ASPECTS OF MOTOR REACTION TO HANDBALL GOALKEEPERS IN NON-PHYSICAL EDUCATION UNIVERSITIES

Gabriel PIȚIGOI[1 *], Silviu PETRESCU[2], Oana PETRESCU[3]

[1,2] University of Medicine and Pharmacy " Carol Davila", Bucharest, Romania
[3] University of Agronomic Sciences and Veterinary Medicine, Bucharest, Romania
**Correspondence address: pitigoi.gabriel_ro@yahoo.com*

Abstract: As is well known digital motor response is indicative of neuro-motor function and is one of the indicators for assessing the functionality of the body, providing a comprehensive picture of the organization of the central nervous system. Previous scientific research on motor reaction showed that the neurological component is a decisive parameter for gaining a competition. In any process of training we should include both motor skills development and continuous improvement of motor response capacity. The the goalkeeper's specifics of effort and efficiency in competitions is significantly related to the main parameters of motor reaction. The correct answer range was between minimum 150 and maximum 250 mls mls. The testing of motor reaction is based on the following parameters: the digital motor response latency (time elapsed from charging the exit and to the onset of response), the excito-inhibitory mobility of the cortical processes and the balance of the same processes. The results of this study to the motor response test to visual stimulus were good and very good, The response time averages for the three tests are significant. As is well known, the functionality of the central and peripheral nervous system is closely related to the neuromuscular activity, so much involved in making motor act.
Key words: *handball, digital motor reaction, reaction time.*

Introduction

As we all know, digital motric reaction is an indicator of the neuro-motric function. Along with other indicators for the assessment of the functionality of the body (electromyogram, electroencephalogram, electro-dermal reflex, flashing stimulation, coordination of visual-motric, tests of toughness), the motric reaction offers a complex picture of the superior organization of the central nervous and peripheral system [1]. Scientific research on motric reaction in taekwondo have highlighted that this neurological component is a decisive parameter in winning a competition [2]. In any process of training it should be included the motric skills development as well as the continuous improvement of motric response capacity [3].

As relatively, the codification of information and decision will take longer than receiving the information and initiate the response, but all four previous activities occur previous to real movement [4].

Latency of motric reaction or simple reaction time, as response to a stimulant established by an motric elemental act is different and depends on the nature of the stimulant applied, but also of a number of individual particularities of the nervous system of every individual who is genetically determined [5] and supported by a series of emotional adaptive processes, where the ratio between possibility and probability is desired to be decreased [6].

The study aimed to measure the motric reaction time of the handball goalkeeper within 3 seconds, time necessary for the validation of a 7m-throw.

In this study, we started from the premise that motric response is an important indicator in most dynamic efforts, by providing relevant information about promptitude, selective attention, controlling of nervous courts responsible for sensory perception and voluntary motric acts.

The premise made above allowed us to develop the working hypothesis according to which the specific of effort and efficiency of the goalkeeper in competitions is significantly correlated with the main parameters of motric responses to light stimuli, particularly with the duration of motric latency, the degradation rate of latency and motric quality in stimulation with sequences repaired and in the quality of response.

Materials and methods

Testing was made with the executable program XWInMFCApplication. The program records numerous reference data (test execution date, time, number of stimuli, the

type of stimulus, duration, time of execution, the type of response and the response of the person executing the test). The results are processed automatically providing information about motric reaction latency, unconditional or conditional dynamics of excitation and inhibition of cortical circuits involved, the balance and the modality of mental, emotional or attention processes, the rate of neuromuscular fatigue courts involved.

Case study

This study was conducted on women's handball team goalkeeper from UMF Carol Davila, during the qualifications period on the University Bucharest Center, the stage where the team qualified for the finals of the 2014 University National Championship.

The testing consisted of applying a white light stimulus that appears in the interval of 3 seconds (time required from 7 m-throws), randomly on computer's display. The test was carried out in three different variants with duration of the pause between 1000 mls, 1800 mls and 2800 mls of exposure of the stimulus was 300 mis, their exposure being determined by the type of response being considered positive. Each variant of the three was tested three times. The subject was instructed to press the mouse only when he sees the white circle. Correct answer range was between minimum 150 mls and maximum 250 mls.

The testing of motric reaction was based on the following parameters: digital motric response latency, mobility of excito-cortical inhibitory processes.

Thus, after the application of a stimulus the subject receives the information from the receiver, followed codification and by a decision based on the relevant information continued with the response sent through pulses of the muscles.

Results

Next will be presented and analysed the responses to stimulus in the three variants. As can be seen in the graphical representation of the data, excellent responses to the stimulus are to be found in the third second. A delayed response is in the first second.

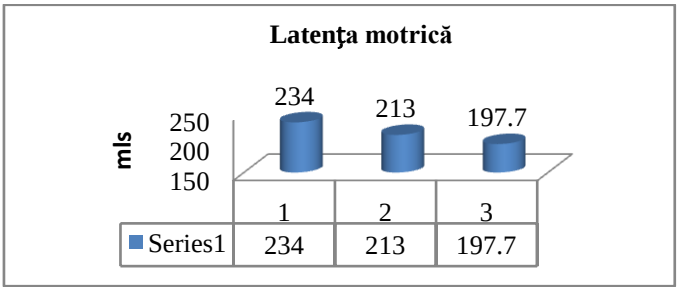

Chart. 1. *Motric latency in the case of the three variants*

Conclusions and discussion

By the results recorded at the motric response to visual stimulus we can say that the averages of response time to three tests on each variant are significant for the tested subject. The values indicate that the best reaction time is in the third variant, when the stimulus appears close to the three seconds, and a reaction time a bit weaker is in the first second, the first version of the test.

Thus, this means that, by extrapolation to the game system, the most likely to score in the 7m-throw are in the first second. As time gets closer to the end of the regular three seconds, attention becomes better. These aspects mean both a good adaptation to the action to be executed and better mobility of nervous courts - excitation and inhibition.

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