet.

Still takes place leaving the bar by pushing your body action is part of the flight phase, with an upward trajectory rotating around an axis with travel freely outside.

Unbundling is started after the third rotation of 269 degrees at one point, the action being performed by generalized body chains.

Unbundling is a controlled movement, (16-17) and the landing is made at an angle of 20 degrees to the ground. Technique based on head. II, and develop biomechanical bases have established teaching methodology.

LEARNING METHOD

In order to eliminate shortcomings in that gymnasts have more predilection for rare descents back and forward, and that does not see the landing gymnast, learning methodology we split it as follows:

Stage I

1. acquiring specialized gigantic;
2. repetition and perfection in terms relieved double jump.

Stage II

1. This step corresponds gigantic accumulation in suitable enforcement actions

2. Double jump back, then triple.

Stage III

1. Landing.

Phase I

1. Giant back by increasing the rotation speed goes round the vertical position above.

2. Giant leap adapted to perform actions without leaving the bar and double jump.

3. Triple jump back to the pit, trampoline mesh and elastic.

Phase II

1. Double jump mechanism performing basic training and then triple.

2. Simple jump back stretched (if gymnast fails to correct actions lead global action) and then double jump.

Phase III

1. Triple rotate back puts gymnast landing in difficult conditions (gymnast can not see the landing). In this stage preparatory exercises and correct performance of the final actions and notification will be given when opening attention.

Besides these psychological difficulties were resolved in the head. V - general psychiatric issues (presenting a picture of the main psychological factors necessary for learning descent).

General psychological issues

Head. IV - remembered learning methodology that learning this element of risk is subject to a number of technical features and psychological factors.

They are generally related to the fact that gymnasts have predilections for giant off the back and less for those in the forward giant, which involves technical difficulties in learning this element because it is less educated labyrinth in this sense, too, athlete is unable to focus on landing (the landing sees).

These difficulties we can eliminate training and competition through repetition and learning proper technique of psychological

factors, such as maximum concentration of attention (resulting in a certain mental fatigue).

This mental fatigue is manifested by decreasing the volume and intensity. attention, its instability, lower tone of will, and operations at the memory. So safe execution suffers because local supraforce locomotion, about distortion technique rational execution.

This means learning management attention enhancing self-analysis involving their habit of repetition and compliance methodology based on rational head. V.

Another problem was studied in mood management training by effort of will and special psychological processes that change the emotional strain.

An issue of great importance given the complexity of actions required learning this element is overcoming the defense reflex.

Another issue we addressed that issue is the behavior from failures in practice “one, not the best gymnast can claim to possess absolute certainty” in execution.

These are some general questions submitted must stand out coaches and specialists, given the complexity of this descent, which require psychological education can be achieved through psychological preparedness planning.

Physiological aspects General

In this chapter we covered some general aspects of some changes caused by rotation and in the actions necessary for the descent, changes on respiration and blood circulation.

On the basis of research literature and based on our research, we studied respiratory rate, in our case the fixed bar.

Following the data obtained, we found that since the actual execution descent involves actions preparatory, preparatory, breathing on it will be up to the vertical at an angle of 40 degrees, we exhale, the inspiration of the complete and long-lasting.

Observe phase separation during preparatory actions free the body from top to bottom under the action of gravity.

When passing through the lower vertical coincides with maintaining breathing due to pressure in the chest. As a dynamic element, performed with great speed, most expressive disorder respiratory

rate is as follows: in the first phase separation occurs a moment of inspiration followed by expiration (short) following respiratory arrest on the occasion of the group, this time is maintain until two rotations are performed, followed by a cycle of inspiration (due to ventral muscles of the chest), coinciding with the separation time and prepare landing. Alactacid effort is anaerobic, oxygen debt is high, FC amounting to 170-180 beats per minute. Therefore, substantial changes occur only in trained gymnasts and poor value.

In the circulation is known that rotation due to centrifugal force and gravitational force activity produces some changes to traffic.

It is true that because these forces movement is hampered by muscle contraction that does not allow sufficient muscle perfusion, oxygenation.

Another question is insufficient, transport and gas exchange suffers from rapid movement, blood is sent in large quantities in the vertical extremities of the body down and to brain to vertical up. In phase these anomalies are reduced due to flight rotation around CGG's own body, movement does not undergo significant changes.

Therefore no substantial changes occur both in respiration and circulation gymnast is also adapted very short time making descent can produce substantial changes.

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