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The Relation between Physical Activity and the use of Internet in Schoolchildren Aged 13-15 Years Old

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ABSTRACT

A lot of evidences suggest that heavy internet use impacts negatively with health, when the use is almost ubiquitous among adolescents. The purpose of the study was to investigate the association between exercise and physical activity with internet use and other basic sociodemographics factors. In the study involved 136 boys and 108 girls, aged 13–15 years old. For the purpose of the survey it was administered a questionnaire. For statistical analyses one way ANOVA and factor analysis was used to explore the variables. Results revealed that there were significant effects of exercise and physical activity on “reduction of stay online” $F(2,239)=4,21, p=0,041$. There was a significant effect of gender on “negative feelings because of non-internet access” $F(1,239)=10,93, p=0,001$ and on “reduction of stay on the internet” $F(1,239)=10,93, p=0,001$. In conclusion, the use of the internet was found to have a negative relationship with exercise, physical activity, health and school performance between teenagers who took part in the survey.

Keywords: Exercise, internet, teens, physical activity

INTRODUCTION

The internet is a global system of interconnected computer networks, serves millions of user’s everyday worldwide and its use has quickly become a common way of engagement, especially among youth and adolescents. Young people and teenagers have adopted the use of the internet to a large extent and have incorporated many aspects of their daily lives (Paul and Bryant, 2005; Tsitsika et al., 2009). In the most countries, (Tsitsika et al., 2009; Bayraktar and Gun 2007; Sun et al., 2005; Fu et al., 2010) the vast majority of young people use the internet several times a week (Indicateurs de la Société de l’Information en Suisse, 2010).

There are a lot of inquiries about the role of the internet, for information and communication, for the promotion of health, giving special emphasis to the role of social perspective and social interaction (Lintonen et al., 2007). It has not been sufficiently clarified the role that can be played the online connection in the internet with the health sector. Some studies indicate that appropriate interventions can lead to results that are beneficial for health (Kreps, 2005; Shaw et al., 2006). But the lack of such intervention, however, it seems that maybe the use of the internet, may worsen in the area of health, mental and physical condition of participating in this.

In its current form the internet provides not only information, but can be considered more as a telecommunications tool, since it tends to increase social interactions between people (Robinson et al., 2000). In addition, the basic properties of the Internet, as is the anonymity, the asynchronous communication, the liberation from the limitations of time and space, that makes quite the formation of close personal relationships (Bargh, et al., 2002). Several studies

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claim that the internet can be considered as facilitate the social support and solidarity between individuals (Glasgow, et al., 2002; Barrera, et al., 2002; Shaw, et al., 2006). However, in another study (Eysenbach, et al., 2004), stated that there is no irrefutable evidence on the existence of positive results due to the use of the internet to provide social support.

From the other side the interest and the growth trends in the use of it make teenagers has gradually led those involved at a professional level with health, to examine the impact on the health of this activity (Borzekowski, 2006). Recently, it has been proven that there is a close connection between the mental and physical health problems with excessive use of the internet by young people and adolescents. Some of the symptoms listed among teenagers who use the internet heavily are anxiety disorders, depression and suicidal ideation (Kim, et al., 2006; Ko, et al., 2009; Shapira, et al., 2000; Kim, et al., 2010; Ybarra, et al., 2005). It is known that teenagers often experience physical problems such as headaches and pain in the bones and muscles, associated with lack of muscle contractions and lack of physical activity and exercise, because they spend a considerable amount of time on the internet (Chou, 2001; Hakala, et al., 2006). Important problem mentioned by young people who are internet users, is reduce the sleep time, because the use of the internet for several hours until late at night (Chou, 2001; Hakala, et al., 2006; Van den Bulck, 2004).

Furthermore, today that obesity is a critical risk factor for cardiovascular diseases, several studies have proven that the body mass index (BMI) is increased among adolescents who spend many hours every day on the internet and therefore, they do not deal with physical activity and sports (Berkey, et al., 2008; Kautiainen, et al., 2005). All the studies that have been published, however, tend to focus only on excessive use of the internet by young people, while some have not significantly associated the little or normal internet use (Willoughby, 2008). Finally, the analysis of gender in how to use the internet in relation to health claims that teenagers boys and girls interact similarly with the internet, but still signed unverified by the research view (Willoughby, 2008).

In addition, it is a common observation that the health problems of the human population keep growing despite the development of medical science

and technology. Many expert researchers argue that several of these problems could have been avoided, and therefore their effects have been mitigated if the lifestyle, habits and behavior of individuals, in the teens was different in relation to physical activity and exercise. It is also known that cardiovascular disease is the leading cause of death in the U.S.A. and this trend is growing significantly throughout the world (Heart Disease and Stroke Statistics, 2011). Obesity during childhood is an important risk factor for developing cardiovascular diseases during adulthood (Eckel, et al., 1998) while in the U.S.A. the prevalence of childhood obesity tripled between 1980 and 2000 (Magarey, et al., 2001). Diachronic studies in populations, such as the Framingham study, (Rexrode et al., (1996) have shown that the body weight is associated strongly with cardiovascular diseases (Kannel, et al., 1996). Obesity in adulthood and subsequent cardiovascular diseases is starting during childhood (Dietz, 1998).

The prevalence and spread of obesity in childhood have increased dramatically. Childhood obesity is one of the most important social problems, which threatens to reverse the positive trends of cardiovascular morbidity and fatality that occurred in the last decade. Immediate measures must be taken to prevent excessive weight gain in children. Children and teenagers, who are near the limits of obesity, must promptly realize the problems they will encounter in the future because of this situation. Most studies that have succeeded in reducing body weight, gave emphasis to the importance of the incorporation of physical activity and the reduction of sedentary lifestyle (watching TV, dealing with video games and the computer) for intervention programs. Regular physical activity is important for the prevention of obesity and weight gain (Carnethon, et al., 2003).

Additionally, it was investigated the relationship between the level of fitness and disease of the heart or other problems related to health. These studies confirmed the previous comments about the importance of the minimum level of activity with the purpose of reduction of high-risk groups who were sedentary. The greatest reduction of risk for causing heart disease comes from the existence of minimum natural or physical activity. The gradually increasing activity and the higher levels of activity and fitness, shows obvious benefits in lessening the chances of heart disease (Carnethon, et al., 2003).

The main purpose of this research was to study the population of teenagers of the effect of the use of the computer and the internet to students aged 13-15 years, as well as the association with: a) physical activity and exercise b) school achievement c) age and d) sex.

MATERIALS AND METHODS

Participants

For the purposes of our study, we selected by randomized selection a sample of 244 high school students, from 13 to 15 years old (mean age $14,05 \pm 0,38$). Of the studied sample, 136 (55,7%) were male and 108 were female (44,3%). The choice of schools was based on random sampling. Prior to the initiation of the investigation, the approval was secured for conducting specific schools. The participants were informed about the purpose and usefulness of research and they gave their oral consent for participation. Students were given a questionnaire and were asked to respond in writing.

Questionnaire

For the purpose of the survey was administered a questionnaire, through which assessed students' participation in sports activities and the use of the internet from them. The first part of the questionnaire contained questions about the basic sociodemographics characteristics of participants (age, sex), the school achievement (previous class rating) and their own exercise or not in clubs or gyms. In the second part of the questionnaire participants reported the use of the internet in accordance with the Scale of Teen Addiction to Computers (STAC). The STACK emerged from the 20 questions of internet Addiction Test (Young, 1998) where questions concerning retained widespread aspects of PC use in conjunction with the internet, in accordance with the process of creating the questionnaire CRABI to Korean teenage population (Yang, 2001).

Characteristics of STACK Questionnaire

The scale STACK Questionnaire, as indicated by its name, counts the technology addiction occurs when the teenager expresses behavior, excessive use of PCs is not limited only to the use of the internet, but extends to all activities that develop a PC user (non online game, application programming, hacking activity). STACK consists of 20 questions, which scored with the Likert scale and specific 1 = never, 2 = rarely,

3 = often, 4 = occasionally and 5 = always. The STACK's questions cover the effects of the use of computers in everyday life of the teenager, his social life, sleep, emotions and its productivity. The higher the total score on the scale the greater problem of using PCs. Overall internal consistency of the scale is extremely high, the reliability scale STACK reallocation is satisfactory, while excellent are the results of the audit of the structural validity. The answer procedure of the questionnaires was the presence of the researcher. Provided clarifying responses and provide assistance where necessary. The questionnaires were anonymous and kids entertained themselves. The response time of the questionnaires ranged around 25 minutes.

Statistical Analysis

Data analysis: Data from the questionnaires were analyzed using descriptive statistics. A principal component analysis was conducted and secondly, varimax orthogonal rotation was used. A one-way ANOVA was used to determine whether there was a statistically significant difference in factors that were exported from the factor analysis and between the four independent variables that were a) gender (boys, girls), b) age 13-15, c) physical activity and exercise and d) school achievement (previous class rating, less from 10, between 10-13, between 13-16, more than 16). The data were analyzed using the Statistical Package for the Social Sciences version 20.0 (SPSS Inc., Chicago, IL, USA). A p-value of <0.05 was considered statistically significant.

RESULTS

Descriptive statistical analysis revealed that in the study involved 136 boys (55.7%) and 108 girls (44.3%). From them in 28 students (11.5%) the rating in the courses ranged from 10-13, in 88 students (36.1%) the rating ranged from 13-16 and in 128 students (52.4%) the rating ranged from 16-20. Analysis revealed that 76 students (percentage of 52.5%) was participating in a team, group or in a gym from 0 to 2 times per week, 124 students (50.8%), from 3 to 4 times per week and 44 people (18%) from 5 to 7 times per week. Finally a rate of 44.3% exercised at an earlier time, but they have stopped exercising (Tables 1 and 2).

A principal component analysis was conducted to explore the association (correlation) between the 20 outcome measures from the questionnaire.

Secondly, varimax orthogonal rotation was used to explore whether the 20 items were made up of distinctive groupings (factors). It was decided a priori that the number of factors in the varimax rotation

would be based on the number of Eigenvalues ≥ 1.0 in the principal component analysis.

Table 1: Descriptive data of independent research variables

Sex	Number of students (Percentage)	Exercise	Number of students (Percentage)
Boys	136 (55,7)	Yes	116 (47,5)
Girls	108 (44,3)	No	128 (52,5)

The questionnaire examined 5 factors that were a) the first factor «negative feelings because of non-internet access», b) the second factor «excessive internet use», c) the third factor «neglect of school obligations» d) «abnormal reaction» e) and the fifth factor «reduction of stay online».

On the first factor load 4 topics that explain the variance 17,21% of the total. The second factor load

Table 2: Descriptive data of independent research variables

Age	Number of students (Percentage)	Days trainings per week	Number of students (Percentage)	School rating	Number of students (Percentage)
13	72 (29,5)	0-1-2	76 (31,2)	From 10-13	28 (11,5)
14	88 (36,1)	3-4	124 (50,8)	From 3-16	88 (36,1)
15	84 (34,4)	5-7	44 (18)	From 16-20	128 (52,4)

Table 3: Item loadings > 0.56 for Varimax-rotated solution with five principal components

Variables	Factors				
	1 ⁰⁵	2 ⁰⁵	3 ⁰⁵	4 ⁰⁵	5 ⁰⁵
How often...					
... Do you prefer to spend more time online with the computer than going out with friends?	,763				
... Do you feel the fear that life without the computer would be boring, empty and without joy?	,755				
... Do you feel your concern to the connection while you are outside the computer and how often fantasiwneste that you're online?	,695				
... When you are offline, you feel depressed, Moody, or nervous, something that disappears when you return to login?	,634				
... Do you find that you remain connected to the computer more than that originally intended		,765			
... Do you more neglecting jobs at home in order to spend more time online to computer		,721			
... Do you capture yourself be eager to deal again with the computer		,623			
... Do you capture yourself as saying during the connection "just a few more minutes		,606			
... Do you find that you remain connected to the computer more than that originally intended		,560			
... The grades or your school achievement are adversely affected, because of the time you spend online with the computer			,747		
... Your student achievement or productivity adversely affected because of your involvement with the computer			,702		
... Are you trying to even apologize or lie when someone asks what you do, when you are connected to the computer			,690		
... Do you lose your sleep, because of your all night online connection with computer				,827	
... You check your electronic mail (e-mail), before anything else you need to do				,731	
... Do you become curt, you cry or react with irritation, if someone bother you during your connection with the computer				,607	
... Do you make efforts to limit the time you spend online with the computer and you fail					,782
... You have more dismissed the unpleasant thoughts about your life with soothing thoughts related to the use of the computer					,635

5 topics that explain the variance 14,89% of the total. The third factor loads 3 topics explaining the 14.71% of total variance. On the fourth factor load 3 topics explaining the fluctuation 12,34% of the total. The fifth factor loads 2 topics explaining the 9.36% of the total variance.

A one-way ANOVA was used to determine whether there was a statistically significant difference. As for exercise, a one-way between subjects ANOVA was conducted to compare the effect on “reduction of stay online”. There was a significant effect of exercise on “reduction of stay online” at the $p < .05$ level [$F(2,239) = 4,21, p = 0,041$]. Comparisons indicated that the mean score for those that was exercised ($M = 1,91, SD = 0,97$) was significantly lower than those that was not exercised ($M = 2,17, SD = 1,01$).

As for school achievement, one-way between subjects ANOVA was conducted to compare the effect of school achievement on: a) negative feelings because of non-internet access, b) excessive internet use, c) neglect of school obligations, d) abnormal reaction, e) reduction of stay on the internet in males, and females. Results revealed that there was a significant effect on school achievement on “negative feelings because of non-internet access” at the $p < .05$ level [$F(2,239) = 52,98, p = 0,000$]. Also a significant effect, there was on school achievement on “excessive internet use” at the $p < .05$ level [$F(2,239) = 17,52, p = 0,000$]. Significant effect, there were on school achievement on “neglect of school obligations” at the $p < .05$ level [$F(2,239) = 33,72, p = 0,000$]. There was a significant effect on school achievement on “abnormal reaction” at the $p < .05$ level [$F(2,239) = 12,83, p = 0,000$]. Finally there was a significant effect of school achievement on “reduction of stay on the internet” at the $p < .05$ level [$F(2,239) = 26,40, p = 0,000$]. Post Hoc comparisons using the Scheffe Post Hoc test indicated that the better school achievement the less addiction from the internet.

As for sex, a one-way between subjects ANOVA was conducted to compare the effect of gender on: a) negative feelings because of non-internet access, b) excessive internet use, c) neglect of school obligations, d) abnormal reaction, e) reduction of stay online in males, and females. There was a significant effect of gender on “negative feelings because of non-internet access” at the $p < .05$ level for males, and females [$F(1,239) = 10,93, p = 0,001$]. Comparisons indicated that the mean score for the males ($M = 1,91, SD = 0,92$)

was significantly higher than the females ($M = 1,54, SD = 0,77$). Also, there was a significant effect of gender on “reduction of stay on the internet” at the $p < .05$ level for in males, and females [$F(1,239) = 10,93, p = 0,001$]. Comparisons indicated that the mean score for the males ($M = 2,34, SD = 1,06$) was significantly higher than the females ($M = 1,68, SD = 0,77$). There was not a significant effect of gender on “excessive internet use”, “neglect of school obligations”, and “abnormal reaction”, at the $p < .05$ level for males and females.

As for age one-way between subjects ANOVA was conducted to compare the effect of age on: a) negative feelings because of non-internet access, b) excessive internet use, c) neglect of school obligations, d) abnormal reaction, e) reduction of stay on the internet in males, and females. Results revealed that there was a significant effect of age on “negative feelings because of non-internet access” at the $p < .05$ level for 13, 14 and 15 years of age [$F(2,239) = 7,14, p = 0,001$]. Post Hoc comparisons using the Scheffe Post Hoc test indicated that the mean score for the age of 13 was significantly different than the mean score for the age of 14 and 15 years old. However, the score of 14 years old did not significantly differ from the score of 15 years old. There was a significant effect of age on “excessive internet use” at the $p < .05$ level for 13, 14 and 15 years of age [$F(2,239) = 12,65, p = 0,000$].

With Post Hoc comparisons using the Scheffe Post Hoc test indicated that the mean score for the age of 13 was significantly different than the mean score for the age of 14 and 15 years old, but, the score of 14 years old did not significantly differ, from the score of 15 years old. There was a significant effect of age on “neglect of school obligations” at the $p < .05$ level for 13, 14 and 15 years of age [$F(2,239) = 29,65, p = 0,000$]. Post Hoc comparisons using the Scheffe Post Hoc test indicated that the mean score for the age of 13 was significantly different than the mean score for the age of 14 and 15 years old, as well as, the score of 14 years old significantly differ, from the score of 15 years old. There was a significant effect of age on “abnormal reaction” at the $p < .05$ level for 13, 14 and 15 years of age [$F(2,239) = 16,46, p = 0,000$].

Using Scheffe Post Hoc test it was indicated that the mean score for the age of 13 was significantly different than the mean score for the age of 14 and 15 years old, as well as, the score of 14 years old significantly differ, from the score of 15 years old. Finally, there was

a significant effect of age on “reduction of stay on the internet” at the $p < .05$ level for 13, 14 and 15 years of age [$F(2,239) = 9.54, p = 0.000$]. Post Hoc comparisons using the Scheffe Post Hoc test indicated that the mean score for the age of 13 was significantly different than the mean score for the age of 14. Also the mean score from the age of 13 years differs significantly from the score of the age 15 years old, but, the score of 13 years old did not significantly differ, from the score of 15 years old.

CONCLUSION

The present study aimed to examine the interrelationship and the association between exercise and physical activity with internet use, school performance and other sociodemographic factors in a representative adolescent sample. According to the study it was found specific characteristics for students using the computer and the internet. The results indicated that the reduction of stay online between to the students was higher to those that were exercised. This is a reality, due to that the exercise and other physical activities can help adolescences keep them away from the computers and the internet. The most times per week that exercised the bigger the reduction of staying online. This is the most imported because exercise and physical activity related to the health at these ages. These findings agree with the literature that indicates the negative impact of health because of the internet addiction in adolescents on both physical and psychosocial domains (Cheung and Wong, 2011; Choi, et al., 2009). The sedentary act of prolonged computer use resulting in physical inactivity may increase the level of body fat and risk of obesity (Matusitz, et al., 2012) with the same way as they are inactive and not involve in physical activities. In addition, the excessive time spent online, was well documented to be associated with insomnia and sleep disturbances.

Adolescent internet users were reported to have shorter total sleep time and delayed bedtime (Cain and Gradisar 2010). Negative feelings because of non-internet access, the excessive of the internet use, the neglect of school obligations, the abnormal reactions, like irritability, poor sleep and arguments as well as the reduction of stay on the internet is age related something that is expected because as age of the students increases, they deal more with computers and new technologies (Choy, 2007). It is known that the internet can offer many possibilities for learning,

education and leisure, therefore increasing the use of the internet is analogous to the increasing age of the users and the problems that this entails (Siomos, et al., 2008). According the age of users, data from scientific studies indicate that there is a big difference in the use of computers and internet among young people, ranging from 1.1% in Cyprus (Bayraktar and Gun 2007), by 7.5% in Taiwan (Ko, et al., 2007) with too many intermediate values of other countries.

Results suggest that the most notable differences were in terms of sex that the negative feelings because of non-internet access, the excessive internet use, the neglect of school obligations and abnormal reactions from the students. These results are in agreement with the results of the survey Kiraly et al., (2014), that the boys more than girls are more prone to the internet. The boys had a higher prevalence of their behavior activity at internet than girls and this agree with other findings (Tsitsika et al., 2009), that specifying that boys spend more time than girls on the internet weekly and this is a reason that serve as a potential confounder for the development of internet addiction with all the above negative factors. There is no consensus if internet addiction was associated with the gender (Chou, et al., 2005). Some researchers attributed the gender difference in prevalence of internet addiction to different preferences of online applications between males and females (Wang, et al., 2011; Weiser, 2000). In conclusion, this study has provided an assessment of internet use by adolescence addiction, which could benefit future research on the life-course risks of internet use and addiction.

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School Integration of Students with Special Needs in Regular Classes in Physical Education

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ABSTRACT

Sport and Physical Education is an interesting activity for the development of the disabled children and their class integration (Borioli & Laub, 2007; Avramidis, Bayliss & Burden, 2000). Today, the objective in school is to provide equal opportunities for pupils (Boudon, 1973). Indeed, to allow an integration of the pupils with particular needs in an ordinary class, it seems important for the institution to adhere to value of equal opportunity (Peltier, 1997; Columna & al, 2010; Dubois, 2011). Tunisia is also engaged in the development and the implementation of a true national strategy for the integration of children with special needs into ordinary classes in Sport and Physical Education (law n° 2005-83 of 15 August 2005). Two hundred teachers randomly selected participated in our experiment. They all reside in the region of Sfax (Tunisia) working at the primary, preparatory and secondary schools (\bar{X} =35.5 years; Standard deviation=4.41). They answered the questionnaire anonymously (Dubois, 2011). According to our results, we noted that teachers of Sport and Physical Education present difficulties to deal with the totality and diversity within the school (Ludovic, 2000).

Keywords: Pupils with special needs, sport and physical education, regular class of physical education and sports

INTRODUCTION

Sport and Physical Education play a significant role in the total education of pupils, allowing the acquisition of competences such as: cooperation, mutual help, reflection and the management of future physical life. (Boudinar, Joly & al, 2006; Beaucher, 2012). It's also an interesting discipline for the development of children with disabilities and it must be adapted, reassuring and progressive. (Zicola, 2000, 2008). Sports activities must be adapted to the motor skills of children with special needs. (Marcellini, 2005; Platt, 2001). Faced with their reduced mobility and their handicap, they often underestimate their true capabilities. (Brunet,

1997). This physical practice has advantages at different levels. (Boudinar, Joly & al, 2006; Gaillard, 2007, 2010). At the physical level, physical activity can develop the basic physical qualities such as: the rediscovery of the pleasure of movement, the fight against muscular atrophy and the prevention of complications related to inactivity. Psychologically, it helps pupils with difficulties to promote better self – esteem and to regain confidence in their possibilities and restructure their image. Socially, sport helps the handicapped to fight against boredom and isolation. By dint of these benefits, it is logical that students with special needs seek to take part in sport and physical activities and to be considered like the sportsmen and the others. Indeed, the Salamanca Statement (UNESCO, 1994), proclaimed that children “with special educational needs, must have access to regular schools which should accommodate them through a child centered pedagogy capable of meeting these needs”. In Tunisia, disability is the primary cause of discrimination. Because, a handicap frightens, feeds the taboos, the disabled are

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victims of daily discrimination (Ben Abderrahman, 2011). School integration of students with disabilities, is no exception to this rule. (Ouertani & Elloumi, 2011; Elloumi, Ouertani, Behri & al., 2012). It is then a question of rethinking the reception of the pupils and to wonder at the same time about the conditions of such a reception as well as about the organization of the physical and sports activities within ordinary and specialized institutions with the aim of changing attitudes towards disabilities. According to the official figures, 2 % of the Tunisian population have a disability. Indeed, there are 336 integrated schools welcoming 1496 disabled children (2009-2010); more than 200 preparatory classes are open to the disabled children in schools; in approximately 40 intermediate schools there are 170 registered disabled pupils. Finally 343 specialized centers welcome mainly children and young people with a disability. (Louhichi & Chbil, 2013). In front of this alarming situation and according to the legislature about integration of the handicapped in the intermediate schools in Tunisia. "The right of the handicapped person for an appropriate education was expressly recognized by the law N 81-46 of May 29th, 1981 relative to the protection and to the promotion of the handicapped persons was modified by the law N 89-52 of March 14th, 1989 which stipulates in its article six That: "the handicapped persons have the right to benefit from education, reeducation and from an appropriate vocational training". This right is confirmed by the law N 91-65 of July 29th, 1991 relative to the educational system. This law made the education of the disabled an integral part of the general system of education and consolidated the exercise of this right by diverse measures facilitating the access to the instruction for the largest number of handicapped persons. (Law n° 2005-83 of 15 August 2005). This law insists on the right to education for all the children, regardless of their disability. Today, the achievement of equal opportunities for all (Boudon, 1973; Duru-Bellat, 2002) is the first contribution of the School in the realization of the ideals of the Republic. So is born a barrier which is translated in social inequalities (Etienne, 2008; Jenkins, Micklewright & Schnepf, 2008). The Charter of Human Rights and citizenship stipulates in article I that "the people are born free and equal, in dignity and in rights." To allow the integration of the pupils with special needs, the teacher must know the peculiarity of the handicap and the singularity of the individual student needs, his possibilities as for the apprenticeship within the physical and sports educational discipline and more

generally the integration issues within the class. (Berzin, 2007; Indermuehle & Borserini, 2010). This will of integration is not only political, the parents of the handicapped children also wish for an integration in ordinary schools (77 % of the parents wish that their child gets a normal schooling, even if it is a specific class) (Blin, 1998). Postic (2002) showed that the sick or handicapped children are already isolated because of their disease and because of their care, they do not have friends, the sport can bring them what they need more, a need more important than the others: social relationships. It seems then important that the institution adheres to the principle of training the future teachers to deal with the pupils with specific needs so that their integration is feasible and accomplished (Berzin, 2007; Dubois, 2011). It is also important as to achieve a successful integration that the teacher work and experiment within an educational team but also interact with the pupil and his family to become more informed about all the specific needs of the pupil. (Columna, Foley & Lytle, 2010; Cachot & Poncet, 2013). Feuser (2008) developed a concept of pedagogy which allows an integrative education of all the children with particular needs, independently of the type and of the degree of handicap (various disorders and different pathologies). For that purpose, the teacher is going to set up educational strategies which answer these needs. It is also necessary to know the specificity of the handicap and the peculiarity of the particular needs for the pupil, its possibilities as for the apprenticeship within the discipline and more widely the skills of integration within the class, within the establishment and even outside it (Dubois, 2011). In this perspective, the teachers of physical education and sports have to demonstrate their knowledge and their understanding of another culture, to accept and to respect the diversity of this population and finally to make deliberate interventions suited for every pupil within the class. (Cagle, 2006; Columna, Foley & Lytle, 2010). This pedagogy of differentiation and integration of the children with specific educational needs requires a lot of preparation and a specific training to acquire experience in the teaching of physical education. 84 % of the teachers who recently qualified and 43 % of the trainees consider that their initial training did not prepare them enough to work with pupils with specific needs in ordinary physical education class (Vickerman & Coates, 2009). However, the integration of pupils with specific needs within an ordinary class is not an easy mission and presents diverse difficulties. In front of these problems, a great majority of the teachers

oppose the inclusion of the pupils with specific needs in ordinary classes and this was demonstrated by various studies. (Avramidis, Bayliss & Burden, 2000; Scruggs & Mastropieri, 2000; Lavisse, 2009). The research question which emerged from this is: do Sport and Physical Education teachers have the necessary competences for an autonomous and optimal management of pupils with specific needs?

METHOD

Two hundred teachers randomly selected participated in our experiment. They all reside in the region of Sfax (Tunisia) working at primary, preparatory and secondary schools. ($n=35.5$ years; Standard deviation= 4.41). The argument for which this population was chosen is mainly of a professional order, because the physical education teachers are the main actors, directly concerned and involved in teaching on a daily basis. And more particularly here, in the teaching of pupils with specific needs. They answered the questionnaire anonymously (Dubois, 2011). Once questionnaires collected, data are collected and analyzed by means of the software Social Statistical Package for the Sciences, version 21.

RESULTS

According to our results, the teachers of Sport and Physical Education do not consider themselves to be capable of taking care of the pupils with specific needs in ordinary physical education class presenting disorders or pathologies that are not frequently met due to a misunderstanding of what these disorders or pathologies are and the teaching approach to adopt for a better integration of these pupils. Informally it was reported by the trainee teachers, in charge of doing the questionnaires, that the physical education teachers did not wish to answer the questions about the disorders or the pathologies, the definitions of which they did not know. A great majority of establishments (67.5%), and more particularly the projects of physical education in these establishments, did not plan a specific action (project, evaluation, activities etc.) to take up with pupils of particular needs, whereas 32.5% of them did. Most of the teachers (78.5%) consider that the handicapped pupils are more of a brake, than the opposite, while according to ($21,5\%$) of them; they constitute rather a catalyst in the learning of each of the pupils. (Figure 1). Faced with these problems, $77,5\%$ of pupils with specific needs, who can be brought

not to have a practice in the educational situation proposed by the teacher, are absent in the session of physical education.

The bi – varied analysis of the fact of meeting pupils with specific needs and the difficulties to take care of their practice within their ordinary class are not dependent. ($X^2= 0.607$, dl, 1 at $p >.05$). So, among the teachers of physical education, having met at least a pupil with specific needs during their teaching (67% having answered yes), $50,5\%$ of them had difficulties in taking care of these pupils. (Figure 2).

As regard, the effect of the qualification of the teachers on the nature of the support of the pupils with specific needs and more exactly the difficulties met during the intervention of the teachers on these pupils is rather negative ($X^2= 6,453$, dl, 1 at $p >.001$ Significant difference). Indeed, 49.5% of the physical education teachers among 68% met difficulties to take care of the pupils with particular needs and 17.5% of primary teachers of physical education among 32% answered that they cannot assume an effective care of the handicapped pupils. For that purpose, the request of the teachers for an in-service training relative to

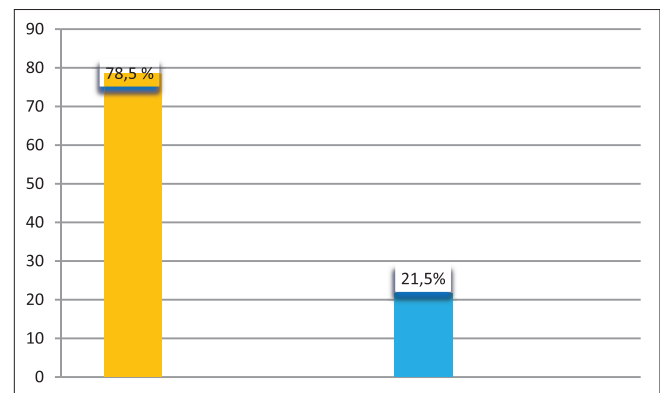


Figure 1: The pupils with specific needs are rather a break than a catalyst for learning

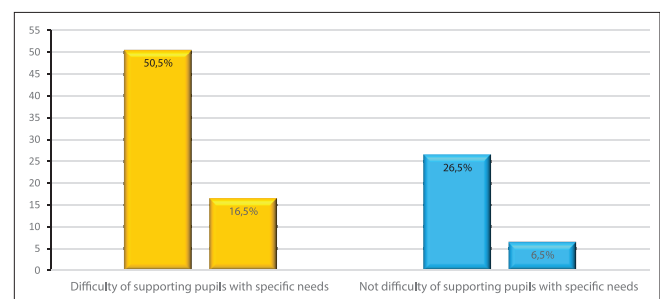


Figure 2: Crossing between encountering of pupils with specific needs in class of physical education and meeting difficulties to take care of these pupils

the pupils with specific needs is important for 57.5%. (Table 1).

DISCUSSION

According to the results analyzed previously, we noticed that the teachers of physical education encountered some difficulties to take care of the entirety and diversity of the student population which they teach. (Ludovic, 2000; Dubois, 2011).

Faced with these problems, a great majority of teachers oppose the inclusion of the pupils with particular needs in an ordinary classes and this was demonstrated by various studies. (Avramidis, Bayliss & Burden, 2000; Kaufmann, 1993; Scruggs & Mastropieri, 1996; Peltier, 1997), and the obstacles confronted by the teachers of physical education are connected to the misunderstanding of the various disorders of pupils with specific needs because every child has a personal potential to which it will be imperative to adapt oneself (Cagle, 2006; Columna, Foley, Lytle, 2010). Certain forms of inability allow a simple change of the practice, in the wider context by a differentiated pedagogy. (Berzin, 2007; Dubois, 2011). Others require on the contrary a more complex form of reception and organization, to the extent of implementing an adapted specific course, when the establishment requires it and the means are made available. (Cachot & Poncet, 2013). Except for some disorders and pathologies such as the asthma and shyness. Indeed, the teachers of physical education usually meet these two types of pupils throughout their teaching, for that reason the teachers of physical education prefer to take care of the pupils with the most recognized particular needs allowing them to be

able to direct, adapt their intervention to the specificities of these pupils without important adaptation of their insertion and their inclusion. This disparity in the care given to the pupils with specific needs can be explained by the absence of the official programs in physical education dedicated to this category of pupils with particular needs. In spite of the announcement of an article 38 in the chapter VII of official newspaper of the Tunisian republic in 2005 which insists on the right of the students with specific needs to receive the same knowledge as the normal ones and to benefit from a special education in accordance with their capacities in physical education. But unfortunately and according to the statistical data, we found that this category was marginalized and that the intervention of the teachers of physical education remains imperfect and unchanged to the pupils with particular needs. (Vickerman & Coates, 2009). In terms of conclusion, to allow teachers to take a real charge of these students, they have to be armed to lead such an intervention, to teach them in a autonomous and effective way.

CONCLUSION

The primary objective of this study was to describe and to assess the learning disabilities at the elementary and secondary levels taken care of by a multidisciplinary team by using the diagnosis tools and care available at present in Tunisia. It revealed the frequency of school difficulties spotted by the teachers and allowed to distinguish between the specific disorders of learning and the unspecified disorders of a secondary type in a neurological pathology or in precarious socio economic conditions. On the other hand, the profile and the severity of the disorders of the specific learners was not able to be studied because of the lack of standardized tests in Tunisia. This study also highlighted the lack of means of screening, diagnosis and care in Tunisia. Because of this Tunisian reality, the screening of these difficulties by the teachers and the harmonization of these difficulties with the pedagogy within schools should begin while waiting for the creation of units of consultation specializing in the diagnosis and the care of specific disorders of learning. To know the importance of the learning disorders in the field of handicaps would allow formulating these changes and these educational adaptations. The widest possible publication of the knowledge acquired on the learning disorders with every professional, medical, paramedical and teachers is a challenge. There are four ways to improve the schooling of the handicapped pupils. First, the strengthening of

Table 1: Crossing between the difficulties to take care of the pupils with specific needs and of the qualification of the teachers

Qualification	Difficulties met		Total
	Yes	Not	
Teachers			
Size	99	37	136
% of the total	49,50	18,50	68,00
Primary school teachers			
Size	35	29	64
% of the total	17,50	14,50	32,00
Total			
Size	134	66	200
% of the total	67,00	33,00	100,00

the cooperation between schools and medical, and social and health establishments and the implementation of the teaching units. Second, the increase of the number of reference teachers, who play an essential role in the quality of the schooling of the handicapped pupils, this allows to improve more the relation between the family and the teaching staff. Third, the continuation of the creation of educational units for integration, which constitute a privileged means of school inclusion at the secondary level, both in preparatory and secondary schools of general, technological or professional education, has to be accompanied by requirements as for the links with all the staff of the educational and health establishment. Finally, to incite the educational teams to exercise their creativity and their responsibility, to propose steps and new organizations, contributes to the success of all the pupils.

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Self-efficacy and Achievement Motivation among Football Player

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ABSTARCT

The purpose of this study was to know the level of self-efficacy, to investigate self-efficacy, achievement motivation of football players in different playing position and to reach of finding the relationship between self-efficacy and achievement motivation of football players. The sample consisted of male amateur football players ($N = 61$) between the age 16 and 19 years. General self-efficacy scale-Schwarzer (GSES), task and ego orientation in sport questionnaire (TEOSQ) were used to collection data. Descriptive statistics, kruskal-wallis Test and spearman's correlation analysis were used to calculate data. The results indicated that there was high self-efficacy among football players. No statistically significant difference in football players' self-efficacies and achievement motivations according to their playing position. And there was positive and significant correlation between self-efficacy and task orientation and between self-efficacy and self-confidence.

Keywords: Self-efficacy, achievement motivation, football players

INTRODUCTION

During the last few decades, coaches and athletes from a wide variety of sports have begun to realize the importance of the mental side of athletic performance. Sport specialists agree that athletic performance is influenced not only by physical skills but also by psychological ones.

Among other psychological skills, self-efficacy is considered a significant element of mental training (Barling & Abel, 1983; Birrer & Morgan, 2010; Feltz, Short, & Sullivan, 2008; Zagórska & Guskowska, 2014). Self-efficacy is posited as the basis for such conduct in the sense that it influences the strength

of decisions, the quantity of energy invested in the effort, the level of perseverance in the face obstacles and failures or the resilience to adversity. In this sense, this psychological dimension is an individual resource to adapt to situations and contexts of activity grueling interesting sports psychology as the Health psychology and Occupational Psychology (Decamps, 2012).

The concept of self-efficacy dates back several decades, and psychologist Albert Bandura was one of the first researchers exploring this topic. Bandura's (1977) theory of self-efficacy was developed within the framework of social cognitive theory. Although, originally, the theory was proposed to account for the different results achieved by diverse methods used in clinical psychology for the treatment of anxiety, it has since been expanded and applied to other domains of psychosocial functioning including health and exercise behavior (McAuley, 1992; McAuley & Mihalko 1998; O'Leary, 1985), and sport and motor performance (Feltz, 1988). The reasons why athletes want to compete depend in the contrast between internal and external rewards as well as an athlete's performance

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assessment. In other words, if an athlete believes he or she can be successful, he or she is more likely to participate. In sport psychology, this is generally referred to as self-confidence or self-efficacy. High self-efficacy is judgment about one's capability to perform a particular task at an elevated level, with certainty, and repeatedly over time, athletes with higher self-efficacy tend to try harder, persist longer, choose greater challenges, experience effort more positively, and feel less anxious. NHL players who can picture winning a Stanley Cup, for example, will bust their butts come playoff time (and year-round, for that matter), but minor-league rookie who is enticed by a call-up for the postseason, yet thinks of himself as unready and cannot see himself competing with the "big boys", may be afraid to put his all on the line and may end up slacking off in practice (Murphy, 2005). Self-efficacy is the belief in one's capabilities to organize and execute the source of action required to manage prospective situations (Bandura, 1997). The concept of self-efficacy is vital to coaches, athletes, and even spectators, for several reasons. First, as a coach, knowing what athletes feel and think about their skills, abilities, and talents is important in the development of those characteristics. Second, a better understanding of an athlete's psyche can significantly improve the resulting sport performance (Moritz, Feltz, Fahrback, & Mack, 2000).

The relationship of Self-efficacy with Achievement Motivation

Whereas participation motivation is focused on why people decide to partake in sport, achievement motivation examines why, or why not, people may be motivated to achieve success, improve performance, master tasks and be good at their sport. Considering that success in sporting context is often assessed relative to opponents' performance, achievement motivation is often considered in relation to competitiveness. Competitiveness may be defined as the desire to reach a level of performance that is higher than others in the presence of evaluative others (Weinberg & Gould, 2011). Achievement motivation is broader and focuses on athletes' predispositions towards striving for success and how specific situations influence their desires, emotions and behaviors (Tod, 2014).

Both psychologists and sport and exercise psychologists have focused on achievement goals as a way of understanding differences in achievement (Duda & Hall, 2001; Nicholls, 1989). According to achievement goal theory, three factors interact to determine a

person's motivation: achievement goals, perceived ability, and achievement behavior. To understand someone's motivation, we must understand what success and failure mean to that person. The best way to do that is to examine a person's achievement goals and how they interact with that individual's perceptions of competence, self-work, or ability. Holly may compete in body building because she wants to win trophies and have the best physique of anybody in the area. She has adopted an outcome goal orientation (also called a competitive goal orientation or ego orientation) in which the focus is on paring herself (has high perceived ability) when she wins but not so good about herself (has low perceived ability) when she loses. Sarah also likes to win contests, but she primarily takes part in body building to see how much she can improve to her strength and physique. She has adopted a task goal orientation (also called mastery goal orientation) in which the focus is on improving relative to her own past performance. Her perceived ability is not based on a comparison with others. For particular situation, some people can be both task and outcome orientation, for example, a person might want to win the local turkey trot but also set a personal best time for the race. However, according to researchers in achievement goal orientation, most people tend to be higher on either task or outcome orientation (Weinberg & Gould, 2015).

Schunk (1995) referred that self-efficacy helps to predict motivation and performance, it motivates individuals to improve their competence, and self-efficacy related positively to persistence and achievement. Initial research supports the point that self-efficacy relates to goals and achievement outcomes. Meece, Blumenfeld, and Hoyle (1988) showed that students with task-mastery goals report more active cognitive engagement with material to be learned and that perceived competence relates positively to motivation and task-mastery goals. Schunk and Swartz (1993) found that providing children with a process goal of learning to use a strategy and feedback on their progress increases task orientation and decreases ego orientation, and that self-efficacy correlates positively with task orientation and negatively with ego orientation. Duda and Nicholls (1992) found for both sport and schoolwork that task orientation relates to high school students' beliefs that success depends on effort and collaboration with peers, whereas ego orientation is associated with beliefs that success is due to high ability and attempting to perform better than others. Goal orientations and beliefs about success

were not strongly related to perceived ability. More investigations are required on the role of self-efficacy among teachers and coaches. Teaching efficacy refers to personal beliefs about capabilities to help students learn, and it should influence teachers' activities, effort, and persistence (Ashton & Webb, 1986). Teachers with low efficacy may avoid planning activities they believe exceed their capabilities, not persist with students having difficulties, expend little effort to find materials, and not teach in ways students might understand better. Teachers with higher efficacy might develop challenging activities, help students succeed, and persevere with students who have problems. These motivational effects enhance student achievement, as well as teachers' self-efficacy by conveying they can help students learn, Ashton and Webb found that teachers with higher self-efficacy were likely to have a positive classroom environment, support students' ideas, and address students' needs. Teacher self-efficacy was a significant predictor of student achievement.

The preceding researches make it clear that self-efficacy plays an important role in achievement motivation and performance in many situations.

Football (Soccer)

Soccer is a team sport. In order to succeed, it is necessary for highly specialized players in specific positions and tasks to help one another. For a successful soccer team; each player should be trained not only for conditional attributes like endurance, strength, speed or agility but also should be trained technically and tactically. In accordance with that, each player should have different physical, physiological and psychological attributes depending on his/her playing position (Akin, Kireker & Koklu, 2009). Although there are some studies showing that psychological factors like concentration, competition anxiety, anger style, anger management, self-image, self-esteem can affect player's playing style and injury risk, they do not seem to be enough in number (Kurt et al., 2012).

Present Study Purpose

The aim of this study was to know the level of self-efficacy, to investigate self-efficacy and achievement motivation of football players in different playing position and to reach of finding the relationship between self-efficacy and achievement motivation of football players. Perhaps most importantly, the study operationalized and included some new variables

(football academy players ranging from 16 years to 19 years and playing different positions – goalkeepers, defenders, midfielders and forwards). No research studies to date have combined this unique set of variables to specifically test self-efficacy and its relationship to achievement motivation. Precedent studies referred that self-efficacy helps to predict motivation and goals and achievement outcomes (Ashton & Webb, 1986; Duda & Nicholls, 1992; Meece, Blumenfeld, & Hoyle, 1988; Schunk, 1995; Schunk and Swartz (1993). The identification of some psychological characteristics of football players with different playing positions is of sufficient scientific and practical interest, it enables to reveal psychological characteristics of football players depending on their roles (Koryagina & Blinov, 2013). This inclusion could provide new insights by analyzing the self-efficacy levels and achievement motivation of football players as they progress forward in their experience levels and success (i.e., make the proverbial “big fish into a bigger pond” transition). It makes possible to determine the main directions and ways to increase the psychological potential of football players in order to optimize game performance. Coaches and others within the sport and football academy can use this information to better manage players and offer tailored programs to specific player needs based on their experience levels overall and at the academy level.

For the purpose of this study, the research study hypotheses were as follows:

HYP.1 There is high level of self-efficacy among football players.

HYP.2 There is significant difference in self-efficacy and achievement motivation among football players according playing positions.

HYP.3 There is correlation relationship between self-efficacy and achievement motivation.

METHOD

Participant

The study consisted 61 football players from Fanzeres Academy -city of Porto Portugal-. The ages of players ranged between 16 and 19 years with a mean age of 16.77 ± 1.05 years. On average, the players had played for 7.97 ± 2.43 years. A large number $N=21$ (34.4%) of the players were defenders, followed by midfielders $N=18$ (29.5%), forwards $N=16$ (26.2%), and goal keepers $N=6$ (9.8%).

Procedure

Clearance was obtained from the president of team prior to all study procedures. All testing took place in a Hall Meetings on sport complex. participants provided informed consent. Then, they were provided with a questionnaire package and asked to respond to each question as honestly as possible. Coach with me remained nearby to answer any questions that arose during testing (in Portuguese language). The questionnaire package took approximately 15-20 minutes.

Data Analyses

Descriptive statistics, kruskal-wallis Test, and Spearman's correlation were conducted. First, descriptive statistics was computed to characteristics the entire sample of football players, and to know level of self-efficacy. Second, kruskal-wallis Test was used to explore the differences of Football players' self-efficacies and achievement motivations according to their playing position. Finally, Spearman's correlation was used to know relationship between self-efficacy and achievement motivation.

Instruments

In this study, three two were used to collect data. In the first scale "the general self-efficacy scale-Schwarzer (GSES)" developed by Jerusalem and Schwarzer (1992). This is original scale, including one specific dimension, is comprised of ten items, designed for ages 12 and up, was created to assess perceived self-efficacy regarding coping and adaptation abilities in both daily activities and isolated stressful events. it has been well known internationally for two decades. Items in the scale are in the form of four option Likert type scale "1=not all true, 2=hardly true, 3=moderately true, 4= exactly true". Cranach alpha reliability value of the scale was found to be. 76 to. 90 (Jerusalem & Schwarzer, 1992).

The adaption of this scale to Portuguese was done by Nunes, Schwarzer, and Jerusalem (1999). In the adaption process of scale of self-efficacy was translated into Portuguese. Validity and reliability were done (0,75 - 0,91). According the results, it was seen that the efficiency of original scale, with consisted of ten items, was preserved in the Portuguese form. The Portuguese scale also had one specific dimension like the original scale.

The second scale "task and ego orientation in sport (TEOSQ)", was developed by Duda and Nicholls

(1989), Fonseca and Brito (2005) developed it to Portuguese version, measures individual differences in task and ego goal perspectives in the sport context. The athlete thinks of a successful sport experience and responds to 13 items reflecting task- and ego- referenced criteria. Responses to items "I really work hard" and "I'm the best" are indicated on a 5-point Likert scale ranging from strongly disagree (A) to strongly agree (E).

In present study reliability and validity of self-efficacy scale (GSES), questionnaire of task and ego orientation in sport (TEOSQ) were done.

RESULTS

In this section, the findings obtained from the data analyses related to The Self-efficacy and achievement motivation among football player are given in detail. Findings related to the level of self-efficacy among football players are shown in Table 1.

In Table 1, the average scores of self-efficacy among football players for each item are given. it may be

Table 1: Level of self-efficacy among football players

Self-efficacy	N	Mean	Std. deviation
I can always manage to solve difficult problems if I try hard enough	61	3.31	0.618
If someone opposes me, I can find the means and ways to get what I want	61	3.31	0.718
It is easy for me to stick to my aims and accomplish my goals	61	3.20	0.725
I am confident that I could deal efficiently with unexpected events	61	3.05	0.804
Thanks to my resourcefulness, I know how to handle unforeseen situations	61	3.08	0.665
I can solve most problems if I invest the necessary effort	61	3.40	0.663
I can remain calm when facing difficulties because I can rely on my coping abilities	61	3.31	0.718
When I am confronted with a problem, I can usually find several solutions	61	3.13	0.590
If I am in trouble, I can usually think of a solution	61	3.08	0.759
I can usually handle whatever comes my way	61	3.15	0.812
Total	61	3.20	0.707

observed that football players had high average scores in total ($M = 3.20$), remarkably, they scored lower on the fourth ($M = 3.05$) and higher on the sixth ($M = 3.40$). Football players' self-efficacies and achievement motivations were also examined according to their playing position as indicated in Table 2.

Table 2 shows football players' average self-efficacy in terms of their playing position was $M = 3.19$, so they have high level of self-efficacy. Kruskal-Wallis Test showed no statistically significant difference in football players' self-efficacy according to their playing position ($p > 0.5$). Kruskal-Wallis Test was used also to compare football players' achievement motivation according to playing position. The comparison analysis demonstrates that there were no significant differences ($p > 0.5$). According to the results, football players' average task and ego of achievement motivation scores were $M = 4.12$, $M = 3.00$, respectively.

Through previous results, the hypothesis "There is significant difference in self-efficacy and achievement motivation among football players according playing positions" had been rejected and null hypothesis had been accepted.

Table 3 shows correlation analysis of self-efficacy and achievement motivation. Self-efficacy had positive and significant correlation with task dimension ($r_s = .685$,

$p < 0.01$), and no significant correlation between self-efficacy and ego dimension.

DISCUSSION

In this study, we sought to investigate the level of self-efficacy among football players, to compare football players' self-efficacies and achievement motivations according to their playing position, and to know the correlation between self-efficacy and achievement motivation.

As results of this study, it was concluded that the football players had high levels of self-efficacy. And they were able to meet the challenges and sports competitions, and whatever the type of competition. "High self-efficacy will likely choose to attend training regularly, expend high levels of effort, and persist longer than those with low self-efficacy. These self-efficacious individuals will set higher goals and have more helpful thoughts and emotions" (Tod, 2014). As a result, they may have a better chance of success. Providing support for present study, both Cetinkalp and Turksoy (2011) and Munroe-Chandler, Hall and Fishburne (2008) examined self-efficacy as it relates to the situation and innate abilities of youth soccer players. They found high levels of self-efficacy produced high levels of performance in athletes.

Table 2: Comparison of football players' self-efficacies and achievement motivations according to their playing position

Scale	Dimension	Position	N	Mean	Std. deviation	Sig.
Self-efficacy		Goalkeeper	6	3.15	0.508	0.901
		Defender	20	3.21	0.573	
		Midfielder	19	3.17	0.488	
		Forward	16	3.25	0.485	
		Total	61	3.19	0.513	
Achievement motivation	Task Ego	Goalkeeper	6	3.90	0.811	0.751
		Defender	20	4.13	0.749	
		Midfielder	19	4.21	0.417	
		Forward	16	4.27	0.538	
		Total	61	4.12	0.628	
		Goalkeeper	6	3.05	0.720	0.751
		Defender	20	2.91	1.010	
		Midfielder	19	2.93	1.067	
		Forward	16	3.11	0.633	
		Total	61	3.00	0.857	

$P > 0.5$

Table 3: Spearman's correlations between self-efficacy and achievement motivation

Variables	Self-efficacy	Achievement motivation task	Achievement motivation ego
Self-efficacy	1	0.685**	0.001
Achievement motivation Task	0.685**	1	-0.007
Achievement motivation Ego	0.001	-0.007	1

** : Significant. at 0.01 level (2-tailed)

Results were concluded that no significant differences between the football players' self-efficacies and achievement motivations according to their playing position. This finding is inconsistent with the results of other investigations (Kirkcaldy, 1982; Andrew et al., 2007; Eloff et al., 2011). Kirkcaldy (1982).

The fact that the current study failed to concur with other investigations could be explained by the amateur level of participation of the sample tested in the present study. The results of the present study suggest that youth football players competing at amateur level they had homogeneously some psychological characteristics regardless of their respective position in the team. This finding, pertinent to soccer players, is corroborated by Kurt et al. (2012), who credited such homogenous results to the similar status (amateur/professional) of the participants.

Another probable reason for inconsistency between the current findings and those stemming from earlier research was the young age of the participants. McCarthy et al. (2010) postulated that young sport participants have less approximations of psychological skill usage compared to adult participants. The mean age of the sample in the present study was 16.77 ± 1.05 years old, which could be attest to insignificant relationship noticed between psychological skills and playing position. Jooste, Steyn, and Van den Berg (2014) support this view by conceding that athletes in the specialization stage (mean age 16.2 ± 1.13 years) may be at the ideal "windows of opportunity" for developing adult-like attributes and should, therefore, not be compared to older athlete's groups.

The results demonstrated that there was positive and significant correlation between self-efficacy and task orientation. Providing support for the findings, Barış and Kocaeksi (2013), Canpolat and Kazak Cetinkalp (2011), Carpenter & Yates (1997) examined the relationship between self-efficacy and task orientation. For example, Carpenter and Yates (1997) found the amateur footballers' task orientation are higher rather than semi-professional footballers. This is parallel with

the findings of present study. Amateur athletes have focused to improve their physical, technical, tactical and psychological characteristics, "task goal orientation focuses on comparing performance with personal standards and personal improvement" (Weinberg & Gould, 2015).

The results demonstrated that there was positive and significant correlation between self-efficacy and self-confidence. Providing support for the findings, Besharat and Pourbohlool (2011) examined self-confidence and sport self-efficacy.

CONCLUSION

In conclusion, when making literature reviews, as parallel with many researches, present study was inconsistent with studies and consistent with others. The findings indicated there was high self-efficacy among football players. And different playing positions were compared in terms of self-efficacy and achievement motivation, there was no significant difference found between compared variables. Can be said that this situation is largely related to the groups having similar status (amateur), similar age and football experience. There was positive and significant correlation between self-efficacy and task orientation. And self-efficacy and self-confidence. Future qualitative research which covers the test having multi-variables on self-efficacy and others psychological characteristics could be performed.

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The Effect of Special Critical Speed Exercises in Developing Variables of Running Strides and Achievement in the 100 m Dash Race for Youth

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ABSTRACT

When we look at the great achievements at each source of developing sport levels all over the world, we will realize that sport training has a great position in developing human abilities, discover their latent powers and transform them to great achievements that will last for eternity along history. Countries around the world are interested in developing various sports and at all levels. This is clear in Olympic and world championships in terms of raising performance and record levels. This is also evidence on high ability to employ scientific facts and theories to serve sport development. Lately, a set of critical speed exercises were introduced as they express speed related to performance with a special rule that may become an evidence on the use of times of training intensities and determine these intensities based on the output time period of this training. Therefore, the researcher decided to use a new training method to develop speed using new training methods to reach critical speed using target time, develop time, reaching achievement at the least possible time in performance as well as knowing the player's bio-kinematic movement. This means to analyze the performance of the player to be able to know the variables that are involved in performance and reach world achievement. The study aims to prepare exercises based on critical speed and define their effect on developing running strides (length and frequency) in the 100 m dash achievement for both groups of the study. The researcher proposed that there are statistically significant differences between pre- and post-tests for both groups of the study in variables under study. The empirical method was used by the design of two empirical groups. The sample of the study included 12 young players of 100 m dash races from the specialist care center for talents. Sample homogeneity was performed for members of the sample. After that, the researcher divided the sample into two groups randomly through polls. Each group included six players. The first empirical group applied critical speed exercises, while the second one applied speed training. Step length, stride frequency, achievement of 100 m dash within the Kinovea analysis for all variables of the study. The method was applied on (8) weeks in three training units per week with total 24 units. Items of the methodology were determined for both empirical groups in distances, repetitions, sets and rest periods. As for the difference in both groups, the first one calculates the times of distance performance and critical speed and found that critical speed exercises achieved a development in the length, frequency and achievement of 100 m dash better than the group of speed exercise s. the researcher recommends adopting special exercises according to critical speed time period in athletic training on 100 m dash event and for the youth, especially in the specialist center for talents.

Keywords: Special exercises, critical speed, running, achievement, the youth

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INTRODUCTION

The sports training method develops the sports performance level to reach high levels of achievement in various sport competitions and these methods contribute to develop the achievement. The 100m dash race is one of the fast and short running

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competitions that consist of low start - reaction - acceleration -maximum speed – extending maximum speed, which constitute the technical stages of the race and affect in varying degrees. Recently, critical speed exercises were introduced as they express the special performance speed and there is a special law that could be evidence of the use of the times related to training intensity and determine special intensities according to the time extracted during training as the method of critical speed is one of the modern training methods used in the training of the higher levels of short, medium and long distances (1:24). It is no secret that there is an impact of variables such as running strides (step length and frequency) are of the kinematic variables in the study of player’s movement.

Therefore, the researcher decided to develop speed using new training methods to reach critical speed using the target time, work on the development time, reach achievement in less time possible to perform effectively, as well as knowledge of the player’s bio-kinematic movement or player performance analysis to be able to know the variables that involve in performance and reach higher achievement by the player.

The research aims to prepare exercises according to critical speed and get to know their impact on the development of strides of sprinting (step length and frequency) and the achievement of 100m dash for the youth for the two groups of the study.

The researcher proposed that there are statistically significant differences between pre and post tests for groups of the study in variables with statistically significant differences in the post-test between the two groups in the study for variables under study.

SCOPES OF THE STUDY

Human: young runners of 100m dash race (12 players).

Time: the period from 29/01/2016 to 16/04/2016.

Place: the Specialist Center for Talent Care.

METHODOLOGY OF THE STUDY

The study used the empirical study by design of two empirical groups.

SAMPLE OF THE STUDY

The sample of the study included 12 young players of 100m dash race from the Specialist Center for Talent Care. Table 2 shows that skewness values are between ± 3 which refers to homogeneity among members of the sample in variables related to homogeneity. After that, the researcher divided the sample into two groups randomly through a poll. Each of the empirical groups consists of six players. The first group applied critical speed exercises, whereas the second group applied speed exercises.

FIELD PROCEDURES OF THE STUDY

Variables of the Study

The researcher selected step length, stride frequency and achievement of 100 m dash within the Kinovea analysis for all variables of the study.

Exploratory Trial

The trial was carried out on Saturday 06/02/2016 in order to determine correctness of variables and ability to measure critical speed. Through this trial, the researcher determined the variables related to motor imaging machine, height of its lens, validity and then implemented it on a sample outside the study sample consisting of 4 players at the same position and for the same youth competition.

Pre-Tests

Pre-test was conducted on 13/02/2016 on Saturday at the National Center for Talent Care in the specialist school near Al Shaab Stadium. The researcher pictured the study sample upon conducting the achievement

Table 1: Sample homogeneity in weight, length, age and training age

Statistical methods variables	Measure unit	Arithmetic mean	Median	Standard deviation SD	Skewness coefficient
Age	Year	17.5834	17.5	3.3699	0.0743
Length	Cm	7092,1	7150,1	0556,0	3130,0
Weight	Kg	60	59	6681,3	8179,0
Training Age	Year	6667,1	5200,1	2083,0	113,2

Table 2: Arithmetic mean, standard deviation SD, calculated T value, error level and significance for pre- and post-Tests for both groups of the study

Statistical methods variables	Mean		SD		F Value	A.F	Calculated T	Significance Level	Difference significance
	Pre	Post	Pre	Post					
Critical speed exercises									
Step Length (m)	987,1	058,2	039,0	026,	072,	007,	957,10	000,0	Significant
Step Frequency (No.)	94,3	99,3	062,0	065,0	048,	018,0	63,2	046,0	Insignificant
Achievement (s)	75,12	157,12	139,	204,0	593,0	053,0	215,11	000,0	Significant
Speed exercises									
Step Length (m)	982,1	02,2	045,0	021,0	38,0	016,0	335,2	067,0	Significant
Step Frequency (No.)	978,3	932,3	157,0	078,0	046,0	036,0	265,1	262,0	Insignificant
Achievement (s)	699,12	594,12	241,0	186,0	105,0	044,0	371,2	064,0	Significant

test to count its time, step length and frequency by motor analysis.

Training Method

The method was applied from Friday 19/02/2016 to Wednesday 13/04/2016 as the course was along (8) weeks (3 training units a week) on Friday, Monday and Wednesday of each week, so the total of training units was (24 units). Items of the course were unified for both empirical groups as follows:

1. Using distances from 30 m to 120 m.
2. Intensity ranged between 85% and 100%.
3. High intensity interval training and frequency training were used.
4. The work was made according to rest periods of work (1:3, 1:4 and 1:5)
5. Repetitions ranged between: a single repetition with 100% intensity till 10 repetitions with an intensity of 85% was 2 – 4 groups.

As for the difference between the two groups: in the first group, distance performance times were counted as follows: The researcher used critical speed rule, which is a rule that was referred to in some Arab and foreign sources and references that indicated to the critical speed rule that was Arabized and applied by Dr. Sareh Al Fadli, Professor of Biomechanics and Kinematics at the Faculty of Physical Education and Sports Science - Baghdad University. The foreign source is: Brian Mackenzie; 101 Performance Evaluation Test, Electric pic, British library, 2005, pww57.

- Critical Speed = (the longest distance – the shortest distance) ÷ the difference between time in both distances.

Post-Tests

After completing training for both groups of the study, post-tests were conducted on Saturday 16/04/2016 with consideration of the same time and place conditions during which pre-tests were conducted.

Presenting, Analyzing and Discussing Results of Step Length and Achievement for Pre- and Post-Tests for Both Groups of the Study

Through results of Table 2, the researchers found that the first group using critical speed exercises developed with a range of step length as it considered one of the main significant aspects in the 100m dash race as an effective means to increase the speed in short distances provided they do not reduce the range of steps, and the player can reach the length of a typical step by adjusting the technical performance, so the researcher used the kinetic analysis program (Kinovea) to extract the length and the number of steps. In addition, there is a difference between race distances and thee researcher attributed reason for this difference between distances to the increasing speed consistent with (Qassim Hassan Hussein, 1987) (6:15) as he said that “high acceleration is accompanied by either expansion of steps or escalation of recurrence” and (Dia Al Taleb 1988) (4:22) also noted that “step length continues to increase the speed up till the athlete reaches his maximum speed”, as the used exercises result in improved tight and relaxed muscles of the legs causing development and improvement in step length, as stated by the (Sareh Al Fadli) (3:57) “exercises emphasizes the link between step length, speed, and accordingly can develop the maximum speed of the player in which the target is the judgment of step length, taking into account preservation of step frequency and manner consistent

with the increase in step length while running. On the contrary, if this efficiency decreases, this step will decrease as well”.

There are no significant differences in the variable of step frequency and the researchers attributed this to the fact that the player was dependent on the length of step in running in pre-test more than relying on frequency, as found by (Adel Mohammed Dahash) who said: “...and that the development in step length of the sample gives the indication that the frequency was consistent with length of the move and that any development happening both in stride length or frequency is over another” (5: 131) and this was shown in results. Moreover, it was found in the test results of achievement the development as a logical result for the development of physical attributes with direct relation to 100 m dash race and thus this is reflected on the development of achievement and this is consistent with the view of each of (Mohammad Hassan Allawi and Essam Abdul Khaliq) that “the 100m dash race to combines between speed and power, the correlation between speed and power has to be proportional and that there should be integration between strength and speed as strength is actually the motor reality, while speed is the motor appearance. The greater the strength in as little time as possible and the less time its exertion is, the more we will be able to overcome the resistance and benefit from the starting with maximum speed in the start-up phase” (2:29).

The researchers, through the results of tests, found that the second group did not develop in training with speed and this shows the effectiveness of the training course for critical speed using various training intensities through step length, frequency as well as achievement, as there are significant differences between the two tests between step length for critical speed training and without speed exercises, whereas in step frequency there were no significant differences because they are directly related to step length and frequency. The proportion between step lengths of the first distance

should be proportionate with step length in the second distance as well as frequency of steps during the race.

As for, achievement, the first set of critical speed exercises has developed more than the second group.

Presenting, Analyzing and Discussing Results of Step Length and Achievement of the Post-test for Both Groups of the Study

Through results of Table 3, the researchers found a notable development and improvement in post-tests attributed to the use critical speed of different intensities within the time-outs. This means in any time that is taken, intensities are distributed according to time and reducing the time-out during the distance traveled in the race in addition to the development of special physical abilities in the 100 m dash race reaching achievement in performance.

The researchers attribute the significant differences appeared on population members in pre- and post-tests to the effectiveness of the special workouts based on determining the length of time of the critical speed, which has been adopted, and was implemented using high intensity interval training with maximum above the maximum for the group. “the high intensity interval training method is used to improve and raise the level of the special case of the event, that is, they are very useful for private settings in sports training, where they lead to Internalization responses of the body as it begins to build the capillaries to become more efficient in transporting oxygen to the working muscles. This method also helps to prevent injury and allows an increase of loads without the occurrence of a case over the training and as a result of these cases, the performance level and achievement improve.

CONCLUSIONS

1. The method of working with special exercises based on determining the time period of critical speed has

Table 3: Arithmetic mean, standard deviation SD, calculated T value, error level and significance of the post-Test for both groups in variables of the study

Statistical methods Variables	Group 1		Group 2		F Value	A.F	Calculated T	Significance level	Difference significance
	Mean	SD	Mean	SD					
Step Length (m)	058,2	02,2	026,0	021,0	038,0	014,0	835,2	018,0	Significant
Step Frequency (No.)	998,3	932,3	066,0	078,0	066,0	042,0	573,1	147,0	Insignificant
Achievement (s)	157,12	594,12	204,0	186,0	436,0	113,0	878,3	003,0	Significant

Freedom degree (5) under significance level (0.05)

an effective influence on developing step length and achievement.

2. The traditional training set by the researcher without using critical speed exercises training method developed step length and achievement, but it was not as the level of developing critical speed exercises.
3. Using training loads according to determination of the time period of critical speed, organization of effort and rest times has an effect on developing step length and achievement.
4. The variable of step frequency did not develop for both groups due to development of each step length.

RECOMMENDATIONS

1. Special exercises based on determining the time period of critical speed in sport training for the 100 m dash event and for the youth division, especially at the specialist center for talents.
2. Developing the physical attributes of the players to be consistent with their abilities and characteristics of the age group they are going through and for both genders.
3. To conduct studies on other events using critical speed exercises.
4. To apply critical speed exercises on other training

classes, events and various games to determine the feasibility of these exercises in the development of achievement.

5. It is preferred to perform training on these exercises thoughtfully to be consistent with the capabilities of players and their physical and age potentials.

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The Acute Effect of Whole-Body Vibration Training on Postural Control on Female Rhythmic Gymnasts

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ABSTRACT

The purpose of the present study was to examine the acute effect of Whole-Body-Vibration (WBV) on rhythmic gymnasts' static and dynamic balance. It was hypothesized that vibration exposure induces positive short-term effect on postural control, enhancing the ankle strategy. This hypothesis was tested on eleven elite rhythmic gymnasts, who were examined twice, once with WBV and once without WBV (NWBV). Balance was assessed under six different conditions with the Sensory Organization Test (SOT) based on the EquiTest Dynamic Posturography system. All tests were performed at baseline, immediately after and 15 minutes after the end of the intervention. The results showed that the improvement of the gymnasts' postural control was significantly greater after the WBV as compared to the NWBV protocol in all examined parameters. Therefore, WBV may be an effective warm-up method for the enhancement of the ankle strategy during performance.

Keywords: Vibration exposure, static balance, dynamic balance, gymnastics, proprioception

INTRODUCTION

In rhythmic gymnastics the gymnast's ability to perform successfully various skills as turns, walkovers and rolls requires balance control. Balance, referred to as a coordination ability during which the center gravity of the body (CoG) is sustained within its base of support (BoS) (Blackburn, Guskiewicz, Petschauer, & Prentice, 2000), is maintained by three sensory processes working together; the visual, vestibular, and somatosensory (Horak, Nashner, & Diener, 1990). A decrease of postural stability adversely affects performance (Vuillerme, Danion, Marin, Boyadjian, Prieur, & Weise, 2001). According to Shaffer and Harrison (2007) and

Carr and Shepherd (2000), postural control represents a complex interplay between the sensory and motor systems and involves perceiving environmental stimuli, responding to alterations in the body orientation within the environment and maintaining CoG within the base of support. With regards to dynamic stability, Hof, Gazendam, & Sinke (2005) propose an extended rule, defining as the margin of stability (b) the minimum distance from the extrapolated centre of Mass position (XcoM) to the boundaries of the BoS. Both static and dynamic balance is needed in rhythmic gymnastics performance. Static balance refers to the ability to stay upright within the base of support and dynamic balance refers to the ability to recover the equilibrium after external dynamic perturbations. Another balance requirement in rhythmic gymnastics is postural steadiness, which refers to standing as still as possible (Juras, Stomka, Fredyk, Sobota, & Bacik, 2008). Balance is usually measured using static and dynamic validated balance tests (Davlin, 2004) and force plate devices (Holviala, Sallinen, Kraemer, Alen, & Hakkinen, 2006; Rankin, Woollacott, Shumway-Cook, & Brown, 2000).

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Whole Body Vibration (WBV) mechanically activates muscles by eliciting neuromuscular activity (Rittweger, Beller, & Felsenberg, 2000). WBV training requires standing on a vibration platform that generates side to side alternating vertical sinusoidal mechanical vibration. The transmission of mechanical oscillations from the vibrating platform may lead to physiological changes in muscle spindles, joint mechanoreceptors, higher brain activity and strength and power properties (Moezy, Olyaei, Hadian, Razi, Mohammad, & Faghihzadeh, 2008.) To that extent, researchers have reported the significant effect of WBV training upon balance (Cheung, Mok, Qin, Sze, Lee, & Leung, 2007; Torvinen, Kannu, Sievanen, Jarvinen, Pasanen, Kontulainen, et al. (2002a;b; van Nes, Geurts, Hendricks, & Duysens, 2004), functional mobility (Merriman, & Jackson, 2009; Vissersa, Verrijkenb, Mertensc, Van Gilsc, Van de Sompelc, Truijena, et al., 2010), body composition (Roelants, Delecluse, Goris, & Verschueren, 2004), decrease fall risk (Bogaerts, Verschueren, Delecluse, Claessens, & Boonen, 2007; Bruyere, Wuidart, Di Palma, Gourlay, Ethgen, Richy, & Reginster, 2005; Rees, Murphy, & Watsfort, 2009), overall quality of life (Bogaerts, Verschueren, Delecluse, Claessens, & Boonen, 2007; Bruyere, Wuidart, Di Palma, Gourlay, Ethgen, Richy, & Reginster, 2005; Rees, Murphy, & Watsfort, 2009; Trans, Aaboe, Henriksen Christensen, Bliddal, & Lund, 2009) etc, of individuals from 20 to 80 years old. WBV has been examined in several sports (Bosco, Cardinale, & Tsarpela, 1999a; Bosco, Colli, Introini, Cardinale, Tsarpela, Madella, et al. 1999b; Rehn, Lidstrom, Skoglund, & Lindstrom, 2007) and confirmed the improvement of muscle strength and power (Bautmans, Van Hees, Lemper, & Mets, 2005; Cochrane, & Stannard, 2005; Dallas & Kirialanis, 2013; Dallas, Kirialanis, Mellos, 2014; Delecluse, Roelants, & Verschueren, 2003; Kinser, Ramsey, O'Bryant, Ayres, Sands, Stone, 2008), flexibility (Cochrane, & Stannard, 2005; Dallas & Kirialanis, 2013; Dallas, Kirialanis, Mellos, 2014; Kinser, Ramsey, O'Bryant, Ayres, Sands, Stone, 2008; Sands, McNeal, Stone, Russell, & Jemmi, 2006), speed (Cochrane, Legg, & Hooker, 2004; Paradisis, Zacharogiannis, 2007), balance (Torvinen, Kannus, Sievanen, Jarvinen, Pasanen, Kontulainen, S., et al. 2002b; 2003; Tsopani, Dallas, Tsiganos, Papouliakos, Di Cagno, Korres, et al. 2014) etc. Recent studies about WBV training as an effective method to enhance sport performance showed conflicting results. Ebersbach, Edler, Kaufhold, & Wissel, (2008) and Cheung, Mok, Qin, Sze, Lee, & Leung (2007), who investigated the effect of WBV on balance, revealed

no significant differences either between or within groups regarding postural sway. However, postural control improvement was reported in directional control and sway, during arm abduction or anter flexion, after 6-month WBV training (Verschueren, Roelants, Delecluse, Swinnen, Vanderschueren, & Boonen, 2004). In addition, Moezy, Olyaei, Hadian, Razi, Mohammad, & Faghihzadeh (2008) showed that postural stability, measured by the deviation of centre of pressure (CoP) test, in anterior cruciate ligament reconstruction athletes, was significantly greater in the WBV group, compared with the NWBV group. Furthermore, the lateral sway of the center of pressure was smaller in dancers than in untrained subjects during unilateral leg movements performed while standing (Mouchnino, Aurenty, Massion, & Pedotti, 1992). However, two studies of Torvinen and colleagues reported that 4-8-month WBV intervention had no effect on the dynamic and static balance (2002b; 2003). It has also been demonstrated that the efficacy of WBV on balancing ability may be dependent on age (Ferber-Viart, Ionescu, Morlet, Froehlich, & Dubreuil, 2006) and physical conditions (Schuhfried, Mittermaier, Jovanovic, Pieber, & Paternostro-Sluga, 2005; van Nes, Geurts, Hendricks, & Duysens, 2004). Several mechanistic findings indicate that WBV induces several neural and muscular changes, such as stimulation of human ankles (Burke, Rymer, & Walsh, 1976), which might improve the balancing ability. The positive effects of WBV on muscular performance (Bautmans, Van Hees, Lemper, & Mets, 2005; Schuhfried, Mittermaier, Jovanovic, Pieber, & Paternostro-Sluga, 2005; van Nes, Geurts, Hendricks, & Duysens, 2004) should help to enhance the balancing ability (Okada, Hirakawa, Takada, & Kinoshita, 2001). With respect to rhythmic gymnastics, Tsopani, Dallas, Tsiganos, Papouliakos, Di Cagno, Korres, et al. (2014), examined the effect of WBV and found significant improvement on 'Limits of Stability' (LOS), and 'Rhythmic Weight Shift' (RWS) balances tests. These two tests (LOS & RWS) require participants to remain stable on the platform and synchronize their weight shift according to external visual stimuli (Tsopani, Dallas, Tsiganos, Papouliakos, Di Cagno, Korres, et al. 2014). However, high level rhythmic gymnasts are required often to execute balanced exercises rapidly. The success of these exercises is based not only upon the visual feedback, but on the vestibular system and proprioception as well, since the role of visual stimulus is either limited or absent. Based on the fact that WBV enhances balance performance (Cheung, Mok, Qin, Sze, Lee, & Leung, 2007; Torvinen,

Kannu, Sievanen, Jarvinen, Pasanen, Kontulainen, et al. 2002a;b; Tsopani, Dallas, Tsiganos, Papouliakos, Di Cagno, Korres, et al. 2014; van Nes, Geurts, Hendricks, & Duysens, 2004), and muscle strength (Bautmans, van Hees, Lemper, & Mets, 2005; Cochrane, & Stannard, 2005; Dallas, & Kirialanis, 2013; Dallas, Kirialanis & Mellos 2014; Delecluse, Roelants, & Verschueren, 2003; Kinser, Ramsey, O'Bryant, Ayres, Sands, & Stone, 2008), it remains unknown if WBV has an effect on postural stability of elite rhythmic gymnasts who are characterized by high level athletic performance. Thus, the present study was designed to examine the acute effect of WBV training on Sensory Organization Test (SOT) recruiting mainly the vestibular and somatosensory systems. The working hypothesis is that a single bout of WBV, compared to an equivalent exercise program performed without vibration, results in acute improvement of postural control.

METHOD

Experimental Approach to the Problem

This is a repetition measure design to assess the acute effects of a single bout of WBV on elite rhythmic gymnast static and dynamic balance, evaluated by Sensory Organization Test (SOT).

Subjects

Eleven national rhythmic gymnasts, mean age 17.54 ± 0.52 years, body mass 51.27 ± 2.24 kg, height 170.54 ± 3.48 cm, and percent body fat 15.29 ± 1.22 , volunteered to participate in the present study. All participants had more than 10-12 years of training (6 days per week for 4 hours per day) and competition experience with no previous experience in WBV. The exclusion criteria from the study were neurological, musculoskeletal, or other chronic diseases and no injuries, as reported by the medical history questionnaire. Participants were informed of the rationale of the study, the use of the resultant data, and the issues and goals being pursued. The study was designed to conform to the Declaration of Helsinki and was approved by the local Ethics Committee. Participants and the parents of the underage gymnasts gave their written consent prior to participating in the study.

Design

All participants performed two trials under two different protocols on two separate days, once without

WBV (NWBV), and once with WBV. In order to compensate for any habituation due to intervention six subjects were measured in the order WBV-NWBV and the other five in the reverse order. The vibration protocol consisted of a single bout WBV training. One hour prior to the first trial, a familiarization session and anthropometric measurements were performed. The familiarization session included instructions on how to perform the exercises on the whole body vibration platform. The order of the trials was not randomized to avoid cross-contamination of the results.

The WBV was performed by using the Galileo 900 (Galileo Fitness, Novotec, Germany), which is a side-alternating vibration device, working as a teeterboard with amplitude of 0 to 5.3 mm (medial to distal) and a variable frequency of 5 to 30Hz. The amplitude was controlled by adjusting the foot position from 1 to 3, the larger the position and the greater the amplitude. Before treatment, instructions on using the Galileo 900 were given by the researcher and its safety issues were explained. The frequency of the vibration was set at 30 Hz and 2mm amplitude, for a total time of 75 seconds. According to other studies (Bosco, Iacovelli, & Tsarpela, 2000; Cochrane, & Stannard, 2005; Fagnani, Giombini, Di Cesare, Pigozzi, & Di Salvo, 2006; Jacobs, & Burns, 2009; Mahiu, Witvrouw, van de Voorte, Michilsesns, Arbyn, & van den Broecke, 2006; Torvinen, Kannu, Sievanen, Jarvinen, Pasanen, Kontulainen, et al. (2002a;b) low frequencies and amplitudes are most effective in improving balance and muscular performance. The participants were exposed to a single bout WBV training at moderate intensity using different execution forms of five exercises, each one lasting 15 seconds (static and isotonic squat; single leg stance for right and left leg; stretching hamstring muscles). The duration of 15 seconds was used to obtain the performance enhancement found by Cormie, Deane, Triplett, & McBride (2006). During all the vibration-training sessions, the participants wore their usual gymnastics shoes to avoid bruises and to standardize the damping of the vibration caused by the footwear. As there are no scientific-based WBV programs, the training program in the present study was based on similar protocols that resulted in significant changes in muscle performance (Delecluse, Roelants, & Verschueren, 2003; Torvinen, Kannu, Sievanen, Jarvinen, Pasanen, Kontulainen, S, et al. 2002a). In order to achieve the purpose of this investigation, the NWBV treatment was composed of the same exercises as the WBV on the Galileo platform but with the device

switched off. Gymnasts in both programs wore sport shoes during the training sessions.

Measurements

A battery of tests was performed at baseline (pre), immediately after the end of the trial (post 1) and 15 minutes after the end of WBV trial (post 15). The participants were informed about the test procedures and were asked to perform all tests at maximum intensity. The participants had one familiarization session before each test. The maximum duration of the test battery was four minutes.

Postural Control (Stability)

Postural Control was examined by means of the EquiTest of Computerized Dynamic Posturography (CDP) (2001). NeuroCom's EquiTest system is equipped with a moving visual surround (wall), the most sophisticated technology available for isolating and assessing sensory modality interaction. The test performed in the present study was the Sensory Organization Test (SOT). The SOT based on the EquiTest Posturography system is used for the laboratory assessment of postural stability.

The SOT can objectively identify any abnormalities in the three systems (visual, vestibular, and somatosensory). The SOT evaluates the integrity of these three sensory modalities by selectively disrupting somatosensory and/or visual information regarding body CoG orientation in relation to display from the vertical and then measuring the subject's ability to maintain and recover balance (Nashner, 1993). According to Wrisley, Stephens, Mosley, Wojnowski, Duffy, & Burkard, (2007) the test isolates various sensory contributions by either removing or distorting the visual and/or somatosensory inputs to postural control. It is mentioned that normal participants move primarily about the ankle joints when the surface is stable and shift to hip movement as they become less stable. The EquiTest CDP system is able to quantify the relative amount of ankle and hip strategy to compensate for forces in the anterior-posterior direction through Strategy Analysis, with ankle strategy scores being close to 100, while hip strategy scores being close to zero.

Gymnasts were allowed to become familiar with the system and performed one trial before proceeding to the tests. All participants were examined on six different sensory conditions: 1) normal vision with fixed

support; 2) absent vision with fixed support; 3) swayed-reference vision with fixed support; 4) normal vision swayed-referenced support; 5) swayed-reference support with absent vision; and 6) swayed-referenced vision with swayed-reference support (Figure 1). The duration of each sensory condition was 20 seconds.

The purpose of the 6 conditions was to isolate the different sensory systems used for balance control. Conditions 1 and 2 measured the subjects' baseline stability, whereas condition 3 the visual surround was conflict. Condition 4 the somatosensory input was conflict whereas, in condition 5 and condition 6 the visual surround and somatosensory inputs were conflicted; this test isolates the vestibular system. After the instructions were received, each gymnast was placed on the balance machine (NeuroCom) and tested 3 times on all 6 conditions.

Statistical Analysis

Throughout the six experimental conditions of the SOT, the dependent variable measured was the postural stability expressed in percentage form and averaged in each case over three trials. Each of the six experimental conditions of the SOT was subjected to a two-way (2 X 3) ANOVA (protocol X time) analysis with repeated measures. The first within subjects factor was protocol (WBV-NWBV) with time (pre, post 1 and post 15) being the second nested within subjects factor. The interaction between the two factors (protocol X time) was also considered in the model. Significant effects of the factors or their interactions were tested through their F-values with the appropriate degrees of freedom that yield the corresponding p-values. The estimates of

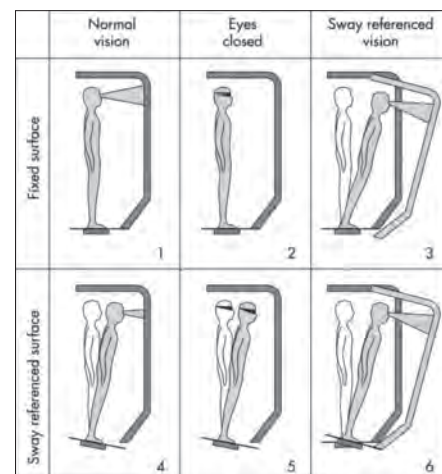


Figure 1: The 6 conditions of the NeuroCom Sensory Organization Test (SOT)

effect size are also reported through the corresponding η^2 values. This is an approximate measure of the proportion of the overall parameter variability attributable to the effect of the factor. Post hoc pairwise comparisons with Bonferroni adjustments of the means of time within each protocol and protocol within each time were also conducted. All values are presented as means \pm SD. The level of significance was set at 0.05.

RESULTS

Table 1 describes the results of the two-way ANOVA (protocol X time) analysis with repeated measures on each of the six conditions of the SOT.

The six mean values (\pm SD) for each of the three time measurements in each of the two protocols are shown in table 2 and are also depicted in figure 2.

In table 2 asterisks denote statistically significant differences of the post 15 from the previous two measurements (pre and post 1), whereas in figure 2

asterisks denote statistically significant difference between the two protocols for the specific time measurement.

With regards to condition 1 there was a significant protocol effect, which is attributed to the fact that in the post 1 measurement the athletes scored better in the WBV protocol than in the NWBV protocol. However, this effect is overshadowed by the very significant time effect, which is totally attributed to the fact that, irrespective of the protocol, the athletes exhibited a very sharp performance reduction at the post 15 measurement.

With regards to condition 2 beyond the significance of the protocol and time effects, there was also a significant protocol X time interaction effect. This is explained by the observation that the significant increase in performance at the post 15 measurement is more striking in the WBV condition than in the NWBV condition. As a result in both the post 1 and post 15 measurements the athletes performed significantly better in the WBV condition. Exactly the same apply to condition 4.

In condition 3, the effect of protocol remains significant but the effect of time disappears although it qualifies through the second order interaction of protocol X time. This is a result of the fact that, while in the WBV protocol the athletes performed equally in all three time measurements, in the NWBV protocol the athletes gradually performed worse, though not in a significant manner. However, these resulted in significantly better performances in the WBV protocol at the post 1 and post 15 time measurements.

In condition 5, the effect of time remains significant but the effect of protocol disappears although it

Table 1: Results of the 2-way ANOVA with repeated measures reporting the significance (p-value) and the effect size (η^2) of protocol, time and their interaction on postural stability in each of the six SOT experimental conditions

	protocol		time		protocol X time	
	p-value	η^2	p-value	η^2	p-value	η^2
Condition 1	0.005	0.560	0.000	0.910	0.256	0.128
Condition 2	0.002	0.640	0.000	0.615	0.039	0.276
Condition 3	0.000	0.882	0.138	0.180	0.011	0.360
Condition 4	0.014	0.471	0.000	0.884	0.009	0.377
Condition 5	0.647	0.022	0.000	0.749	0.046	0.224
Condition 6	0.941	0.001	0.486	0.070	0.628	0.045

Table 2: Means (\pm SD) of postural stability (expressed in percentage form) at each of the three time measurements (pre, post 1 and post 15) in each of the two protocols (WBV, NWBV) for each of the six SOT experimental conditions. Asterisks denote statistically significant differences ($p < 0.05$) of the post 15 measurements in comparison to the previous measurements

	WBV			NWBV		
	Pre	Post 1	Post 15	Pre	Post 1	Post 15
Condition 1	96.0 \pm 1.1	96.2 \pm 1.2	92.3 \pm 1.3*	95.6 \pm 1.1	94.8 \pm 1.2	91.1 \pm 1.4*
Condition 2	93.0 \pm 2.6	93.6 \pm 1.8	96.1 \pm 1.1*	92.5 \pm 2.9	91.3 \pm 1.9	94.5 \pm 1.7*
Condition 3	93.5 \pm 2.2	93.7 \pm 2.0	93.9 \pm 1.3	92.8 \pm 2.1	91.9 \pm 2.2	90.8 \pm 1.7
Condition 4	87.4 \pm 2.6	87.9 \pm 2.2	93.9 \pm 2.3*	87.3 \pm 2.4	86.4 \pm 1.6	91.8 \pm 1.4*
Condition 5	69.2 \pm 8.9	70.2 \pm 8.4	88.4 \pm 1.9*	72.6 \pm 11.5	71.4 \pm 10.5	86.2 \pm 1.7*
Condition 6	68.7 \pm 3.9	69.3 \pm 3.2	70.6 \pm 7.8	68.9 \pm 4.0	68.2 \pm 3.3	71.3 \pm 10.3

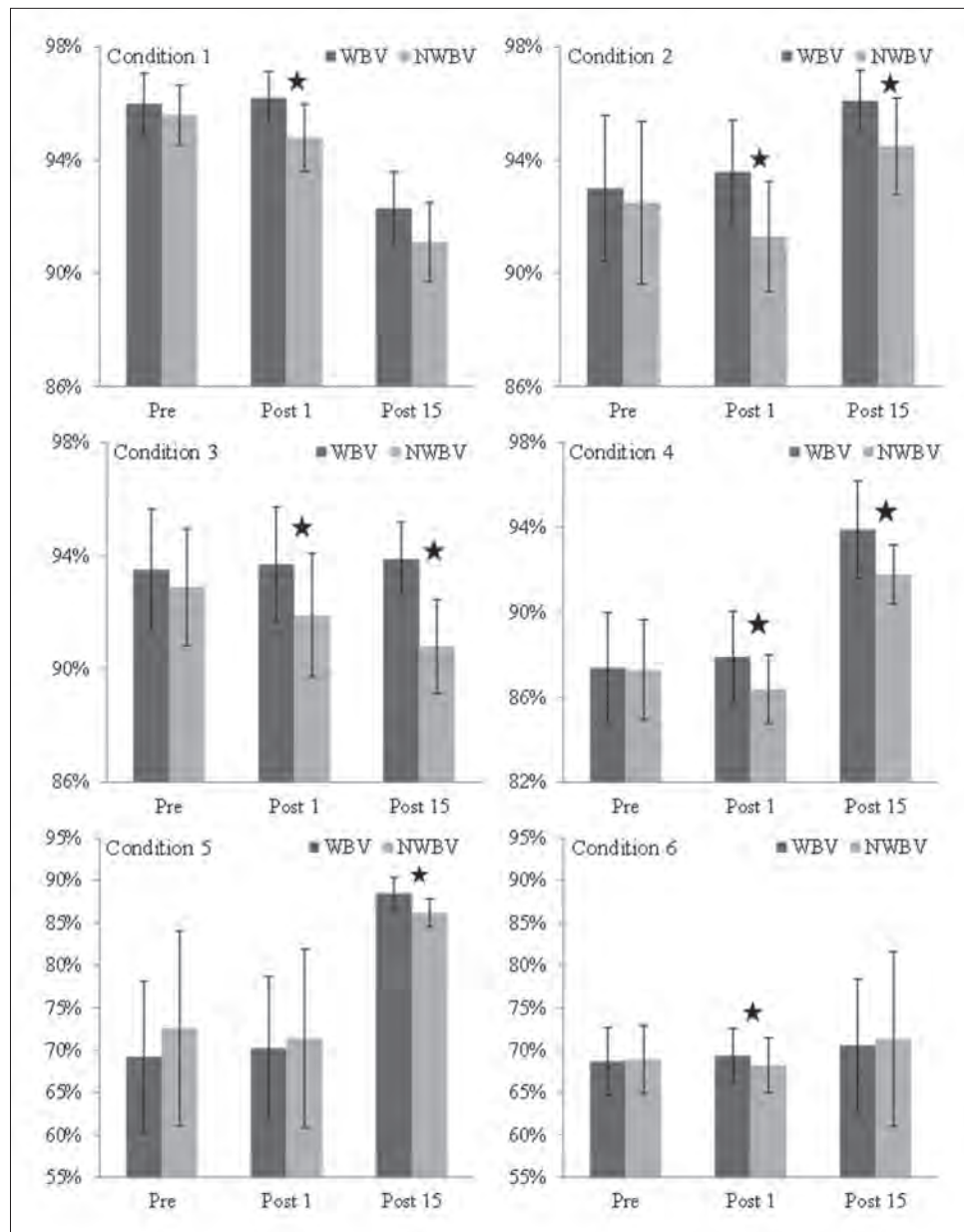


Figure 2: Means (\pm SD) at each of the three time measurements (pre, post 1 and post 15) in each of the two protocols (WBV, NWBV) for each of the six SOT experimental conditions. Asterisks denote statistically significant differences ($p < 0.05$) between the WBV and NWBV protocols for the specific time measurement

qualifies through the second order interaction of protocol X time. This is a result of the fact that the athletes performed significantly better at the post 15 measurement in both protocols, yielding in the end an advantage of the WBV protocol.

With regards to condition 6 there were no significant effects of the two factors or their interaction, with the only observable difference in favor of the WBV protocol being at the post 1 measurement.

DISCUSSION

The purpose of this study was to verify the acute effects of WBV on postural control as assessed by the Sensory Organization Test (SOT) in elite rhythmic gymnasts. The primary finding of the study was that a single short-bout WBV induced a significant, transient increase on elite rhythmic gymnasts' postural control immediately after the end of the vibration loading. More specifically, it is evident in all conditions that

immediately after the end of WBV program gymnasts improved their postural control as they were more stable than with the NWBV protocol that revealed a reduction in post measurements in comparison to baseline values. Moreover, it is evident that the effect of WBV protocol extends up to 15 min after the end of vibration loading.

The fact that in three conditions there was also an improvement in the post 15 measurement in the NWBV protocol indicates the presence of practice/learning order effects. However, in all three conditions these measurements of postural control remained higher in the WBV protocol, indicating that the protocol effect was above and independent of the learning effect. Based on the fact that the improvements in these balance parameters were greater after the WBV protocol, it is clear that the immediate effect of a short-bout vibration protocol was beneficial for the gymnasts' postural control. However, in both protocols the athletes failed to retain balance scores 15 min later in condition 1 in contrast to previous studies that demonstrated an immediate suppression of reflex activity in healthy subjects and the need of a recovery period in order to realize the WBV effect (Kipp, Johnson, Doeringer, & Hoffman, 2011). Different findings on the WBV efficacy on balance ability should depend on sample age (Ferber-Viart, Ionescu, Morlet, Froehlich, & Dubreuil, 2006) and physical conditions (Schuhfried, Mittermaier, Jovanovic, Pieber, & Paternostro-Sluga, 2005; van Nes, Geurts, Hendricks, & Duysens, 2004). WBV increased the activity level of the muscle spindles and altered the neuromuscular system. One possible explanation is that the vibration generally increases the neural activation in submaximal intensities in a short time and without applying a large load (Rittweger et al, 2000). Possible mechanisms that play a role in these contractions is the Golgi tendon organ and the amount of force applied (Hagbarth et al, 1986).

Consequently athletes may be able to activate muscles more effectively, with immediate effect in future contractions. This improvement may result in faster and more vigorous activation of the somatosensory system in response to postural sway or perturbations (Cardinale, & Bosco, 2003). It has been shown that WBV elicit a response named "tonic vibration reflex" (TVR) (Eklund, & Hagbarth, 1966). The vibration-induced TVR involves activation of muscle spindles, mediation of the neural signal by Ia afferents

(Hagbarth, 1973), and activation of the muscle fibers via large α -motor neurons. The TVR induced by the vibration is also capable of causing an increasing recruitment of motor units via activation of muscle spindles and polysynaptic pathways (De Gail, Lance, & Neilson, 1966), which is seen as a temporary increase in the muscle activity. The improved postural control after the vibration protocol suggests that neurogenic adaptation may occur in the muscles of lower limbs. By increasing postural complexity (altered somatosensory and visual information), as in the sixth condition of SOT test, the improvements in postural control were delayed (post 15), as was demonstrated in a previous study (Armstrong, Nestle, Grinnell, Cole, van Gilder, Warren, et al. 2008). Furthermore, the present results confirm findings by Riley & Clark (2003), reporting that an increase in amount and variability appeared in postural sway as the SOT condition became increasingly difficult (as at the SOT condition moved from eyes open to eyes closed, to sway-referenced visual surround or support surface, and to sway-reference surface and visual surround). Elite gymnasts have well-developed muscle strength, reflex sensitivity, and fast twitch fiber recruitment. It is plausible that only a bout of WBV treatment may not be adequate to improve the postural control in gymnastics with long term effects. The gymnast training includes every day exercises to minimize changes in muscle length due to balance impairment, and to guarantee an efficient performance. Moreover, it is well known that the lateral sway of the center of pressure was smaller in athletes and dancers than in untrained subjects during unilateral leg movements performed while standing (Mouchnino, Aurenty, Massion, & Pedotti, 1992). Few studies have been conducted using athletes competing in national and international level competitions and in particular young competitive gymnasts (Dallas, & Kirialanis, 2013; Dallas, Kirialanis & Mellos 2014; Kinser, Ramsey, O'Bryant, Ayres, Sands, & Stone, 2008).

WBV is proposed as a suitable warm-up method in a number of studies (Kinser, Ramsey, O'Bryant, Ayres, Sands, & Stone, 2008; Sands, McNeal, Stone, Russell, & Jemni, 2006; Torvinen, Kannu, Sievanen, Jarvinen, Pasanen, Kontulainen, et al. 2002a). In particular it is suggested that vibration may be a beneficial warm-up/training method for gymnasts to improve flexibility (Dallas, & Kirialanis, 2013; Dallas, Kirialanis & Mellos 2014; Kinser, Ramsey, O'Bryant, Ayres, Sands, & Stone, 2008) while maintaining or/and increasing jumping ability (Dallas, & Kirialanis, 2013; Dallas, Kirialanis

& Mellos 2014; Torvinen, Kannu, Sievanen, Jarvinen, Pasanen, Kontulainen, et al. 2002a). In conclusion, the positive short-term effect induced by WBV on postural control is confirmed in this study in a sample of elite rhythmic gymnasts. Therefore WBV may be an effective warm-up method for the enhancement of ankle strategy during performance.

A limitation of the study is its small sample size. Nonetheless the eleven athletes included encompass all the elite Greek gymnasts – members of the National Team participating in the Olympics and World Championships, ipso facto the sample is self-contained and therefore in the current context any a priori sample size estimation would be inappropriate.

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Job Burnout of the Administrative Staff in Tunisia

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ABSTRACT

The main aim of this research is to evaluate the prevalence of job burnout among a Tunisian administrative population. Burnout is a work-related syndrome which results from person's perception of a distress between the efforts made and the rewards that it receives (Friedman, 1995). In this regard, multiple studies, that address the topic of the worker's mental health, show that employees suffer more and more from exhaustion in their work (Lindblom & al, 2006; Beer, 2001; Alarcon, 2011). Thus, burnout plays a significant part in to increasing dissatisfaction (Wolpin & al, 1991) and decreases engagement (Richardson & al, 1992; 1993). To evaluate the level of job burnout we used Maslach and Jackson's questionnaire (1986) on a population composed of 208 civil servants of the Ministry of youth, sports, women and family in Tunisia. The data analysis of this research shows that the civil servants are suffering from a latent burnout. Our results also indicate that there is a significant difference between exhaustion of the administrative staff and gender. However, there is no group effect between seniority and burnout. Therefore, the burnout prevention must obviously among the prerogatives of the health public policy in Tunisia.

Keywords: Prevalence, burnout, administrative staff

INTRODUCTION

Today, the working conditions have been degraded in our society. Indeed, work is less physically strenuous. But the human activity has become a social issue and of major competitiveness for organizations. These new forms of work organization (constraints, pressure, exhaustion and job insecurity) result in obvious problems at the workers' mental health (Dejours, 1993; De Gaulejac, 2005; Forest, 2007; Gervais, 1991; Morin, 1996; Vézina & Malenfant, 1995; Truchot, 2004). Maslach & al (1996, 2001) consider that the fact of having few resources and significant work requirements promotes emotional exhaustion, the depersonalization

and reduced personal self-fulfillment. Emotional exhaustion refers to the feeling of having exhausted one's emotional resources so the individual can be described as too, tired and lacking in energy. As for depersonalization, it refers to a negative and insensitive attitude, very detached and dehumanizing towards clients and their needs. Finally, decrease in the sense of personal accomplishment refers to a decline in sense of competence and achievement towards works. The term "Job Burnout" corresponding to the concept of professional exhaustion at the workplace emerged in scientific literature in the mid-70s in the United States in two articles written by Freudenberger (1974, 1975). For the latter, job burnout is a condition caused by the excessive use of energy and resources, that is characterized by a sense of failure, exhaustion, lack of motivation, feelings of ineffectiveness and even a sense of failure. The studies on burnout is typically and particularly found within health professionals (doctor, caregivers and paramedics), to educators and members of the judiciary (lawyers, judges) (Evers & al, 2002; Truchot, 2003). It is acknowledged that burnout can

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be considered as the gap between the professionals' expectation and everyday reality in the world of work (Farber, 2000). In this regard, multiple studies, address the issue of this new "epidemic" (Forest, 2007). They show that employees suffer more and more from loss of energy, stress, low morale and an inability to respond to the demands of their work (Beehr, 2001). According to a survey carried out in Tunisia (Aloulou & al, 2013), more than two thirds of nurses (69%) are affected by burnout (45.8%) of them have a high level of emotional exhaustion, 36.6% have a high level of depersonalization and 22.5% have a low level of professional achievement. The excessive workload, being the major cause of job burnout for about three quarters (72.5%) of caregivers. In a research made on a Tunisian medical and paramedical staff working in psychiatric hospital, the emotional exhaustion among nurses was 35.8% (Halayem-Dhouib, Zaghoudi & al, 2010). The sociodemographic factors (Fortin & Vanier, 1998; Maslach, 1982) seem to play a less significant role in explaining the variance of burnout, suggesting that it is a more social than individual phenomenon (Maslach & al, 2001). Some studies indicate that women tend to be more emotionally exhausted than men (Lindblom & al, 2006; Ahola & al, 2009) and more strongly exhausted when they were young or professionally inexperienced (Bakker & al, 2002). However, men tend to live more often from depersonalization (Maslach, Schaufeli, Leiter, & al, 2001; Schaufeli and Greenglass, 2001). Similarly, among the findings made by Carrier and Roskies (1993), it was mentioned that there is a link between mental health of women and the fact of being employed. Thus, women employed in an administration must not only meet the requirements her profession but also assume her family as well as parental responsibility (Déraps, 2008; Premji, 2002). Indeed, men tend to be more tenacious, while women resort to outside factors trying to find social support and interact with each other to reduce the level of exhaustion (Schaufeli & Greenglass, 2001; Truchot, 2004). The studies of Schaufeli, Enzmann (1998) and Evans & al (2006) conclude that cynicism is a dimension that is more strongly associated with men, whereas emotional exhaustion is most strongly associated with women (Maslach & al, 2004; Ahola & al, 2006a). However, some authors argue that the prevalence of burnout doesn't change according to gender (Gillespie & Numerof, 1991; Ahola & al, 2006b; Ahola & al, 2008a; Sundin & al, 2007). Finally, some studies have also concluded that women as well as men are immediately affected by stress (Chanlat,

1986a, 1986b, 1985; Priscilla, 2000). In contrast, the consumption of antidepressants, tranquilizers and psychotropic drugs were increasingly familiar to women. Contradictory conclusions initiate solicited studies regarding the relationship between seniority and burnout. The administrative staff beginning their careers have a greater tendency to be prone to burnout (Maslach, Leiter & Schaufeli, 2009; Truchot, 2004). Indeed, burnout is positively related to job seniority (Rogers et Dodson, 1988; Schulz, Greenley & Brown, 1995). Truchot (2004) also argues that the "burnout" is observable during the first three years of work. On the other hand, other studies report a negative relationship, those less experienced proving to be more vulnerable to burnout (Ackerley & al, 1988; Capel, 1991). Moreover, the risk of experiencing distress increased significantly with the number of years of seniority (Smith, 2001; Smith & al, 2008). Maslach & al (2001) and Schaufeli & al (1998) concluded that burnout is predominantly observed among young employees and that syndrome appears to occur more at the beginning of career. These results could be explained by various factors such as the shock of entering the labor market, a poor development of social network in the workplace or by the "survivorship bias". In fact, workers have already experienced burnout quit their job, leaving behind workers with lower levels of burnout. Thus, the cumulative nature of stress process favor by chronic exposure to psychosocial factors in the workplace, a deterioration of health (Johnson & al, 1988; Kivimaki & al, 2002, 2006). On the other hand, the major changes that the world has suffered of work in the last decade, notably the necessity to continuously acquire new knowledge and to be flexible in carrying out one's work, are less affecting young workers than older workers, who generally hold lower level of education (Ahola & al, 2006).

METHODS

Participants

Our population of study is made up of 208 Tunisian professionals from various administrations of the Ministry of youth, sports, women and the family. The average age is 38.34 with a standard deviation of 8.613 (Table 1). The population of study is composed of 60.1% male and 39.9% female. 70% were married while 24% were single and 1% was divorced. The minimum number of years of experience of participants was less than 5 years and maximum 20 years.

We used the technique of accidental sampling. Thus, the choice of respondents is based on availability or immediate accessibility. That is to say, the person is located at the right time and right place. Data entry and statistical analysis were performed using SPSS (Statistical Package for the Social Sciences) in its 21th version. For comparison of variables, we used the ANOVA test.

Measures

Burnout was measured using the Maslach Burnout Inventory (MBI, translated into French by Canoui and Mauranges (2008) which is intended for use in human service work (Maslach and Jackson (1986). The emotional exhaustion subscale comprised nine items, the depersonalization subscale five items, and the personal accomplishment subscale seven items. The items are scored on a seven-point frequency rating scale ranging from 0 (“never”) to 6 (“daily”). High scores on emotional exhaustion and depersonalization and low scores on personal accomplishment are indicative of burnout. Conversely, a low degree of burnout reflected by low scores of emotional exhaustion and depersonalization and a high score on personal accomplishment.

Procedure

The award of questionnaires took place during the month of June 2013. The questionnaires were distributed in different Tunisian cities (Tunis, Sfax, Mahdia, Monastir, and Sousse). We asked respondents to complete the questionnaire in their own time to ensure that the answers will be given in any conformability. It should be noted that individuals have participated in this research voluntarily.

The experimenters described the goals and methods of the study to the director of administrative staff. The experimenters informed subjects that the study was an outside research project examining the prevalence of job burnout.

RESULTS

The calculation of the indices of the scale of Maslach Job Burnout (MBI) (1981) reveals that the administrative staff of the Ministry of youth, sports, women and family has a latent burnout (depletion) whether it is by relation to gender, marital status and seniority (Table 2). That is to say, a burnout that can be triggered any time, with

a high score to the two first dimensions (emotional exhaustion, depersonalization) and a moderate score at the final dimension (lack of personal accomplishment). Indeed, the administrative staff are affected by burnout (latent burnout) 70.2% of them have a high level of emotional exhaustion (fatigue, exhaustion and lack of energy), 62.2% have a high level of depersonalization (negative attitude, insensitive and dehumanized) and 87% have a moderate level of personal accomplishment (decline in feeling of competence and achievement towards work).

The data analysis of burnout syndrome and gender (Figure 1) shows that gender influences neither personal accomplishment nor depersonalization ($F=3.027$, $dl=206$ à $p=.083$ vs $F=1.425$, $dl=206$ à $p=.234$). In contrast, there is a group effect between gender and emotional exhaustion in favor of men ($\bar{x}=3.61$ vs $\bar{x}=3.45$) ($F=5.457$, $dl=206$, $p<.05$).

The data analysis of the burnout and seniority (Figure 2) shows that despite the difference in average, seniority doesn't influence burnout (emotional

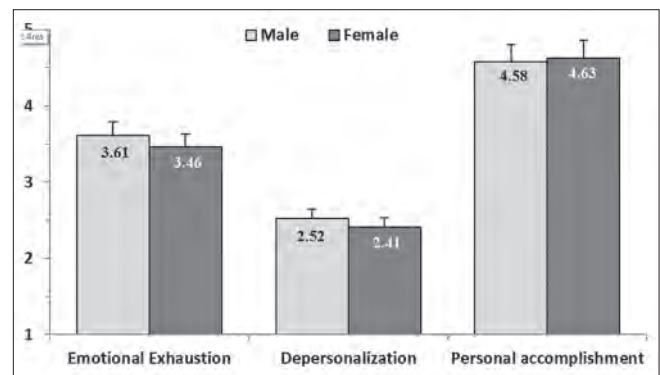


Figure 1: Sex effect on burnout

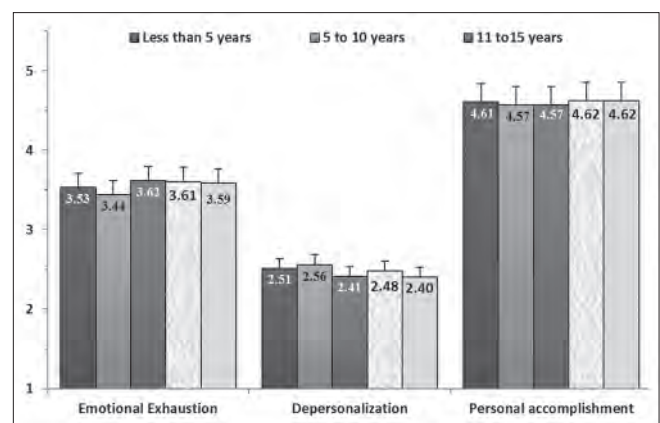


Figure 2: Effect of seniority on burnout

exhaustion, depersonalization and accomplishment). They respectively have: $F=0.999$, $dl = 203$ à $p=.414$; $F=0.427$, $dl=203$ à $p=.785$ et $F=0.534$, $dl=203$ à $p=.711$.

DISCUSSION

The level of burnout was high in 26.1% of cases. This rate joined the literature data. The prevalence of high burnout level varies from 5 to 50% [3, 5-9]. This variability in results can be explained by methodological and socio-professional differences of the populations studied (culture, lifestyle, working hours, marital status, etc....). Tunisian studies on burnout are rare: in a Tunisian study carried out on medical and paramedics personnel working in a psychiatric hospital, emotional exhaustion among nurses as 35.8% [10]. This frequency was lower than that found among our population (45.8%), which could be explained by the

heterogeneity of our sample made of nurses working in several services. Our population presents a latent burnout rates with high level of emotional exhaustion and depersonalization and a moderate level of personal accomplishment. Our results are not consistent with the studies of Dumas (1993) and Fortin & Vanier (1998) respectively on participants working in the field of drug addiction and mental health showed that they were living a moderate degree of burnout. Indeed, this period (revolution 2011) was marked by significant changes in the Ministry, with a high workload and some difficulties in administrative tasks, making the employees suffer from loss of energy, stress, low morale and an inability to meet the demands of their work (Beehr, 2001). Regarding gender, the results of this study show that men are more concerned of burnout than women. They also show a significant effect between gender and emotional exhaustion. These results are consistent with the works of (Van Horn and al, 1997) who conclude that men have a greater proportion to suffer from burnout from the only dimension of emotional exhaustion (Bekker & al, 2005). These results can be explained by the fact that men tend to be more tenacious while women resort to outside factors trying to find social support and interact with each other to reduce the level of exhaustion (Schaufeli & Greenglass, 2001; Truchot, 2004). Similarly, our results are not consistent with the work of (Gillespie & Numerof, 1991; Ahola & al, 2006b; Ahola & al, 2008a; Sundin & al, 2007), who argue that the prevalence of burnout doesn't change by gender. In addition, our results show that there is no significant difference between seniority and the three

Table 1: Personal and job demographics (N=208)

	N	(%)		N	(%)
Gender			Experience		
Male	125	60,1	Less than 5 years	51	24,5
Female	83	39,9	5 to 10 years	49	23,6
Marital status			11 to15 years	47	22,6
Married	156	75,0	16 to 20 years	20	09,6
Single	50	24,0	More than 20 years	41	19,7
Divorced	2	01,0			
Age (Years)	Mean (\bar{x})		St Deviation		
	38,34		8,613		

Table 2: Frequency of burnout among administrative

	Emotional exhaustion		Depersonalization		Personal accomplishment		Results
	Indices	Scores	Indices	Scores	Indices	Scores	
Gender							
Female	31 ,09	High	12,03	High	37,02	Moderate	Latent exhaustion
Male	32,49	High	12,60	High	36,60	Moderate	Latent exhaustion
Marital status							
Single	30,96	High	12,48	High	36,32	Moderate	Latent exhaustion
Married	32,18	High	12,33	High	36,94	Moderate	Latent exhaustion
Divorced	37,00	High	13,00	High	35,00	Moderate	Latent exhaustion
Seniority							
Less than 5 years	31,78	High	12,54	High	36,86	Moderate	Latent exhaustion
5 to 10 years	31,00	High	12,79	High	36,59	Moderate	Latent exhaustion
11 to15 years	32,55	High	12,06	High	36,59	Moderate	Latent exhaustion
16 to 20 years	32,45	High	12,40	High	37,00	Moderate	Latent exhaustion
More than 20 years	32,29	High	12,02	High	36 ,97	Moderate	Latent exhaustion

dimensions of burnout. Our results are not consistent with the works of (Rogers & Dodson, 1988; Schulz, Greenley and Brown, 1995) who argue that burnout is positively related to seniority. These results could be explained by the major changes that the world of work has suffered in recent decades, notably the necessity to continuously acquire new knowledge and be flexible in carrying out one's work are less affecting young workers than the older workers, they generally hold lower level of education (Ahola & al, 2006).

CONCLUSION

This research aims to evaluate the prevalence of burnout in an administrative Tunisian population. To assess the level of burnout, we used the Maslach and Jackson (1986) "Maslach Burnout Inventory", translated into French by Canoui and Mauranges (2008) on a population consisting of 208 of the administrative staff department of youth, sports, women and the family in Tunisia. The data analysis of this research shows that the administrative staffs are suffering from a latent burnout. Our results also show that there is a significant difference between exhaustion of administrative staff and gender. However, there is not a group effect between seniority and burnout.

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The Effects of Plyometric Training on Explosive Strength in Male Students at the College of Physical Education of Anbar (Iraq)

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ABSTRACT

The study was designed to assess the effects plyometric training program on the explosive strength development of students in the second level at the College of Sport and Physical Education of Anbar in Iraq. 2 groups (experimental group [EG: 16 Students] and control group [CG: 14 Students] were selected to participate in this study along Eight weeks with 3 training's sessions a week. Our results showed an important amelioration of the post tests among the two groups compared to the pre tests, also in favour of the first group which have a plyometric training in both tests the Squat Jump and the Medicine ball throw.

Keywords: Plyometric, explosive, strength, physical, anbar

INTRODUCTION

Strength training is a main process on the improvement of motor performance and consequently a basic demand of sport skill optimization (Fleck et al. 1997; Komi et al. 1988). In the same way that strength training improves performance, detraining carries out a decrease in strength levels and thus in athletic performance (Fleck, 1994, 1997; Hoffman, 2002). Several authors have pointed out decreases in strength levels over detraining periods (Ingle et al. 2006; Chu et al. 2006). To prevent detraining effects, some authors postulate the introduction of strength maintenance programs on training planning (Faigenbaum et al. 2001; Beunen et al. 2000; Matavulj et al. 2001). Thus, the available literature points out volume and training

frequency reduction as essential on the maintenance training design, while maintaining the initial intensity levels (Ebbets, 2006; Cissik, 2004).

Formerly characterized as a method for adult athletes, plyometric training is now seen as a safe, valuable, and challenging activity for younger athletes when it is appropriately designed and supervised (Beunen et al. 2000). Its application with young athletes has been recommended for explosive strength development (Cissik, 2004; Hoffman, 2002; Chu et al. 2006).

Regarding detraining and reduced training periods, there is a lack of investigation about their effects on upper- and lower body explosive strength in the adolescent male population previously submitted to a plyometric training program. To our knowledge, few studies have examined the effects of a training program followed by detraining and/or reduced training periods among pre pubertal (Chu et al. 2006; Ebbets, 2006) and pubertal boys (Cissik, 2004; Ebbets, 2006).

It seems reasonable to hypothesize that plyometric training increases upper- and lower body explosive strength in students that detraining and reduced training

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periods will have similar effects in the maintenance of explosive strength levels. Consequently, the aims of the present study were to determine the effects of plyometric training on explosive strength indicators in students at the College of sport and physical education of Anbar (Iraq).

METHODS

The study was designed to assess the effects plyometric training program on the explosive strength development of students in the second level at the College of Sport and Physical Education of Anbar in Iraq. 2 groups (experimental group [EG: 16 Students] and control group [CG: 14 Students) were selected to participate in this study along Eight weeks with 3 training's sessions a week.

For this study, we have used two tests: the squat jump (SJ) and the medicine ball throw (MBT).

RESULTS

Results of Pre and Post Tests for the Completion of the Two Variables in the Squat Jump and the Medicine Ball Throw

As it is shown in Table 1, the completion of the first group in the pre-test and who have plyometric training in Al-Anbar University in the Squat jump (40.3 cm) with standard deviation (7.17), while the post-test to the same variable is (51.16 cm) and standard deviation of (6.9). Also the value of (T) calculated is (4.69) when the degree of freedom is (28) with a level of significance (0.05), in favor of post test.

The second group has emerged Squat jump (5.39 cm) and a standard deviation of (4.7), while the post-test to the same variable is (48.13 cm) and a standard deviation of (7.4). The value of (T) calculated was

(16.4) which is greater than the value of theoretical (T). This difference is in favor of post test.

In the medicine ball throw test from the stability, the value (T) calculated for the Plyometrics group (4.84) which is greater than the theoretical (T) value and has a significant difference in favor of the post test. Also for the second group, the results were better in the post test compared to the pre-test.

It is shown in Table 2 the arithmetic mean and standard deviation of the two groups for each of the variables the Squat jump from the Stability and Medicine ball throw from the stability too, the (T) value calculated in the squat jump is (33.2) also the medicine ball equal to (20.61). The both values greater than the theoretical value below with a level of significance (0.05) and degrees of freedom (28).

It means that the moral differences in the completion of the two groups with the superiority of the Plyometric group in the Squat jump and the Medicine ball throw. By reference to the tables (1, 2) where we note the evolution of the level of explosive Strength of the muscles of the Parties of the two groups was significant.

DISCUSSION

The development that took place for the two groups indicates how important the training provided to the sample and its effectiveness for muscles (Cissik, 2004; Ingle et al. 2006). So we note that there is significant difference in the pre and post tests for both groups which show that the exercises of explosive Strength applied to the students have a positive impact in the development of athletes (Faigenbaum et al. 2001). As well as, there is a virtual and moral amelioration in favor of the Plyometric group (Chu et al. 2006).

Table 1: T value of pre and post tests for the completion of the two variables in the squat jump and the medicine ball throw

Variables	Group 1				T test	Significant
	Pre-Test		Post Test			
	Mean	SD	Mean	SD		
Squat Jump	40.3	7.17	51.16	6.9	4.69	Significant Differences
Medicine Ball Throw	9.91	17.1	3.22	9.15	4.24	Significant Differences
Group 2						
Squat Jump	39.5	4.7	48.13	7.4	4.16	Significant Differences
Medicine Ball Throw	208	13.7	4.38	8.13	6.7	Significant Differences

Table 2: (T) Calculated value of the squat jump and the medicine ball throw for the two groups

Variables	Group 1		Group 2		T test	Significant
	Mean	SD	Mean	SD		
Squat Jump	51.16	6.9	48.13	7.4	33.2	Significant Differences
Medicine Ball Throw	22.3	15.9	38.4	13.8	2.61	Significant Differences

Based on the ideas and outcomes previously presented it seems clear and strongly sustainable that plyometric training has positive effects on upper- and lower-body explosive strength levels, mainly in the improvement of vertical jump (Beunen et al. 2000; Matavulj et al. 2001). The present study showed that the 8 weeks in plyometric training significantly increased upper- and lower-body explosive strength among students (Diallo et al. 2001; Ebbets, 2006; Cissik, 2004).

CONCLUSION

Our study has shown that although both Trainings methods have shown a marked improvement in the students, as it has shown the importance of plyometric training in the development of explosive strength among students.

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