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Study Regarding the Incidence of Physical Deficiencies in Fighting Sports Athletes

Tatiana Dobrescu [a]*, 'Vasile Alecsandri' University of Bacau, 157 Calea Marasesti Street, 600115 Bacau, Romania
Emilia Florina Grosu [b], 'Babes-Bolyai' University, 1 M. Kogalniceanu Street, 400376 Cluj – Napoca, Romania

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Abstract

The purpose of this research is to identify physical deficiencies in fighting sports athletes. It was conducted at the Children's Palace (judo), the School Sports Club (wrestling) and the 'Am Duong' Sports Club (martial arts) of Bacau, Romania, and it studied three groups of subjects, each comprising seven male athletes, aged 13–16. The research methods used in this research were the documentation method, the observation method, the inquiry, the assessment, the experimental method, the analysis of the results and the graphical representation. The assessment method used was somatoscopy and the objective methods were the instrumental somatoscopic of the body alignment and somatometry. The results show a homogeneous distribution of the results for the three groups, with more than 42% of the athletes having a lumbar and cervical lordosis. In the other two groups, the distribution is homogeneous, 57.1% recording a correct posture, and 42.9% a frontally inclined head position.

Keywords: Incidence, physical deficiencies, fighting sports, athletes.

* ADDRESS FOR CORRESPONDENCE: **Tatiana Dobrescu,** 'Vasile Alecsandri' University of Bacau, 157 Calea Marasesti Street, 600115 Bacau, Romania.
E-mail address: tatianadobrescu2002@yahoo.com / Tel.: +40-234-517-715

1. Introduction

The normal growth and harmonious development of the child has been and is a concern for parents and specialists in the field, and in puberty even for adolescents or young people (Balint, 2007).

According to Duma (1997), the human body has a structure and functions unequally distributed in relation to its axes and planes of motion. Attitude as the basic function of the supportive apparatus and the nervous system can be appreciated in different positions of the body: both in standing and in other usual positions (Dobrescu, 2008). The normal attitude of the body is not synonymous with the position vertical, represented by straight lines, without angles and without curves (Balint, Diaconu & Moise, 2002).

Ionescu (1994, p. 6) offered one of the most complete definitions of the deficiency, as it appears in his book: 'Any deviation from normal in the form and functions of the organism, which disturbs the normal growth and the harmonious development of the body, alters its external appearance, reduces its ability and power to adapt to physical effort, and reduces its productive work capacity'.

Deviations of the spine that occur due to their own causes and evolve independently are called primary. They disturb the statics and dynamics of the entire column, which is unbalanced (Marza, 2005). Any deviation of the normal position of the shoulder blades also affects the clavicles and shoulders, respectively. Inequality in length and thickness, asymmetry in shape and position, muscle contractions and spasms, mobility and coordination disorders are rather significant morphological and functional deficiencies of the lower limbs (Motet, 2011).

Given the particular importance of the scapular belt and the upper limbs in making the most complicated and improved human motor acts, as well as their contribution for the determination of the physical appearance of the body, it is necessary to give them proper importance in the research and correction of characters their morphological and functional. Physical deficiencies in these regions have a fairly high frequency and are always associated with each other (Sbenghe, 1987).

'Combat sports fosters the complex manifestation of physical qualities, the development of basic motor skills and moral-votive qualities, such as simplicity, dynamism, beauty and applicability'(Corneanu, Iacobini & Dona, 1972, pp. 63–68).

The requirements of judokan training presuppose the learning, fixation and consolidation of the basic elements specific to these disciplines, with different technical structures and distinct types of effort (Bordea, 2000). Taking into consideration the functional demand, the complex technique – skill, speed, force and tactical knowledge needed, the great results of fighting sports cannot be obtained without risk to the performer in the event of difficult slashing action tones the spirit of the race (Cismas & Ozarchievici, 2001).

In this research, the identification of various types of physical deficiencies that are specific to athletes practicing fighting sports represents a new direction, informationally, and also an opening towards new opportunities for practicing the profession of a physical therapist.

2. Materials and methods

The purpose of this research is to identify physical deficiencies in fighting sports athletes.

The research tasks were established to acquire data about the incidence of physical deficiencies in various fighting sports – judo, martial arts and wrestling, and also to verify the hypotheses.

The study started from the following hypothesis: Presumably, by identifying the physical deficiencies that are specific to athletes practicing fighting sports, one can establish their incidence on various segments.

The research was conducted at the Bacau Children's Palace (judo), the School Sports Club (wrestling) and the 'Am Duong' Sports Club (martial arts) of Bacau, Romania, and it studied three groups of subjects: seven male athletes, aged between 13 and 16.

The research methods used in this research were the documentation method, the observation method, the inquiry, the assessment, the experimental method, the analysis of the results and the graphical representation. The assessment methods used to identify the physical deficiencies were the somatoscopy, consisting in the visual examination of the global and segmental alignment of the body, frontally, in the back, and sideways, in a static and a dynamic state. The objective methods that were used consisted in: the instrumental somatoscopic of the body alignment, and the somatometry, as well as specific functional tests (Manole & Manole, 2009).

3. Results and discussion

The results show a homogeneous distribution of the results for the three groups, with more than 42% of the athletes having a lumbar and cervical lordosis (Figure 1). Of the judokas, only one athlete has a correct posture, the remaining 57.1% recording a position of the head frontally inclined, and 28.5% laterally inclined (Figure 2). In the other two groups, the distribution is homogeneous, 57.1% recording a correct posture and 42.9% a frontally inclined head position.

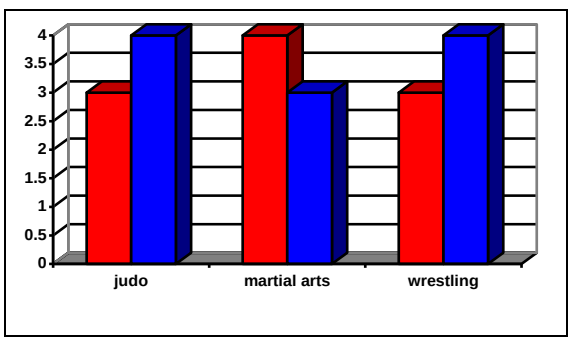

Figure 1. Progress dynamics for body posture

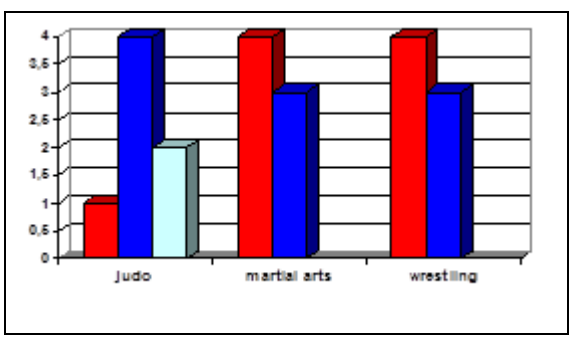

Figure 2. Progress dynamics for head and neck position assessment

One can see also that 28.5% of judo and martial arts athletes have a correct shoulder position and 71.5% have their shoulders lowered and adducted forwards. In regard to wrestlers, 42.8% of them have a correct position, 42.8% have their shoulders lowered and adducted forwards, and 14.2% have a raised position of their shoulders (Figure 3). It can be seen in the distribution of the number of athletes with a normal position of the pelvis frontally that the lowest value was 28.5% in the judoka group, and the highest was 71.4% in the wrestler group (Figure 4).

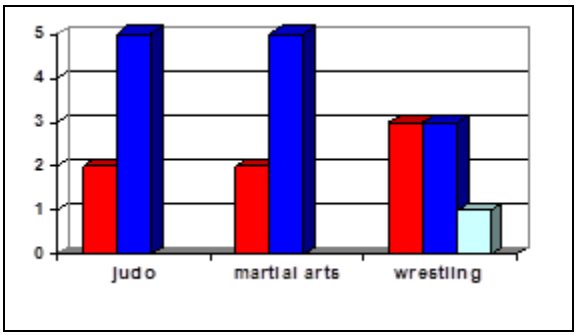

Figure 3. Progress dynamics for shoulder position assessment

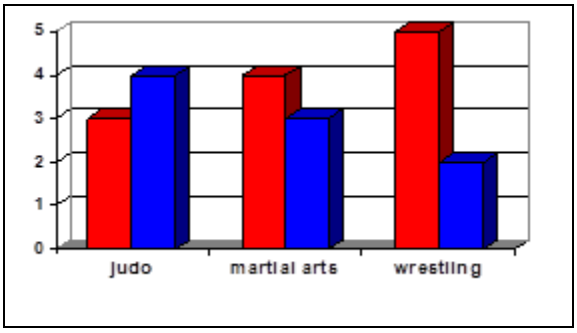

Figure 4. Progress dynamics for frontal pelvis position assessment

Figure 5 shows an inclination of the pelvis in the judokas higher than 350, which confirms also the higher number of lordotic positions emphasised in Figure 1. Also, in regard to the martial arts and wrestling groups, one can notice a correlation between the normal body postures recorded in a larger number of athletes and confirmed in this figure with a value of 71.4%, with a 350 inclination of the pelvis. In regard to the martial arts athletes, there is a value of 100% in assessing the diameter of the pelvis larger than the shoulders, and 100% for the wrestlers in assessing the diameter of the pelvis larger than the shoulders, especially wider (Figure 6). In regard to the judokas, there is a value of 57.1% in assessing the diameter of the pelvis wider than the shoulders, and 42.8% in assessing the diameter of the pelvis larger than the shoulders, especially wider.

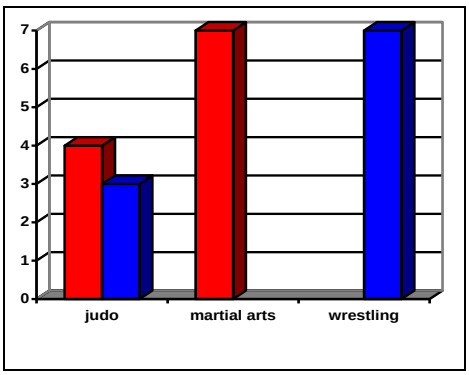

Figure 5. Progress dynamics for sagittal pelvis position assessment

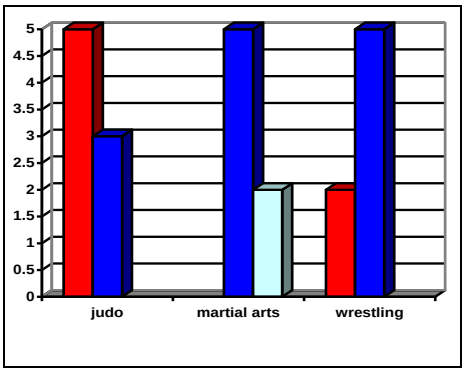

Figure 6. Progress dynamics for pelvis dimension assessment

In regard to the martial artists and wrestlers, there is a value of 100% in assessing the normal position of the feet; for the judokas only in 28.5% of them there is a normal position of the feet, while 71.5% of them have an abducted position of the feet (Figure 7). In regard to the martial artists and wrestlers, there is a value of 100% in assessing the arch of the feet; for the judokas only in 42.8% of them there is a normal position of the feet, in 42.8% – flat foot, and in 14.2% – an accentuated arch of the foot (Figure 8).

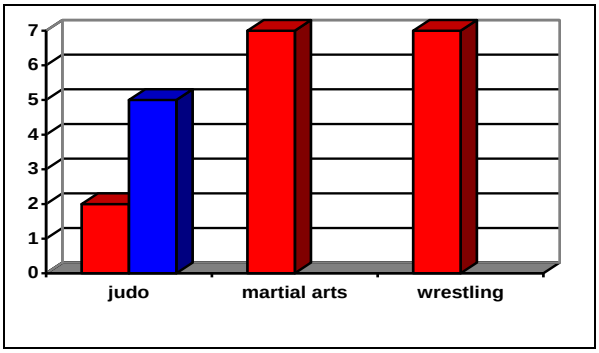

Figure 7. Progress dynamics for leg position assessment

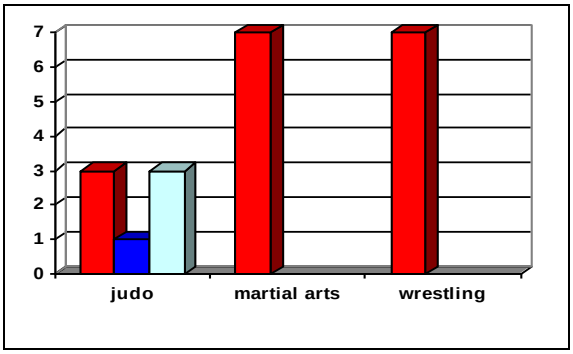

Figure 8. Progress dynamics for arch of the foot assessment

In regard to the degree of development and repartition of the subcutaneous tissue, the following were observed: the judokas – 57.1% have a normal development and 42.8% have a uniformly repartitioned development; the martial artists – 28.5% have a normal development and 71.4% have a uniformly repartitioned development; the wrestlers – 71.4% have a normal development and 28.5% have a uniformly repartitioned development (Figure 9). In regard to the degree of development and harmony of muscles, the following were observed: the judokas – 71.4% have a normal development and 28.5% have a harmonious development; the martial artists – 42.8% have a normal development

and 57.1% have a harmonious development; the wrestlers – 85.7% have a normal development and 14.3% have a harmonious development (Figure 10).

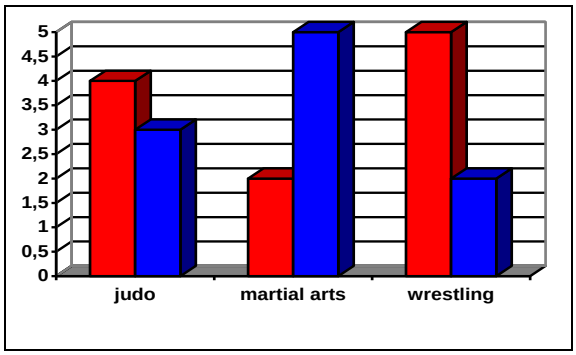

Figure 9. Progress dynamics for the assessment of the development and repartition degree of subcutaneous tissue

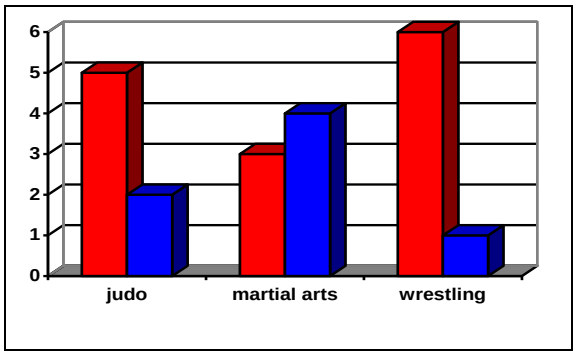

Figure 10. Progress dynamics for the assessment of the degree of development and harmony of the muscles

Being aware of these aspects by preventing physical deficiencies can lead to enhanced performances or even an improved athletic life. We hope that in the future, field specialists will approach with greater care these aspects of physical deficiencies in athletes practicing fighting sports.

According to Popa and Dobrescu (2014), the favourable causes leading to the appearance of hyperlordosis in female gymnasts are represented by a physical development that is improper for the demands of professional sports, which leads to a series of symptoms manifested through muscular imbalances in the anterior pelvic-femoral, posterior lumbar-pelvic and pelvic femoral regions, and in the abdominal muscles. In a similar study, they highlighted the effectiveness of the physical therapy means that are applied early on in the treatment of the symptoms of lumbar spine deviation, aiming to improve the joint mobility, strengthen the injured muscles and harmonise the physiological curves of the spine.

As a consequence of the technical progress, we encounter more and more often cases of accidents, reoccurrences and gymnasts that claim pain in different parts of the body. Due to the fact that the wrist is subjected to the pressures and forces with a high repetition rate, it becomes an area vulnerable to accidents. In their research, Dobrescu, Raveica and Manole (2008, pp. 755–764) identified some causes that favour the appearance of micro-traumatisms at the fist joint level and implicitly to ensure optimal conditions of the female gymnasts training process and extending their competitional life.

The trainers and physical therapists must know these facts before they establish physical training programmes for the athletes. This kind of muscular imbalances can affect both the integrity of the joints and the competitional results.

4. Conclusions

At the end of the research, the following can be noted:

- The incidence of physical deficiencies is different according to the sports branch practiced within the same discipline.
- It was noticed that a high number of judo and wrestling athletes present modifications in their body posture – cervical and lumbar lordoses, modifications in their own assessment of their pelvis position, in the frontal and the sagittal planes.
- Especially in regard to the judokas, there are a large number of athletes with bad feet positions in abduction, and also with modifications of their arch of the feet towards flat foot or an accentuated arch. It can be said that these modifications can be caused by prolonged direct contact with the opponent and by ground fighting, trying to maintain certain clear scoring positions.
- There is also a muscle development from normal to harmonious, taking into account also the proportions between the body segments in all of the athletes, highlighting their top physical training.
- In regard to height, one could notice shortness in the wrestlers, between 1.40 and 1.55 m, and an average to normal height in martial artists.

Considering the data previously presented, a final conclusion that can be drawn is that the initial hypothesis was confirmed, and that the study imposes an analysis of its results by coaches and other experts in the clubs where the athletes perform, in order to take measures to ensure harmonious growth and development of people professionally practicing sports.

Acknowledgements

The team that carried out this study declares on their own responsibility that the subjects participating in the research and their parents were informed of the voluntary nature of participation in the research, understood the information received and requested for research. They understood that withdrawal from the research could be done at any time, without any adverse consequences on the participant or legal representative. Research has observed the ethical standards of research; we mention that the legal representatives of the research participants have given their informed consent for the participation of their children in this research.

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