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ASSESSMENT OF AEROBIC GYMNASTICS BY VIDEO ANALYSIS

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Abstract

Purpose. The Aerobic Gymnastics is a complex sport and the movements are performed continuously, intensely at high speed with the musical accompaniment. One can directly assess the overall performance to the naked eye, but is not able to assess the individual elements of movement and technical aspects (Raiola, 2012). The video analysis indirectly, through the ability to stop and review the various stages of movement several times, facilitates the evaluation. The aim of this study is to verify whether the use of video analysis in daily training activities can facilitate the evaluations of the coaches.
Methods. 4 female athletes will be evaluated using the tabs in the Code of Points with annotations for deductions (0.10 slight error, mean error 0:20, 0:50 fault) and after 30 sessions in two different ways. The athletes are divided into two groups: 1) Control which continues to be evaluated with the traditional forms, 2) Experimental which is evaluated through the use of two cameras, one placed opposite to the athlete and the other one on t222he side, which apply the points of repelle on specific anatomical points. At the end all the athletes will be traditionally evaluated and one will compare the assessments to highlight the difference between the two groups.
Results. . The athletes in the experimental group improved at 0.30 and 0.40 compared to initial assessments made without the video analysis and compared to the control group. The experimental group compared with the control group has a better final evaluations in the matter of execution and cleanliness of the gesture. Probably the rapidity of correction of the act requested by the coach after watching the video and the subsequent execution of the athlete support proper execution.

Conclusions. This new training methodology may be also tested on athletes, in order to allow a self-assessment through the measurement of the movie and the subsequent correction of performance so that it can better understand the errors committed and implicitly suggest the correction. The simultaneous use of video analysis by athletes and coaches during the training could further improve the result.

Keywords: Didactics, Training methodology, Code of points.

Introduction

The Aerobic Gymnastics is a complex sport and the movements are performed continuously, intensely at high speed with the musical accompaniment (Code of Points, 2013-2016). Gymnastics may be globally defined as any physical exercise on the floor or apparatus that promotes endurance, strength, flexibility, agility, coordination, and body control (Peter Werner, Lori Williams, Tina Hall, 2012). One can directly assess the overall performance to the naked eye, but is not able to assess the individual elements of movement and technical aspects (Raiola, 2012). The video analysis indirectly, through the ability to stop and review the various stages of movement several times, facilitates the evaluation. Aerobic Gymnastic is the ability to perform complex movements produced by the traditional aerobic exercises, in a continuous manner, with high intensity, perfectly integrated with soundtracks. This sport is performed in a aerobic/anaerobic lactacid condition and expects the execution of complex movements produced by the traditional aerobic exercises integrated with difficulty elements performed with a high technical level. An inaccuracy about this sport is related to the name itself "aerobic" because Aerobic Gymnastic does not use just the aerobic work during the competition, due to the fact that the exercises last among 1'30" and 1'45" at high rhythm. Agonistic Aerobics exploit the basic movements of amateur Aerobics and its coordination schemes, even though the agonistic Aerobics is so much intense than the amateur Aerobics to need a completely different mix of energetic mechanisms. Due to the complexity and the speed with which you perform the technical elements of Aerobic Gymnastic, the introduction of video analysis is essential for a qualitative and quantitative evaluation of athletes' performance during the training. "The performance analysis can enable the accurate analysis and explanation of the evolution and dynamics of a historical phenomenon and motor sports" (Hughes and Bartlett, 2002). "The notational analysis is used by technicians to have an objective analysis of

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performance. Tactics, technique and individual movements can be analyzed to help coaches and athletes to re-evaluate their performance and gain advantage during the competition "(Hughes and Franks, 2004). The purpose of the following experimental work will be a starting point for analyzing the performance of the athletes in an objective way, not only during competitions, but especially during the phases of training. It is, therefore, advisable to introduce the video analysis and notational analysis for more quantitative and qualitative examination of technical movements. The goal is to lead to an improvement of the technique of the athlete and the teaching of the coach.

Method

4 female athletes will be evaluated using the tabs in the Code of Points with annotations for deductions (0.10 slight error, mean error 0:20, 0:50 fault) and after 20 sessions in two different ways. The athletes are divided into two groups: 1) Control which continues to be evaluated with the traditional forms, 2) Experimental which is evaluated through the use of two cameras, one placed opposite to the athlete and the other one on the side, which apply the points of repelle on specific anatomical points. At the end all the athletes will be traditionally evaluated and one will compare the assessments to highlight the difference between the two groups.

Discussion

After experimenting with several athletes on the effectiveness of video analysis for the teaching of certain gestures engines, the coach can test the validity or otherwise of performance analysis for athletes. You can revise the method for helping athletes in self-movements during training, to achieve a greater awareness of the executive and correct their mistakes more quickly than before. The rapidity of correction of the act requested by the coach after watching the video and the subsequent execution of the athlete support proper execution. At the end of the work will be introduced new evaluation boards similar to those used by the judges during the competition, for an objective analysis even during workouts. This new training methodology may be also tested on athletes, in order to allow a self-assessment through the measurement of the movie and the subsequent correction of performance so that it can better understand the errors committed and implicitly suggest the correction. The simultaneous use of video analysis by athletes and coaches during the training could further improve the result. From the results it is evident how the video analysis may increase in a positive manner the execution of gestures engines of athletes. Using the video analysis as a method of constant evaluation, the technician will reevaluate its educational strategy to help in times more short athletes to correct errors that were easily seen with the naked eye. In addition, the athlete will improve the performance of the act making it perfect given the thorough processing of the results you can get with the video analysis. The video analysis indirectly, through the ability to stop and review the various stages of movement several times, facilitates the evaluation.

Conclusions

The aim of this study is to verify whether the use of video analysis in daily training activities can facilitate the evaluations of the coaches. This project therefore provides an improved evaluation of athletic performance that will be analyzed in a more objective and analytical way, with video analysis, than those commonly used by direct observation, trying to give an explanation for any technical error with tools ever used in Aerobic Gymnastic.

Result

Table 1. Evaluation method with video-analysis

Prima valutazione con video analisi: atleta sperimentale				
Nome elemento	Valore elemento	Voto da 0 a 10	Deduzione	
Push Up	0,1	7	0	
Straddle Support	0,2	6	0,1	
Air Turn	0,3	7	0,2	
Split Trought	0,3	7	0,2	
TOT.	0,9	27	0,4	**TOT. 0,5**

Quinta valutazione con video analisi: atleta sperimentale				
Nome elemento	Valore elemento	Voto da 0 a 10	Deduzione	
Push Up	0,1	7	0	
Straddle Support	0,2	7	0,1	
Air Turn	0,3	7	0,1	
Split Trought	0,3	7	0,1	
TOT.	0,9	28	0,3	**TOT. 0,6**

Decima valutazione con video analisi: atleta sperimentale				
Nome elemento	Valore elemento	Voto da 0 a 10	Deduzione	
Push Up	0,1	8	0	
Straddle Support	0,2	7	0,1	
Air Turn	0,3	8	0	
Split Trought	0,3	7	0,1	
TOT.	0,9	30	0,2	**TOT. 0,7**

Quindicesima valutazione con video analisi: atleta sperimentale				
Nome elemento	Valore elemento	Voto da 0 a 10	Deduzione	
Push Up	0,1	8	0	
Straddle Support	0,2	7	0,1	
Air Turn	0,3	8	0	
Split Trought	0,3	8	0	
TOT.	0,9	31	0,1	**TOT. 0,8**

Ventesima valutazione con video analisi: atleta sperimentale				
Nome elemento	Valore elemento	Voto da 0 a 10	Deduzione	
Push Up	0,1	9	0	
Straddle Support	0,2	8	0,1	
Air Turn	0,3	9	0	
Split Trought	0,3	9	0	
TOT.	0,9	35	0,1	**TOT. 0,8**

Table 2. Results with video analysis

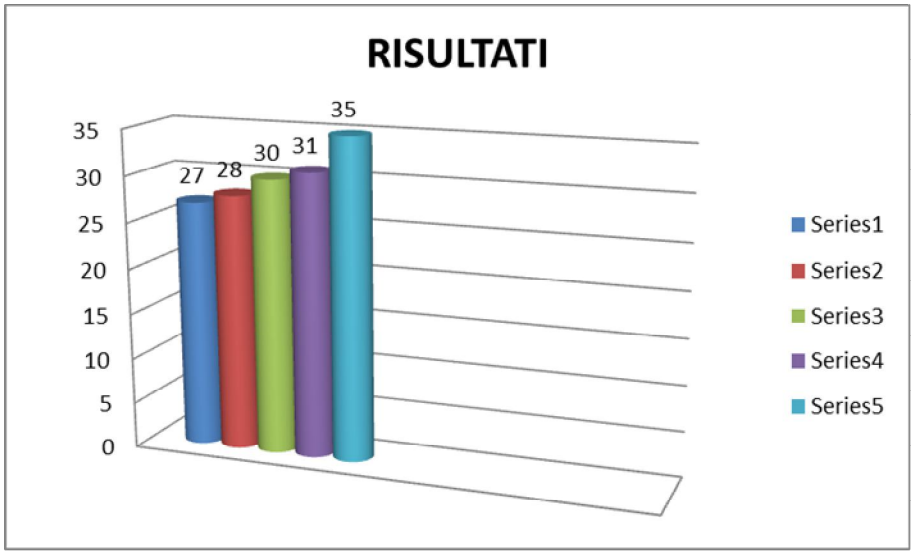


Table 3. Evaluation method without video-analysis

Prima valutazione senza video analisi: atleta controllo				
Nome elemento	Valore elemento	Voto da 0 a 10	Deduzione	
Push Up	0,1	7	0	
Straddle Support	0,2	6	0,1	
Air Turn	0,3	7	0,2	
Split Trought	0,3	7	0,2	
TOT.	0,9	27	0,4	

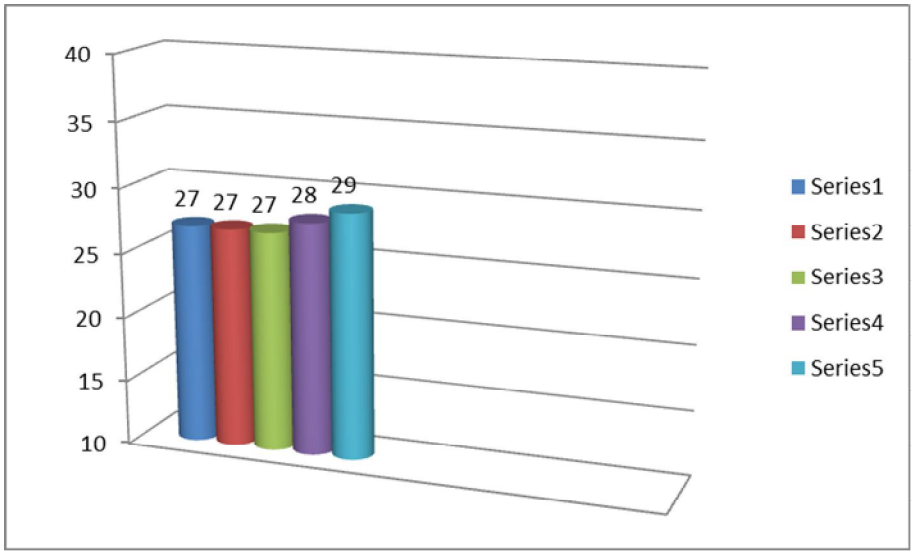
Quinta valutazione senza video analisi: atleta controllo				
Nome elemento	Valore elemento	Voto da 0 a 10	Deduzione	
Push Up	0,1	7	0	
Straddle Support	0,2	6	0,1	
Air Turn	0,3	7	0,2	
Split Trought	0,3	7	0,2	
TOT.	0,9	27	0,4	**TOT. 0,5**

Decima valutazione senza video analisi: atleta controllo				
Nome elemento	Valore elemento	Voto da 0 a 10	Deduzione	
Push Up	0,1	7	0	
Straddle Support	0,2	6	0,1	
Air Turn	0,3	7	0,2	
Split Trought	0,3	7	0,2	
TOT.	0,9	27	0,4	**TOT. 0,5**

Quindicesima valutazione senza video analisi: atleta controllo				
Nome elemento	Valore elemento	Voto da 0 a 10	Deduzione	
Push Up	0,1	7	0	
Straddle Support	0,2	7	0,1	
Air Turn	0,3	7	0,1	
Split Trought	0,3	7	0,1	
TOT.	0,9	28	0,3	**TOT. 0,6**

Ventesima valutazione senza video analisi: atleta controllo				
Nome elemento	Valore elemento	Voto da 0 a 10	Deduzione	
Push Up	0,1	8	0	
Straddle Support	0,2	7	0,1	
Air Turn	0,3	7	0,1	
Split Trought	0,3	7	0	
TOT.	0,9	29	0,2	**TOT. 0,7**

Table 4. Results without video analysis



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