Ovidius University Annals, Series Physical Education and Sport / SCIENCE, MOVEMENT AND HEALTH
Vol. XXI, ISSUE 2 Supplement, 2021, Romania
The journal is indexed in: Ebsco, SPORTDiscus, INDEX COPERNICUS JOURNAL MASTER LIST,
DOAJ DIRECTORY OF OPEN ACCES JOURNALS, Caby, Gale Cengage Learning, Cabell's Directories

Science, Movement and Health, Vol. XXI, ISSUE 2 Supplement, 2021
September 2021, 21 (2): 257 - 260
Original article

THE EFFECTIVENESS OF WEARING ORTHOPEDIC INSOLES AS PART OF PHYSICAL THERAPY TO CORRECT ONE'S POSTURE

CRISTUȚĂ MIHAELA ALINA[1], HAITĂ (JALBĂ) CORINA[1]

Abstract

Objectives. The main objective of this research was to prove the effectiveness of wearing orthopedic insoles to correct one's posture and to highlight the most efficient rehabilitation methods, means, procedures, and techniques.

Methods of research. The research methods were established according to the objectives of the research, as follows: the study of the professional literature method, the testing method, the statistical-mathematical method and the graphical representation method.

Results. The data analysis showed that wearing orthopedic insoles corrects mainly the foot and ankle imbalances that can be observed in the podiatric analyses and in the somatoscopic evaluation of the malleolus lines. Thus, the feet deficiencies are transmitted to the upper parts of the body, unbalancing one's posture.

Conclusions. In relation to the results, it can be concluded that the physical therapy methods, means, procedures, and techniques associated with the wearing of orthopedic insoles to correct one's posture ensures an optimization of the results.

Key words: posture, orthopedic insoles, physical therapy, correction.

Introduction

For any human being, the loss or major deterioration of one of the basic functions of the body creates a great discomfort and limits access to a normal life. A correct posture influences the way in which people perceive each other but also the way in which they perceive themselves. A correct posture transmits the brain that everything is alright and the health is within normal parameters. In this sense, the topic chosen for this paper is challenging but approachable from a physical therapy standpoint.

Maintaining a correct posture of the back is important not only because it prevents neck, back and shoulder pain, but also because it ensures an increased comfort for the entire body. Thus, of one maintains a correct body posture by being aware of all body segments and spine, one could maintain an active lifestyle, with a higher productivity during daily life activities.

Today, maintaining a correct posture is becoming increasingly difficult. Because of environmental conditions, the human body adapts, adopting positions that are less demanding for the muscles, but are unfavorable for the skeleton. An essential factor for this adaptation is gravity, for which people have developed a special structure called postural tonic system.

As mentioned above, adopting an incorrect posture can generate symptoms such as back pain, neck pain, shoulder pain, elbow pain, knee pain, etc. Many times, even though the person has an active lifestyle, this pain cannot be fought only through exercise.

Multiple disciplines were combined to create a new medical science, posturology (Lat. *postura* = posture, and Gr. *logos* = science) that studies the biomechanical and neurophysiological mechanisms that regulate the balance in a vertical position and/or during motion, and correct the functional disorders of the postural system. Created as a result of fundamental researchers initiated in the 1950s in Italy, France, Portugal and USA, this multidisciplinary medical discipline matured in 1985, when the Association Posture et Équilibre published the norms of orthostatic balance.

According to a European study, 80% of the people suffer from back pain at least once in their lifetime. Although this disorder can be caused by genetic or infectious problems, most causing factors are linked to the people's everyday habits, which lead eventually to an incorrect posture, manifested in a static or dynamic position and in the way in which people apply pressure on the sole when they walk.

The author believes that correcting posture with the help of physical therapy, using orthopedic devices (such as insoles, etc.) is the way to increase the quality of life, both for people that are conventionally healthy, and for people that have a predisposition to certain disorders or chronic diseases.

[1] Department of Physical Therapy and Occupational Therapy, Faculty of Movement, Sports, and Health Sciences, "Vasile Alecsandri" University of Bacău, Romania
Corresponding author: a.cristuta@yahoo.com
Received 15 .03.2021 / Accepted 26.05. 2021

Ovidius University Annals, Series Physical Education and Sport / SCIENCE, MOVEMENT AND HEALTH
Vol. XXI, ISSUE 2 Supplement, 2021, Romania
The journal is indexed in: Ebsco, SPORTDiscus, INDEX COPERNICUS JOURNAL MASTER LIST,
DOAJ DIRECTORY OF OPEN ACCES JOURNALS, Caby, Gale Cengage Learning, Cabell's Directories

This research aims to highlight the effectiveness of orthopedic insoles associated with physical therapy, for the correction of posture.

Methods

The study was conducted between September 2019 and March 2020, divide into three stages, over a period of 7 months; the first stage comprised activities such as: theoretical documentation of the research; selection of the newest information for the application of the therapeutic program; establishment of the hypotheses; choosing the subjects and the location of the research; identification of the examination and assessment methods that can be used, in order to observe the subjects' progress from the initial to the final tests. For this research, 3 subjects were chosen: one 67-year-old male subject, former patient of the physical therapy section of the St. Dr. Luca Municipal Hospital of Onesti, and two other subjects aged between 12 and 16, former patients of the Brasov posturology department. The investigations, evaluations and tests took place at the postural analysis office of Brasov, between March 2019 and March 2020. The rehabilitation programs were conducted in Brasov for the subjects from that city, and in Onesti, for the subjects from Onesti.

The second stage was conducted between October and February 2020, and comprised the actual research, where all the therapeutic methods were applied to prove the effectiveness of orthopedic insoles associated with physical therapy in correcting one's posture. The study commenced in July 2019, during an internship at the postural analysis office of Brasov. There all of the assessments and tests took place, the subjects being four pupils from Brasov and one retired man from Onesti. The Brasov pupils wore orthopedic insoles and participated in physical therapy sessions, in Brasov. One pupil was tested, but did not wear orthopedic insoles, participating only in the physical therapy sessions. This pupil was introduced in the study to compare his case with the other subjects' cases, who wore orthopedic insoles and participated in physical therapy sessions. The Onesti subject was tested at the Brasov office, and performed his physical therapy sessions in Onesti, at the hospital and at his home. The objectives of the posture correction program were to: improve the cervical and lumbar spine mobility; improve ankle mobility and laxity; correct cervical, lumbar, and leg muscle imbalances; strengthen the pelvis and leg muscles; make the subjects aware of the correct posture of the sole on the ground.

The means used to achieve the objectives consisted in relaxing massage for the contracted muscles, in the cervical, lumbar areas, and in the lower limbs; active-passive assistive range of motion, guiding the patient in performing the motion correctly, then active range of motion, isometric and isotonic contractions, resistance exercises, exercises using objects and devices, breathing exercises, exercises to improve endurance (stationary bicycle, treadmill, swimming), analytical exercises for the limbs, for the strengthening of the legs, of the pelvic girdle and ankles; medical gymnastics for the cervical and lumbar spine, legs and ankles; PNF techniques to improve the ankle joint: rhythmic initiation, slow reversal, slow reversal hold, isometric contraction in the shortened area, rhythmic stabilization; muscle energy techniques to relax the pectoral muscles together with isometric contraction in the shortened area, isometric contraction in the shortened area for the trunk extension, rhythmic stabilization for the trunk.

The third stage, conducted in March 2020, comprised the centralization and interpretation of data, trying to validate the hypotheses and extract pertinent conclusions.

Results

Table 1 presents the somatoscopic examination results that observed the biacromial width, interspinous distance, intercristal distance, bimalleolar line, and the frontal axis, in relation to the vertical, in subjects E.S., M.V. and V.M.

Table 1. Somatoscopic examination results, initial and final tests

	Test	IT (cm)	FT (cm)	Patient
E.S.	biacromial width	3	1.5	1.5
	interspinous distance	2	1.5	0.5
	intercristal distance	2	1.5	0.5
	bimalleolar line	1	0.5	0.5
	frontal axis, in relation to the vertical	2.5	1	1.5
	biacromial width	2.5	1.5	1

V.M.	interspinous distance	2	1.5	0.5
	intercristal distance	2.5	1	1.5
	bimalleolar line	1	0.5	0.5
	frontal axis,	2.5	1	1.5
	in relation to the vertical			
	biacromial line	2.5	1.5	1
M.V.	1.5	1	0.5	1.5
	1	0.5	0.5	1
	1.5	1	0.5	1.5
	1	0.5	0.5	1
	2	1	1	2

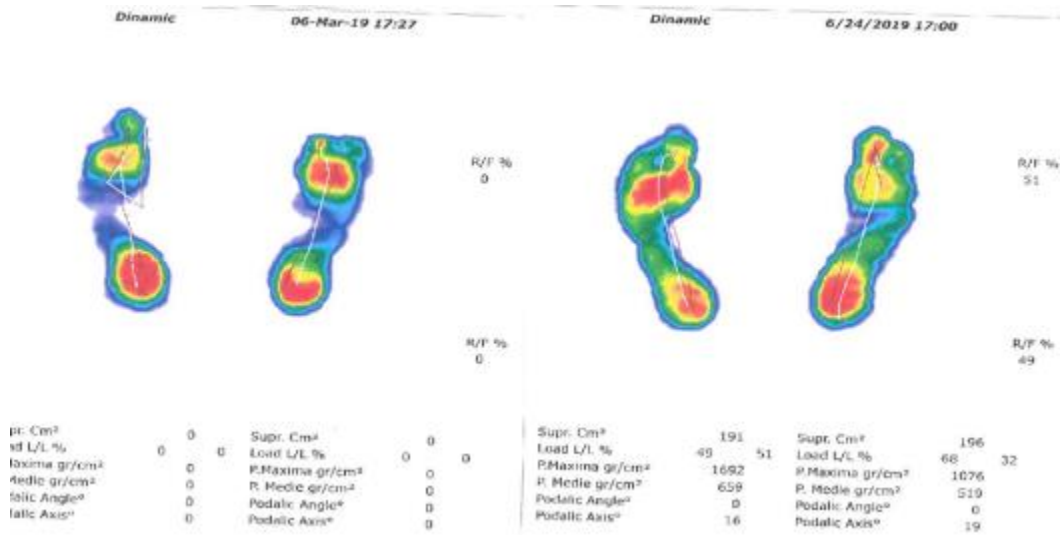

Figure 1. Podiatric analysis of subject E.S., initial and final assessment

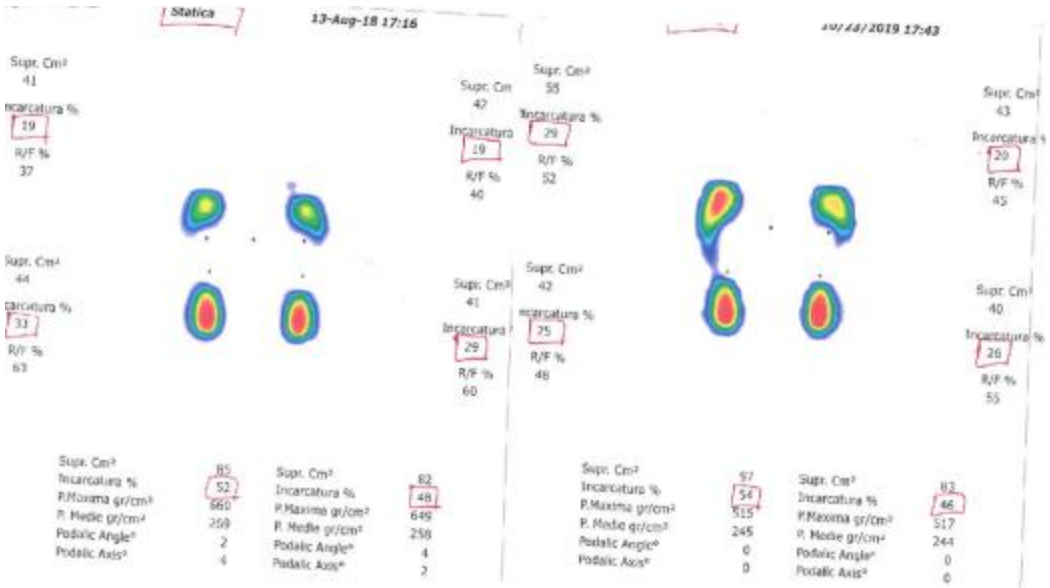

Figure 2. Podiatric analysis of subject V.M., initial and final assessment

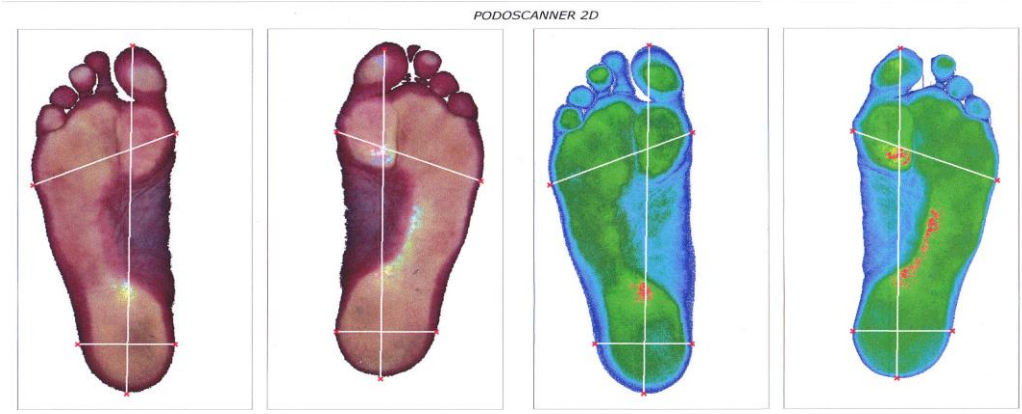

Figure 3. Podiatric analysis of subject M.V., initial and final assessment

Discussion

The data analysis showed that wearing orthopedic insoles corrects mainly the foot and ankle imbalances that can be observed in the podiatric analyses and in the somatoscopic evaluation of the malleolus lines.

Physical therapy, with its specific means, rebuilds muscle balance where needed and improves joint mobility, but the role of feet as basis of support for the body can be resembled to the importance of a straight foundation of a building.

As one can see from the data and the images, wearing orthopedic insoles associated with physical therapy helps conserve the results gained through exercise. Thus, all subjects that wore orthopedic insoles and participated in the physical therapy sessions recorded very good results in regards to the correction of their posture. The research aimed to prove the role played by wearing orthopedic insoles in association with physical therapy, to correct one's posture.

Based on the results, it can be concluded that wearing orthopedic insoles can help correct one's posture, and the physical therapy methods, means, procedures, and techniques associated with the wearing of orthopedic insoles to correct one's posture ensures an optimization of the results.

Acknowledgments

Many thanks to the participants and the staff for collaboration and interest.

References

Antonescu D., 2009, Ortopedie – Traumatologie, Editura Academiei Române, București.

Balint T., 2010, Prim ajutor și evaluare somato-funcțională, Editura Alma Mater, Bacău

Cordun M., 2009, Kinetoantropometrie, Editura Cd Press, București.

Cordun M., 1999, Postura corporală normală și patologică, Editura Cd Press, București

Raţă M., 2014, Anatomie funcţională şi biomecanică , Curs studii de licenţă, Editura Alma Mater, Bacău

https://www.barringtonortho.com/the-importance-of-posture

https://www.barringtonortho.com/the-importance-of-posture