CORRELATION BETWEEN STRESS LEVEL AND PHYSICAL ACTIVITY INDEX

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Abstract

The purpose of the study is to investigate the correlation between stress level and physical activity index at students aged 19 to 26.

Methods: the study enclosed a sample of 90 students from the Faculty of Medicine and Pharmacy in Targu-Mures and aimed to evaluate, based on two questionnaires, the stress level and physical activity level.

The study results show that stress level is indirectly proportional to physical activity level, which can have multiple negative influences on the subjects' physical and intellectual performances.

Conclusions: systematic practicing of physical activities has to be an essential and constant preoccupation in combating multiple stress factors, which the young student generation is confronted with, this influencing the psychic, intellectual and physical aspects of life, directly and negatively.

***Key words**: stress, physical exercise, physical activity, quality of life.*

INTRODUCTION

People's mental and physical health is constantly undergoing specific aggressions, like sedentariness and stress, which have the largest negative impact. Identifying and quantifying the aggressive potential of these factors, madethe researchers to identify and put the scientific basis of the antidote – physical exercise; physical activity can combat and decrease the effects of sedentariness and stress, if used properly and constantly.

Theoretical background

Romania reached alarming values in which the sedentaryaggression level and stress are concerned, especially among children and young people. Along with obesity incidence increasing, heart diseases and mental sickness are estimated to augmentin future decades.

Unfortunately, concerning realities and present gloomy perspectives are based on o state of insensibility regarding the prevention of risk factorsaggression and promoting health through physical activity, especially on young population.

Given the circumstances of a permanent dynamic living, it is impossible to eliminate stress, but by optimal organization of life and systematic practice of physical activities, an efficient stress management can be carried out in order to maintain mental health and to improve cognitive activities.

The valences of physical sportive and recreational activities, specific to sport for all, are numerous and can become a viable solution to improve and maintain health, to shape up biometric capacity and positive thinking, to increase the quality of life and educational level, to integrate moral values and to act as social factor with maximum impact.

Recent research showed that systematic practicing of physical activities can reduce the influence of stressful factors with 40%.

Eustress and distress can equally influence the quality of life, the effects on health are seen according to the length and intensity of exposure to stressful factors, and the methods of combating stress have to be directly correlated.

Exterior, objective requirements and self-exigencies (aspirations, wish to excel) form a set of stressful factors that put under pressure the whole psycho-behavioral system.

Students' activity has a great emotional liability, which can bring the psycho-behavioral system to limit. From the multitude of factors determining this state, more relevant are the following:

- External factors: cold, heat, time zone differences
- Internal factors: high intellectual and muscular motion efforts;
- Psychic-intellectual-affective-volitive factors: decisions taken under uncertain conditions and lack of time, reactions to failure or success, maximal volunteer effort;
- Psychosocial factors: critics, opinions of family and close people, colleagues and teachers appreciation;
- Excessive intrinsic and extrinsic motivations.

All these factors generate psychic tensions, mostly expressed emotionally, that reflect themselves on the individual's psychic system both on awareness as well as on subconscious level, determining adaptive and defensive reactions that a proper scientific preparation organizes them, centered on efficient behavior.

AIMS AND HYPOTHESIS

The purpose of the study is to evaluate the correlation between stress level and physical activity index on students from faculties not in the field.

To set the hypothesis of the research, we started from the assumption that physical activity index depends on stress level.

Subjects and duration

The research was carried out in the first semester of 2011-2012 and targeted 90 female students from the Faculty of Medicine and Pharmacy, with ages between 19 and 26 years.

RESEARCH METHODS AND PROCEDURES

The used methods: study of field literature, questionnaire method, statistics and mathematics method, and the method of graphic representation. The calculated statistic indexes were: physical activity index (PAI), average (X), percent (%) and Pearson correlation index (r).

The subjects were given two questionnaires, one with a set of 10 questions to determine stress level and another one to determine the physical activity index.

The length of research: the study comprised two testings: initial testing (TI) at the beginning of the first semester, in October 2011 and the final testing (TF) during the winter exam session, February 2012.

Applied questionnaires for the study

Physical activity index (PAI) represents an important indicator for the level of physical exercise and allows obtaining information regarding aerobe effort capacity.

The questionnaire for PAI evaluation targets the following parameters (Dumitru Gh., 1997):

The first parameter – INTENSITY

5. Physical activity leading to significant respiratory acceleration (gasping) and relatively abundant transpiration.
4. Effort leading occasionally to gasping and transpiration, for example: tennis, etc
3. Slightly easy effort, for example: recreational sports – cyclo tourism
2. Moderate efforts, for example: volleyball
1. Easy efforts, for example: fishing, walking

The second parameter - DURATION

4. Over 30 minutes
3. 20-30 minutes
2. 10-20 minutes
1. Under 10 minutes

Third parameter – FREQUENCY

5. Daily or almost daily
4. Three to five times per week
3. One to two times per week
2. Several times a month
1. Less than once a month

PAI is calculated by multiplying the scores obtained for each of the three parameters: intensity, duration, frequency, using the formula:

PAI=IxDxF

Depending on the results, the physical condition category is set and therefore the effort capacity.

Table no.1 PAI value is estimated according to grid (Dumitru Gh., 1997)

Score	Physical condition category	Characterization
80-100	Superior	Very active lifestyle
60-80	Very good	Healthy, active person
40-60	Reasonable	Acceptable
20-40	Weak	Insufficiently active/relative sedentary
1-20	Very weak	Sedentary

The sample of people involved in research was applied the following questionnaire to evaluate the stress level:

Stress evaluation questionnaire (CICR)(after Petru Derevenco /*Dr Doc. Member of the Academy of Medical Sciences*)

Age……., Sex…….

1. I have difficulties in falling asleep (have insomnia): never□, sometimes□, frequently□
2. I feel tensed, irritated, nervous: never □, sometimes □, frequently □
3. The slightest noise makes me startle: never □, sometimes □, frequently □
4. I'm on alert when faced with dangers: never □, sometimes □, frequently □
5. I keep friends/collegues at distance and try to avoid them: never □, sometimes □, frequently □
6. My work is not interesting and I feel my future lacks perspective: never □, sometimes □, frequently □
7. I am physically and/or mentally tired: never □, sometimes □, frequently □
8. I get dizzy, have frequent transpiration and palpitations, especially when I remember something bad: never □, sometimes □, frequently □
9. I think I am overexcited, act irrationally and take too many chances: never □, sometimes □, frequently □
10. I revisualise bad things from the past, in my dreams or as nightmares: never □, sometimes □, frequently □

Stress level evaluation criteria:

- Between 10-12, light stress condition;

- Between 13-15, light to moderate stress condition;
- Between 16-18, moderate stress condition;
- Between 19-21, moderate stress condition with rare major stress accents;
- Between 22-24, moderate stress condition with frequent major stress accents;
- Between 25 and 30, very stressful condition, should look for help.

RESULTS

Table no.2 Initial testing of PAI (October 2011)

PAI levels / Indicators	10-20	20-40	40-60	60-80	80-100
No. subiects	6	21	48	12	3
% subjects	6	24	54	13	3
X PAI	6.67	23.3	53.3	63.3	88,6

Table no.3 Final testing of PAI (February 2012)

PAi levels / Indicators	0-20	20-40	40-60	60-80	80-100
No. subjects	32	32	20	5	1
% subjects	36	36	22	5	1
X PAI	11,8	24,4	38,6	67,4	82,5

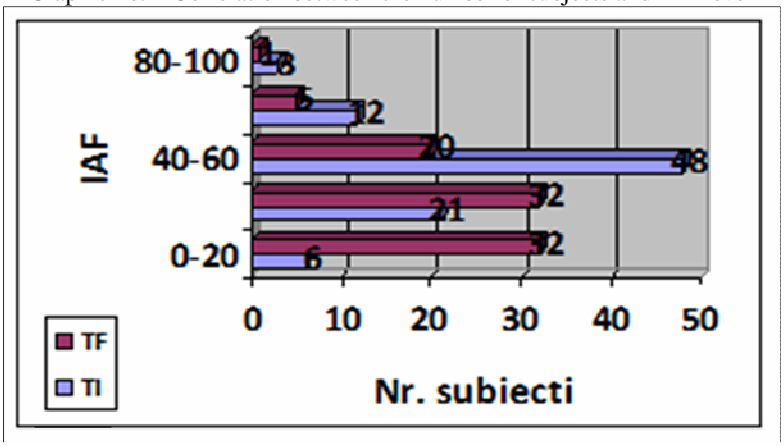
Table no.4 Initial testing of stress level (October 2011)

Stress level / Indicators	10-12	13-15	16-18	19-21	22-24
No. Subjects	3	24	42	18	3
% subjects	3	27	47	20	3
X Stress level	11,3	13,6	16,8	20,5	23,6

Table no.5 Final testing of stress level (February 2012)

Stress level / Indicators	10-12	13-15	16-18	19-21	22-24
No. Subjects	2	5	18	47	18
% subjects	2	5	20	43	20
X Stress level	12	14,4	17,1	20,1	22,9

Graphic no. 1 Correlation between the number of subjects and PAI level



Graphic no.2 Correlation between the number of subjects and stress level

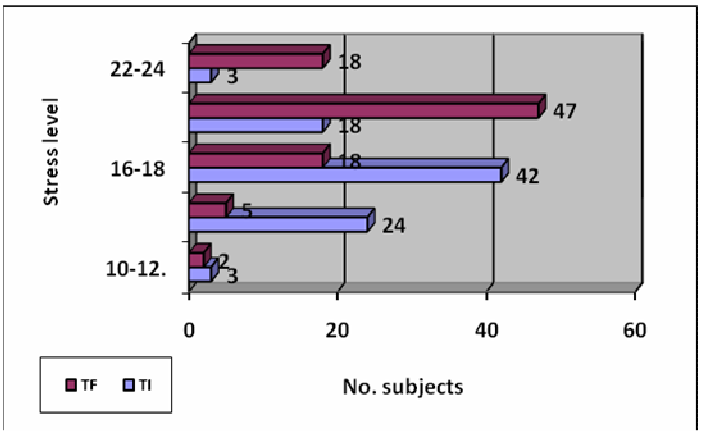


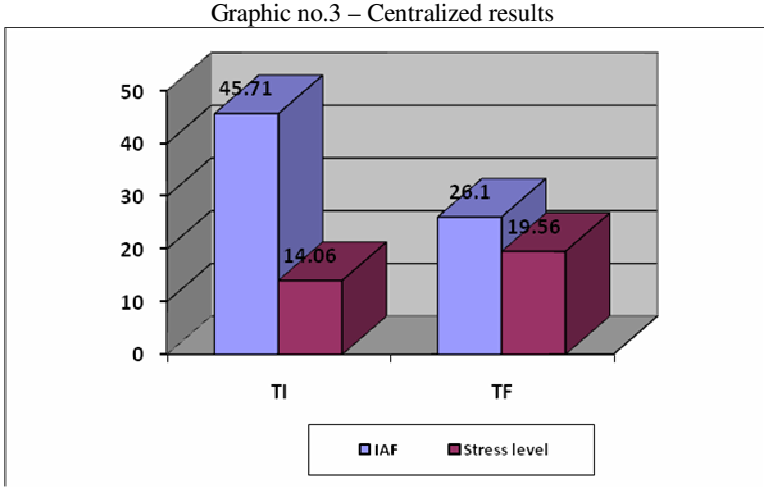
Table no.6 – Centralized results of the two questionnaires

Statistic indicators	TI	TF	Difference
X PAI	45,71	26,10	19,61
PAI evaluation criterion	Acceptable	Not active enough/ relative sedentary	-
X Stress level	14,06	19,56	5,50
Stress evaluation criterion	Light to moderate stress condition	Moderate stress condition with major stress accents	
Correlation index– r	0,59	0,023	-

Initial testing results reveal the fact that minimum and maximum stress limits are experienced by a small number of students, the main share of female students being situated between medium limits of stress level. The same phenomenon can be observed for PAI also, therefore a very small number of studentsshow minimum or maximum values, the majority being situated between these values.

Final testing shows a more increased stress level and a decreased PAI level, as compared to initial testing. The main share of students registered high stress values, and only for a reduced number it was situated at the inferior limit. Final testing shows that the large share of students present high stress values, but at the same time, the superior values of PAI were registered by a small number of students.

Graphic no.3 – Centralized results



PAI at initial testing had an average value of 45.71, and at final testing registered 26.1, the average difference between testings being of 19.61, and in what stress level is concerned this was lower at initial testing, only 14.06, increasing relatively with 5.5 at final testing.

At the beginning of the test, subjects registered an acceptable level of PAI and a light to moderate stress level; during the exam session PAI decreased considerably, being situated within insufficient active/relative sedentary category, while stress level increased, becoming moderate with rare accents of major stress.

All these data demonstrate that the level of physical activity is indirectly connected to stress level and vice versa.

At the initial testing, the bilateral correlation index had the value r=0.059, with a significance level p<0.01, which denotes positive correlation.

At the final testing, the bilateral correlation index had the value r=0,003, with a significance level p<0.01, which denotes positive correlation, but was much more decreased than initial testing.

CONCLUSIONS

Study results confirm the hypothesis, the superior and inferior limits of stress level show reduced physical activity, which is reflected by the obtained values, and these values situated between limits show a dependence relation, indirectly proportional, therefore, the higher the stress level, the smaller the physical activity index level, thisleading to a small degree of awareness about negative effects of stress factors.

The study reflects an increased stress level for the questioned people, which can lead to a lower quality of life and limitedindividual performances.

Results show significant opposition of individual to reduce stress parameters because of limited awareness about these effects and the methods to combat them.

Physical activity index is too low for this age category, indicating gloomy perspectives regarding health and psychic condition of adult population.

We consider that the decrease of physical activity index correlated with stress level increase results from more factors, among which: defective time and stress management, organization of learning activity, reduced awareness about negative stress effects on individual performances and about the fact that these can be combated or faded away, especially through various physical and recreational activities.

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COMPARATIVE STUDY ON THE EFFECTIVENESS OF THE PLAYERS IN WORLD LEAGUE MEN'S VOLLEYBALL FINAL

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Abstract

In modern volleyball game like the one practiced today worldwide, the defense becomes more and more aggressive, especially the blocking actions. This issue has led to new ways to address the attack phase, to study the smallest details of the opponent that is how it approaches the game in certain situations, which can also be decisive in how a volleyball game is performed.

In the final games of volleyball World League 2012, Poland won the first World League title after beating America with the score of 3-0 in the finals of the Armeec Arena in Sofia, Bulgaria.