ANALYSIS OF COMPETITION PROGRAM "ACROBATICS" OF SKILLED ATHLETES IN ACROBATIC ROCK AND ROLL

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Annotation. Reviewed and analyzed the results of the strongest performances of dancing couples in acrobatic rock and roll category "M-class", the competition rules of the World rock 'n' roll confederation. A comparative analysis on the requirements to perform acrobatic competition program "Acrobatics". Selected a number of acrobatic elements that make up the structure of competitive acrobatic programs. Found that a number of sports pairs allow technical errors (involuntary distortion performance techniques acrobatic element when performing acrobatic elements). Proposed grading scale acrobatic elements of the program, using methodical and special terms "related" sports. The recommendations to judges, coaches on the cost of each acrobatic element in assessing and compiling competitive program.
Keywords: competition, program, acrobatic, element, factor, complexity, qualified, athletes.

Introduction

Acrobatic rock-n-roll is rather young and a little known kind of sports. Distinctive feature of this kind of sports is that it requires high level of coordination; it is acyclic, speed-power, structural and has its own choreographic specificity.

Preparation of sportsmen in acrobatic rock-n-roll by its structure corresponds to competition activity of pair figure skating and sport dances and is characterized, first of all, by synchronized sportsmen's actions [1].

An integral component of one of competition programs of "M-class" category (main class) is acrobatic elements ultra-c. Just these exercises are visiting card of acrobatic rock-n-roll and are the most difficult in preparation of qualified sportsmen in acrobatic rock-n-roll [3].

Specialists in acrobatic rock-n-roll faced an acute problem of searching of optimal variant of acrobatic elements' combinations (acrobatics and acrobatics of highest category of difficulty) with building of competition program for qualified sportsmen.

Exercises in acrobatic rock-n-roll imply standard (stereotype) movements, evaluation of which is carried out by qualitative characteristics, in points. Subjectivity of compositions' evaluation in acrobatic rock-n-roll, as well as in many other kinds of sports with high level of coordination, requires from referees comprehensive, many factor analysis of sportsmen's actions, of their programs, and, in this connection, a number of appropriate criteria. To make refereeing easier, final results in this kind of sports are determined by "skating system" (ranging by places), like it takes place in figure skating or ball dancing [4]. The presence of subjectivity in refereeing system of acrobatic rock-n-roll, absence of clear criteria of execution of acrobatic rock-n-roll elements put forward a number of questions about the necessity to develop new refereeing methodic for competitions of World rock-n-roll confederation (WRRC).

The problems of refereeing system objectivity's improvement for kinds of sports with high level of coordination were regarded in gymnastics, figure skating, synchronized swimming and other. It was conditioned by the fact, that referees, calling points, express their attitude to sportsmen's actions. In order to avoid subjectivity, in these kinds of sports there searching of ways of criteria's objectification is carried out [2].

Analysis of performances of the strongest "M class" category pairs of Ukraine in acrobatic rock-n-roll showed that evaluation of acrobatic elements is subjective, coefficient of difficulty was not considered, criteria for evaluation of errors in fulfillment of acrobatic element are absent. Alongside with it the conducted analysis of literature data witnesses that as on to-day terminology of acrobatic rock-n-roll includes terms and conceptions from allied kinds of sports (gymnastics, acrobatics, figure skating, choreography and so on). With evaluating and preparation of sportsmen referees and coaches use the following terminology:

- rock-n-roll terminology – the founder of which was V. Stoier [8, 9];
- choreographic – principles of choreography, of classic dance;
- acrobatic [6, 10] (classic) – depending on the level of coach's knowledge, qualification and his understanding of acrobatics' principles;
- acrobatic rock-n-roll – which have no clearly formulated terminology and classification as well as definite requirements to execution of acrobatic elements and scales for their evaluation.

The absence of special terminology and evaluating scales for acrobatic elements in acrobatic rock-n-roll makes the question about creation of single scientifically grounded terminology of this kind of sports very urgent. Development of evaluating scales for acrobatic elements of "M class" competition programs is a necessary component of objective refereeing in this kind of sports.

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Purpose, tasks of the work, material and methods

The purpose of the work is to develop evaluating scale of acrobatic elements for competition program "Acrobatics" of "M class" category in acrobatic rock-n-roll.

The tasks:

1. On the base of literature sources to analyze requirements to execution of acrobatic elements on competition program "Acrobatics" in category "M class".

2. To determine and develop evaluating scales of acrobatic elements for competition program "Acrobatics" of "M class" category in acrobatic rock-n-roll with using of methodic and special terminology of allied kinds of sports. .

For solving of our tasks we used the following methods: analysis and generalization of scientific-methodic literature, pedagogic observations, analysis of competition program "Acrobatics" of "M class" category, analysis of refereeing methodic acrobatic rock-n-roll.

Results of the researches

In compliance with competition rules of World rock-n-roll confederation, competitions in category "M class" are conducted by two programs: "Technique of legs" and "Acrobatics".

In program "Technique of legs" in category "M class" acrobatic figures are prohibited. Rotation more then by 180° around cross or longitudinal axes is prohibited. Acrobatic figures are admissible only in case if one of partners is able to independently fulfill them, or if he is in constant contact with floor even with only one foot. Also final support of partner-girl by partner-boy is permitted [5].

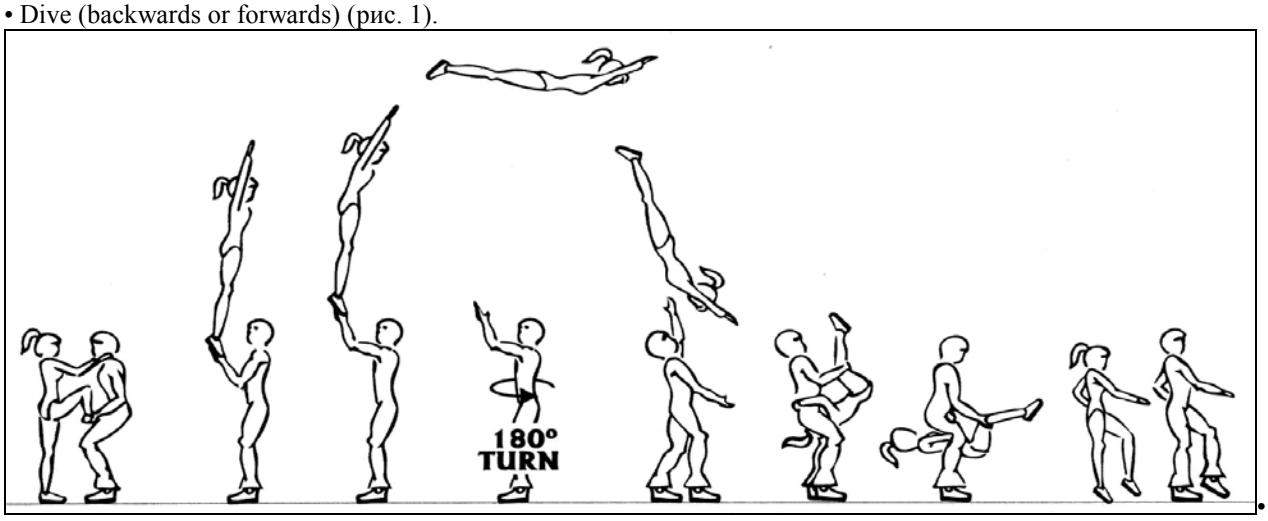
In program "Acrobatics" in category "M class" pairs fulfill 6 acrobatic elements with it fulfillment of more than two double somersaults is prohibited. Double somersault shall not be fulfilled in combination with other elements of acrobatic figures, fore example "screw" or acrobatic figures of entrance and exit. (Entrance shall be executed only from "fuse" or from shoulders – Bettarini_. In one of the rounds preceding semifinal, or in the second main round on "masters" pairs shall not fulfill more than one free rotation around wide body axis (simple somersault) or one simple somersault from shoulders, in order to finish figure.

Pairs can not execute more than two double somersaults, one back double somersault and one forward somersault in one acrobatic round.

In rounds, that precede semifinal, pairs shall fulfill not more than one free rotation around cross axis of body (simple somersault) or one simple somersault with "landing" on shoulders.

The program shall include minimum one element from the following groups of acrobatic figures:

• Forward somersault (all variants)
• Back somersault (all variants)
• Dive (backwards or forwards) (рис. 1).



Rotation around neck (all variants. This category includes "Shoulder bal"), "Dulaine", and "Tie".

Fig.1. Acrobatic element "forward dive from fuse" of category "M class" in acrobatic rock-n-roll

Minimal quantity of rotations shall be not less than three. Rotation can be fulfilled as a separate element or as a part of a combination.

The omitted acrobatic elements are not punished by decreasing of points during all rounds [5]. The sum of points for fulfillment of acrobatic elements is divided by 6.

Analyzing performances of leading world pairs in acrobatic rock-n-roll, we can observe evident leadership of Russian pairs. Having familiarized with competition rules of FARR (Federation of acrobatic rock-n-roll) of Russia, we knew that referees of Farr of Russia have clear ideas about every fulfilled acrobatic element, owing to category of difficulty of typical acrobatic elements, which had been developed by FARR of Russia and is presented in table 1.

Table 1 1

Categories of difficulty of typical acrobatic elements in rock-n-roll

Category of difficulty	Elements	Class of element
Acrobatics	Dive (horizontal vertical). Horse. Back/forward somersault over the partner in contact. Chair. Shoulder bal. Dulaine. Tie.	1.0
	Back/forward somersault without contact	1.2
Acrobatics of the highest difficulty	Somersault from fuse, Bettarini or from position, when girl partner's feet are in partner's hands	1.3
	Somersault bent-unbending. Forward somersault with turn. Dive from fuse and Bettarini. Twist. Blange.	1.4
	Pirouette. Forward somersault bent-unbending with turn	1.5
	One and half of pirouette backward	1.6
	One and half of pirouette forward. Pike	1.7
	Double pirouette	1.8
	One and half somersault in dive. Triple pirouette	1.9
	Double somersault from fuse (back and forward). Double somersault from Bettarini (back and forward). Double angle back somersault	2.0
	Double twist	2.1
	Pirouette back somersault (back screw)	2.2
	Double somersault with turn by 360 degrees (two with one)	2.3
	Double somersault with turn by 720 degrees (two with two). Forward somersault, turn, back somersault (forward-back)	2.4
	Triple somersault	2.5

Having analyzed the data from table 1, we selected a number of acrobatic elements, which are the structure of competition acrobatic program of "M class" category.

According to competition rules of WRRC acrobatic elements and their combinations in category "M class" are evaluated in intermediate rounds from 0 to 5 points and in final part of competition – from 0 to 1- points, considering the quality of fulfillment of the following criteria: rhythm; speed of elements and combinations; entrance and exit.

On the base of these criteria we offer to evaluate the quality of an element from 0.0 to 5.0 points, considering all kinds of mistakes. Coefficient of elements' difficulty is given in table 2.

This schema of evaluation of acrobatic elements' fulfillment was developed by us on the base of the studied and analyzed methodic of WRRC and FARR (Russia) refereeing as well as considering terminology of allied kinds of sports: gymnastics and pair-group acrobatics.

Using special and methodic literature in gymnastics and pair-group acrobatics [6, 7] we offered evaluation scale for acrobatic elements in rock-n-roll, which is presented in table 2, table 3, table 4 and table 5.

Table 2

Coefficients of acrobatic elements' difficulty in rock-n-roll

Acrobatic elements	Coefficient of element's difficulty
"Shulder bal" , "Dulaine" , "Tie"	1.0
Back somersault, forward somersault	1.1
Twist forward somersault. Forward somersault bending, unbending. Back somersault into hands "seat", from hands to floor (two rates). Back somersault, bending.	1.2
Back dive. Side somersault. Back long somersault. Somersaults bent-unbending forward, backward, forward with turn, backward with turn	1.3
Forward somersault bending, unbending, followed by turn by 180°. Back somersault bending, unbending, followed by turn by 180°. Back somersault with pirouette. Forward dive. Back somersault with arching (blange)	1.4
Forward somersault bending, unbending, followed by turn by 360°. Back somersault bending, unbending, followed by turn by 360°. Back somersault with one and half pirouette (540 °)	1.5
Forward somersault bending, unbending, followed by turn by 540°. Back somersault bending, unbending, followed by turn by 540°. Back somersault with double pirouette (720 °).	1.6
Forward somersault bending, unbending, followed by turn by 720°. Back somersault bending, unbending, followed by turn by 720°.	1.7

One and half forward somersault in back dive. Back somersault arching (blange) in partner's shoulders from hands to floor (at one rate)	1.8
One and half forward somersault in forward dive.	1.9
Double somersault grouping, bending. Forward double somersault	2.0

Acrobatic links can consist of combinations of two and more acrobatic elements, except double somersault and its kinds. Acrobatic links are evaluated by maximal coefficient of element's (member of the link) difficulty.

In acrobatic rock-n-roll most of elements are fulfilled from "fuse" or Bettarini (fuse – one leg jumps with partner's throw [6]; "Bettarini" – from position, sitting on partner's shoulders.

Analyzing competition program of final participants of World championship of acrobatic rock-n-roll (2011-2012) we presented certain succession of acrobatic figures fulfillment in program "Acrobatics", category "M class" in table 3.

Table 3

Fulfillment of acrobatic elements of competition program "Acrobatics", category "M class" in acrobatic rock-n-roll by final participants of World championship 2011-2012

Succession of acrobatic element's fulfillment	Description of acrobatic element
I	Double back somersault grouping, bending (back double somersault bending) from fuse.
II	D Forward double somersault from Bettarini
III	Forward double somersault grouping, bending from fuse Back double somersault bending
IV	One and half somersault in back dive (One and half somersault in forward dive) from fuse
V	Acrobatic link, consisting of minimum 2 elements (double somersault is prohibited)
VI	Rotations ("Shulder bal" , "Dulaine" , "Tie")

All sport pairs – final participants fulfilled 6 acrobatic figures in their "acrobatic" program. The carried out analysis of competition program "Acrobatics", showed that 5 elements of 6 are compulsory acrobatic figures of rock-n-roll of "M class" category and only the whole acrobatic link can distinguish one pair from another.

The carried out analysis of competition program "Acrobatics" (category "M class") resulted in determination of the fact that a number of pairs make technical mistakes, i.e. unintentional aberration of acrobatic element fulfillment's technique, and thus, they reduced their total results (table 4).

Table 4

Technical mistakes in fulfilling of acrobatic elements in rock-n-roll

Nos.	Technical mistakes
1.	Errors of landing, jumping off
2.	Insufficient stability of partner during fulfillment of certain acrobatic element or combination
3.	Visibly forced or strained fulfillment of acrobatic element or combination
4.	Inaccurate movements with fulfilling of acrobatic element or combination (forms and lines of body)
5.	Aberration of element
6.	Insufficient amplitude or height with fulfilling of acrobatic elements
7.	Absence of clearly expressed flight phase
8.	Loss of speed with fulfilling of acrobatic element or combination
9.	Insufficient speed of elements-rotations
10.	Touching floor with absence of proper technique of elements' fulfillment
11.	Additional support of partner in order to prevent from falling down, touching floor for restoration of balance
12.	Falling down (unintentional landing) –loss of control over the fulfilled acrobatic element with touching of floor by any part of body

Reduction of mark and penalties for mistakes in techniques of fulfillment of acrobatic elements ("M class" category) are given in table 5.

Table 5

Classification of technical mistakes (penalties)

Kind of mistake	Evaluation scales of technical mistakes (penalties)	Points
Little	(insignificant deviation from standard fulfillment – reduction of theoretical mark)	0.1 – 0.2 points
Significant	(significant deviation from standard fulfillment)	0.3 – 0.5 points

Rough	(rough aberration, including the fact of practical not fulfillment of element with maintaining of main properties of this element)	0.6 – 1.0 points
The most rough	(non-fulfillment – full aberration of element) touching floor, falling down	1.1 – 3.0 points

The conducted by us work on improvement of objectivity and quality of refereeing of "M class" sportsmen resulted in development of formulas for evaluation of acrobatic element's and acrobatic link's fulfillment in competition program "Acrobatics" of "M class" category.

In qualification and intermediate rounds of competitions of this category we offer to calculate points by the following formula:

$$X = (2,5 – Y)\cdot K \quad (1)$$

Points for acrobatic link is calculated by formula:

$$X = (2,5 – Y)\cdot K + 1 \quad (2)$$

For example: pair fulfilled acrobatic element back somersault with arching (blange) with technical mistake of 0.1 points (error of landing). As per formula (1) points for this element are:

$$(2,5\text{-}0,1) \cdot 1,4 = 3,36$$

In final part of competition we offer to evaluate acrobatic element by formula:

$$X = (5 – Y)\cdot K \quad (3)$$

And evaluation of acrobatic link by formula:

$$X = (5 – Y)\cdot K + 1 \quad (4)$$

where *X*- evaluation of pair for fulfillment of acrobatic element,

K- coefficient of element's difficulty,

Y – penalty for technical mistake.

For example: pair fulfilled the most difficult in rock-n-roll acrobatic element – back somersault in grouping with technical mistake of 0.3 points. As per formula (3) points for this element are:

$$(5\text{-}0,3) \cdot 2 = 9,4$$

The other pair fulfilled acrobatic element one and half somersault in forward dive without technical mistakes. As per formula (3) their points are:

$$(5\text{-}1) \cdot 1,9 = 9,5$$

We also recommend these formulas for evaluation of acrobatic element of "Б class" category in acrobatic rock-n-roll.

Summary

1. Analysis of literature data permitted to characterize requirements to fulfillment of acrobatic elements in category "M class", to reveal the absence of single approach in refereeing system of competition program "Acrobatics" for qualified sportsmen of "M class" category.

2. The offered evaluation scale for acrobatic elements of competition program "Acrobatics" for qualified sportsmen of "M class" category with application of methodic and special terminology of allied kinds of sports: gymnastics and pair-group acrobatics, gives clear picture about value of every element to referees, coaches and sportsmen. Besides, it will be a bench mark with building compositions of competition program "Acrobatics" that, in the future, can influence on results of pair's performance at competition.

It is offered to carry out further researches for development of acrobatic elements' evaluation scale for "Б class" category in acrobatic rock-n-roll.

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