THEORETICAL ASPECTS ABOUT DEVELOPING BACK MUSCLES

Ionela Cristina NAE [1]

Abstract

The article is a part of a larger theoretical paper addressed to students from the pandemic period. The publication of this material was done with the purpose of popularizing physical education among students and to motivate young people to consciously practice physical exercise in the conditions of online courses. I found that theoretical information is useful to students through discussions with them and the application of questionnaires. Since developing back muscles is one of the students' goals, we have chosen this theme to develop it. Many students have posture problems because their back muscles are not developed enough or because of standing at the desk for a longer period of time, in front of the computer, or incorrect posture while using the phone, etc. For these reasons, it is important to better understand the benefits of exercise for the back muscles. Understanding anatomy and the back muscles' function might help students choose exercises and determine the problems they need medical help with.

Keywords: students, physical education, back muscles, correct posture

JEL classification: 110, 119

DOI: 10.24818/mrt. 22.14.02.03

1. Introduction

The article is a part of a larger theoretical paper addressed to students from the pandemic period. The publication of this material was done with the purpose of popularizing sport among students and to motivate young people to consciously practice physical exercise under the conditions of online courses. Nowadays, physical education teachers are trying to identify new methods of teaching in the current conditions, and that is the reason why we have considered it useful to combine the theoretical and practical information. (Filip, C. Nae, I.C., 2022).

During the pandemic period, when the teaching methods were different, we have observed, by assigning questionnaires and, as well as through extensive online discussions, that:

- more than 65% of students have no knowledge of the anatomy of the human body;
- 78.4% believe that theoretical information is useful to them from very to a lot;

[1] Bucharest University Economic Studies, naecristina4@gmail.com

- 23.6% want theoretical information about the development of back muscles.

This was the beginning of the change in training methods. At the students' request, discussions are held at every hour in which they are given multiple theoretical information, even if the classes are now held in physical format. Since developing back muscles is one of the students' goals, we have chosen this theme to develop it.

2. The back muscle

The back muscle consists of a complex series of bones, discs, muscles, joints, and nerves. They connect the torso to the pelvis and shoulders, and provide mobility and stability to the trunk and spine. (Ciomag, R.V., Filip, C., Nae, I.C. 2022).

The anatomy of the back muscles is complex; they can be divided into three different layers of muscles. Understanding the anatomy and function of the back muscles can help in choosing the helpful exercises, as well as determine if and when professional medical care is needed.

The three distinct back layers of muscles are: the superficial, intermediate, and deep layer. All these muscles help mobilize and stabilize the torso during daily activities, also creating a bridge between the upper body and the lower body part.

The back muscles' superficial layer lies just below the skin and fascia. Many of these muscles can be easily identified and located simply by looking at and palpating the body. The back muscles' intermediate layer stretches from the spine to the ribs and helps the diaphragm and intercostal muscles move the ribs during breathing. The back muscles' deep layer is also known as the intrinsic layer and is closest to the spine. Each muscle in the deep, intermediate, and superficial layer comes in pairs; located on the left and the right side of the body.

The back muscles' function varies depending on the specific muscle and the direction that each muscle stretches. Many of the muscles work together; a part of the muscle can provide movement of a joint, while a neighboring muscle provides stability.

For instance, the dorsi latissimus muscle's function is to extend the shoulder, stretching it back. Simultaneously, the middle and lower trapezium contracts to stabilize the shoulder.

Each individual back muscle or group of muscles performs a distinct function.

- Trapezius: the upper trapezius helps lift the shoulders, the middle and lower ones work to retract the shoulders, pulling them back.
- The rhomboids serve to withdraw and stabilize the shoulder plates.
- Latissimus dorsi contracts to extend and medially rotate the arm bone.
- The erector spinae extends the backbone, bending it back. When acting only on one side, they help with the lateral flexing of the trunk.

- Each level of the multifidus muscle serves to stabilize the segment of the spine to which it attaches.
- Quadratus lumborum flexes the spine sideways when it contracts on one side. If the extension of the spine is intended, both quadratus lumborum muscles contraction is needed.
- The superior and inferior posterior serratus help move the ribs during breathing.

The back muscles' development

The back muscles cover the posterior region of the trunk, protecting and supporting the spinal cord, helping to lift and walk in the bipedal position, move the arms and legs, carry heavy objects or pull things closer, etc.

The incorrect posture of young people predisposes future adults to a series of muscular-skeletal illnesses (especially in the neck and back area) (Philippa Grimes, Stephen Legg, 2004).

When you see someone with a hunched back – that is a sign of weak back muscles. This is generally observed during adolescence, when young people grow a lot and the shoulders tend to fall out because the back muscles are not sufficiently developed and able to keep the body straight. This can also happen later because of an incorrect position. Sit back and look in the mirror, and observe yourself. If when you are relaxed, a hunch appears (it can be a kyphosis) or you notice one shoulder lower than the other (it can be a scoliosis), it is good to consult a specialist who can refer you (if necessary) to a physiotherapist. Many of the spine disorders, if discovered in time, can be corrected or improved.

Having a strong back helps people improve their quality of life. When establishing a training plan, it is important to train all the muscles, even if we focus on the back muscles. It is not recommended to use heavy weights, but the correct execution of the exercise is important.

The back muscles can be trained either once a week, throughout the workout, or combined with other muscle groups. The exercises used can be for increasing muscle mass (they are not recommended for beginners because heavy weights are used) or for definition (with small weights).

In order to develop the spine muscles, exercises will be performed for both the abdominal muscles and those of the hip area. To work the back muscles, no expensive or fancy equipment is required. Muscles respond only to tension, which can be generated in several ways, with or without external weights.

Bars, dumbbells, strength bands, along with drawbars, and exercises with extensions to harness the body weight are all great ways to develop back strength. The key is to find an approach that works for your body and the situation you are in.

The benefits of back muscles exercises

54% to 80% of people have backaches at least once in their lifetime. These backpains produce considerable personal suffering. (Siriluck Kanchanomai, Prawit Janwantanakul, Wiroj Jiamjarasrangsi, One-year Incidence and Risk Factors of Thoracic Spine Pain in Undergraduate Students, J. Phys. Ther. Sci.25: 15–20, 2013)

People can enjoy a lot of benefits if they do a routine of back exercises 2-3 times a week:

- Maintaining a correct spinal cord position – back muscles have connections with the abdomen, shoulder, and arms muscles, and regularly doing these exercises will help people maintain a correct posture easier and enjoy a lot of benefits through doing exercises which involve surrounding muscles.
- Avoiding backaches – the back exercises need to be balanced and target all areas in such a way that the muscles support the spinal cord throughout its length.
- Preventing backaches – there is a wide range of exercises for back pain, which can help relax the muscles and reduce the intensity of the pain.
- A better form to go to a gym or to practice other sports – a strong back can give people a better balance and more intense training sessions without risking the occurence of accidents. Moreover, if people have a powerful nucleus, which is the key to physical power in general, they can do everything easier, from lifting weights to running or doing other sports.
- Maintaining the health of the elderly – as people grow old, they lose muscle volume and training can limit the quantity of loss, maintaining mobility for a longer period of time. By combining back exercises with cardio, we can maintain a decent form, which will lead to avoiding serious illnesses, arthritis, or other problems which appear while aging.
- Having a strong back can help people breathe more efficiently – this is not only because of the back's strength, but also to the ability of naturally maintaining a good posture. When people can stand and sit correctly in a vertical position, they obtain more oxygen in the body.
- A strong body can help people achieve a thin waist and an esthetically enviable aspect
- It helps people lose weight – since it is the second biggest muscle group, after the inferior members, training these muscles may lead to a rise in the calorie intake.

3. Physical exercises and back pain

Generally, it is believed that physical exercises must be avoided when one has back pain. Many individuals are reluctant to exercise for fear that any exercises or stretching could aggravate their existing backaches.

For most back pains, physical exercises and movement are the natural stimuli of the healing process. Controlled exercising, gradual and progressive, rather than inactivity and bed rest, often offers the best long-term solution to reduce backaches and prevent (or reduce) future pain episodes.

It is always recommended that people talk to a health professional before starting any exercise or fitness routine. Working with a specialized and experienced doctor will ensure that the activities done by those with problems are safe for their backs and for their overall health. In the case of backaches, it is highly important to obtain a precise diagnosis for the patient's pain from a doctor or an osteopathic specialist to exclude possible types of backaches which can be aggravated by physical exercises.

Regular exercise allows the intervertebral discs to exchange liquids and, thus, the nutrition of the spinal cord discs can be guaranteed. When pain appears, the discs usually hurt. Changing liquids helps reduce the swelling from other soft tissue, which normally appears around hurt discs. When people are sedentary, the swelling grows and discs become underfed and degenerate.

Normally, an exercise routine must be integrated in the majority of treatment phases to ameliorate pain and to improve patients' general health. However, if the pain is severe, it is possible for the patients to be treated first for pain before starting a routine.

Conclusions

- The students considered that theoretical information is useful in a proportion of 78.4%.
- A lot of students have posture problems because their back muscles are not developed enough or because of standing at the desk for a longer period of time, in front of the computer or incorrect posture while using the phone etc. Because of these reasons, it is important to better know the benefits of exercise for the back muscles.
- Understanding anatomy and the back muscles' function might help students choose exercises and determine the problems they need medical help with.
- Bars, dumbbells, or improvised weights, resistance bands, in combination with traction bars and calisthenic exercises, are good ways to improve back strength.
- Developing back muscles will improve the quality of life.

Bibliography

1. Nae, I.C. Filip C. (2022) *Educația fizică și sportul în învățământul online*, Editura Universitaria Craiova
2. Nae, I.C., Ciomag, R.V, Filip C. (2022) *Fitnessul în mediul universitar* – Noțiuni teoretice, Editura Universitaria Craiova
3. Philippa Grimes, Stephen Legg (2004) *Musculoskeletal Disorders (MSD) in School Students as a Risk Factor for Adult MSD: A Review of the Multiple Factors Affecting Posture, Comfort and Health in Classroom Environments*, Journal of the Human-Environmental System Vol. 7; No. 1: 1-9)
4. Siriluck Kanchanomai, Prawit Janwantanakul, Wiroj Jiamjarasrangsi (2013) *One-year Incidence and Risk Factors of Thoracic Spine Pain in Undergraduate Students*, J. Phys. Ther. Sci.25: 15-20, 2013)
5. Sears, B. (2021) *The Anatomy of the Muscles of the Back*, available at https://www.verywellhealth.com/back-muscles-anatomy-5100984, retrived 12.12.2022