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# INCREASING THE ATTRACTIVENESS OF PHYSICAL EDUCATION CLASSES FOR MEDICAL STUDENTS AT UMF TG. MUREŞ BY WAY OF INTRODUCING NEW SPECIFIC MEANS OF FUNCTIONAL TRAINING

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**ABSTRACT. Premises**: this study attempts to introduce a new orientation as regards improving the physical training process of medical students at UMF Tg. Mureş by way of implementing tailored programmes of functional training in physical education classes, with the aim of optimizing general physical training for students increasing the attractiveness of physical education classes. Physical education practiced on primary, secondary and university levels plays an important part in the process of forming and developing the child's personality. Reducing the number of physical education lessons for students, as well as the time spent practicing sports is the result of a loss of perception of the formative role of physical education and sport. Encouraging and supporting various forms of practicing physical education and sport in academia requires the introduction of a number of attractive and effective means, which would increase the interest of students. **Aim:** this research aims to introduce means specific to functional training into physical education classes for students at UMF Tg. Mureş, so as to increase the attractiveness and effectiveness of lessons. **Methods:** This research was conducted during the 2014-2015 academic year, and included two groups: the experimental group made up of students from the Faculty of Medicine, and the control group, composed of students from the Faculty of Pharmacy of UMF Tg. Mureş. **Conclusions:** functional training specific means, used in the training of the experimental group proved to be more efficient and more attractive compared to traditional methods used with the control group.

**Keywords:** *functional training, student, tests, TRX equipment*

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**REZUMAT.** ***Creşterea atractivităţii lecţiilor de educaţie fizică la studenţii de la medicină din cadrul UMF Tîrgu Mureş prin introducerea unor mijloace specifice antrenamentului funcţional. Premise:*** Prin această lucrare se încearcă introducerea unei noi orientări în ceea ce priveşte îmbunătăţirea procesului de pregătire fizică la nivelul studenţilor din cadrul UMF Tg-Mureş prin implementarea, în cadrul orelor de educaţie fizică, a unor programe adaptate de funcţional training, care au ca principal scop optimizarea pregătirii fizice generale a studenţilor, precum şi creşterea atractivităţii orelor de educaţie fizică. Educaţia fizică desfăşurată la nivel de învăţământ primar, gimnazial, liceal si universitar îndeplineşte un rol important în procesul de formare şi dezvoltare a personalităţii copilului. Reducerea numărului de lecţii de educaţie fizică pentru elevi, precum şi a timpului alocat practicării sportului este rezultatul diminuării percepţiei asupra rolului formativ al educaţiei fizice şi sportului. ***Obiectiv:*** prin această cercetare se urmăreşte introducerea unor mijloace specifice antrenamentului funcţional în cadrul orelor de educaţie fizică a studenţilor de la UMF Tg Mureş în vederea creşterii atractivităţii şi eficienţei lecţiilor. ***Metode:*** Această cercetare s-a desfăşurat pe parcursul anului universitar 2014-2015, şi a cuprins două grupe: grupe experiment formată din studenţii de la Facultatea de Medicină, UMF Tg-Mureş şi grupa control, compusă din studenţii de la Facultatea de Farmacie, tot din cadrul UMF Tg-Mureş. ***Concluzii:*** mijloacele specifice antrenamentului funcţional, folosite în cadrul pregătirii grupei experiment s-au dovedit a fi mai eficiente şi mai atractive în comparaţie cu mijloacele clasice folosite în cadrul grupei martor.

**Cuvinte cheie:** *antrenament funcţional, studenţi, teste, echipament TRX*

## Introduction

Physical education is one of the oldest forms of human personality training, contributing to human training and development by creating an optimal ratio between the physical and the psychological, the motor and the intellectual.

Physical education and sport can be considered as special forms of education involving the physique, having not only biological ends but also important psychological and social aspects.

Physical education and sport should assume the role of promoter of health through the complementary skills of professionals (teachers, coaches, physiotherapists).

According to Rodriguez, quoted by L. Patac "if we want to improve our quality of life we need to acquire the good habit of always seeking this improvement and not be content with what we have, trying to introduce some changes gradually; we will try to have better nutrition, fresh air, a more subtle, calmer and more accurate way of achieving things; in short, we have to be interested in the quality, not quantity, of things."

Physical education is an integral part of the measures taken for a harmonious physical development and maintaining optimal health for students.

"Young people's health is a major concern of European policies on work safety and health and education."

The general objectives of physical education aim are "the necessary body training and development for ensuring and cultivating human health values, the state of balance and working condition of the body" (Colibaba Evuleț, 2007).

Physical education is part of the compulsory curricula for all faculties of the University of Medicine and Pharmacy, during 2 years of study, except the School of Dental Medicine whose curriculum provides three semesters, while there are two semesters for Spa-, Kineto-, Physiotherapists and Nutritionists.

Among the most important objectives of physical education classes are health improvement and maintenance, combating sedentary lifestyle, overweight, fatigue, strengthening basic motor skills, developing independent habits of physical exercises etc.

Physical education and sport lesson content is directed towards the development and improvement of physical capacity of students using physical exercise, being determined "by its topics and teaching purposes that consist of exercises and efforts devised in order to achieve educational themes and objectives of the lesson proper, from the teaching methods, procedures and measures provided for every moment of these activities" (Mitra and Mogoș, 1975, pag.245).

The lesson structure was defined by Dragnea A., Bota A., Stănescu M., Teodorescu S., Șerbănoiu S., Tudor V. (2006) as a "sequence of moments that gain identity by the objectives, content and methodology they contain."

The eight sequences of physical education classes ensure the continuity of actions initiated by the teacher during classes, the lessons being carried out both in the gym and outdoors, using means specific to tests and branches of sports: athletics, basic gymnastics and aerobics, sport games. In physical education classes conducted at the Department of Physical Education and Sport of UMF Tg. Mureș, the focus is on the following disciplines: athletics, football, basketball, volleyball, badminton, table tennis, tennis, etc.

Practicing sports games by the students "the aim is to accomplish physical education tasks, to achieve sport performances as well as to be a means of leisure for those practicing it" (Colibaba, Bota, 1998, pag. 7).

Alongside these means we consider it appropriate to introduce specific means of functional training, because teachers at UMF Tg. Mureș are interested in a growing interest in sports among students. To this end, teachers are continuously searching for the novel, as improving quality of life for students through sport is an important factor.

By introducing new means specific to functional training the intention is to link the somatic and the mental in order to maintain health and reduce the risk of injury.

During functional training a great number of sports equipment can be used for teaching purposes which create an overload influencing the expected results regarding:

- Accomplishing a metabolic effect which helps fat tissues disperse from the body;
- Accomplishing an intense cardiovascular workout which helps to improve aerobic and anaerobic energy systems;
- Help preventing injuries or recovering from certain injuries;
- Help improving posture;
- Help improving abilities of fulfilling daily tasks and those concerning social integration.

The instruments recommended to be used in functional training are: bells, bags, hurdles, speed resistors, boxing equipment, medicine balls, benches, weights, dumbbells, ViPRs, TRXs, Bulgarian bags.

**TRX equipment:** is made up of a strap with two handles suspended from the ceiling, door, wall bars etc. The ends of these belts are equipped with soft handles for hands and feet.

**Bulgarian bag:** a perfect training tool for fighters and martial arts practitioners, with numerous applications in other sports, as well as fitness training. It is made of a highly resistant leather and filled with ground leather, cloth and sand.

**ViPR** ("viper") - elastic tube: it is a rubber tube, extremely efficient in training. It can be used in functional training for developing the entire body, improving coordination and flexibility.

**Fitballs:** these balls are ideal for fitness, cardio or rehabilitation exercises. They are professional gymnastics balls that can be used in fitness gyms or at home.

**Weights and dumbbells:** specialists have asserted that during exercises their centre of gravity changes and the movements made resemble lifting objects from everyday life. Thus reps ensure the same benefits: strength and balance in regular activities.

**Speed resistors:** an equipment used for training lateral movement.

Functional training consists of:

*Exercises for torso muscles (abdomen and back)* – a strong torso can improve body posture preventing back injuries.

*Plyometric exercises* – develops reaction speed. Exercises are effective when muscle is loaded and contracted quickly to increase strength and muscle contraction speed.

*Stretching exercises* – they help to improve flexibility and reduce risk of injury to joints, muscles and tendons. These exercises reduce post-effort muscular tension and pain, improve the ability to learn and perform complex movements, increase physical and mental relaxation ability.

Author Macovei S. (2012, p.3) defines stretching as "a way of analytical processing of the musculoskeletal system that involves thoroughly controlled, active or passive, stretching of muscle chains or groups."

*Cardio exercises* – for improving endurance. The greater the aerobic capacity the more and harder athletes can train, "the endurance of the body peaks due to a marked increase of cardiac volume and consecutively to the maximum $O_2$ per minute consumption" (Banister, 1997, p.159).

*Strength exercises* – include exercises done with body weight only or with dumbbells, kettlebells, elastic bands, fitballs, medicine balls etc.

**Goals:**

1. Increasing the attractiveness of physical education classes to students at UMF Tg. Mureș, by introducing specific means of functional training;
2. Getting a proper muscle tone to conduct specific motor actions;
3. Creating the habit of systematic practice of exercises outside physical education classes, in own time.

**Hypotheses:**

1. It is assumed that the interest of students at UMF Tg. Mureș for physical education classes can be positively affected by the introduction of attractive means specific to functional training;
2. By introducing functional training specific means, motor abilities of students at UMF Tg. Mureș can be improved.

***a) Research period and location***

The research was conducted during the 2014-2015 academic year, on a sample of 72 female students divided into two groups: the experimental group made up of students from the Faculty of Medicine of UMF Tg. Mureș, and the control group which consisted of students from the Faculty of Pharmacy of the same university. The groups were of 12 students each, but for each test students from different group were chosen.

Students in the experimental group utilised means belonging to functional training, while the control group students used traditional means.

### *b) Research subjects*

Each test was conducted on students from different groups and years of study. Thus for the vertical/Sargent jump test, the experimental group was made up of 12 students from the Faculty of Medicine, first year; for the front flexibility test, 12 other students from the second year, and for the combined test of balance and arm muscle strength on fitball, 12 second year students.

The control group was formed according to the same selection method, this time from the students of the Faculty of Pharmacy.

### *c) Methodology applied during the research*

The methods used in this research were the following: data collection method, bibliographical study, experimental and testing methods.

## Results

### *1. Vertical Jump Test (Sargent Jump Test)*

The first test the subjects underwent was the vertical (Sargent) jump test. The data collected during this test offers an insight into the vertical jump level in upper limbs.

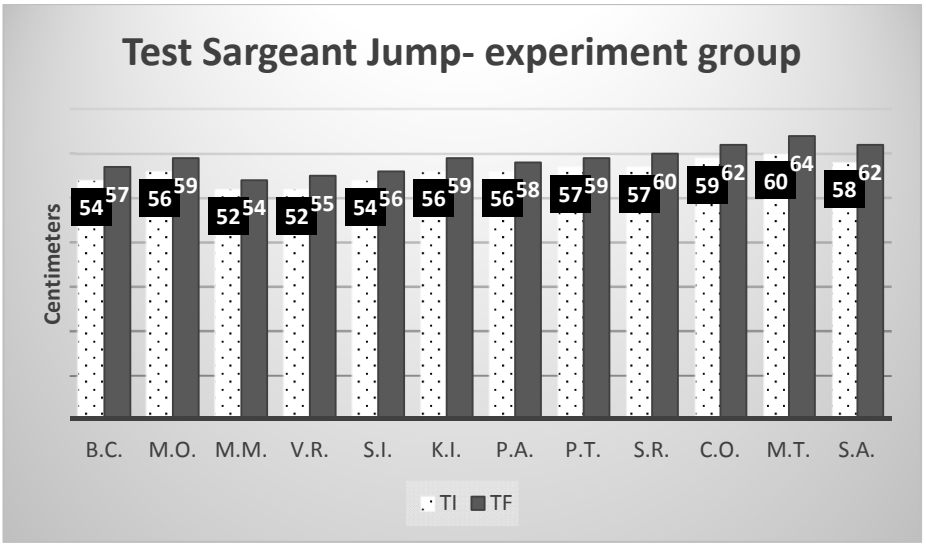


**Figure 1.** *Graphical representation of Sargent Jump results – experimental group*

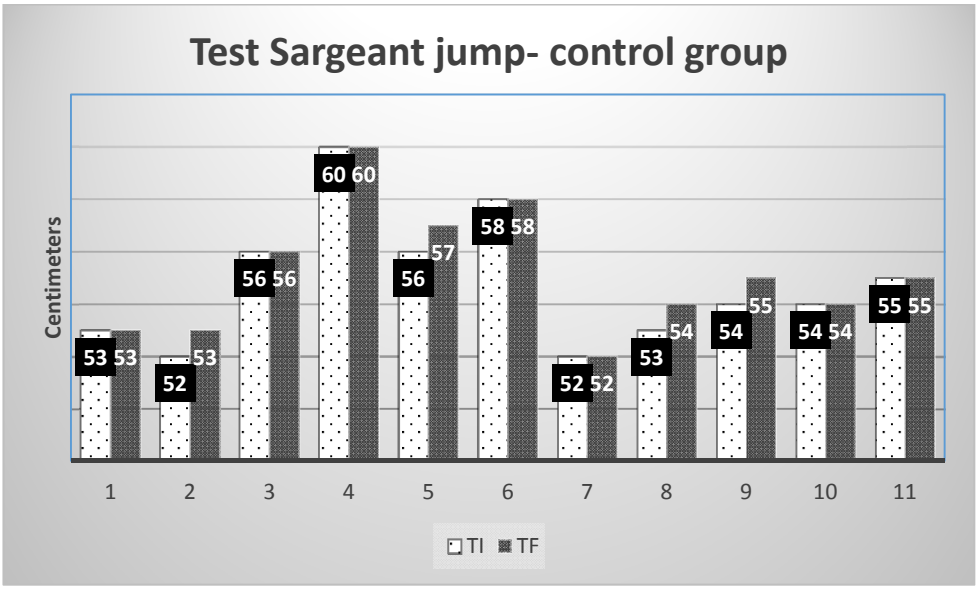


**Figure 2.** *Graphical representation of Sargent Jump results – control group*

**Table 1.** *Statistical indicators for Sargent Jump test*

| Group | Statistical indicators / Tests | X | CV | t-Student | P |
|---|---|---|---|---|---|
| Experimental group | Ti | 55,92±0,73 | 4,17 | 2,50 | 0,02 |
| | Tf | 58,75±0,86 | 4,67 | | |
| | **Difference** | **2,83** | | | |
| Control group | Ti | 54,67±0,71 | 4,14 | 0,33 | 0,73 |
| | Tf | 55,00±0,68 | 3,97 | | |
| | **Difference** | **0,33** | | | |

*Interpretation of results:*

The experimental group managed to improve the arithmetic mean of the Sargent Jump results by 2.83 cm while the control group by only 0.33 cm. The progress of the experimental group is due to the methodology devised and implemented by us, which positively affected the vertical jump motor ability.

### 2) ***Front flexibility test***

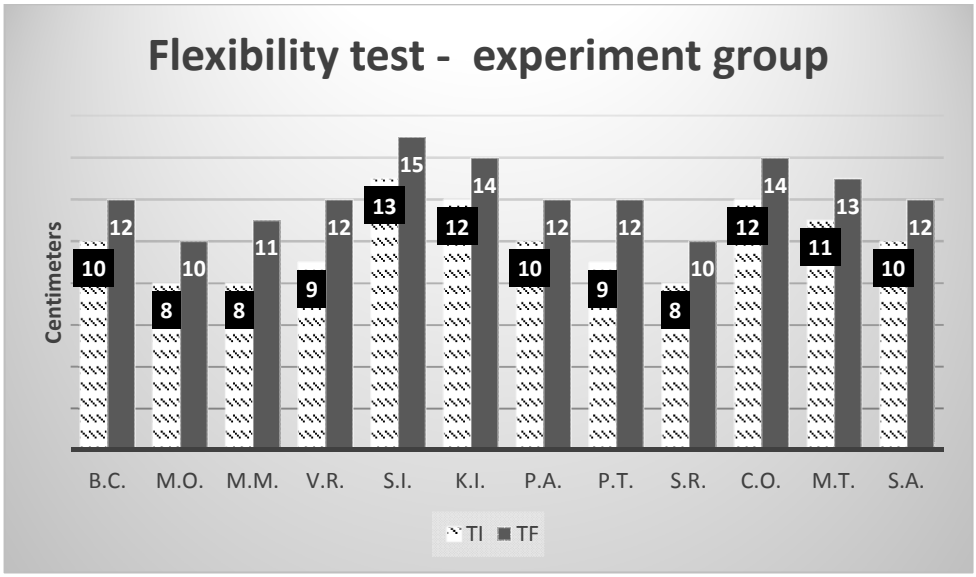


**Figure 3.** *Graphical representation of front flexibility test results – experimental group*

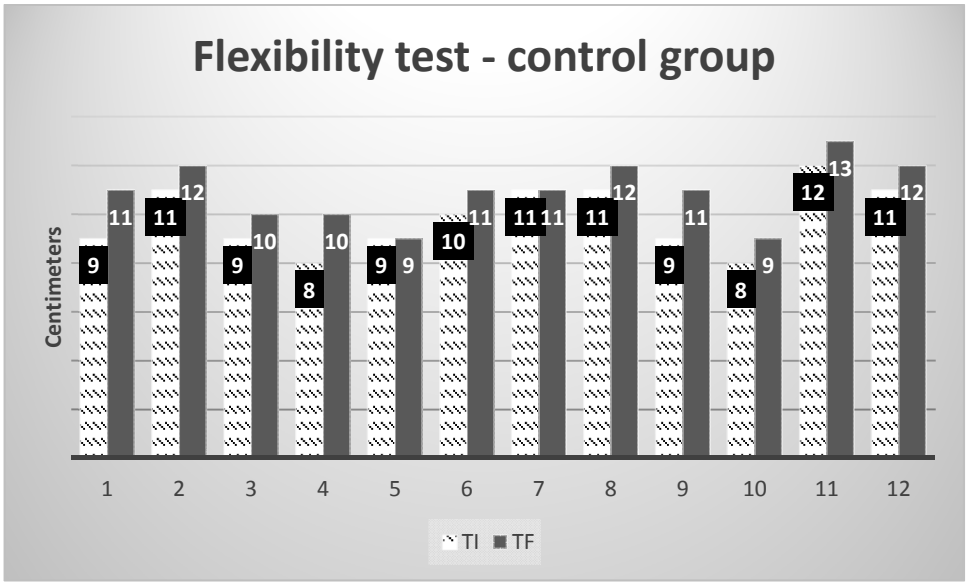


**Figure 4.** *Graphical representation of torso front flexibility test results – control group*

**Table 2.** *Statistical indicators for the front flexibility test*

| Group | Statistical indicators / Tests | X | CV | t-Student | P |
|---|---|---|---|---|---|
| Experimental group | Ti | 10±0,49 | 16,32 | 3,38 | 0,002 |
| | Tf | 12,25±0,44 | 12,07 | | |
| | **Difference** | **2,25** | | | |
| Control group | Ti | 9,83±0,38 | 13,02 | 2,05 | 0,051 |
| | Tf | 10,92±0,35 | 10,88 | | |
| | **Difference** | **1,08** | | | |

*Interpretation of the results:*

In the experimental group there is an increase of the arithmetic mean by 2.25 cm between the two testing's, while the progress of the control group was comparatively smaller, 1.08 cm.

The exercises devised to improve flexibility, implemented with the experimental group proved to be more efficient when compared to those used for the control group. An important contribution was that of the exercises using TRX and the stretching performed at both the beginning of physical education classes and at the end.

### *3) Combined test of balance and arm muscle strength on fitball*

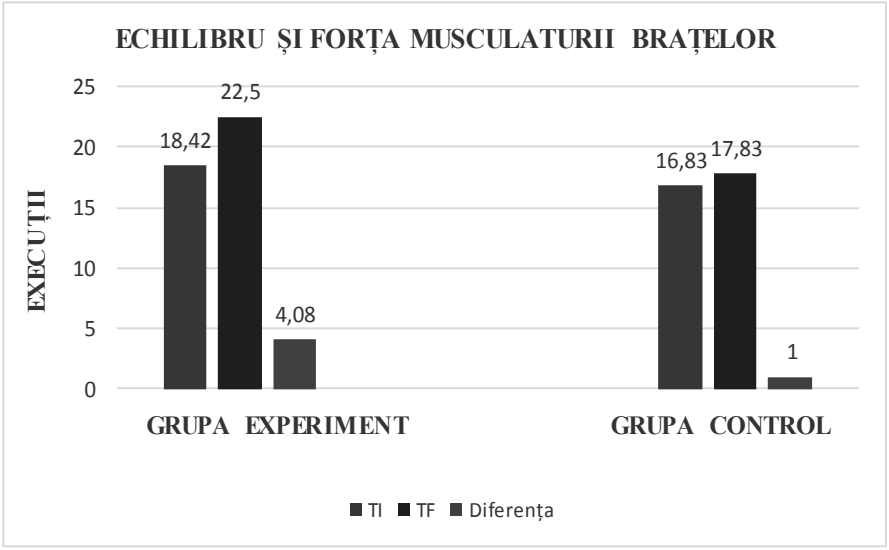


**Figure 5.** *Graphical representation of balance and arm muscle strength test results*

**Table 3.** *Statistical indicators for the balance and arm muscle strength test*

| Group | Statistical indicators / Tests | X | CV | t-Student | P |
|---|---|---|---|---|---|
| Experimental group | Ti | 18,42±0,28 | 5,18 | | |
| | Tf | 22,50±0,23 | 3,39 | 11,08 | 0,0001 |
| | **Difference** | **4,08** | | | |
| Control group | Ti | 16,83±0,36 | 7,21 | | |
| | Tf | 17,83±0,42 | 7,87 | 1,78 | 0,08 |
| | **Difference** | **1** | | | |

For this test which can assess both balance and arm muscle strength, the students from the experimental group achieved an improvement of the arithmetic mean between the two testing's by 4.08 executions. The students of the control group achieved a progress of 1 execution.

The progress of the students from the experimental group is due to the use of fitballs during training, which helped to improve balance, but also the use of TRX, weight and dumbbell exercises that provided an increase in arm muscle strength for this group.

## Conclusions

After using means specific to functional training we were able to observe greater motivation among female students, responsiveness and a keen interest in sports. Specific means of functional training are designed to improve the physical fitness of students from UMF Tg. Mureș, they meet the new demands for modernization, diversification and enhancement of the attractiveness of physical education classes at this level.

The experimental group owes its progress to the training program developed, adapted and implemented, specially designed for this research. Students of the experimental group that used these means specific to functional training during physical education classes, registered higher progress compared to the students from the control group, who used the classical methods and means in physical training.

The efficiency of the training programs used in physical education classes on students of the experimental group was demonstrated by analysing the statistical indicators calculations of the physical training tests, confirming the hypothesis that the introduction of specific means of functional training can improve motor abilities of students at UMF Tg. Mureș.

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