



**SWEDISH JOURNAL
OF SCIENTIFIC RESEARCH**

ISSN

2001- 9211

Issue 1 January

Volume 4 - 2017



Changes in Global Self-esteem after Short-term Sprint Interval Training in Elite Soccer Players

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ABSTRACT

We attempt to highlight of the effect of intensive training on global self-esteem (GSE) and relationship between specific self-esteem and anaerobic performances among the young elite soccer player. Thirty-two healthy, elite soccer men from the same 1st division club participated in this study (mean (SD) age 21.4 (0.9) years). None of the participants were participating in any other physical activity except the soccer training and the high-intensity sprint training (HIST). HIST consisted on repeated-sprint exercises performed during the warm-up period for eight-weeks (3-times a week). Before (T1) and after (T2) the HIST, all participants performed the repeated-sprint ability test (RSA) which consisted in 7x30-m runs with 30-s of active recovery. During the recovery, a French translated form of the RES 10 scale was used to determine the Global Self-Esteem (GSE) change for all participants before and after training. We observed significant ($p < 0.05$) increase of GSE results after training for all participants. In fact, results were increased from 29.81 ± 2.92 in T1 to 32.4 ± 3.00 in T2. Before training and after training, the total sprint time (TT) was positively correlated to GSE ($r = 0.64$, $p < 0.01$ in T1 and $r = 0.66$, $p < 0.01$ in T2). In addition, the fastest time (FT) was also positively correlated to GSE before ($r = 0.53$, $p < 0.01$) and after training ($r = 0.45$, $p < 0.01$). Maximum speed sprint workouts are an effective way to improve anaerobic performances in elite soccer. The Short intense sprint exercise training should be integrated into the training program for development of self-esteem in young soccer.

Keywords: Intense exercise, motivation, perception of exertion, physical education, self confidence

INTRODUCTION

Team sports achievement and self-esteem were classified as the primary reason of successful and satisfaction in sport and/or social life (Tesser et al. 1983). The global self-esteem (GSE) is defined as a conscious perception of one's qualities and abilities, or as a psycho-social construct

used by an individual and his or her peers in assessing behavior and perceptions of self-worth (Rosenberg, 1965). It is a determinant key for motivation during regular practice of physical activity (Coleman et al. 1993). It is also an important sign of good mental health (Harter et al. 1998; Roberts et al. 1981) and academic success (Trudeau et al. 2008; Schurr et al. 1970).

Most previous data examined behavioral influences during physical activity on self-esteem and has been considered as an important component of positive self-evaluation (Fox, 2000). McAuley and al. (1995) reported a strong relationship between self-esteem and physical activity. Studies have confirmed that physical activity (PA) is also associated with an increase in self

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2001-9211

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confidence and sense of well-being (Brownson et al. 2000; Sonstroem, 1984). Scientific approaches (Fox et al. 1989; Marsh et al. 1985) permitted a growing understanding of interrelationships between the practice of a physical activity and self-esteem, and facilitated experts to evaluate the impact of physical education and rehabilitation programs upon self-esteem and mental health (Taylor et al. 1985).

Gruber (1986) observed that moderately trained children (14-15 years) have higher self-esteem scores with higher performances compared with the control group. High self-satisfaction of the physical performance in soccer female practice improved perceptions of overall physical ability, with a positive influence upon global self-esteem (Khasawneh, 2015). Conversely, an immediate decrease in global self-esteem has a negative influence upon self-assessments in specific sub-domains (Keith et al. 1999). However, previous studies have reported equivocal results because of measurement issues and lack of conceptual clarity. In fact, training status, anthropometric differences, sports type and fitness can underestimate the self-esteem response to social cues (Fox, 2000) and even during workout in sport training (Marsh et al. 1985).

To the best of our knowledge, most previous studies have investigated the effect of endurance training or low intensity exercise on global self esteem (Kirkcaldy et al. 2002; Daley et al. 1999) and tend to gravitate toward low and moderate exercise. In addition, due to conflicting findings, research into the relationship between physical activity and measures of self-worth is warranted, particularly in the adolescent years (Bowker, 2006).

While most studies have explored the effects of physical activity on GSE, there was no data concerning effect of intensive physical training in young adult on assessments of global self-esteem. This is an important omission, particularly when testing athletes, since many are likely to have engaged in recent vigorous physical activity. Hence, the aim of our study was to investigate the relationship between immediate measures of global self-esteem and the practice of vigorous training in moderately-trained young men (soccer players).

MATERIALS AND METHODS

Participants

Thirty-two healthy and trained athletes (mean age: 21.4 ± 0.9 years; height: 170 ± 0.0 cm; body mass:

74.0 ± 6.9 kg, BMI: 21.4 ± 0.9 kg/m²) participated in our study. All were informed about the experimental procedures and subsequently signed a written consent form according to the standards of the Ethical Committee on Human Research (ECHR) of the local University.

All participants were students at the School of Physical Education, with a 6.8 ± 1.7 years history of soccer practice. They followed a weekly soccer training program of <180 min.week⁻¹. None had participated in regular intensive training prior to the preceding year months. A medical examination was carried out before the start of the study. All were found to be healthy, and were not consuming any medications. Basic anthropometric parameters were measured before and after the experimental period (T1, T2) under the same clinical conditions.

Training Program

Before training, all subjects were familiarized with the experimental procedures in the outdoor-track field. All Subjects participated in a classic football training program during 8 weeks (3 sessions a week during 8 weeks).

Before the start of the session, during warm-up, subjects performed repeated sprint exercise. RSE consists of a series of repeated short track of 7×30 -m sprints with 30-s of active recovery (jogging in ~ 50 m) between sprints. Each track was performed at maximum intensity (all-out).

Testing Procedures

The evaluation was divided into two phases, the first period (T1) was before HIST and the second one (T2) was after the training period.

Tests were performed under identical conditions (Temperature: 26C°, Humidity: 55%, speed of wind: 2 m.s⁻¹).

Subjects performed an initial warm up of 10 minutes of jogging (50-60 % of Maximum Heart Rate (HR_{max})), followed by five sprints over short distances (50m) and 5 minutes of stretching. After 5 minutes of rest (setting position); all participants carried out a repeated sprinting test RSA: 7×30 -m runs, with 30-s active recovery intervals between sprints (Barbero-Álvarez et al. 2010). Sprints began from a standing start, and at the signal, subjects covered

the required distance at their maximum speed. A demonstration was made to ensure the test procedure was well understood. The time taken for each sprint was recorded by photocells (Microgate, Bolzano, Italy). The data recorded were the Fastest sprint Time (s) (FT), Total sprint Time: the sum of the 7 sprint times (s) (TT) and a Fatigue Index (FI) based on the decrement in speed from the fastest to the slowest run (Fitzsimons et al. 1993). The observer called out each subject's performance immediately after completing each run.

Psychological Survey

After 15 minutes of recovery from RSA, subjects completed a translated French form the Rosenberg Self-Esteem Scale RSES-10 (Hamrouni et al. 2012; Vallières et al. 1990) in order to determine their global self-esteem (GSE).

This questionnaire comprises 10 items; half are presented in a positive way (e.g. "I feel that I have a number of good qualities," "I have a positive attitude towards myself"), and the other half are presented in a negative form (e.g., "Sometimes I think I'm good for nothing", "I feel I do not have much to be proud of").

Subjects respond on a 4-level Likert type scale (1: Strongly Agree; 2: Agree; 3: Disagree; 4: Strongly Disagree).

If the overall score is less than 25, GSE is considered as "very low", between 25 and 31, GSE is considered as "low". A score between 31 and 34 is considered as "moderate" GSE, a score between 34 and 39 corresponds to a "high" GSE, and if the score exceeds 39, the GSE is considered "very strong".

The questionnaire was explained by expert in order to facilitate the understanding of the survey.

Statistical Analysis

Statistical analyses were carried out using the SPSS 20 program for Windows (SPSS, Inc, Chicago, IL, USA). Descriptive statistics (means and standard deviations) and calculation of linear regressions and Pearson correlation coefficients were calculated by least squares linear regression analyses. T1 and T2 of the Rosenberg Self-Esteem Scale were compared using an appeared Student t-test. The confidence level for statistical significance was set at $p < 0.05$.

RESULTS

Repeated Sprint Performance

Before HIST, scores of the repetitive sprint test averaged were 45.0 ± 1.2 s for total sprints time (TT), 6.2 ± 0.2 s for the fastest (FT) and $44.7 \pm 2.7\%$ for fatigue index (FI). After HIST, scores of the repetitive sprint test decreased significantly ($p < 0.05$) for Total sprints time (TT) 42.1 ± 1.5 s, best running time 5.8 ± 0.2 s and increased slightly to $45.8 \pm 3.5\%$ for fatigue index (FI).

Global self esteem

All participants showed a significant ($p < 0.05$) increase in GSE after HIST (from 29.8 ± 2.9 to 32.4 ± 3.0).

Relationship between global self esteem and repeated sprints performances

Before HIST and after HIST, the total sprint time (TT) was correlated to GSE ($r = 0.64$, $p < 0.01$ in T1 and $r = 0.66$, $p < 0.01$ in T2).

In addition, the fastest running time was also correlated to GSE before ($r = 0.53$, $p < 0.01$) and after HIST ($r = 0.45$, $p < 0.01$).

However, no correlation between fatigue index % (FI) and GSE was observed from before to after HIST.

DISCUSSION AND CONCLUSION

The present study demonstrated for the first time that intensive training based on repeated sprint exercises improves GSE in young trained athletes. These results were associated to elevated significant decrease in the total sprint time (TT).

Global self esteem results differ from one study to another, depending on the physical activity, the range of age of participants and methods used during experimental protocol. For example, the average score observed in the United States in high school student was 32.2 while in Morocco in high school student it was 29.1 (Schmitt et al. 2005). In a small sample of 136 teachers in Tunisia, the average score was 31.2 for teachers of physical education and 29.9 for those who teach academic subjects (Hamrouni et al. 2012). However, information about global self esteem scores in trained athletes is missing. Hence, we examined prospectively the relationship between physical activity and self-efficacy and multidimensional self-esteem in a sample of trained-athletes.

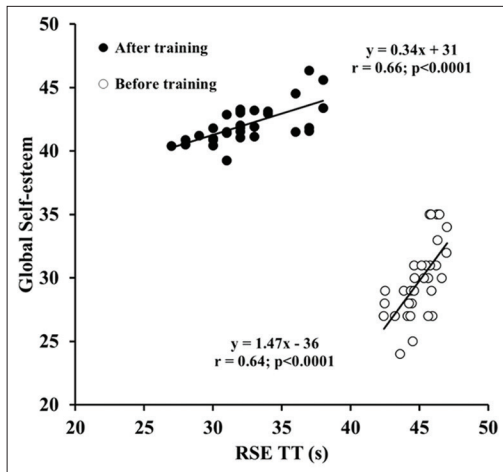


Figure 1: Correlation between the global self esteem and RSE TT before and after training (n=32). RSE: Repeated sprint exercise, TT: Total speed time

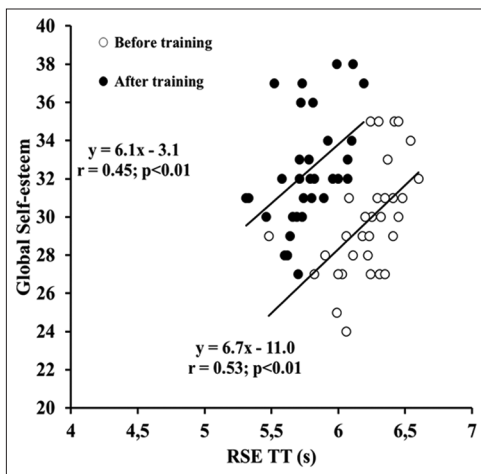


Figure 2: Correlation between the global self esteem and RSE TT before and after training (n=32). RSE: Repeated sprint exercise, TT: Total speed time

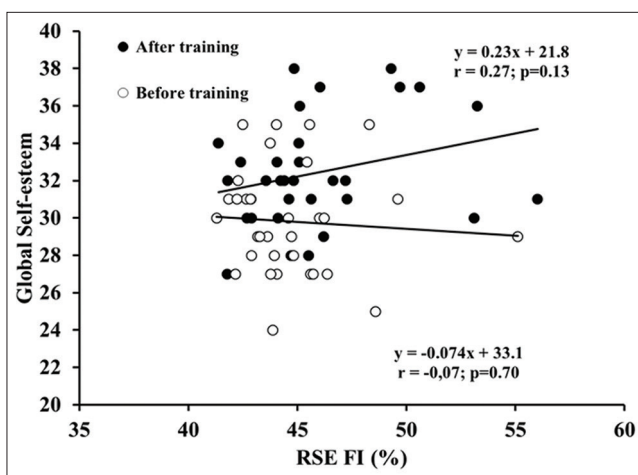


Figure 3: Correlation between the global self esteem and RSE FI before and after training (n=32). RSE: Repeated sprint exercise, FI: Fatigue index

We should mention that global self esteem depends on several factors such as environment, training status and psychological condition (Gauvin et al. 1999; Rejeski, 1994). In our study, the training adherence was determined for each participant during all the experiment in order to limit the interference of personal and sociological factors.

Previous investigation, Elavsky et al. (2007) observed high global self-esteem with higher performances in young trained (endurance activities) compared with control groups. These results were also correlated to greater mental health status (Plante et al. 2000).

However, the exercise's perception rate depends on exercise intensity. In fact, for Dishman (1994), the individual's perception of the physical workout would differ according to exercise dose. The rating of self-esteem showed correlations between individual's highest physical performance and higher self-esteem (André et al. 2011; Baumeister et al. 2003). Similar results were also found in our study. In fact, the fastest running Time (FT) and the total sprint time (TT) was correlated to GSE before HIST and after-training. It seems that repeated sprint exercise allowed improvement of perception of workout and then the resulted performance. According to some authors, the increasing number of repetition of specific activity allows good learning and enhances self esteem (Duclos et al. 1995).

For some other studies, higher self esteem and higher performances are probably due to physiological (neuromuscular, hormonal and metabolic responses) changes to intensive training (Schneider et al. 2008; Spence et al, 2005). Such training induced physiological adaptations may have direct impact on subject answers to the RSES-10 questionnaire (Kernis et al. 1989). In fact, with HIST, individual's perception to pain will be reduced (Veale, 1991) and the exercise related to stress will be diminished (Wipfli et al. 2008).

In summary, we find that repetition of short bouts of intensive exercises increased repeated sprint performance in young soccer. The HIST increased also total speed time and fastest time in young soccer. Interestingly, the global self esteem increase after intensive training. Intensive training thus has potential interest as a tactic for enhancing self-esteem in both sports and social life.

Table 1: Training program for all participants

	Intensity	W1-W8
Warm-up	Moderate-high-intensity	Exercises=Jogging (10 minutes)+5 sprints (50m)+stretching (5 minutes)+RSE (7 sprints-30m)+Rest (5 minutes)
Session	Moderate-high-intensity	Football training program: (strength training/endurance training/sprint training/technical and tactical skills in soccer)
Rest	Low intensity	Walking (5 minutes)+stretching (5 minutes)

RSE: Repeated sprint exercise, W: Week

Table 2: Repeated sprint performances measured for all participants (n=32) before and after training

	Before training (T1)			After training (T2)		
	TT (seconds)	FT (seconds)	IF (%)	TT (seconds)	FT (seconds)	IF (%)
Mean±SD	45.0±1.2	6.2±0.2	44.7±2.7	42.1±1.5**	5.8±0.2*	45.8±3.5

Mean±SD, TT: Repeated Sprint Exercise Total Time, FT: Fastest Time recorded during repeated sprint exercise, IF: Fatigue Index, *: P<0.05, **: P<0.01

Table 3: Global Self Esteem measured for all participants (n=32) before and after training

	GSE before training (T1)	GSE after training (T2)
Mean±SD	29.8±2.9	32.4±3.0**

Mean±SD, GSE: Global Self Esteem, *: P<0.05, **: P<0.01

ACKNOWLEDGEMENT

The authors would like to thank all of the volunteers and their coaches for their understanding and availability in the completion of this study.

Conflict of Interest

The authors declared no conflict of interests regarding the publication.

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“The Effect of Plyometric Training in Developing Speed Strength and Accuracy of Performing Pressed Serving Skill by Volleyball Players of Al Mustanseriya University”

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ABSTRACT

This study aimed to prepare plyometric physical training in order to develop speed strength of arms, legs and accuracy of pressed serve by volleyball players. The researcher proposed that there are significant differences among arithmetic means between pre- and post- test results for the controlling and empirical group in favor of empirical one. Sample of the study consists of (16) students of Al Mustanseriya University's volleyball team divided into two empirical and control groups each of which consists of (8) players. The researcher concluded efficiency of physical training using plyometric method to develop speed strength and accuracy of pressed serving performance by players.

Keywords: Plyometric training, speed strength, accuracy, serving skill, volleyball

INTRODUCTION

The development witnessed by the world contributes greatly to develop levels of sport teams in individual and team games through using the latest training means and methods that had a great effect on developing the level of players in various physical, skill and planning aspects. This training process is based on using modern training methods based on scientific principles according to opinions of specialists in the field of sport training that constitutes a turning point in the level for players' performance.

A lot of sport training experts asserted that it is important to use plyometric training to develop the strength of legs and feet. The plyometric method is considered one of the best modern training methods to develop speed strength through using a set of special exercises that aim to raise the level of players' performance.

Since volleyball needs speed strength because the nature of the game is by using the pressed serve, spikes and block, it requires a muscular strength repeated in a limited period of time, making the game depends on the strands of muscle strength and speed basically where both characteristics work in the motor performance service for players and that these qualities are the final outcome of the performance. This confirms the significance of speed strength as a physical basis underlying skill performance of the game. The main purpose of developing speed strength by volleyball players at the stage of (special setting) is for work on major muscle groups responsible for performance

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2001-9211

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with the purpose of overcoming rapid development of muscle contractions. On this basis, the researcher noted that there is weakness in the level of players in the strands of power, speed and should develop of the speed strength as this strength is consisted of strength and speed and this is done using plyometric exercises.

Hence, significance of the study came in importance of using physical exercises through plyometric method in developing speed strength of arms and legs that contributes to raising the level of players in physical, skill and technical capabilities in the game of volleyball.

Research Problem

The game volleyball is one of the team sports that their players have special potential and specifications, in order to achieve advanced levels in the game. Since the researcher is a volleyball player, coach and teacher, he noted that there is a clear decline in level of performance of players in the skills that require strength of arms or legs, indicating weakness in the level of speed strength of the player. Thus, the researcher decided to prepare training using plyometric technique to develop the distinctive speed strength of arms and legs and its impact accurately on pressed serve by university volleyball team players.

OBJECTIVE OF THE STUDY

- 1- To prepare exercises using plyometric method to develop speed strength for arms and legs and accuracy of performing pressed serve by university volleyball team players for both empirical and control groups.
- 2- To define the effect of exercises using plyometric method to develop speed strength for arms and legs and accuracy of performing pressed serve by university volleyball team players for both empirical and control groups.

METHODOLOGY OF THE STUDY

The researcher used the empirical method using equal groups with pre and post tests to achieve the objectives of the study.

SAMPLE OF THE STUDY

The sample of the study was selected purposively from Al Mustanseriyah University's volleyball team players by selecting (16) of (18) students as (2) did not want to perform the tests. The sample was divided into two groups, each of which consists of (8) players using dual division method. Using the poll, players were divided into two groups. The first group holds even numbers (empirical group) and the other group holds odd numbers (control group).

Homogeneity of Samples

To ensure homogeneity and non-prejudice between the empirical and control groups, the researcher decided to perform homogeneity test between both groups. All values of skewness coefficient were within normal curve (less than ± 3), which refers to homogeneity in the study sample in variables of (length, mass and age) as shown in Table 1.

Equaling Sample of the Study

The researcher performed this equaling to detect their applicability in pre-tests prior to implement the exercises and Table 2 shows results of pre-tests for empirical and control groups:

Tests used in the Study

The researcher used some tests in the study including:

1. The speed strength test for arm muscles (by: Qais Naji Abduljabbar & Bastawisi Ahmed, 1987, 347).
2. The speed strength test for leg muscles (by: Marwan Abdelmajid: 2001, 203 – 204).
3. Test of spike serve accuracy in volleyball (by: Mohamed Sobhy Hassanin & Hamdy Abdelmonem: 1997, 240)

Pre-tests

Pre-tests were performed in the outdoors playgrounds in Al Mustanseriyah University at nine o'clock a.m on Sunday, 03/28/2016, with implementation of all the tests for both empirical and control groups on the same day, and the researcher deliberately to fix the variables that

Table 1: Homogeneity in the study sample in variables of (length, mass and age)

S	Variables	Measure unit	Arithmetic mean	Standard deviation	Median	Skewness coefficient values
1	Length	Cm	169.56	40.690	169	0.04128
2	Mass	Kg	69.562	4.732	70.11	-0.3474
3	Age	Month	20.500	0.730	20.32	0.7397

can affect results in terms of space, time, devices, tools and method of implementation and setting in post-tests.

The Main Trial

The researcher prepared a set of physical exercises own according to plyometric method based on references and scientific sources, taking some views of experts and specialists in the field of sports training, since the researcher benefited from his field experience as a player, a coach and instructor of the subject of volleyball at Mustansiriyah University. For the purpose of detecting some negatives that may impede the progress of volleyball players in general and the university team in particular, a lot of expert of sports training referred that the use of independent variable k (physical exercise) in a scientific manner leads to development of physical and skill capabilities of players through programming training, organization and implementation processes and then evaluation using training sizes, intensities and repetitions appropriate to the abilities of athletes. This was confirmed by (Moatasem Gutuq: 1995.8) as “the increased training load is consistent with the age of the athlete and technical level gradually and graded”. The researcher used jumps from stationary and backlash exercises.

All physical exercises were applied from 04/01/2016 until 05/22/2016 within a period of (6) weeks (3) training

units per week as the duration of physical exercise in the main section ranged between (13-15) minutes, with a total (30) exercise used by the researcher divided by the number of training units, as shown in Appendix 1.

Post-tests

After the implementation of all units and application of all exercises directly by the team coach and under the supervision of the researcher for the purpose of knowing the level of the two groups (empirical and control groups), the researcher deliberately conducted post-tests on Sunday, 22.05.2016 and confirmed consideration of controlling the same variables as in the pre-tests for the purpose of reducing the impact and get accurate results.

DISCUSSING RESULTS OF THE STUDY

Results of Pre- and Post-tests for the Control Group

Table 3 shows significant differences in results of the control group in post-test. The researcher attributes this improvement in test results to the use of a set of repetitions by trainers including the program prepared by the trainer that included a set of exercises that clearly helped in giving the player a slight enhancement compared with results of the empirical group.

Table 2: Equaling sample of the study in results of pre-tests for empirical and control groups for physical and skill test

Statistical treatments	Measure unit	Mean±SD				Calculated T value	Significance
		Empirical group		Control group			
Tests							
Speed strength for arm muscles	No. of times×10 sec	7.625	1.187	6.625	0.517	2.183	Significant
Speed strength for leg muscles	Cm	159.625	5.527	149.250	12.418	2.159	Significant
Accuracy of pressed serve	Degree	13.750	1.581	12.125	1.246	2.283	Significant

Tabular T value under significance level (0.05) and freedom degree 14 = 2.14

Table 3: Results of pre- and post- physical and skill tests for the control group

Treatments	N	Measure Unit	Mean±SD				Diff in means	SD	Calculated T value	Significance
			Variables		Post--tests					
Variables										
Speed strength for arm muscles		No. of times×10 sec	6.625	0.517	9.000	1.069	2.375	0.323	7.333	Significant
Speed strength for leg muscles	8	Cm	149.25	12.418	172.75	8.827	23.500	4.484	5.241	Significant
Accuracy of pressed serve		Degree	12.125	1.246	14.750	0.707	2.625	0.419	6.251	Significant

Tabular T value under significance level (0.05) and freedom degree 7=2.36

Table 4 shows statistically significant differences among arithmetic means in results of the empirical group between pre- and post-tests in favor of post-test. The researcher attributes this improvement in test results to the use physical exercises by Plyometric method as they were prepared in a scientific manner and within views of experts and specialists in the field of sports training that led to develop the level of strength and speed levels of body muscles in general and muscles of arms and legs are in particular. As confirmed by (Abu Ela Ahmed, Ahmed Nasreddin: 2002.85), “The distinctive speed strength is the integration of strength and speed in a single component” and adding the element of grading in loads, difficulty level of exercises during implementation, division of educational units and proper rest periods that had a positive impact on the development of distinctive speed strength. This was confirmed by (Hussein Ali Hussein: 2000.15) as “the use of appropriate load capacities for the sport and the division of rest periods in units are important and necessary and the only important thing in training process”.

Table 4 shows the development of the empirical group in the test of pressed serve skill in post-test because results showed no significant difference between the arithmetic means in pre and post tests in favor of the post-test. The researcher attributes the cause of development in the test results due to the use of physical plyometric exercises prepared by the researcher in a manner consistent with the level and abilities of

players because all exercises were designed scientifically and were studied. Scientific sources indicate that the development of physical abilities leads to development and growth of the technically gifted side and this was confirmed by (Ibrahim Magdi Saleh: 1998.3), saying that “physical abilities are one of the most crucial factors on which the success of performance is based to reach the athletic levels and the development and promotion of these special abilities are closely linked to the process of developing motor skills”. Moreover, (Issam Abdul Khaliq: 1994.189) refers that “The motor performance of the skill depends on special physical abilities”.

Results of Table 5 showed significant differences in the distinctive speed strength tests and test of pressed serve between the control and empirical groups in favor of the empirical group. The researcher attributed this development to the importance of using physical exercise in plyometric method prepared by the researcher, which was set according to scientific steps using appropriate intensity gradually, optimal frequencies and rest periods, resulting in a clear development in the empirical group on the account of the control group.

The exercises were applied in the second part of the main section in the unit which develops a set of major muscles in the body which included exercises on the elements of strength and speed, that helped greatly in developing the viability of strength and speed and this

Table 4: Results of pre- and post- physical and skill tests for the empirical group

Treatments	N	Measure unit	Mean±SD				Diff in means	SD	Calculated T value	Significance
			Pre--tests		Post--tests					
Variables										
Speed strength for arm muscles		No. of times×10 sec	7.625	1.187	12.375	0.916	4.750	0.647	7.333	Significant
Speed strength for leg muscles	8	Cm	159.62	5.527	193.250	8.795	33.625	2.896	11.608	Significant
Accuracy of pressed serve		Degree	13.75	1.581	19.500	1.309	5.750	0.839	6.846	Significant

Tabular T value under significance level (0.05) and freedom degree 7=2.36

Table 5: Comparing results of post-tests for empirical and control groups

Statistical treatments tests	Measure unit	Mean±SD				Calculated T value	Significance
		Empirical group		Control group			
Speed strength for arm muscles	No. of times×10 sec	9.000	1.069	12.375	0.916	6.780	Significant
Speed strength for leg muscles	Cm	172.750	8.827	193.250	8.795	4.653	Significant
Accuracy of pressed serve	Degree	14.750	0.707	19.500	1.309	9.029	Significant

T value under significance level (0.05) = 2.14

is was confirmed by (Mohamed Osman: 1990.120) as “there is a significant correlation between elements of strength and speed where a muscle or muscle group cannot perform contraction quickly unless you enjoy enough strength in performance”. In addition, (Qassim Hassan Hussein and Bastawisi Ahmed: 1995.223) refer that “training with weights and different tools such as medical ball, steps and hurdles leads to develop the distinctive speed strength as these exercises depend on increasing the speed of muscle contraction because the goal of creating muscle strength is to get a quick strength”. As for the skill side (pressed serve), results of test of pressed serve skill indicate that players of the empirical group advanced over players of the control group and the researcher attributes this development to the nature of the exercise and its impact on the skill side because he cannot develop any motor skill only through development of the physical side because all of skills depend completely during application and implementation on the physical side. Further, the researcher depended on variability in body postures during the implementation of exercises, resulting in a clear development of the empirical group and increased its skill potential in volleyball as confirmed by (Uday Abdul Hussein Karim al-Rubaie: 2005.67) as “the level of skill abilities develops by the development of their physical abilities”.

CONCLUSIONS

1. The researcher concluded that plyometric method is effective in developing speed strength of arms and legs.
2. Physical exercises using plyometric method led to develop the skill side (pressed serve).

RECOMMENDATIONS

1. The researcher recommends the use of plyometric training and development of fitness elements as the physical side is linked to skill side.
2. To conduct similar studies on different games to show the effect of training on other physical and skill elements.

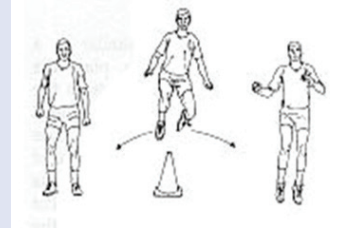
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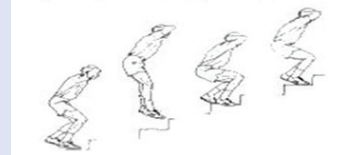
APPENDIX

Appendix 1: Some physical exercises using plyometric method

Side jumping: From the beginning position to jump upwards from over the cone to the other side and then jumping to the other side with pulling the knees upwards



Steps training (jumping with both feet from a step to another till 10 degrees and confirming the pull of knees towards chest and opening legs with shoulder width)



Jumping in front of cones (30 – 40 cm) continuously with feet and asserting the jump upwards, number of cones is 10



Jumping in front of hurdles (50 cm) with both feet and body still straight with swinging arms to get height



Lifting a weight before the body upwards, jumps on the spot and confirming correct performance of training in high strength and speed



Raising a weight upwards, performing jumps on the spot and confirming correct performance of training in high strength and speed



From the starting position, jumping upwards in front with lifting weights over shoulders and confirming correct performance of training in high strength and speed



Jumping over a Swedi steps 40 – 50 cm and falling to the ground with both feet in a continuous manner

“The Effect of Plyometric Training in Developing Explosive Strength on Performing Long Pass Over Shoulder to Goalkeeper during Fast Breaks in Handball”

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ABSTRACT

This study aimed to use plyometric training with training means consistent with the sample in order to develop explosive strength of upper extremities on performing long pass over shoulder to goalkeepers during fast breaks in handball. The researcher used the empirical method for the single group to solve the group. The sample was represented in handball players of Middle Euphrates in Al Sania Club (3 goalkeepers). Next, the researcher selected accuracy of performing long pass over shoulder for goalkeepers to achieve objectives of the study. An exploratory trial was made and post-tests were applied in the study, then the researcher applied plyometric training for a period of 6 weeks and by (3) training units per week. After obtaining results, the researcher processed through the use of non-parametric statistics. After analyzing results, the researcher reached findings the most important of which is that plyometric training has a positive influence on the development of explosive strength of upper extrimities and thus the development of long pass performance over the shoulder by handball goalkeepers.

Keywords: Plyometric training, explosive strength, long pass, handball goalkeepers

INTRODUCTION

Physical Education entered in most aspects of life as it proved its active role and outstanding performance in all areas, including educational, training and psychological, therapeutic and social fields. Handball game requires high physical abilities, especially goalkeepers, such as explosive strength, which is one of these physical abilities that combine strands of power and speed, which is performed only once, and that many of basic handball

skills require the use of explosive strength as a physical adjective in their performance, including long pass skill over shoulder, especially for goalkeepers. It is one of the basic skills for them and enables the team to apply fast breaks quickly and easily, so we find that the proficiency of goalkeepers for this skill depends on what is owned by the player in terms of a special physical capabilities as well as proper techniques.

Goalkeeper training is one of the important things that need to be addressed by trainers. Through the above, and through continuous training of goalkeepers in the club of Middle Euphrates including clubs of Qadisiyah governorate, and following up their training, it was shown that there was a low use of plyometric training that contributes to development of explosive strength of the upper extremities parties, which is the basis for performing of their kinetic duties and different skills.

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Website:
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ISSN:
2001-9211

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This is why the researcher was motivated to prepare plyometric training using the explosive strength upper extremities which contribute to raising the level of long pass over shoulder by handball goalkeepers.

Research Problem

The explosive strength of upper extremities is one of effective physical characteristics affecting preparation of handball players in general and goalkeepers in particular, because of its large and influential role in winning for the team if associated with other physical characteristics and motor performance art. Through teaching and working in sport training, the researcher noted that there is weakness and a decline in explosive strength of muscles working for goalkeepers as training of goalkeepers and developing their performance did not have a great deal of research and attention by researchers despite the importance posed by explosive strength of limbs as reflected on the level of the team and its attempts to win over opponents. Hence, the research problem is summarized as a scientific attempt to study the use of plyometric training with explosive strength of upper extremities on performing long pass over shoulder to goalkeepers during fast breaks in handball.

Purpose of the Study

1. To identify the explosive strength and performing long pass over shoulder by goalkeepers in handball.
2. To identify the effect of plyometric training with explosive strength in developing of explosive strength of upper extremities and performance of long pass over shoulder by goalkeepers in handball.

Research Methodology

The researcher used the experimental method with pre-test on one empirical group design with post-test as proper for the nature and problem of the study. The essence of experimental style is “an attempt to control all fundamental factors, except one variable that is manipulated in a certain way where it is possible to install and measure this manipulation”. (10-237).

Sample of the Study

The sample was represented in handball players of Al Sania Club in Qadisiyah governorate (3 goalkeepers).

Tests used in the Study

The researcher used a legalized test to measure explosive strength of upper extremities and test of measuring long pass over shoulder in handball.

First test

Explosive strength of upper extremities (3, 227).

Second test

Performing long pass over shoulder in handball (measuring muscular capacity directing arms from stationary with shooting) (3, 227).

Exploratory Trial

The exploratory trial is one of the most necessary procedures that the researcher carries out prior to the main trial, in order to know the initial image of experience and to identify the validity of devices and instruments used and pointing to requirements of accurate and correct work free of difficulties and to ensure availability of safety conditions when performing tests in addition to identification of scientific parameters (validity, reliability and objectivity) to test the long pass over shoulder in handball. On that basis, the exploratory trial was made on the sample of the study totaling (3) players on Thursday 25/02/2016 at three o'clock in the evening in the closed hall of Al Sania Sporting Club sports in Qadisiyah governorate.

Scientific Parameters of the Test

The researcher extracted scientific parameters (validity, reliability and objectivity) for test results to members of the exploratory trial under study.

First: Test Validity

Test validity is “measuring test for what was measured accurately and not measuring other thing” (273, 2000, 6).

If the researcher selected content validity through presenting tests to a group of specialists in the field of (tests, training and handball) and there was a consensus that this test was valid measuring the characteristic that needs to be measured.

Second: Test Reliability

The researcher selected reliability coefficient for the test through testing and retesting using Spearman correlation coefficient as shown in Table 1.

Third: Objectivity

The researcher selected test subjectivity through collecting data for two arbitrators working on evaluating test performance results at the same time during

performance of exploratory sample of the test. After collecting results, Spearman correlation coefficient was calculated with values of subjectivity coefficient showed in Table 1 for both reliability and subjectivity of long pass performance test over shoulder for handball players:

Pre-tests

The researcher performed pre-tests prior to performing plyometric training on Tuesday 01/03/2016 by applying explosive strength test for upper extremities and long pass overhead in handball on the study sample in Martyr Abbas Al Janabi Court in Qadesiyah governorate.

Main Trial

The researcher prepared plyometric training (Annex 1) with explosive strength for upper extremities through depending on a group of references and sources in training and the internet. In addition, the researcher added a set of exercises that he found necessary for the subject and sample of the study. These exercises were given (10 – 15) minutes of the main part time in training units within the prepared training course prepared by trainers for members of the sample for 6 weeks (3 units per week) from 14/03/2016 to 30/04/2016.

Post-tests

The researcher performed post-tests on Sunday 01/05/2016 at Martyr Abbas Al Janabi Court in Qadesiyah governorate with consideration of conditions of implementing such tests and their instructions under the same conditions and abilities used in pre-tests.

Table 1: Showed test over shoulder for handball players

Test	Reliability coefficient	Subjectivity coefficient
Long pass over shoulder performance in handball	0.91	0.98

Table 2: Values of median, deviation and wilcox for concerned tests of empirical group of the study

Statistical parameters	Measure unit	Pre-test		Post-test		Wilcox value	Significance
		Median	Deviation	Median	Deviation		
Explosive strength for upper extremities	M	98.2	0.39	3.5	0.42	0	Significant
Long pass over shoulder in handball	Degree	9.16	1.20	7.20	1.29	0	Significant

Tabular wilcox value was (0) at sample size of (6) under significance level (0.05)

DISCUSSION AND ANALYSIS RESULTS

This is a presentation of results of explosive strength tests for upper extremities and accuracy of performing long pass over shoulder by handball goalkeepers in pre and post tests for the empirical sample of the study with analysis and discussion.

Table 2 above shows the following:

Through presentation of search results of pre and post tests of explosive strength in upper extremities and test of accurate long pass over shoulder in handball goalkeepers and their analysis, it was found that there were significant differences between the two pre and post measurements for the empirical group in favor of post measurement.

The researcher attributes this development of the sample members to results of the explosive strength of upper extremities to exercise the used plyometric training, as it included a variety of exercises for explosive muscular strength for upper limbs and most muscles in the upper part of the body in general, as well as giving these exercises in a timely manner with the use of appropriate means to develop strength in the main section of the training unit resulting in a positive impact on developing explosive strength.

Donald (1998) explains that the plyometric training style prompts the aim of developing explosive strength of arms with the primary purpose to increase muscle's ability to stretch as during stretching a large amount of flexible energy rubber is stored in the muscle and this energy is reused during next contraction and makes it stronger from 3-2, 4.

Exercises which rely on the work of reflected sensory receptors achieved the greatest benefit for them by reducing the period of time between stretching and shortening where this period was calculated to reach approximately 0.85 ml of a second and the energy stored in muscles as a result of stretching out at rapid

rates during the shortening contraction phase and participates in the first ten moments of the second. (5-42.43).

Proper rational training plyometric training works to increase the explosive strength required by the performance skill, especially if the exercise is representative of nature of performing the skill in its route and the nature of performance, which require integration of speed with power to achieve high performance capability, such as what is happening in the stages of performing long pass overhead. (3-312).

CONCLUSIONS

In the light of objectives of the study, based on results of the research reaching the following conclusions:

1. Members of the study sample have a poor level of explosive capacity of upper extremities and accuracy of long pass over shoulder in handball.
2. Special exercises have a positive effect on developing explosive capacity of upper extremities for members of the study sample.
3. Developing explosive strength of upper extremities as a result of plyometric training has a positive effect on developing performance of long pass over shoulder in handball.

RECOMMENDATIONS

Through conclusions reached by researchers, they recommend the following:

1. The need to use plyometric training to develop explosive strength of upper extremities has a

positive effect on developing performance of long pass over shoulder by handball goalkeepers.

2. Applying the proposed exercises of explosive strength of upper extremities on lower age categories, the youth, has a positive effect on developing some basic handball skills.
3. The need to conduct researches and studies on other physical abilities due to their great significance in developing skill performance of handball goalkeepers in particular and for other players in general.

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ANNEX 1

Annex 1: Models of plyometric exercises used in the main part of the training course between (10) and (15) minutes of the time of main part (60 min)

S	Exercises	Period of performance	Reps	Breaks
1	Throwing medicine ball (2 kg) with one hand over shoulder on a circle drawn on ground with diameter of 2 m and a distance of 6 m	5 sec	6 reps	5 sec
2	Throwing medicine ball (2 kg) to the highest possible point and receiving it	5 sec	10 reps	5 sec
3	Tying a wheelchair with a rubber strap and trying to advance forward from stationary	6 sec	5 reps	5 sec
4	Pulling the tied strap by goalkeeper at a fixed point through chair movement towards fixation point of the strap	5 sec	6 reps	5 sec
5	Throwing weighed handball tied by a rubber strap from forward and receiving it	5 sec	10 reps	5 sec
6	Pulling a weight tied by a strap from (10) m distance	6 sec	6 reps	5 sec
7	Performing pull exercises on the ring from supine position on a step	5 sec	5 reps	5 sec
8	Performing forward leaning exercise with clapping	8 sec	10 reps	5 sec
9	Pushing weighed handballs over shoulder to the longest possible distance	8 sec	10 reps	5 sec
10	Using various dumbbell exercises for upper extremities	5 sec	10 reps	5 sec

Analysis of Disruptive Behavior Portrayed by Secondary Level Students During Physical Education Courses Conducted by Tunisian Trainee Teachers

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ABSTRACT

The aim of this study is to describe and analyze the disruptive behaviors portrayed by secondary level students. The study is based on their level of disturbance during a Physical Education (PE) course and is conducted by a trainee teacher. A delayed video-scopic analysis has been performed using the Siber management module (2001). It helped unveil a total of 929 disruptive behaviors (DB), 681 of which were noticed by the trainee teachers and the remaining 248 weren't. The results show that the Physical Education courses observed display a very high level of disturbance. With an average of 31 DB per course (~0.56 DB per minute), there is an incident every two minutes. The results show a dominance of intrusive DB (70.7%) which are able of highly disturbing the teaching process, opposed to 29.3% of minor intrusions. These results presume that the learning conditions during the observed courses weren't optimal. Therefore, we should work hardy in the reasons and correspondents solutions.

Keywords: Disruptive behavior, disciplinary management module, physical education, secondary level students

INTRODUCTION

The professional skill to manage disruptions in a classroom and in PE course is a very important topic for many countries such as France, Canada and the United States, due to the close bond between learning and discipline or disruptions management in classes. Chouinard (2001). This situation is not surprising, since we have to know that without minimal control in class, the teacher's efforts will be in vain. This comes from the fact that the students' disruptive behavior

highly disturbs and deviates the teaching process from its educational objectives.

In fact, we have to acknowledge that teachers are always confronted with the behavior of certain students that display inappropriate conduct in class. These students are generally known as «disturbers» since they contribute to the disruption of the class (Chouinard, 2001) or because they refuse to do work.

In general, Disruptive Behavior mainly refers to all types of behavior that disturbs the activity within the school, especially a behavior that disturbs the teacher and/or other students in the class. These comportments are usually disadvantageous for the teaching/learning process. (Corriveau, Lirette & Laurencelle, 2008; Dervaux, Carlier, & Gérard, 2008)

According to Morin et Battalio (2004), disruptive behavior is an obstacle that deviates the students

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ISSN:
2001-9211

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from what they are supposed to be learning in class. It is harmful to the teacher/student relation and affects negatively the learning process within the school. In fact, according to Supaporn, Dodds & Griffin (2003) this behavior sometimes leads to a significant reduction of the learning chances by creating alternative scenarios that oppose the initial program.

All research in this field (Chouinard, 2001; Desbiens & al., 2008; Kulinna, 2006; Maddeh, Hermessi, Bennour, & Souissi, 2015, a; Supaporn & al., 2003) agree on the principle highlighting the bigger threat, which make up the disruptive behavior for the good functioning of the class. It helps finding solutions in order to better control the disruptive members and prepare them to being good members of society. Otherwise, as Pièron clearly states «the questions related to discipline were a bit studied in a systematic way in Physical Education, even if the classroom control constitutes a major preoccupation for future or beginner teacher in the field» (1993, p75).

It has been proven that discipline questions are particularly complex. In fact, an action of discipline usually deriving from conflicts between the student and his classmates or the student and his teacher.

The aim of the current study is to analyze and compare different disciplinary incidents that are able to appear during a secondary level physical education class conducted by Tunisian trainees.

Theoretical Framework

Multiple studies indicate that the lack of discipline in the classroom is associated with the teachers' stress (Côté, 1991; Gaudreau, 2011; Hastings & Bham, 2003) and with the lack of the students' learning. Results of studies on this topic (Desbien & al., 2008; Desbien & al., 2011) show that the physical education teachers are also affected by the management and prevention from disruption appearance. (Corriveau, Lirette & Laurencelle, 1991).

Consequently, the disruption management is the biggest concerns of trainees whose teaching the classes of the regular teachers' (Femandez-Balboa, 1991; Dsesbiens & al., 2009; Fortier & Desrosiers, 1991).

The research in this field is quite significant (Desbien & al., 2011; Doyle, 1986; Dubet, 1994; Jackson 1990, Perrenoud, 1994; Siber, 2011; Siedentop, 1994) and

they all recognize and confirm the importance of developing the ability to manage the lack of discipline in the class within future teachers. Nowadays, these authors «notice that managing a classroom is done in a context where the school, a reflecting image of society, must keep up with the multiple moral and spiritual values as well as the repercussions, life transformations and the relationship between adults and children within the same family » (Desbiens & al., 2008).

There's no doubt that Physical Education has a particular place amongst all educational courses. In fact, Desbiens, Lanoue, Turcotte, Tourigny, et Spallanzani (2009) adds «This course of study is practiced within a noisy, vast, diverse and open environment, and is characterized by moving actions that imply moving objects, direct and physical contact between participants and fast and action packed movements ». In addition; the competitive character of certain courses promotes the appearance of aggressive or undisciplined acts. (Femandez-Balboa, 1991)

The diversity of the interactions (Dugas, 2011) that links different members of a classroom is what makes physical education a fertile ground for non-disciplinary acts. Teachers are often confronted with the behavior of certain students that portray inappropriate behavior inside the classroom. These students are generally known as «disturbers» because they contribute to the disruption of the classroom (Chouinard, 2001) or because they refuse to do work.

This principle was created in the 80s with the idea of « The ecology of physical education»which is a flow of research based on the article on «classroom management» (Doyle, 1986) and its main concepts. The last idea was the topic of numerous studies in the physical education field (Florence, Brunelle & Carlier, 1998; Siedentop, 1994; Musard, Loquet & Carlier, 2010). The ecological model was applied to physical education for the first time by Tousignant (1985) and Siedentop (1983). These researchers adopts the Doyle's concept (1979, 1986), which defines education as a structured group of tasks with the purpose of gaining and maintaining the students' cooperation during the activity.

Hastie et Siedentop (2006) believe, in their review, that the main contribution of this paradigm is depending on the association between teaching and learning in continuous and interactive process. In addition,

researchers are taking in account others influencing variables such as family, community, cultural and social environment.

In the same context, studies interested by ecological and mediators variables in physical education, have developed the idea of students' implications as an indicator of «learning environment » (Martel, Brunelle, Spallanzani, 1991; Desbiens & al., 2008). These authors show that disruptive behavior, passiveness, inconsistency or lack of enthusiasm have consequences on the classroom environment. This observation is assured by various researches, such as those showcasing the difficulty of managing critical disciplinary incidents in the class (Florence & al., 1998).

Most of the work on Disruptive Behavior (DB) focuses on regular classroom scenarios (Siber, 2001) rather than PE. whereas, other fields of study that show DB are very limited (Desbien et al., 2008; Desbiens, Turcotte, Spallanzani, Roy, Tourigny, & Lanoue, 2011; Maddeh & al., 2015, a).

Given the importance of this topic, it is imperative to study the different disciplinary incidents that are likely to appear during a secondary level physical education class conducted by trainee teachers. In this perspective comes our objective, which is to describe and analyze these behaviors based on their level of intrusion during the teaching process.

METHODS

To analyze the students' disruption in PE classes, we took into consideration the works done by (Siber, 2001), the forerunner of the discipline management model. This model is represented in 4 different fields: 1) Doyle's works (1986); 2) The American Association of Psychiatry (1996) and certain researches concerning the discipline management (Charle, 1997, Anzieu & Martin, 1990; McCulloch, 1997; Caplow, 1984); 3) The principles of sociometric techniques. (Parlebas, 1992), the use of sociogram, (McCulloch, 1997) and 4) The classification of management commonly used by teachers based on systemic theories of communication (McCulloch, 1997; Caplow, 1984). This model represents an exemplary of indiscipline management directed to teachers in the first place on the assumption that problems of disruptive behavior (Unruly behavior) take place in the sessions and must be managed by the latter. This model is intended to combat the phenomenon of

Unruly behavior drawing its principle from Doyle's dual task of teaching (1986) arguing that the management of education is based on the management of school learning as well as social learning. Siber (2001) proposes in his model four types of disciplinary incidents: 1) Distracting behaviors. 2) Impulsive behaviors. 3) Disturbing behaviors. 4) Oppositional, provocative and aggressive behaviors. These behavior categories are classified under the guardianship of three types of syndromes; 1- attention deficit/hyperactivity, predominant inattention type, 2- attention deficit/hyperactivity, predominant impulsivity/hyperactivity type, 3- Oppositional disorders with provocation and conduct disorders. The model shows that the intrusion of behavior is still present in education with varying degrees of intensity depending on the type of syndrome or unruly behavior that presents it. This variation in the degree of intrusion into teaching influences teachers to behave differently to manage them, hence the name "Differentiated model".

Our sample is composed from 10 Tunisian volunteer teachers of PE in their last year of university studies belonging to the Bachelor-Master-PhD system (LMD). All of these trainees were initiated into a practical training course in the secondary school environment. All the participants were informed beforehand of our aims of study and our arrangements to preserve their anonymity as well as the confidentiality of the collected data.

Furthermore, a total of 270 high school students, 150 of whom were male, representing 55.6% and 120 females equivalent to 44.4% participated in this study with an average of 27 students per class. The age of these latter is ranged 13 to 14 years accounting for 73.3%; i.e. 198 pupils (13 years) and 26.7%, or 52 pupils (14 years). All of them were engaged in collective sport activities within their reciprocal establishments.

The data is collected using two Sony camcorders (Model: Handcam 4K) with an integrated projector and a wireless microphone with a transmitter receiver of the brand BoomTone DJ (VHF 10HL F4 Micros HF) Of a radius of one hundred meters to capture the verbal interventions of the trainee teacher. The two cameras were positioned opposite each other diagonally, so as to condemn the blind spots while allowing a shooting of the whole area where the session is conducted. This was carried out over a period of one year according to three catches for each individual (Beginning, Middle and end of year). A total of 30 sessions of 55 minutes were filmed.

According to the deferred observation technique, the analysis of the data is done by means of a matrix corresponding to the 4 different categories of the observation grid which allows the input of the search data. These data are analyzed statistically by SPSS software version 21. The analysis consists of a count of the absolute (f) and relative (%) frequencies of the disruptive behaviors according to the grid based on the management model of the Discipline of Siber (2001).

A direct observation from the video recordings was used to realize our codifications on the observation grid. As recommended by Desbiens *et al.* (2011), to be counted, the disciplinary incident must last between 5 and 30 seconds. However, if the incident is perceived by the trainee observed, the latter considers himself/herself “codified”. In the opposite case the fact is considered “Not codified”.

To ensure reliability between coders, two other researchers were trained for the coding procedure of the observation grid from the Siber model (2001) along the school year 2015. The comparison of their perceptions for the different results following the codification of the same teaching session, gave a 87% agreement on the twenty disciplinary incidents retained. According to Fortin (2010), the rate of this inter-encoder agreement is considered reliable.

RESULTS

The results illustrated in Table 1 indicate the occurrence frequency of the “codified” perturbing behaviors in relative and absolute terms. The absolute frequency is expressed as a function of the total number of incidents

(n = 929) by considering those that are “Not codified” (n = 248) and those “codified” (n = 681).

Firstly, we note the high number (929) of the disciplinary incidents distributed between 681 which took place in the field of the trainee teachers and 248 others outside their field.

The relative and absolute frequencies of the different types of disruptive behaviors demonstrate the dominance of the distractions category (n = 272) representing 29.3% of the total, followed by those provocateurs (n = 248) representing 26.7%. The category of disturbing behavior comes in third position (n = 230) with a percentage of 24.7% and finally those impulsive (n = 179) representing 19.3% of the total.

On the basis of the Siber (2001) classification of the degree of indisciplinary intrusions facts, the results also show that the most intrusive facts (n = 657) dominate in Tunisian 70.7% impulsive, disturbing and provocative) versus 29.3% for the least intrusive (distraction). This observation means that it is possible to disturb the smooth running of the teaching sessions which most often appear in the last. Our results confirm those found by Desbiens *et al.* (2011) and Maddeh *et al.* (2015, a) using the disciplinary incidents observation system of Brunelle, Brunelle, Gagnon, Goyette, Martel, Marzouk & Spallanzani (1993).

Graphic 1 shows the disciplinary incidents that occurred in the visual field of the trainees, with distraction DB (n = 218) dominating with 32% of the total (n = 681), the second place is for disturbing DB (n = 170) representing 25% of the total (n=170). Impulsive behaviors (n = 160)

Table 1: Presentation of the absolute (f) and relative (%) frequencies of the generality of the disruptive behaviors of the studied group

News	General absolute frequency	Absolute frequency « codified »	Relative frequency « codified » (%)	Absolute frequency « Not codified »	Relative frequency « Not codified » (%)
Behaviors of distractions	272	218	32,02	54	21,77
Impulsive behaviors	179	160	23,49	19	7,66
Disturbing behaviors	230	170	24,96	60	24,20
Provocative behaviors	248	133	19,53	115	46,37
Absolute total frequency	929	681	–	248	–
Relative total frequency	100%	73.3%	100	26.7%	100

representing 23.5% and the last place is for provocative behaviors (n = 133) representing 19.5%.

Regarding the degree of intrusion the results show that the most intrusive (impulsive, disturbing and provocative) facts dominate (n = 463) representing a percentage of 68% against 32% for no intrusive acts (distraction).

Graphic 2 reports the results of the absolute and relative frequencies of DB that were outside the visual field of trainee teachers. Surprisingly, there is a certain inversion of the balance of the distribution of the various apparent behaviors. Indeed, disruptive behaviors (DB) of the provocative category (n = 115) dominate with a percentage of 46.3% of the total (n = 248), followed by disturbing ones (n = 60), representing 24.2%. The third place is for the DB of distractions (n = 54) representing 21.8%. The last place is for the DB of impulsivity facts (n = 19) representing 7.7%.

Taking in account the intrusion angel of apparent disruptive behaviors, it seems that the total dominance

of the most intrusive DB (n = 194) was found to be the sum of impulsive, disturbing and provocative behaviors, accounting for 78.2% of the total (n = 248) versus 21.8% no intrusive of distractions.

DISCUSSION

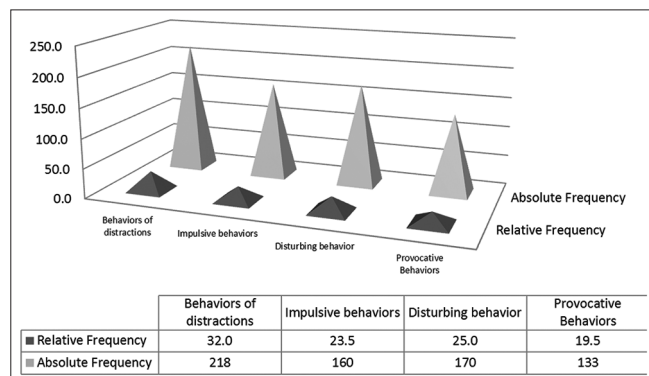
The results obtained in this study show the agitation of the students during the physical education courses provided by the trainee teachers. Indeed the very high frequency of their occurrence explains the rate of 0.56 disciplinary behaviors per minute or a disciplinary incident (DI) every two minutes. Also, 70.7% (impulsive, disturbing and provocative) of the disciplinary behaviors that occur in the classroom are very intrusive, whereas the disciplinary behaviors that disturb the course smoothly (no intrusive) have only a low frequency (29.3%).

These results corroborate are on line with those of Desbiens *et al.* (2008) in regards to the frequency of DB. Indeed the author, specifies in his research a rate of 0.82 DB per minute and notes that 48.2% of the DB that occur in progress are level (3) disturbing for the smooth running of the session. However, the level (1) DB with low price disruption are proportionally the least frequent. In the same way, Maddeh *et al.* (2015, a) demonstrated the appearance of weak facts (43.7%) reporting a rate of 1.2 DB per minute.

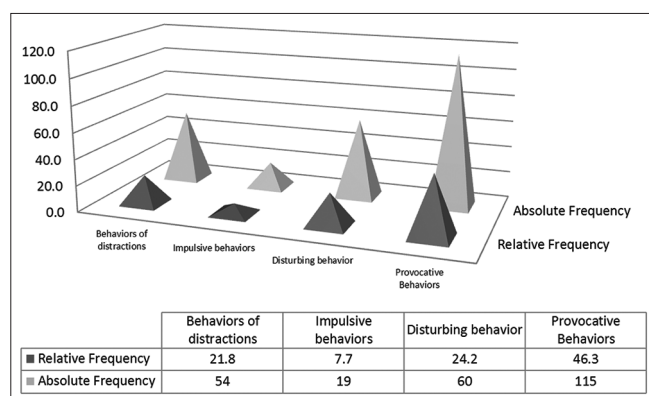
Hodges Kulinna, Cothran *et Regualos* (2006) have already demonstrated a fairly high frequency of DB, but are still of low intensity. The analysis involved situations in regular classes.

Our study is on line with others (Desbiens & *al.*, 2008, 2009, Maddeh & *al.*, 2015, a) researches whose report a wide range of disruptive behaviors that seriously disturb the smooth running of the course. We also note that the DB occurring there are physically expressed (Debiens & *al.*, 2008, Maddeh & *al.*, 2015, a; Hodges Kulinna & *al.*, 2006) and verbal (Kennedy, 1980; Corriveau & *al.*, 1991). We noted that the categories of “impulsive”, “disturbing” and “provocative” behaviors randomly take these two forms, representing 70.7% of the total number of disciplinary incidents.

The “codified” DB analysis demonstrates that students advocate intrusiveness (68%) that seriously disturbs the progress of instructional courses, rather than less intrusive ones (32%). This observation seems to us very alarming, assuming that all the incidents studied in this



Graphic 1: Relative (%) and absolute (f) frequencies of the occurrence of “codified” disciplinary incidents



Graphic 2: Relative (%) and absolute (f) frequencies of “Not codified” disciplinary incidents

part of the analysis took place in the visual field of the teachers. The findings confirm the view of Debarbieux (1996, p 24) that “students have changed,” “they no longer respect anything or anyone”. On the other hand, its results bring us in line with the practitioners in the field (Desbiens & al., 2008, Desbiens & al., 2011, Siber, 2001, Maddeh & al., 2015, a, Maddeh, Bennour, & Souissi, 2015, b) In the school environment and affirming the increase in the appearance of DB in teaching courses, causing mainly increasing and numerous difficulties expressed by the teaching staff.

Moreover, the results of “not codified” disciplinary incidents confirm “codified” incidents. Indeed, a percentage of 78.2% DI of strong intrusion (impulsive, disturbing and provocative) and seriously disturbing the smooth running of the courses was recorded. A surprising inversion demonstrating the dominance of the provocative behaviors (n = 155) of the total of the “Not codified”. This result reminds us a second time to raise the students’ too difficult reality.

The very high number of “codified” disruptive behaviors apparent in the course of teaching analyze in this study, consolidated by the number raised of the “not codified” stipulating the appearance of the most dangerous and intrusive facts, suggests that Trainee teachers of physical education accentuate their focus on the organization and implementation of learning situations to the detriment of the fundamental aspects of classroom management such as having all students in their field of vision. (Ben Chaaben-Abdennader, 2007)

The alarming results of the DI appearance frequencies raise a great weakness on the teacher’s trainees for the maintenance of the order during the courses of physical education. This leads us to argue that the climate of learning (Gaudreau, 2011) set up by the latter is not conducive to teach. In other words, trainee teachers cannot “now encompass all the reflective, sequential and simultaneous actions of teachers to establish and maintain a good work environment and a supportive learning environment” (Nault & Fijalkow, 1999)

Therefore, training in the prevention and management of indiscipline is highly necessary.

CONCLUSION

The study, carried out on the courses of physical education and sports, provided by the Tunisian trainee

teachers, raises a dominance of DB with high degree of intrusion (impulsive, disturbing and provocative) representing a percentage of 70.7 of the total Of apparent incidents. These behaviors tend to disturb the smooth running of teaching sessions that create alternatives to learning. The DB with low intrusion represented a low percentage of 29.3. Research findings indicate that three-thirds of apparent behaviors in observed courses are detrimental to the learning climate. These results suggest that the learning conditions during his classes were not sufficiently optimal.

The results of this study, pertaining to disruptive behaviors, are not intended solely to help the reader gaining a better understanding of this complex phenomenon, but may also invite us to reflect on difficulties solutions. In this context, these results can be used in the initial training of trainee teachers. They constitute an example of a repertory of disturbing behaviors that illustrate the reality of the teaching of physical education as it is on the field. The study invites us to reflect seriously on the training of trainee teachers in the management and prevention of indiscipline in schools. A plan to revise their university training in this field would undoubtedly make a difference in the management of the discipline during their teaching courses.

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