

Effectiveness of a Suggested Recreational Program on Improving Specific Emotional and Immune Responses among Sports Gifted Students

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Abstract: The current study aimed at identifying the effectiveness of a recreational program on improving specific Emotional and Immune Responses among sports Gifted Students, The researchers used the quasi-experimental approach (one group design), with pre / post-measurements. A total of 20 students as an experimental group, were intentionally selected from Al-Amar sporting Preparatory / High School for Boys. Directorate of Education, Kafr El-Sheikh, 2008/2009. Data collection tools: emotional response measure in sports ,immune system measurements (white blood cells - immune proteins). The suggested Recreational Program was developed by the researchers, including certain small preliminary games and various motor activities (such as running, jumping, hopping, hitting and throwing) , taking the shape of musical competitions , in order to improve specific Emotional and Immune Responses. A twelve - week program consisted of 36 recreational units, 3 units per week, each of 60 minutes, was applied after consultation with Recreation and sport medicine experts. The program was administered to sample after school. Pre-measurements were carried out from 28/9/2008 to 29/9/2008. The key experiment was conducted from 4/10/2008 to 4/1/2009. It was concluded that the recreational program had a positive effect on improving specific emotional responses, namely the characteristics of desire, persistence , sensitivity, stress control, confidence, personal responsibility and self-regulation; as well as in certain functions of immune responses, namely total number of white blood cells (monocyte, lymphocyte and neutrophile) and immune proteins (IgG, IgM, IgA). It is recommended to activate programs of recreational activities within schools of sports Gifted Students.

Key words: Recreational Program • Emotional and Immune Responses • Sports Gifted

INTRODUCTION

The twentieth century has witnessed an active search for the gifted all over the world, with combined efforts to take care of them since childhood. Considering that human resources are the Real wealth for any society, stressing that investment in human resources development should be an integral part of national development policies and strategies, promoting their capacities and access to productive activities.

For increasing the capacity of the gifted in order to devote their energy for supremacy and creativity, they should be developed through special curricula in addition to traditional ones [1]. Promoting talents, hobbies and creativity is a joint responsibility of family, school and society. Enhancing these creative capacities is only achieved through combined efforts based on knowledge, insight and experience [2].

School is the primary source of all scientific and intellectual talents. It is a major component to enable students to develop their abilities especially in sports field. School plays an important role in educating students since early childhood and identifying their trends and attitudes. Yet, school sports in school are confined to a specific curriculum of various games that may not consistent with their different trends and attitudes.

Sport competition is a good example for exhibiting psychological emotions, accompanied with physical effort. Competitiveness in important events has its psychological affect upon the athlete, as well as on endocrine system and immune system, affecting his/her performance level and efficacy. It is certain that experienced psychological emotions accompanied with physical effort and pressure in high level training loads, approaching the limit of his/her physiological ability,

thus anxiety or overload during championship and competition affects his/her nervous system, endocrine glands and immune system, increasing athlete's vulnerability to different diseases, particularly during that period of added emotions and stress [3].

Practicing sports is essential for all citizens to avoid health risks resulting from the lack of movement. Thus, health experts emphasize regular practice importance to acquire overall physical fitness [4]. Practicing specific sports is physically significant as movements like walking and running are important in building up body and providing it with vitality and energy and freshness in young persons [5].

Recreational activities, in physical education, are important and suitable for all ages and both sexes alike. These activities are the key components of preferable physical education programs due to distinguished quality relevant to individual nature and trends, as well as physical development that enable him/her to act with the least energy expenditure [6]. Practicing some physical activities, such as exercises or running are physically positive, obviously on bones, ligaments, muscles and nervous system [7]. Using Recreational activities as a means to increase individual physical activity has become an essential educational way for balanced development, mentally, psychologically and socially, also the functional enhancement of different body systems [8].

There is an ample body of evidence for the vital effects of practicing physical activity regularly and continually, on immune cells, reflecting immune system in general and deep changes in the number, distribution and reproduction of white cells, also lymph cells reproduction, which can be attributed to hormonal changes, directly related to these physical activities [9].

Sports and regular training give rise to blood white cells in number and quality, growing physical potential of defensive cells and NK cells against indefinable cells. In general, sports, particularly adapted courses, increase number of all types of white blood cells [3].

Many studies in sports field highlight the temporal effect of extensive physical activity on various immune measures, such as decreasing number of white blood cells, cytokines concentration in blood, lymph cells activism, (NK cells), lessening secretion of A antibody and destroying activity of neutrophil and macrophage cells. These changes may continue for hours or days due to violent training, resulting in inhibition of the immune

system and lessening its capacity against infection. Neutrophil, for instance, pathologically plays an important role in fighting pathogens, inflammations and microbes which automatically activates swallowing cells, that can sharply or chronically go down in number, i.e. Neutrophil cells are inhibited [10-19].

Immunity is the most important biological function in human body, being the strong defense lines and immunity for protecting body organs against microbes, because of its close relationship with physical responses and emotions of body organs against environmental stimulus. This is done by utilizing internal defense forces of swallowing white blood cells that can defend the human body against unknown body by recognizing it and generating antibodies from plasma protein via the work of particular lymph cells [20, 21].

The importance of the present study is to identify the significant role of Immune system in sports, particularly recreational activities, as an effective way for improving efficacy of the system. Since there is no previous relevant research, to their knowledge, having been conducted on Emotional and Immune Responses among sports Gifted Students, the researchers planned to conduct this study in order to identify the Effectiveness of a suggested Recreational Program on Improving specific Emotional and Immune Responses among sports Gifted Students.

MATERIALS AND METHODS

Methodology: The present paper used quasi-experimental approach (one group design), with pre/post-measurements.

Sample: A total of 20 first grade students was purposefully chosen as an experimental group, From Al-Amar sports Preparatory / High School for Boys, Directorate of Education, Kafr El-Sheikh, 2008/2009 (age 15-16 years with mean of 15,85), out of a community of 60 students, excluding 5 students transferred to other schools.

Selection Criteria of Participants:

- This stage is the best age group for improving emotional and immune responses.
- Emotional and immune responses are often permanent.
- Subjects agreed to give blood samples.
- Subjects were self-motivated to participate.

Table 1: Sample sizewithreferenceto community

Item	Students	Percent
Research community	60	100%
Pilot study	10	16.67%
Excluded students	5	8.33%
lasting community	25	41.67%
Basic Sample	20	33.33%

The researchers conducted sampling homogeneity for some variables that may affect the experimental variable, namely growth rates and emotional responses. They found that skewness coefficient scores as to growth rates and emotional responses ranged between -0.87, as minimum score and 1.45 as the maximum score, i.e. scores range between ± 3 , which indicates that research community is zero defect in distribution, indicating sampling homogeneity regarding these variables.

Data Collection Methods:

Emotional Response Measure in Sports: (The Arabic version) The measure consists of 42 items giving the athlete a chance to express his/her attitudes regarding seven significant separate features in the sports field: desire - persistence - Sensitivity - stress control - confidence - personal responsibility - self-regulation

There Were Six Items for Each Feature: Three for negative descriptions and three for positive descriptions. Scoring range, for each feature, is 6:30. Reliability coefficient ranged from 0.63 as a minimum value to 0.87 as a maximum value. Validity coefficient ranged from 2.85 as a minimum value to 4.95 as a maximum value [22].

Immune System Measurements: Total number of white blood cells (Monocyte - lymphocyte - neutrophil). Immune proteins (IgG. IgM - IgA).

Research Form: Data registration form for sports Gifted Students.

The Content of Suggested Recreational Program: The Researchers developed the program through reviewing related literature. They have selected a group of recreational activities that include suggested small and preliminary games appropriate to the sample nature and existing facilities. After consultation with nine of Recreation and sport medicine faculty of physical education, Kafr Al-Sheikh, Tanta, Alexandria, University experts who emphasized, with 85.71%:100%, the importance and appropriateness of the suggested activities for sports Gifted Students [23-32].

Pilot study was administered to a random sample of 10 students selected from secondary stage, first grade, from the same research community and outside the main sample. Pilot study was conducted from Sunday 28/09/2008 to Thursday 2/10/2008. pilot study aimed at ensuring the efficiency of assistant doctors and specialists, also safety of utilized equipment and tools, as well as to apply certain aspects of the suggested program to guarantee its appropriateness for the sample views before starting implementation and due time ,in addition, to identify problems that researchers may face during the application of the program. Results indicated that the study achieved its objectives.

The Suggested Recreational Program:

Objectives:

General Objective: To achieve personal happiness and improve specific Emotional and Immune Responses among sports Gifted Students within these purposes:

Cognitive Objectives:

- To provide sports Gifted Students with specific desired emotional responses.
- To develop sports Gifted Students imagination through recreational activities.
- To provide sports Gifted Students with socially appropriate behaviors having beneficial effects.

Skills Objectives:

- To develop recreational motor skills appropriate for sports Gifted Students.
- To introduce small and preliminary games to this age group.
- To Diversity physical recreational activities in events, Suitable for a particular age group of students.

Emotional Objectives: Developing a sense of happiness and fun, confidence, self-reliance, responsibility, affiliation and loyalty to the group, desire, persistence, self-realization and desired moral qualities.

Principles of Designing the Program:

- Activity aspects must suit the natural disposition of sports Gifted Students.
- Activity aspects must be varied to needs of sports Gifted Students.
- Activity aspects must be within the existing facilities of budget, tools and playgrounds.
- To achieve the principle of security, safety, a gradual increase in exercises from easy to difficult, slow to fast and simple to complex.
- To introduce musical accompaniment to overcome the monotony and boredom, during program performance.
- To give the sports Gifted Students opportunity to move according to the way they like to examine various movements.
- To pay attention to integrated Multi-simple activities: running - jumping - walking ... etc, using new and various tools.
- Relaxation and breathing exercises must be included as positive active rest.

Tools: Swedish Seats - Suppositories - barriers - ropes - Stick - funds - Wands - Mattress - balloons - Chairs - Hoops - BALLS (handball - basketball - Football - Volleyball - Speed - Tennis) - barriers - small flags - mattresses.

Contents of the Program:

The Introductory Part: This Aims To: Prepare the body physically and physiologically to accept work in the next stage.

- To have identify the best ways of funny progress to the next part as participants feel happy.
- To gradually increase of recreational activities.
- Good training to avoid injuries among sports Gifted Students during performance, using the following warm-up activities:
- Various Running exercises (relay - hurdle - free ...)
- Mini-games events accompanied with music for ten minutes.

The Main Part: It aims at the following: Promote specific Emotional and Immune Responses among sports Gifted Students, in two phases:

First Phase: Includes many small games to increase efficiency of the large muscles of arms and torso, legs, abdomen and neck for twenty minutes.

Second Phase: Includes many preliminary games, such as football, handball, basketball and volleyball for twenty minutes.

The Final Part: Cool down with walking, light weights and running accompanied by music for ten minutes. Therefore, the body restores its natural state.

A twelve - week program consisted of 36 recreational units, 3 units per week, The program was administered to the sample after the school day ,at Al-Amar sports Preparatory / High School for Boys - Directorate of Education, Kafr El-Sheikh.

Pre-Measurements: were carried out from 28/9/2008 to 29/9/2008. The key experiment was conducted from 4/10/2008 to 4/1/2009.

Post Measurements: were conducted after the twelfth week of applying the program, from 06/01/2009 to 07/01/2009, using the same protocols of Pre-measurements.

Statistical Treatments: The researcher utilized the statistical methods appropriate for the study nature and objectives.

RESULTS AND DISCUSSION

Table 2 indicated that there was a positive effect on improving specific emotional responses between the pre and post measures at the level of 0.05 for the post measure where T-value ranged from 13.190, minimum value, to 18.609, maximum value with percent ranged from 30.641%, minimum to 44.726%, the maximum .The researchers attributed this improvement to the suggested program on account of including motor activities: of running, jumping, walking and crossing various barriers, resulted in physical, psychological and physiological improvements among sports Gifted Students, achieving its goal of personal happiness and lessening stress and tensions, nervousness, thereby improving different body systems, especially the immune system. These findings were consistent with many studies, which correlate physical, psychological and physiological improvements with motor activities.

Motor activities such as walking and running when performed moderately and continuously lead to relaxation, improving physiological condition, making the body able to resist germs and infection [33]. Human immune system responds to emotions, physiological stresses, with

Table 2: Mean standard deviation, T value and differences between pre and post measurement in some of the emotional responses of sports Gifted Students (N = 20)

N	Variable	Measure unit	Pre-measurement		Post measurement		M.P	T.Value	Improvement percent
			M±sd		M±sd				
1	Desire	score	16.74	7.25	23.65	3.95	6.91	16.336	41.278%
2	Persistence	score	17.35	6.94	25.11	4.22	7.76	18.609	44.726%
3	Sensitivity	score	18.25	6.85	25.75	4.77	7.50	17.523	41.096%
4	stress control	score	17.95	7.15	23.45	3.85	5.50	13.190	30.641%
5	Confidence	score	17.75	6.45	24.55	4.54	6.80	16.790	38.310%
6	Personal responsibility	score	18.65	5.95	25.55	3.90	7.60	18.082	35.389%
7	Self-regulation	score	17.40	6.17	22.90	3.35	5.50	15.278	31.609%

(t) table values on ($p \leq 0.05$) = 1.73

Table 3: Mean, standard deviation, T value and pre and post measurement differences in some of the emotional responses of sports Gifted Students (N = 20)

N	Variable	Measure unit	Pre-measurement		Post measurement		M.P	T.Value	Improvement percent
			M±sd		M±sd				
A	White blood cells								
1	Total number	Number	6.255	1.680	7.130	1.950	0.875	6.629	13.988%
2	Monocytes	Number	3.637	1.240	4.424	1.400	0.787	8.198	21.639%
3	Lymphocytes	Number	2.474	1.995	2.845	2.330	0.371	2.363	14.996%
4	Neutrophil	Number	3.317	1.560	3.736	1.950	0.419	3.273	12.632%
B	Immune proteins:								
1	IgG	Number	1030.7	170.49	174.5	178.56	143.800	11.354	13.951%
2	IgM	Number	98.5	27.12	120.85	26.070	22.350	11.580	22.690%
3	IgA	Number	209.6	42.05	265.10	9.040	55.500	16.747	26.480%

(t) table values on ($p \leq .05$) = 1.73

different and many ways, due to signals travelling between nervous system and immune system, that react according the physiological condition related to standardized moderated Recreational activities [3].

Recreational activities in any training program are significant in preventing fatigue phenomenon, increasing desire for training, lessening boredom due to continual training [34]. Recreational activities could be used as means of performing specific exercises and movements, enable individual to develop mentally, psychologically and socially in a balanced way, also largely contributing to functional maturity of body systems [8]. A regular sport activity improves life quality and lessens stress, worry and depression [35]. Motor activities help human beings, reduce the level of tension and stress and improve the personality traits, increasing his emotional stability and self-confidence that have positive effects on his immune system [36].

Table 3 indicated that there was a positive influence on improving specific immune responses between pre and post measurements at the level of 0.05, in favor of post measurements as T value ranged from 2.363, smallest

value, to 16.747, largest value, with percent ranged from 12.632%, smallest to 26.480% as the largest ratio. The researchers attributed this improvement in immune variables, to the suggested program for sports Gifted Students because of including motor activities accompanied with music. These findings consistent with many studies, which correlate immune improvement with moderate physical load [18, 37-39].

In this regard, it is mentioned that immune responses improved with performing moderate loads. These findings were also confirmed by many studies indicating that moderate loads increase the activity of white blood cells, especially monocytes cells, which have capacity of early immune defense [40, 41]. It is reported that standard training with moderate loads increase immune cells activity within the supply of lymphocyte cells [42]. It is suggested that the immune proteins of blood plasma increase by standardized moderated physical exercises. [43-45]. It is emphasized that appropriate practice of sporting activities raise the level of immune system, as well as standard training moderate loads increase immune capacity [3].

It is concluded that moderate exercise has a positive effect on the immune response, improving the functions of lymphocytes and proteins, immune represented in (IgA-IgM-IgG) where these variables reached its maximum after six weeks after applying a medium intensity program [10]. It is concluded that increasing immune proteins (IgM-IgG) among individuals as a result of sporting practice including walking and running [46].

CONCLUSION

- The suggested recreational program had a positive effect on improving specific the emotional responses: desire - persistence - Sensitivity - stress control - confidence - personal responsibility - self-regulation.
- The suggested recreational program had a positive effect on improving specific immune responses to the total number of white blood cells (Monocytes - lymphocytes - neutrophil) and immune proteins (IgA - IgM - IgG).

Recommendation:

- Implementation of the suggested recreational program in sports gifted schools of the same age group under study.
- Activation of the suggested recreational program in sports gifted schools of different age groups.

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