

DESIGN OF A SYSTEM FOR DIAGNOSING AND CORRECTING THE PERMANENT DEFORMITY OF THE LATERAL SPINE OF THE STUDENTS AT THE AGE OF (11-12) YEARS

Asst. Inst. Salah Mahmoud Salman Al Dulaimi

Prof. Dr. Mohammed Jawad Kazem Al Hassani

University of Baghdad / College of Physical Education and Sports Sciences

ABSTRACT:

The importance of research in guiding this study to the problems suffered by primary school pupils, which are distortions Qawamih, which is an obstacle to the general fitness of students by contributing to the discovery of distortions and rehabilitation of the use of modern technology in the field of Qawami and nutrition in training exercises for the type and degree of deformity and degree that works To achieve that.

The researcher noticed the research and studies that dealt with these distortions of the age of this age group noted that most researchers in this area rely on the detection devices of traditional distortions of traditional use of the pre-repeated use of the type of deformation, and are determined based on their own experience that may result in measurements Are inaccurate, devoid of practical experience and scientific and technological progress, which are used to determine the areas of deformity and its magnitude with minimal time, effort and material cost. Nowadays, it has become an advanced scientific discipline in the discovery and rehabilitation of defects.

Keywords: *Design - diagnosing and correcting – the lateral spine.*

INTRODUCTION

For thousands of years, nations have been concerned about human health by setting special standards for the human body, considering that the health of the people is one measure of the progress of each nation.

As a result of the evolution of the age, the human body is very vulnerable to direct contact with the machine or the excessive use of technological devices that lead to the emergence of certain patterns in the composition of the body as a result of the body to follow the wrong habits, wrong sitting and carrying weights directly or unprogrammed may lead to changes In the structural

structure of the bones, muscles and ligaments in the student's body, especially in the growth stage, leading to the occurrence of distortions of various strengths and severity and the result is determined in the use of these members naturally. Therefore, one of the most important means of detecting the physical malformations that affect the organs is the logical and scientific use of the objective instruments, which are directly related to the type, degree and intensity of the deformity that go beyond self-assessment based on the subjective experience that compensates for the science. The importance of research in guiding this study to the problems suffered by primary school students is the

lateral deviation of the spine, which is an obstacle to the general fitness of the students by contributing to the discovery of defects and rehabilitation of the use of the use of modern technology in the field of Qawami and nutrition in training exercises for the type of deformity and degree that Working to achieve this.

Research problem:

The transfer of pupils from the first to the second class in primary schools and the associated increase in the student's physical growth as well as the wrong conditions taken by students may be reflected on the student's physical and motor future during this age, and this stage is the most sensitive age And are subjected to distortions and distortions of the physical, which are often these distortions acquired by the weights of the program and the wrong habits taken by the student to fulfill the requirements of daily life.

The researcher noticed the research and studies that dealt with these distortions of the age of this age group noted that most researchers in this area rely on the detection devices of traditional distortions of traditional use of the pre-repeated use of the type of deformation, and are determined based on their own experience that may result in measurements Are inaccurate, devoid of practical experience and scientific and technological progress, which are used to determine the areas of deformity and its magnitude with minimal time, effort and material cost. Nowadays, it has become an advanced scientific discipline in the discovery and rehabilitation of defects.

Research goals

- Designing a system for diagnosing and correcting the permanent deformity of the lateral deviation of the spine of primary school pupils aged (11-12) years.

Identify the lateral deviation of the spine in primary school pupils. -

Identifying the effect of the system of diagnosing and correcting the deformity of the lateral deviation of the spine in the sample of the research sample. -

Force Search:

- There are statistically significant differences between the tribal, intra- and remote tests of deformities and for the post-test.

Research Areas:

The human field: individuals of the research sample ages (11-12) years. -

Spatial field: the yards of the sample research schools. -

- Time domain: Duration (3/10/2018) until (28/1/2019).

MATERIALS AND METHODS:

Research Methodology:

The researcher used the experimental method in a one-group approach with tribal, inter-temporal and post-test to suit the nature of the problem of the study to be pursued and to achieve the objectives of the research and its mandate. The experimental approach is defined as "the method that focuses on the experiment and the field testing, guided by the observation method and based on the use of modern scientific tools and equipment to A causal relationship between one or more variables within the framework of the arbitrator for evidence and evidence "(as shown in Table 1)

Table (1): Shows the design of the research methodology

Post-test (Salah system for detection of distortions and correction of textures)	Interstitial testing (Salah system for detecting distortions and correcting textures)	Tribal test (Salah system for detecting distortions and correcting textures)	the group
Lateral deviation of the spine	Lateral deviation of the spine	Lateral deviation of the spine	The research sample

Search community and sample:

The research sample is defined as a model representing a part of the community of origin. The researcher conducted a comprehensive survey of six schools out of 131 schools for boys and 4.58% randomly obtained from the Directorate of Education of the second Rusafa using the device designed by the researcher. The sixth grade was surveyed at the age of 11-12 years After the examination, the sample of the study was determined by a simple distortion distributed as follows (lateral deviation of the simple spine 15 pupils), by a percentage of (3.571%) and (lateral deviation of the average spine 7 students) and by a percentage of (1.666%).

Means of gathering information, tools and devices used in research:

Means of gathering information:

- .Arab and foreign sources and references -
- .Personal interviews -
- .Test and direct measurement-
- .International information network -

Observation. -

- .Exploratory experiment -
- .Data entry and registration form -
- Used Appliances:
- .Salah system to detect distortions and correction of populations -
- Laptop (Lenovo) number (1) -
- Laser printer type (Brother) number (1) -
- Standard camera type (Nikon) Japanese origin (3) -
- Cameras attached to the device (USB) type (havit) number (2) -
- USB cable from the system camera to the computer (havit) number (2) -
- Cabin designed by the researcher measuring 1.50 m length, 1.50 m width, 1.80 m height.
- Rubber sling type is simple and average number (22) -
-) Carpet (measuring) 6X4 number (3) -
- Wooden stick number (25) -
- Program prepared by the researcher. -
- Tape measure number (1) -
- Tape number (2).

FIELD RESEARCH PROCEDURES:

Salah system for detecting distortions and correcting textures:

The basic idea of the device is the process of taking a frontal image and a side image of the body and compare this image with the typical body profile of this age group (ages 11-12) and taken according to the sources depending on the longitudinal, transverse and deep axis, and therefore any deviation from this profile is a deformity Qawami The result of many reasons should be rehabilitated.

As the system designed to measure more than the type of deformity of the upper part of the body as the researcher has chosen to choose only one distortion is the lateral deviation of the spine.

Components of the Salah system to detect distortions and correction of textures:

The system of diagnosis of corrective deformity consists of a room size (1.50) m for length and width and at an altitude of (1.80) m. In the middle of it the laboratory stand is square of doubt for the length of its rib (30 cm) and contains two cameras, one side and one front fixed in the middle of two columns which can be moved up and down To be suitable with the length of the students and this requires the program for correction and remove the pillars of the cab distance (.31) m on each side and these cameras are connected to a computer equipped with the program (expert system) and connected to a printer, as the treatment is directly and give exercises on paper A4 per student. Method of measurement and application:

The laboratory is located inside the room in a dedicated parking lot in the middle (30 cm) to place the two men on signs for the two men and to stand in the normal anatomical position.

The system designed by the researcher after the matching between the image taken by the student by the cameras and the prototype of the body through a special program Once the program found a deformity will determine the degree and severity of this distortion and the form of printed paper for each student containing the student's name and type Distortion and rehabilitation exercises for deformity A group of exercises is given to qualify this deformity through the expert system.

The program will print these exercises on a special paper containing the student's name, type of deformity and intensity and exercises to qualify this deformation and be for two months for simple deformity and three months for the average deformation and stored in the memory of the program and then the researcher returns. The examination of the sample of the research and then give them a new approach appropriate to the development of the deformity of the physical and repeat this process for two months for the simple and three months for the average.

As the curriculum exercises to be written by three units of rehabilitation in a week and repeated four times for the simple and six for the average and then replaced by a new model according to the evolution of the previous model.

:Exercises in the system of Salah to detect distortions and correct textures

The researcher developed several exercises to address the physical distortions of lateral spine degeneration based on scientific sources and references and the reliable internet network. It is suitable for the ages of the research sample in terms of age and degree of deformation. The opinion of the experts and specialists in the rehabilitation program was taken and modified to suit the sample.

The expert system is fed through reliable sources, references and the Internet in the appropriate exercises for the age of the research sample in terms of type and severity of the deformation and in an integrated manner. Once the program finds the distortion of the lateral deviation of the spine will be written a suitable rehabilitation program through the expert system based on the exercises that Expert system has been fed with the possibility of printing on papers for the purpose of benefiting from and applied by the teacher of sports in schools.

Exploration Experience

The exploratory experiment is a realistic training to identify the negatives and positives that meet the researcher during the measurements in order to achieve more accurate results.

It is a preliminary study conducted by the researcher on a small sample before the research to examine the methods of research and tools and ensure the safety of

the equipment and the training of the team work assistant (). The researcher in the experimental experiment on Wednesday and Thursday (3-4 / 10/2018) on a sample of ten students from the same research community.

As the first day is an exploratory experiment of the device for the purpose of verification of the work of the system designed in an excellent manner and without any errors or problems during the work.

On the second day, the researcher conducted an exploratory experiment on the sample of the same exploratory experiment in the corrective approach prepared.

Main experience

Tribal measurements:

The researcher conducted on Sunday (21/10/2018) a comprehensive survey of six primary schools for the Directorate of Education of the second Rusafa as a survey of (420) students from the sixth grade primary by dislocation The upper part of the body and the suspension of the pupil within the system for the identification of minor and moderate deformities and dermatitis through this measurement is a minor deformity (lateral deviation of the simple spine 15 pupils) and a percentage of (3.571%), and the average deformity (lateral deviation of the average spine 7 pupils) And a percentage of (1.666%)

Interaction:

The researcher carried out the second test after one month of the first test (tribal) of the sample of minor deformity and after a month and a half of the average Gaussian deformity, as it followed the developments of the research sample and the same method of tribal testing and give new exercises to match the development of the sample.

:Metrics

The researcher carried out the post-test two months after the simple kohami deformity and three months of the average kawami deformation of the tribal test in order to identify the developments that have become the sample of the research and achieve the objectives of the research and the same as how the tribal test.

Statistical means

The researcher used the statistical bag for Social Sciences (SPSS) as follows:

- .Arithmetic mean -
- .standard deviation -

Torsion factor. -

.percentage -

Test (F) for repeated measurements -

- Benferrone test to see the differences between repeated measurements.

RESULT AND DISCUSSION:

For the purpose of conducting statistical transactions on minor distortions, the researcher conducted a statistical description of minor malformations as shown in Table (2).

Table (2): The statistical description of the lateral deviation of the simple spine is shown

Sprains	deviation	Mediator	Arithmetic mean	Distortion
0.027	1.298	16	16.60	Lateral deviation of the spine

Distorting Simple Spine Deviation:

Table (3): Shows the arithmetic mean, the standard deviation and the calculated F value to distort the simple spine deviation in the tribal

Difference type	Sig	P value calculated	The average squares are within	Average squares between	standard deviation	Arithmetic mean	Variables
moral	.000	635.984	1.017	647.089	1.29835	16.6000	Tribal Test
					1.03280	11.7333	Intermediate test
					.82808	3.6000	Post-test

(0.05) at the degree of freedom (28: 2) and below the level of significance (0.05)

In order to know the differences between the tests, the Bonferroni test was used.

Table (4): Shows the mediated and morphological difference of the Benveronian test to distort the minor spinal aberration

Post-test		Intermediate test		the exams Tribal Test
Sig	Teams	Sig	Teams	
.000	13.000*	.000	4.867*	Intermediate test
.000	8.133*			the exams

Morale <(0.05)

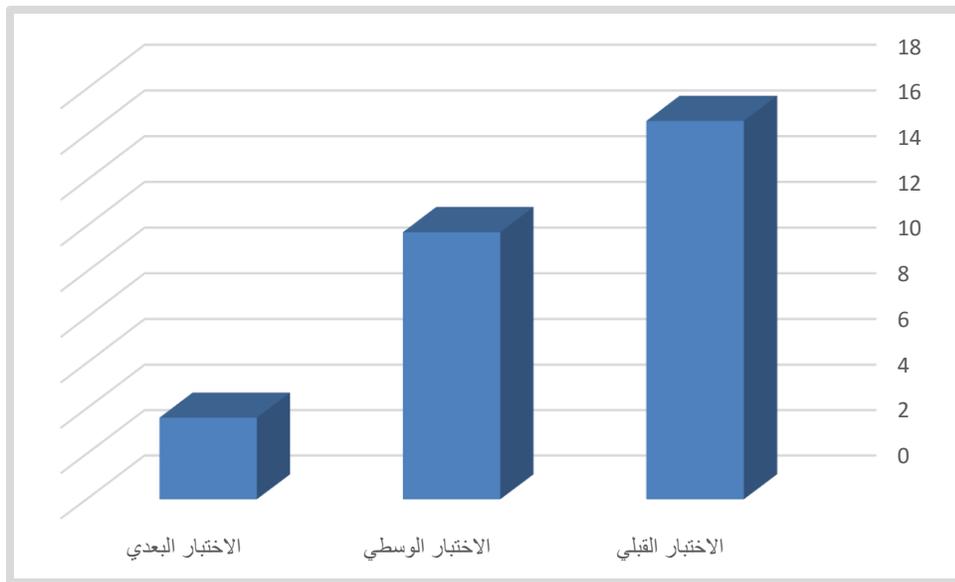


Figure (1): Demonstrates the computational circles of the tribal, intervertebral and remote tests of simple spinal degeneration

For the purpose of conducting statistical transactions on mean distortions, the researcher conducted a statistical description of the mean deformities as shown in Table (5).

Table (5): The statistical description of the lateral deviation of the median spine is shown

Sprains	deviation	Mediator	Arithmetic mean	Variables
0.353	0.899	33	32.857	Lateral deviation of the spine

Deformity of the average spinal aberration:

Table (6): Shows the arithmetic mean, standard deviation, and calculated F value to distort the average spinal deviation in the tribal, intermediate and remote tests

Difference type	sig	P value calculated	The average squares are within	Average squares between	standard deviation	Arithmetic mean	Variables
moral	.000	2117.718	.675	1428.619	.89974	32.8571	Tribal Test
					.97590	18.4286	Intermediate test
					.95119	4.2857	Post-test

(0.05) at the degree of freedom (12: 2) and below the level of significance (0.05)

In order to know the differences between the tests, the Bonferroni test was used.

Table (7): Shows the mediated and morphological difference of the benveronic test to deform the average spinal deviation

Post-test		Intermediate test		the exams
Sig	Teams	Sig	Teams	Tribal Test
.000	28.571*	.000	14.429*	Intermediate test
.000	14.143*			the exams

Morale <(0.05)

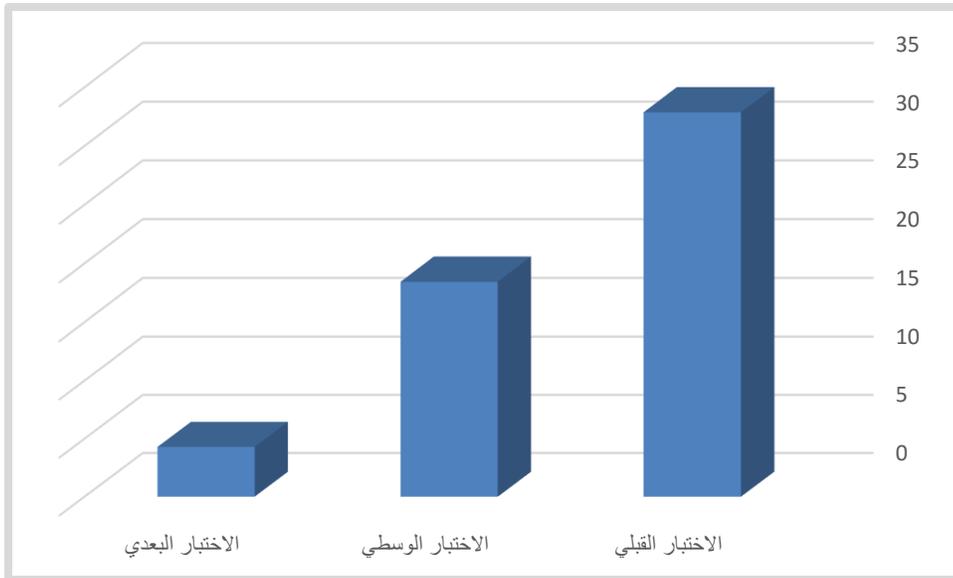


Figure (2): Demonstrates the computational settings of the tribal, intra-temporal and transient tests to distort the deviation of the average spine

In the previous tables we find that there is a clear decrease in the value of deformation and this decrease significantly towards the subsequent test and this indicates that the therapeutic exercises had a decisive role in the correction of the text gradually and towards the amendment based on the basic model is working to strengthen weak muscles in the weak side, (Majid Fayeز Majali 2004), who pointed out that the therapeutic exercises is one of the important natural treatment methods that can have positive effects to reduce the development and treatment of frontal and lateral deviations, as such exercises are performed on Priority muscles and ligaments and then soften and significantly reduce the aggravation of the deformity.

The corrective approach led to balance in the strength and flexibility between the muscles supporting the spine using moving and constant exercises to provide the

necessary strength and ideal for each muscle with weakness and thus not to increase the strength of muscles which are basically strong because the increase in strength will keep the imbalance in the strength of the supporting muscles spine so deliberately researcher on the events of a consistent and systematic convergence of the muscles that support the spine and thus the correction process is a process of continuous monitoring of the weak muscles and build an integrated and balanced because of the coordination of the work and thus not overcome muscle on another increase in may (Thamer Said Al-Haso, 1978), who says that the strengthening of weak muscles must be built only on the place and amount of loss of power but on the possibility of healing by Strengthen these muscles.

The process of increasing strength and increase the elastic muscles of the spine led to the survival of the

spine perpendicular to the ground and lack of tendency to one side without the other and this in turn requires an increase in the dynamic range of the spine by increasing the elastic muscles that suffer from minors and the increase of these rubber led to an increase in The lateral bending of the spine leads to the strength and shortness of the muscles that are on the vertebral side of the spine and the weakness and elongation of the muscles that are on the side of the pillar of poverty.

As the exercises in the corrective approach contributed to the ability of the muscles to shrink and spread in an orderly and reciprocal and smooth and this led to an increase in the tolerance of these muscles to stay long periods in support of the spine and the exchange of work between them and thus the continuation of the natural position of the spine for long periods including standing or movement this was confirmed by (Resan Kahribt and Ali Turki, 2002) that exercises power back muscles contribute to improving the compatibility between the muscles working and the interview, which leads to lower the corresponding effect of the muscle or final disposal.

Thus, the corrective approach increased the strength of the spine muscles and its ability to tolerate the weights resulting from the carrying of school bags and bear better habits and the ability to overcome these habits (Timothy R & others, 2009) that lateral side in childhood either to carry bags Heavy school on one side of the body or unhealthy family.

CONCLUSIONS:

In the light of the research results, the researcher reached several conclusions:

- The effectiveness of the system in the detection of defects in the upper body and the classification of the body to the simple, medium and severe.
- The discovery of deformities is more accurate in the device because it shows hidden distortions that the average person can not observe.
- .Easy to use the system by anyone after reading it and observing how it works -
- The effectiveness of corrective exercises on correcting minor and moderate deformities.

ENDORSEMENT:

- The use of the system by the sports teacher in each primary school.
- .Suggesting the system to work in each primary school -
- Conduct similar research in the field of correcting various distortions.

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