

Designing a model for evaluating the life span according to some kinematic, physiological and physical fitness variables for physical education teachers from 45 to 55 years old

Zainab Haider Ismail Al-Atemesh ⁽¹⁾, Prof. Dr. Muhammad Jassim Muhammad Al-Khalidi ⁽²⁾

⁽¹⁾Master Student. Faculty of Education for Women /Department of Physical Education and Sports Sciences / University of Kufa, Iraq

⁽²⁾Faculty of Education for Women /Department of Physical Education and Sports Sciences / University of Kufa, Iraq

9bbfly@gmail.com , mohammedj.alkhalidi@uokufa.edu.iq

Abstract

The purpose of this paper is to design a model to evaluate the life span of functional performance, as well as identifying some kinematic, physiological and physical fitness variables for physical education teachers from 45 to 55 years old. The research community and its sample were professors of physical education holding graduate degrees, masters and doctorates, from 45 to 55 years old, from the Department of Physical Education and Sports Sciences, the College of Education for women, University of Kufa, as well as the College of Physical Education and Sports Sciences, University of Kufa, College of Physical Education and Sports Sciences, Babylon University, and the College of Physical Education and Sports Sciences, University of Kerbala. The researchers concluded that the validity of the life span evaluation model is according to the studied variables. And that most of the teachers continue to exercise physical activities and maintain their health fitness. Also, the tests and measurements used by the researchers are appropriate for the research sample.

Introduction:

The progression of the university professor in age has clear effects on the level of work of physiological functions of the body and physical fitness, as well as on the kinematic aspects through the apparent description of his movements, knowing that the requirements for the duties entrusted to the teacher increase in both theoretical and practical aspects.

Research problem:

The problem of the research lies in the absence of a model for evaluating the life span of physical education teachers according to some physiological, kinematic and physical variables, provided that it is an easy-to-apply model without spending effort and costs and consuming a large amount of time in laboratories among devices and measuring tools, and after learned the existence of that problem decided that it would be the problem that will address in my thesis, so will design a model for this purpose to be an easy to implement the tool in the hands of the university professor.

Research objective:

- Design a model to evaluate the life span of functional performance.
- Identifying some kinematic, physiological and physical fitness variables for physical education teachers from 45-55 years old.
- Evaluation of the life span of job performance for physical education teachers from the age of 45-55 years.
- Comparison between the chronological age and the default age of physical education teachers from the age of 45-55 years.

- Conducting measurements and tests on three colleges of physical education and sports sciences from three universities in Iraq and comparing the results between them and finding the difference between the three universities.

Research hypotheses:

- The design of the life span assessment model according to the kinematic, physiological and physical variables is an indicator for a hypothetical age assessment for university professors if we want to estimate their age by a hypothetical estimate of 45-55 years.
- The more the professor maintains his physical fitness and maintains the health aspects and also preserves his apparent form from morphological deformations, the longer his default life is smaller than the chronological age, and whenever the professor neglects these aspects, he will have obtained a hypothetical life more than the chronological age and that after Carry out tests and measurements on it.
- Continuous training and maintaining fitness, health and strength are inversely compatible with the life span. If the training increases, the life span decreases, and if the training decreases, the life span increases relative to the chronological age.

Research fields:

- Human field: Physical education professors who hold graduate degrees, masters and doctorates, from 45-55 years old, from the Department of Physical Education and Sports Sciences, the College of Education for women , the University of Kufa, as well as the College of Physical Education and Sports Sciences at the University of Kufa, the College of Physical Education and Sports Sciences at the University of Babylon, and the College of Physical Education and Sports Sciences at the University of Kerbala.
- Time field: from (27/12/2020) to (29/1/2021)
- Spatial domain: College of Physical Education and Sports Sciences, University of Kufa, College of Physical Education and Sports Sciences, University of Babylon, College of Physical Education and Sports Sciences, University of Kerbala, with the help of the stadiums of these colleges.

Research methodology and field procedures:

Community and sample research:

Table (2) shows the research community

No.	University or department	count
1	College and Department of Physical Education and Sports Sciences, University of Kufa	23
2	College of Physical Education and Sports Sciences, University of Babylon	41
3	College of Physical Education and Sports Science at the University of Karbala	24
Total	Three universities	88

Field research procedures:

Because of the Coronavirus and the current situation in the country, in addition to the economic conditions and other obstacles, the researchers turned to the short scientific

methods in some research points, but they give the same results if they were implemented by the known scientific methods.

Tests:

1- Kinematic variables two variables were chosen:

Shoulder position (skew shoulder axis)

Back position (lumbar arch)

Using the common objective measurements (Lasper Longfield Texture Levels Analysis Test)

⁽⁵⁾ The measurement method was relied upon through the use of angle and measurement of deflection and concavity in degrees, after taking the opinion of experts in this procedure, and this method was chosen because it is the easiest way to measure deflection and concavity without using devices and quickly When (Kinovea 8.24) was adopted.

2- Physiological variables three of the variables were selected:

Maximum oxygen consumption measurement: Fast Walking Test One Mile ⁽²⁾:

Physiological health tests (calculating body mass index): The measurement is carried out according to the law (weight/ square length).

Physiological health tests (calculating the waist-hip ratio): The measurement is carried out according to the law = waist circumference/hip circumference.

3- Fitness variables and three variables were selected:

Flexibility: Flexibility test from a sitting position.

Speed: 30m run the test from the flying start.

Force: Harvard step test

Exploratory experience:

Since the exploratory experiment is a practical training to find out the negatives and positives that meet the researcher during the test in order to avoid them in the future, so the researchers conducted the first exploratory experiment during the period from 22/12/2020 and the sample of the experiment will be (5) professors from outside the main sample of which number is (60) out of 88 of the whole community

Statistical methods:

The search data was processed through the Statistical Package for the Social Sciences (SPSS).

Research results:

University of Kufa results (presentation):

Table (1) includes the statistical results of the comparisons between the chronological age and the life span of the research sample (University of Kufa professors).

Scales and tests	chronological age		life span		T value	Sig level	Sig type
	Mean	standard deviation	Mean	standard deviation			
WHI	50	3.67	50.75	3.66	0.6460	0.5220	Non sig
BMI	50	3.67	52.40	2.68	2.361	0.0230	Sig
Vo2max	50	3.67	51.05	3.31	0.9490	0.3480	Non sig
skew shoulder axis	50	3.67	52.25	2.82	2.172	.0360	Sig
lumbar arch	50	3.67	51	3.24	0.9130	0.3670	Non sig

Flexibility	50	3.67	52.15	2.43	2.183	0.35	Sig
Force	50	3.67	51	3.59	0.8700	0.3900	Non sig
Speed	50	3.67	52.25	2.19	2.352	.0240	Sig

Babylon University results (presented):

Table (2) includes the statistical results of the comparisons between the chronological age and the life span of the research sample (Professors of the University of Babylon)

Scales and tests	chronological age		life span		T value	Sig level	Sig type
	Mean	standard deviation	Mean	standard deviation			
WHI	48.80	3.45	49.30	3.26	0.4700	0.6410	Non sig
BMI	48.80	3.45	51.15	3.16	2.114	0.0410	Sig
Vo2max	48.80	3.45	50.45	2.50	1.729	0.0920	Non sig
skew shoulder axis	48.80	3.45	50.95	2.56	2.233	0.0310	Sig
lumbar arch	48.80	3.45	50.45	2.32	1.770	0.0850	Non sig
Flexibility	48.80	3.45	51.15	2.70	2.395	0.0220	Sig
Force	48.80	3.45	51.15	2.94	2.314	0.0260	Sig
Speed	48.80	3.45	50.75	1.88	2.213	0.0330	Sig

Kerbala University results (presentation):

Table (3) includes the statistical results of the comparisons between the chronological age and the life span of the research sample (Professors of the University of Kerbala)

Scales and tests	chronological age		life span		T value	Sig level	Sig type
	Mean	standard deviation	Mean	standard deviation			
WHI	49.90	3.45	51.10	2.51	1.409	0.167	Non sig
BMI	49.90	3.45	51.90	2.59	2.315	0.026	Sig
Vo2max	49.90	3.45	51.75	2.53	2.165	0.037	Sig
skew shoulder axis	49.90	3.45	51.80	2.56	2.209	0.033	Sig
lumbar arch	49.90	3.45	50.45	3.05	0.588	0.560	Non sig
Flexibility	49.90	3.45	51.80	2.74	2.142	0.039	sig
Force	49.90	3.45	52.70	2.03	2.144	0.038	Sig
Speed	49.90	3.45	52.15	2.39	2.698	0.010	Sig

Discussing the results of measuring the waist-hip ratio among the three universities:

By comparing the results between the three universities, it became clear that there is a common random result between them. There are no significant differences. Through the researchers' field tour and conducting measurements and tests on the professors, it was found

that the majority have a large waist measurement and some have a large waist and hip measurements, and this stems from the fact that the abdominal area is one of the most places that Fat is easily formed in it, for several reasons, which is the presence of most of the vital processes of the body, which take place in this area, and the presence of the largest large muscle area with fat cells, and therefore it is easy to form fat in this area to be used in vital processes as a source of energy in this area

Discussion of the results of measuring body mass index among the three universities:

By comparing the results between the three universities, the researchers found that all universities participated in the significant results of measuring Body Mass Index, meaning that there are significant differences between members of the same university, although there are no differences in the ratio of waist to hip, and we can say that the person or patient suffers from obesity if the so-called "Body Mass Index" equal to 30 or more - we get this value by dividing the patient's weight mass (in kilograms) by the square of his height (in meters) - then the person is overweight and needs to lose it ⁽³⁾.

Discussion of the results of the VO2max test between the three universities:

The universities of Kufa and Babylon participated in the random result, while the result of Karbala University was significant. The oxygen capacity can be defined as the ability to use the stored body glycogen towards metabolism using oxygen, and it is measured by the maximum amount of oxygen consumption (Vo2 max) and it is also known as the amount of oxygen consumed by the body per minute for each kilogram of the human body ⁽⁴⁾.

Discussing the results of measuring the deviation of the shoulder axis among the three universities:

The three universities share the moral result, that is, there are moral differences between the members of the same university.

Discussing the results of lumbar curvature measurement among the three universities:

The three universities participated with a random result, meaning there are no moral differences between the members of the same university.

Discussing the results of the flexibility test between the three universities:

By comparing the results of the flexibility test, we find that the three universities share a significant difference between the members of the same university.

Comparing the force test results between the three universities:

And do not forget the Harvard step test, which was the morale of the University of Kufa random and the proportion of the University of Babylon and Karbala morale, we must talk about the issue of muscles, where low levels of physical activity, and exercise less leads to muscle loss with age and weakness and early ageing

Comparing the speed test results between the three universities:

When the speed test was conducted, all universities had shared the significance of the results, as muscle mass (muscle mass) and muscle strength begin to decline from the age of 30 years ⁽⁵⁾, and this decline continues throughout life, some of this decline occurs due to low levels of growth hormone and testosterone, which stimulate muscle formation, and muscles are unable to contract at the same speed as usual due to the loss of a greater number of fast-contracting muscle fibres compared to slow-contracting muscle fibres, but ageing does not affect the decline in muscle mass and strength by more than 10-15% in the life of an adult. The greater loss of muscle mass and muscular atrophy results from specific diseases or extreme inactivity, not from ageing alone.

Comparison between the results of the three universities (analysis and discussion):

Table (4) shows the homogeneity of the research sample

Variables	Measuring unit	Mean	Std. Deviations	Median	Range	variance	Skewness	Statistical result
Length	Meter	1.76	0.08	1.75	0.38	0.006	0.938	homogeneous
Mass	Kg	85.133	9.78	83	45	95.677	0.198	homogeneous
Age	Year	49.75	3.73	50	15	13.987	0.504	homogeneous

Through the table (4), it appears that the research sample is homogeneous in measurements (length, mass, and age), because the value of the correlation coefficient is between +1 and -1, and the sample has been homogenized in these measurements because it affects some of the results of the studied measurements and tests.

Table (5) includes the statistical results of the comparisons between the chronological age and the life span of the research sample in the general average

University	chronological age		life span		T value	Sig level	type Sig
	Mean	standard deviation	Mean	standard deviation			
Kufa	50	.0000	51.60	.780	39,6	0.000	sig
Babylon	48.80	.0000	50.66	.620	8.433	0.000	Sig
Kerbala	49.90	.0000	51.70	.670	7.571	0.000	Sig

Table (6) includes the results of the analysis of variance test for comparison between the three universities.

Variance test	sum of squares	degree of freedom	mean squares	F value	Level sig
Between groups	5.241	2	2.620	5.811	0.000
Within groups	9.469	21	.4510		
Total	14.710	23			

Through the table (6) , find that the significance value is less than the significance level of (0.05), which indicates the existence of significant differences between the groups.

Table (7) shows the results of the least significant difference LSD

Gropes I	Comparisons J	mean differences (I-J)	Level sig
1	2	0.93(*)	0.011
	3	0.10	0.769
2	1	0.93(*)	0.011
	3	-1.037 (*)	0.006
3	1	0.100	0.769
	2	-1.037 (*)	0.006

It was found that the highest chronological age among the groups is the age of the professors of the University of Kufa, so the arithmetic mean of their ages was 50, and then the University of Kerbala came after that. It was found that the youngest ages among the three universities were the University of Babylon, as for the default age, the age of the professors of the University of Kufa was the youngest Between universities compared to the

chronological age, followed by the University of Babylon, and finally, the University of Kerbala.

Conclusions and recommendations:

Conclusions:

- The validity of the life span evaluation model according to the studied variables.
- Most of the teachers continue to practice physical activities and maintain their health fitness.
- The tests and measurements used by the researchers are appropriate to the research sample.
- The possibility of the model to identify the chronological and virtual age in a simplified manner and without resorting to laboratories.

Recommendations:

Benefiting from the model in knowing the life span, a simple and inexpensive way has now been made available, and it does not require much effort, not to be exposed to extreme cold and extreme heat, and to take the necessary nutritional supplements after consulting a doctor and exposure to the sun, and to avoid psychological pressures, or at least make it in a smaller box than what it is accustomed to and avoid Staying up late, negative effort, and mastering the use of mobile devices, which has become the problem of the times for adults and children, I mean in this getting used to the correct sitting position when holding the mobile, or at least lying on the back when using it, so lying down is much better than the wrong sitting position and resorting to comfort and sleep from medical pillows and mattresses for those who suffer From shortness of breath or slippage in the vertebrae, it is advisable to consult doctors to find out the defects in the spine and to expedite their correction, physically or surgically, if necessary, to emphasize the provision of a clean and non-dusty environment in universities and colleges. The sample and if this is not available, I have previously indicated the need to wear masks to confirm the work of this message in other universities And on other samples, a younger sample or a sample of women only in all Iraqi universities, or a sample for the purpose of comparison between physical education teachers and the rest of the disciplines, or a sample that monitors physical education teachers in schools or students of the first and last stage and compares them, and so on holding special courses on chronological age and lifespan And the need for the individual to have a hypothetical age much less than the chronological age.

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