A SUGGESTED MODEL OF HANDSTAND TEACHING METHOD

Abstract
The aim of this paper was, based on the review of the previous available theoretical, scientific and expert knowledge about a handstand, to suggest a more efficient teaching model. A handstand is an exercise performed on all the apparatus in a gymnastics all-around competition, in its basic form of performance or as a transition exercise, when it is performed as a link to some more complex acrobatic exercises. In addition, this exercise is also performed in other sports as well as a part of the physical education curriculum, so that this paper will help not only the gymnastics experts and coaches, but also the coaches and teachers in other sports branches, to improve this exercise with their performers in a regular way and by the application of the most effective methods.

Key words: HANDSTAND / MODEL OF TEACHING METHOD / FLOOR / SPORTS GYMNASTICS

INTRODUCTION
A handstand is a static acrobatic exercise, where the body is maintained in the equilibrium position with the hands pressed into the floor. As a key exercise of the contemporary gymnastics, it has evolved from the military training in ancient Greece (Tipton, 2011; Wikipedia, 2011). In China, as a national form of art, this acrobatic exercise dates back to 2500 years ago, and in Indian culture, it is called Adho Mukha Vrksasa, and represents an integral part of yogga skills. A handstand has been performed for thousands of years, since the time people realized that their own body, except on their feet, could be successfully maintained in the equilibrium position on the hands as well. Throughout the tradition it has been realizing its development with various orientations in different cultures such as: demonstration of physical strength, entertainment (court or street celebrations; circus), health benefits as well as a technical skill and a basic part of certain sports branches and disciplines.

A handstand is performed in many sports activities such as: sports aerobics, fitness, sports acrobatics, sports gymnastics for both men and women. In addition, it is an integral part of various key positions in break dancing (freeze and kick), it is a starting position in high diving, a position in synchronized swimming (with a head submerged in water and the legs stretched out of it), an integral part of martial arts such as capoeira or Eastern skills such as yogga. The specificity and importance of a handstand is found particularly in sports gymnastics. There are many forms of its performance, but with all the techniques, a performer must achieve the appropriate balance and the strength of the upper body (Yedon, & Trewartha, 2003; Uzunov, 2008).

wartha, 2003; Živčić-Marković, Sporiš, Čavar, Aleksić-Veljković, & Milanović, 2012) have still been discussing and writing about a handstand because it is a basic acrobatic skill which appears in various forms and with various purposes on all the apparatus of the gymnastics all-around (Arkaev, & Suchilin, 2009). For this reason, the quality and success of a performer depends on its technical performance. Likewise, its poor performance is going to have a significant impact on all other exercises whose technique is associated with it. What is necessary to master the technique of a handstand in a quality way? Besides a proper technique, the muscular strength of the entire body, a coordinative ability to control certain body parts as well as spatial orientation are required, and the elasticity of certain joint systems; especially shoulders, certainly should not be neglected (as it may seem at the first glance) (Yedon, & Trewartha, 2003; Uzunov, 2008; Živčić, 2007).

Regardless the fact that a handstand is one of the most important fundamental exercises of the sports gymnastics, in the available technical and scientific literature (Bolković, & Kristan, 2002; Čuk, Bolković, Bučar Pajke, & Turšič, 2009; Estapé, Lopez, & Grande, 1999; George, 1980; Hadjiev, 1970; Karascony, & Čuk, 2005; Kerwin, & Trewartha, 2001; Novak et al 2008; Radojević, 1991; Radojević et al., 2011; Yedon, & Trewartha, 2003; Tou, 2002; Živčić, 2007) not enough attention is paid to a practical approach to the training of this exercise. The aim of this paper was to suggest a more efficient teaching method, based on the review of the previous, available, theoretical, scientific and expert knowledge about a handstand.

**A HANDSTAND TECHNIQUE MODEL**

There is no technical book of sports gymnastics that does not pay special attention to a handstand which is considered one of the key and basic technical exercises in sports gymnastics. The reasons for this are that it is performed: on all the apparatus of the gymnastics all-around, independently, in connection with other acrobatic exercises, as an integral part of certain acrobatic exercises, of a dismount or a mount onto an apparatus, with various initiation or finishing positions or various positions of certain body parts (legs, arms, trunk). The way of a handstand performance has been changing throughout the development of sports gymnastics. Thus, in the beginning, the technique of a twisted body was preferred (De Carlo, 1963; Ilić, 1980; Korkin, 1981; Lisickaja, & Zaglada, 1977) and very soon afterwards, in the 1990s, the technique that is also applied today, was introduced and it refers to a completely straight, stretched body with the muscles of the entire body completely tight, starting from the toes. This way of performance is considered more efficient and more appropriate for the new trends of sports gymnastics, the expansive development and the creation of new, more complex, more difficult and more demanding gymnastic elements.

Theoretical models of performing gymnastic handstand have been described by many authors who dealt with the issue of the techniques of sports gymnastics exercises (Bolković, & Kristan, 2002; Čuk et al., 2009; Estapé et al., 1999; Hadjiev, 1970; Kerwin, & Trewartha, 2001; Korkin, 1981; Novak et al., 2008; Petrović et al., 1977; Šadura, 1991; Yedon, & Trewartha, 2003; Tou, 2002; Ukrain, & Šlemin, 1977; Živčić, 2007; Živčić Marković et al., 2012). They were mainly focused on biomechanical properties of the body movement during its performance (Brüggemann, 1994; George, 1980; Hay, & Reid, 1988; Karascony, & Čuk, 2005; Kerwin, & Trewartha, 2001; Mohsen, Sadaeghi, Shirzad, & Kazemi, 2011; Uzunov, 2008). The scientists and theoreticians of sports gymnastics as well as the gymnastic regulations (FIG, 2013) provide a unique handstand technique. According to the aforesaid authors, it may, with an initiation position of a performer, be divided into several key stages: a lung step entry to hand support position, then back kick and take-off assuming the equilibrium position (Figure 1).

The technical component of performing a handstand is described through the key points of the movement of certain body parts and body posture (Estapé et al., 1999; Novak et al., 2008; Živčić, 2007): arms stretched at the shoulder-width; legs stretched and together; the emphasis of the pointed feet defining a straight line of the entire body; the position of the head in the extension of the spine (as in upright position) with the eyes looking at the fingers; the upper part of the back rounded with the maximum shoulder extension; the pelvis flat with the hips tucked in.

Based on the specified “ideal” theoretical model of performing the handstand, and on the basic didactic principles, it is possible to determine the basic requirements for learning success, i.e. the development of the motor skill of a handstand performance.
A HANDSTAND TEACHING MODEL

Starting from the basic, key components of the handstand performing technique and specific physical preparedness, it is possible to apply the teaching model through five stages where the stage 4 and 5 represent the upgrade exercises with the purpose of learning more complex acrobatic exercises (Uzunov, 2008; Živčić Marković et al., 2012):

- **Stage 1**: physical training of a performer through the specific preparatory exercises so that he could maintain the proper body position in a handstand (Estopé et al., 1999; George, 1980; Malmberg, 2003; Novak et al., 2008; Pearson, 1991; Tous, 2002; Uzunov, 2008; Živčić Marković et al., 2012);

- **Stage 2**: meeting the basic technical requirements in hierarchical (didactical) structure of the acrobatic exercise training - knowledge of the technique of a stand on the blades and a stand on the head in the basic variants of performing (Bolković, & Kristan, 1973, 2002; Čuk et al., 2009; Ilić, 1980; Noble, 1983; Živčić, 2007);

- **Stage 3**: the didactical process of learning how to assume and maintain the handstand position;

- **Stage 4**: the focus is moved from static balance to dynamic control of a handstand, as well as learning the connections with other acrobatic exercises, e.g. a handstand and forward roll, a backward roll (back extension) and handstand (Bolković, & Kristan, 2002; Estapé et al., 1999; Tous, 2002; Uzunov, 2008; Ward, 1997; Živčić, 2007);

- **Stage 5**: it proceeds to the learning of more complex structures such as different variants of initiation and finishing positions of a handstand as a separate exercise or combined with other exercises.

Considering the entire learning and teaching model of a handstand, the most important part is performed in the first stage, where the body of a performer must be adequately prepared by the application of specific preparatory exercises, and then by the adequate exercises characteristic of the proper technical performance of the exercise.

The principles that determine the success of a handstand

A child, for learning the first steps, needs about a year in order to acquire the necessary firmness of bones and joints and muscular structures and the control of the muscles of the entire body for maintaining the body in the upright, equilibrium position on the two small sur-
face areas – the feet. Unlike the feet and legs, the muscles of the arms are much weaker, and the palms are much smaller in their surface area, they are poorly designed and they do not have a purpose of maintaining the body weight with additional control for maintaining the equilibrium position (Mohsen et al., 2011). Shoulders, arms and palms are not intended for standing or walking. In addition, the anatomic structure of the skeletal part of the pelvis as well as the muscles of the trunk which support the body in its upright position are not adjusted to this kind of movement, so that it is required to strengthen the body further.

A greater number of authors (Benn, Benn, & Maude, 2007; Bolković, & Kristan, 1973, 2002; Broomfied, 2011; Čuk et al., 2009; De Carlo, 1963; Estapé et al., 1999; George, 1980; Hadjiév, 1970; Ilić, 1980; Malmberg, 2003; Novak et al., 2008; Pearson, 1991; Tous, 2002; Uzunov, 2008; Živčić Marković et al., 2012) have stated several key components as the basic requirements of learning the proper technique of the handstand performance (Figure 2): regular body posture (Bala, 2000; Bolković, & Kristan, 1973, 2002; Estapé et al., 1999; George, 1980; Tous, 2002; Uzunov, 2008; Živčić Marković et al., 2012b); the elasticity of the shoulders (Estapé et al., 1999; George, 1980; Tous, 2002; Uzunov, 2008; Živčić Marković et al., 2012b); the elasticity of the back of the legs (George, 1980; Uzunov, 2008; Živčić Marković et al., 2012b); the strength of the arms, shoulders and trunk (Bala, 2000; Benn et al., 2007; Bolković, & Kristan, 1973, 2002; Broomfied, 2011; Čuk et al., 2009; De Carlo, 1963; Estapé et al., 1999; George, 1980; Xažnjen, 1970; Ilić, 1980; Malmberg, 2003; Novak et al., 2008; Pearson, 1991; Tous, 2002; Uzunov, 2008; Živčić Marković et al., 2012b); creating a sense of balance (Asseman, & Baran, 2010; George, 1980; Horak, & Nashner, 1986; Kerwin, & Trewartha, 2001; Mohsen et al., 2011; Uzunov, 2008), to which we should add a proper mental image (Petrovic et al., 1995), and we know, for a long time, how important it is. A good demonstration of an exercise used to be applied in the past and today there is a technology (video analysis) supported by the recent scientific research (Aviva, & Ellenstein, 2012; Buccino, & Riggio, 2006; Neurosci, 2005).

Figure 2. Model of preparatory exercises for learning a handstand
A certain number of authors (Asseman, & Gahery, 2005; Baran, 2010; Horak, & Nashner, 1986; Kerwin, & Trewarthwa, 2001; Mohsen et al., 2011; Uzunov, 2008) have studied the muscular activity required for the proper technique of a handstand. Their research indicates that, with the improper handstand technique, the space occupied by the body of a performer in relation to the supporting surface (the palms) is much greater compared with the proper technique since with the poor technique the body is twisted with the pronounced angles in the joints of shoulders and hips. The body weight is transferred in a wider range in relation to the pressure onto the surface (support) thereby the control over maintaining the equilibrium position is made much more difficult. In addition, with the proper technique of the handstand performance, the body of a performer is placed in a narrower space which indicates a distribution of the body weight in much smaller area compared with the supporting surface (the palms) whereby it is easier to manage and control the body. These studies indicate a need for the development of sense of maintaining the equilibrium body position. Also, they indicate that when performing a handstand placing the palms onto the surface represents the base for maintaining the body weight (Yedon, & Trewarthwa, 2003). They are placed into the balance along their whole surface where the body weight in the equilibrium position of the balance is maintained on the end phalanges of the fingers. With the power of the arm muscles the main assistance in controlling the balance during the handstand is regulated by the slight movements of the fingers. In order to develop a better sense of balance it is recommended to perform the static preparatory exercises in the “hollow hold” position (by pressing the hands into the surface) by the hand balance onto the balance platform, where it is possible to make the exercise more difficult by an additional prop such as Pilates ball (onto which the feet are pressed) (Goeller, 2007). The supporting function in a handstand is transferred from the legs and pelvis to the arms and shoulders. It is necessary for the blades, collarbones and rib cage to be fixed by the isometric contractions of the shoulder muscles. Due to their anatomic limitations the arms cannot assume the ideal vertical position, so the equilibrium position is maintained by the compensatory movements of certain body parts – there is a stretching in the lumbar spine region, so the center of gravity of the legs and pelvis is moved only as much as the center of gravity is tilted forward by the forced flexion in the shoulder joints (Radojević, 1991).

Didactical procedures of teaching a handstand

The didactical procedures applied in teaching the gymnastic exercises point out the shortest path possible which leads as much as possible to the realization of the set learning goals and objectives (Živčić, 2007). The application of certain didactical procedures in order to teach gymnastic exercises, is one of the ways which provides efficacy in terms of time and energy savings (of both coach and performer) and a potential deviance during the learning and training process (Živčić, 2000; Živčić, 2007). In the 19th century already, the author who wrote about the didactical procedures of teaching the gymnastic exercises on the floor and the apparatus specifically stated a great number of gymnastic exercises with the technique, methods and errors when performing (Anderson, 1896). The gymnastic experts agree about the fact regardless of the type of a procedure the preparatory exercises should be introduced as soon as possible. Teaching a handstand should be introduced at a younger (pre) school age, since at the older age it becomes more demanding and it could be even dangerous (Broomfield, 2011; Gerling, 2009; Malmberg, 2003; Mitchell, Davis, & Lopez, 2002; Noble, 1983; Shannon, 2011; Werner, Williams, & Hall, 2011). In practice we often encounter a direct way of teaching which is not recommended in school gymnastics, for safety reasons. The indirect way of teaching a handstand is simpler, more effective, safer, more interesting and more versatile (Anderson, 1896). The application of various preparatory exercises (Picture 2) mainly affects the improvement of the necessary motor abilities and skills, so that the performing technique is acquired gradually. They are primarily intended for the development of basic motor skills that are necessary for the performance of a particular element of the technique. In the cases of good physical condition and psychological preparedness of a performer, it starts with teaching a handstand technique. Certainly, it is important to note that, during physical training, the performers must become aware of the regularity of certain positions that are crucial to the performance itself. Didactical procedures, by definition, always allow returning to the previous procedures upon detecting any mistakes in the execution (Živčić, Hraski, & Šadura, 1997). The very methodology of teaching a handstand (if all of the above has been previously passed) consists of the exercises that are directly taught during the individual phases of a handstand.
All the authors do not apply the same preparatory exercises, nor even the same didactical procedure of handstand teaching (Table 1). They mainly differ in the number and types of exercises applied, which is conditioned by the physical preparedness, and previous knowledge of the learning population.

**Table 1.** Review of the preparatory exercises and didactical teaching procedures according to the authors from the selected technical and scientific literature in the period from 1973 to 2012

<table>
<thead>
<tr>
<th>Preparation exercises</th>
<th>References</th>
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<tr>
<td>Plank position hold with strong hollow body engagement</td>
<td>Goeller, 2005, 2007; Pearson, 1991; Tous, 2002; Uzunov, 2008; Živčić, 2007; Živčić Marković et al., 2012a;</td>
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<td>Handstand walk - „spots” or with the support feet on the Swedish crate</td>
<td>Tous, 2002; Uzunov, 2008; Živčić, 2007; Živčić Marković et al 2012; Radojević, 1991; Radojević et al., 2011.</td>
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<td>The scale</td>
<td>Pearson, 1991; Tous, 2002; Uzunov, 2008;</td>
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<tr>
<td>Transferring gymnasts holding him by shoulders and feet (straight body position)</td>
<td>Čuk et al., 2009;</td>
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<tr>
<td>Straight body standing and „throwing and chaching” with the gymnasts’ body</td>
<td>Čuk et al., 2009;</td>
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<tr>
<td>From hang on the lower legs trough support handstand (swing one than another leg) at the lower bar of uneven bars</td>
<td>Estapé et al., 1999; Piard, 1990; Šadura, 1991; Tous, 2002; Radojević, 1991; Radojević et al., 2011.</td>
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<th>Methods of learning</th>
<th>References</th>
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<tr>
<td>Hold plank position with hands away forward</td>
<td>Goeller, 2007; Tous, 2002; Uzunov, 2008; Živčić, 2007; Živčić Marković et al., 2012;</td>
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<td>Hold with legs on the support with hip angle 90°</td>
<td>Estapé et al., 1999; Pearson, 1991; Tous, 2002; Uzunov, 2008; Radojević, 1991; Radojević et al., 2011.</td>
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<tr>
<td>Hold with legs on the support with hip angle 90° – walking on hands in circle around the support</td>
<td>Estapé et al., 1999; Radojević, 1991; Radojević et al., 2011; Tous, 2002; Uzunov, 2008;</td>
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<tr>
<td>From lying position „rising” to handstand with the help of two persons</td>
<td>Estapé et al., 1999; Radojević, 1991; Tous, 2002; Šadura, 1991; Uzunov, 2008.</td>
</tr>
<tr>
<td>Handstand take off with the leg change</td>
<td>Bolković &amp; Kristan, 1973, 2002; Čuk et al., 2009; Novak et al., 2008; Radojević, 1991; Radojević et al., 2011.</td>
</tr>
<tr>
<td>Take off with both legs from the squat position with hips uplifted high</td>
<td>Bolković &amp; Kristan, 1973, 2002; Čuk et al., 2009; Noble, 1983; Novak et al., 2008; Šadura, 1991; Živčić, 2007; Živčić Marković et al., 2012;</td>
</tr>
<tr>
<td>Climbing up the wall to the handstand – face to the wall</td>
<td>Bolković &amp; Kristan, 1973, Čuk et al., 2009; Estapé et al., 1999; Goeller, 2005, 2007; Novak et al., 2008; Noble, 1983; Tous, 2002; Piard, 1990; Šadura, 1991; Uzunov, 2008; Živčić, 2007; Radojević, 1991; Radojević et al., 2011.</td>
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<tr>
<td>From scale to handstand</td>
<td>Estapé et al., 1999; Pearson, 1991; Šadura, 1991; Tous, 2002; Uzunov, 2008;</td>
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<tr>
<td>Handstand near mat above the barrier</td>
<td>Estapé et al., 1999; Tous, 2002; Uzunov, 2008;</td>
</tr>
<tr>
<td>„Pushing” gymnast into the arms of another gymnast or coach. Gymnast is holding a straight position in the handstand</td>
<td>Tous, 2002; Uzunov, 2008.</td>
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</table>
| Handstand with body weight transitions from one arm to another | Tous, 2002; Uzunov, 2008.
DISCUSSION

From the literature review, we may notice a great variety of teaching methods as well as preparatory exercises for performing a handstand. Since in sports gymnastics, a technique training is a basic way of forming a stereotype of movement structure and its upgrades, the teaching is based on a precise and directed training using a series of specific preparatory exercises and teaching methodology exercises, which affect the training of certain phases of movement structures and the exercises as a whole. Given the diversity of approaches and qualitative stages, it is clear that there is no single generally accepted method of teaching a handstand. A great number of methods and preparatory exercises are repeated, which means that they are applicable to a wider range of gymnastic sports. Since the technical component of performing a handstand is described by the key points in the movement of certain body parts and body posture, i.e. four typical phases of performance, it is possible to single out the most commonly used ones (Figure 3):

1. From different initial positions: lying on the back with the arms extended overhead and the pelvis tucked in; the pelvis tucked in with the straight body position and the arms extended and the back pressed against the wall; active and passive front hanging on the high bar of the uneven bars;
2. Lunge step and placing the hands onto the floor; striding with the legs in a scale position, pressing the hands on the floor far from the feet, from the straight position with the hands extended stride placing the hands far from the feet;
3. Back kick and take-off: from a dismount with the hands support onto the floor: a support against the vertical surface by back kick and takeoff; pressing the legs onto a mount (the hips at the angle of 90°) reaching a support against a vertical surface by a back kick;
4. Finishing position: endurance in front lying support – “a hollow out”; endurance in “a hollow out position” pressing the legs onto a mount; gradually mounting by the toes until reaching a support phase.

Figure 3. Model of didactical procedures of teaching a support
Certainly, it should be noted that, from the aspect of scientific background, didactical basics of teaching gymnastic exercises, including a handstand, should be based on the proven quantitative data (Živčić, 2000, Živčić, Breslauer, Stibilj-Batinić, 2008). The application of biomechanical analysis would certainly provide numerous and very precise information about the parameters relevant for performing this basic gymnastic exercise. The analysis of the obtained data would provide the exact model of the handstand technical performance, which offers the possibility of determining the causes of the errors occurring during the performance, and thus finding the best way to eliminate them. However, despite that the technique of the movement performed obviously depends on the method of their mastering, the biomechanics of the didactical exercises is one of the unexplored areas yet (Živčić, 2000, Živčić et al., 2008). One reason for that is that, recently, gymnastic experts have been mainly engaged in studying new, more difficult and more complex gymnastic exercises, improving the quality of the apparatus, preventing the athletes’ injuries, whereas the teaching methods of certain exercises have been left to „the studied” experiential routine. Although biomechanical analyses in gymnastics are numerous, they are, mainly, descriptive, and the evaluation of the quality of gymnastic exercises is mostly based on: defining a technique; comparing different techniques; clarifying errors in the performance; defining biomechanical characteristics of the gymnastic apparatus; identifying and influencing the prevention of the performers’ injuries and obtaining feedback quickly (Prassas et al., 2006).

In addition to the biomechanics research in sports gymnastics, the remaining studies are mainly focused on the dimensions that are considered relevant in terms of direct training and teaching practice and that could be, by the application of the adequate training resources, contents and methods, developed, measured, controlled, corrected and directed (Tabakovic, 2003). They are mainly focused on determining predictive values and relations between the anthropological characteristics (morphological characteristics and motor abilities) and the success of gymnastic exercises performance.

Since the 1950s, the gymnastic experts have been attempting to determine the efficacy of the analytic, synthetic or combined teaching method of the sports gymnastics exercises, which, according to the current notions of the sport of gymnastics, belong to the group of basic (school) gymnastic exercises. By the analyses carried out, the authors (Skobernikov, 1950; Jakubenko, 1952; Kozman, 1952 Baranski, 1960; Verhosanski, 1968: according Tabakovic, 2003) have pointed out a greater importance of the synthetic teaching method compared with the analytic one. The synthetic teaching method has resulted in greater efficacy in terms of mastering predefined, well organized structures as well as in terms of the transfer of exercising and performing (Mejovšek, 1964).

Regarding a handstand, the research (Čaklec, 1983) where the two groups of gymnasts at the age of 11-12 were exposed to different exercise teaching methods (synthetic and analytic) during their training process and where the obtained results indicated that the group of gymnasts who applied the synthetic method in their training achieved significantly better results than the group of the subjects who applied the analytic method. The obtained results of this research, carried out a long ago, could fit well into the conducted analysis of the kinematic parameters of a front somersault and the front somersault teaching methods as well (Živčić, 2000; Živčić Marković, & Omrčen, 2009; Živčić Marković et al., 2012a), which indicates that the methods (exercises) belonging to the analytic teaching method differ in the time parameters where more similarities were found in the spatial parameters, i.e. the exercises belonging to the synthetic teaching method of a front somersault showed the greatest compatibility in all the extracted kinematic parameters.

Gymnastics is one of the most complex, and from the aspect of the athletes’ development, one of the most versatile sports where almost all the muscle groups, qualitative and quantitative motor and functional abilities of the athletes are engaged. Being a good gymnast is extremely difficult because it requires great sacrifice, hard work and endless motivation and perseverance. A coach plays a very important role in all of these, in order to support the athlete, so he should be adequately prepared so that one day the athlete could reach his maximum. In every sport, including gymnastics, graduality is very important as well as the quality learning of the key exercises important for learning all the others and their subsequent upgrading.
CONCLUSION

Acknowledging the eminent scientists and gymnastic experts and on the basis of all the mentioned above it may be concluded that in the sports gymnastics teaching a technical skill, in this case a gymnastic handstand, has always been directed toward achieving the ideal model of performance provided in advance under the conventions (FIG, 2013). In order to acquire a proper technique, in addition to psychological preparation, certain physical preparation (preparatory exercises) is also required, so that, by the application of proper didactical procedures, conducted through specific teaching methods, the shortest path possible leading to its acquisition and successful mastering could be found. At any time of the learning process, a performer must be well informed about potential occurrence of errors in order to focus timely on their correction by taking „a step backwards“, to the didactical exercise that would remove any problem occurred (Figure 4). This paper should facilitate the teaching of this important acrobatic exercise not only to the coaches of sports gymnastics but also to other educators.

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VORSCHLAG EINES MODELLS FÜR DIE LERNMETHODIK FÜR HANDSTÜTZPOSITIONEN

Zusammenfassung:

Schlüsselwörter: HANDSTÜTZPOSITION / MODELL DER LERNMETHODIK / PARTERRE / SPORTGYMNASTIK

Received: 25.03.2105.
Accepted: 19.06.2015.