

The effect of using different resistance exercises on some variables Physiology of wushu kung fu players

Introduction and research problem:

Physical fitness and its components are one of the most important things a player tries to possess in order to be able to present his talent in all sports activities. Physiological responses are the main goal of any training program, as developing them means improving the level of performance and increasing efficiency in the practice of physical activity.

Jabbar Rahima Al Kaabi (2007 AD), Muhammad Muhammad Ibrahim (2006 AD), states that improving the scientific and educational aspects of the training process can only be achieved through our understanding of the various sciences related to the training process, including physiology and chemistry, which shows us the extent of responses and adaptations. And the changes caused by training of various kinds (physical - skill - tactical - psychological) on the functional devices of the athlete and the extent of the athlete's response to these exercises. (7:((٧٢:١٨)

Abu Al-Ela Abdel-Fattah (2003) indicates that sports practice leads to changes in the blood, and these changes are temporary in response to sports activity, and some are characterized by continuity, which are changes that occur in the blood as a result of regular exercise(١:٣٤٥) .

The blood is greatly affected by the practice of various sports activities, as it plays a vital role in carrying oxygen through the respiratory system to all cells, as well as carrying food through the digestive system and ridding all body tissues of residual waste as a result of combustion and oxidation processes, and the importance of these functions increases during stressful physical exertion. Due to the occurrence of important changes in its components as a response to the type of physical work performed so that the body can carry out its functions with high efficiency .(١١١ :١٦)

Muhammad Ali Al-Qatt (2005) believes that the increase in the strength of the muscular system occurs as a result of the excitement of the largest number of muscle fibers, and this is done with the increase in the resistance used, the higher the degree of resistance, the greater the number of muscle fibers, and thus the increase in muscle strength . (١٧٥:١٧)

Ahmed Nasr El-Din (2003) pointed out that muscular strength training constitutes the main volume of training with the use of special tools that help develop the muscle groups that bear the greatest burden during swimming. of skill performance. (121:3)

Dick Hannula (2003) also emphasized the importance of strength training or resistance training, flexibility training and recovery training to get better results.(١١٧:٢٢)

Abdul Aziz Al-Nimr and Nariman Al-Khatib (2002) emphasized that training with weights increases the strength, quantity and effectiveness of the individual on the speed of muscle contraction, in addition to increasing muscle size and improving the speed of motor performance, and it is one of the most important methods that have an effective impact on the development of muscle strength in its various forms(٢٧:١٢) .

And that the level of cortisol, testosterone, blood volume and red blood cells increase in trained people compared to untrained people (٢٦:٤٤٣)

Anne (2006) adds that the endocrine system works to integrate the effect of food and exercises on reshaping the body as well as on the result of physical performance. In addition, the exercises impose some requirements on the body in two directions: the first direction: the mechanical load imposes pressure, tension and damage on the working muscles, and the second direction Working muscles need metabolic energy, through which they release the energy needed to overcome the mechanical load(٤٥٣:٢٥) .

And that the level of cortisol may rise or fall from the pre-exercise level by greater or less than 60% of the maximum oxygen consumption. Testosterone raises muscle protein without affecting the process of protein decay or any effect on the transfer of anionic acids into the muscles (28: 864 -871)

The researcher believes that resistance training is the main and integral part of the preparation period for the players, as it helps them in the preparation period for a training season through the development of various aspects. Studies and scientific research have proven the improvement in the level of physical fitness elements for adult and junior players by following the correct and ideal steps in the resistance training programs.

And the value of training with light weights is that it increases strength as well as increases endurance, as research results showed that training at a high speed with light weights increases strength and increases endurance, in addition to both speed and strength are two components to produce the ability, which is an essential factor and an important component. of the motor components of the swimmer. (26:136)

And Mufti Ibrahim Hammad (2000 AD) adds that the importance of using resistances in the training process is to develop general and specific physical qualities that contribute to raising the skill and motor level of the players.(١٧:٢٠) .

The sport of Wushu Kung Fu has characteristics and advantages that are unique to many other sports, as it includes offensive skills, defensive skills, offensive defensive skills, and offensive defensive skills.

Wushu Kung Fu is one of the sports that require special abilities to achieve victory and achieve high levels. It needs a good and distinct preparation with comprehensiveness and integration in all aspects of skill, planning, physical and mental.(١٤:٢)

Hamid Abd al-Nabi al-Fatlawi (2005), quoting from Mecloy, adds that individuals who are characterized by strength can achieve a better athletic level. 127

That the battle experts have agreed that the group of physical strength is the biggest factor in the success of players, as this opinion was supported by one of the pioneers of physical education when Mecloy McCloy proved that strength is the most important element of physical fitness in motor performance, and players work to develop their strength to fit the technical requirements of the match. So that they can perform lifting, pushing and holding easily during the performance.(٥:٨٥)

Hence, the maximum strength is an important and influential factor in the level of skillful performance in the sport of Wushu Kung Fu and that the player's lack of appropriate strength limits the efficiency of his performance for movements that require this type of.(١٥:٢٨)

The researcher has noticed that many wushu kung fu trainers do not attach special importance to training using resistances and their role in raising the functional efficiency of vital organs, and that wushu kung fu players need energy (dominated by the lactic system), and therefore, the continuation of performance at a high rate throughout performance

periods is linked to improving The physical and functional abilities of the players, which highlights the need to use resistance exercises during the training process, which prompted the researcher to do this study to identify the effect of a training program using ingredients on some of the functional and biochemical variables of Wushu Kung Fu players.

Research goal:

The research aims to identify "the effect of using different resistance exercises on some physiological variables for Wushu Kung Fu players."

Research hypotheses

- There are statistically significant differences between the averages of the tribal and dimensional measurements in the level of some functional variables for wushu kung fu players in favor of the post measurement.
- There are statistically significant differences between the means of tribal and posterior measurements in the level of some biochemical variables among wushu kung fu players in favor of the post measurement.

Some of the terms included in the search

Hormones

They are chemical messages secreted by the endocrine glands inside the blood to stimulate the activity of the various cells of the body by binding to the receptors of these hormones on the walls of the target cells.(٢٤:٢٩)

Endocrine

They are non-ductal glands and their secretions flow directly into the blood without any channels between them and the bloodstream .(٢١٠:٣٢)

cortisol

It is a hormone secreted by the adrenal cortex and works to increase protein synthesis and reduce glucose in tissues(٢٤٠:٣٠) .

Testosterone

It is a male hormone and is secreted from the testes and works to increase protein production and increase the production of male sperm .
(١١٥:٣٠)

Associated Studies

-A study by Lazem Muhammad Abbas (2013 AD) (24) entitled “The effect of competition effort on the concentration of cortisol, insulin and lactic acid in the blood of young basketball players. The study aimed to identify the level of concentration of cortisol, insulin and lactic acid in the blood of basketball players. The researcher used The descriptive experimental approach The research sample included (25) basketball players with a high skill level, and one of the most important results was that the good competition had a clear and direct effect on the level of concentration of the hormones cortisol, insulin and lactic acid in the blood of basketball players.

-Wael Youssef Ahmed’s study (2013 AD) (23) entitled “Testosterone levels and their effect on some liver enzymes among bodybuilders. The study aimed to identify the effect of testosterone levels on some liver enzymes for bodybuilders. The researcher used the experimental method by designing a pre-post measurement. For one experimental group and the research sample included (10) bodybuilders for the Egyptian bodybuilding team, and one of the most important results was the presence of significant differences between the pre and post measurements of testosterone, and those differences recorded a percentage change of (413.70%), respectively, and the presence of significant differences Significant significance between the pre and post measurements of some liver enzyme variables SGPT, SGOT, GGT in the research sample.

-A study of Hasim Abdul-Jabbar Saleh (2012 AD) (10) entitled the effect of training in the style of resistance by muscle stretching of the upper limbs in developing the shooting strength of the players of the Karbala Handball Club for youth (16-18) years old. Developing the shooting strength of the Karbala handball club players for youth. Hand.

-Study of Jamal Ismail Muhammad (2010 AD) (9) entitled “The effect of using resistance training on some physical variables and growth hormone GH and thyroid gland T4.T3 for youth under 14 years old in football, the study aimed to identify the effect of using resistance training on some physical variables and hormone Growth GH and Thyroid T4.T3 for youth under 14 years old in football. The researcher used the

experimental method by designing a tribal and dimensional measurement for one experimental group. The research sample included two football players under 14 years old. One of the most important results was that the proposed training program had a positive effect on improving physical variables. And indications of growth hormone GH and thyroid T4.T3 for juniors under 14 years of age in football.

- Emad El-Din Shaaban's study (2008) (13) entitled "The Effect of the Intensity of Loading the Anaerobic Differential Threshold on Some Physiological Variables and the Level of Concentration of Cortisol and Male Hormone The study aimed to identify the level of cortisol, male hormone and growth hormone concentration using the anaerobic threshold load intensity. Among the most important results after performing the physical load, the results showed a statistically significant (0.05) increase in body temperature, an increase in pulse rate, lactic acid concentration, and an increase in muscle pain and mental fatigue.

-Study of Ihab Hamed, Massad Hassan Muhammad (2008 AD) (6) entitled "The effect of using compound training on developing muscular ability and the effectiveness of performing the skill of the reverse middle raise for wrestlers. The skill of raising the center of the reverse of the great wrestlers, and the researchers used the experimental method by designing the tribal and dimensional measurement of the two groups. The research sample included (20) wrestlers from wrestling players at the Faculty of Physical Education - Mansoura University. One of the most important results was that the complex training program leads to improving the muscular ability of the muscles of the arms and legs of the wrestlers, as well as To improve the skill of the reverse middle raise.

-A study by Nabil Hosni Al-Shorbagy (2008 AD) (21) entitled "The effect of using some methods of developing muscle strength on the effectiveness of the performance of the skill of the reverse mean raise of wrestlers. The research sample consisted of (38 wrestlers) in three groups, two experimental and the third control and (8 players) for the exploratory study.

- Study by Naglaa Salama Muhammad (2005 AD) (22) entitled "The effect of a proposed training program for the morning biorhythm pattern on the hormone cortisol, anxiety and the level of performance on the balance beam device. The study aimed to identify the effect of a training program for the morning biorhythm pattern on the hormone cortisol and the level of psychological anxiety And performance on the balance beam

device. The researcher used the experimental method by designing the tribal and dimensional measurement for one experimental group. The research sample included gymnastics students at the Faculty of Physical Education for Girls, Helwan University. One of the most important results was that the proposed training program had a positive effect on reducing the level of anxiety and improving the level of cortisol in the research sample.

Research plan and procedure

Search platform

The researcher used the experimental method by designing a pre- and post-measurement for one experimental group, due to the nature of the research.

The research sample

The research sample included Wushu Kung Fu players (6) young players from the Eastern Province in the age period of (18-20) years for the training season (2013-2014 AD), in addition to (4) players to conduct the exploratory experiment for research.

Reasons for choosing the research sample:

- ١ The regularity of the research sample in attending the exercises.
- ٢ The approval of the research sample to conduct the experiment and the proposed program.

3- All players are registered with records from

The homogeneity of the research sample:

Table(١)

The homogeneity of the sample members in the variables of age, weight, and height

n = 6

skew modulus	Mediator	standard deviation	SMA	measruing unit	Variables
0.62	16.20	0.98	19.28	year	Age
0.92-	161.5	1.18	169.9	cm	height
1.14	68.2	1.11	68.4	kg	weight
0.97	8.00	0.67	8.10	year	training age

It is clear from Table (1) that the skewness values of the sample in the growth rates ranged between -0.92 to 1.14, and thus all the skewness

coefficients are limited to (± 3), which means that the sample falls under the moderation curve.

Table(۲)

The homogeneity of the sample members in the functional variables

n = 6

skew modulus	Mediator	standard deviation	SMA	measruing unit	Variables
0.95	78.50	0.54	74.51	n/s	pulse rate
0.65	33.80	0.98	33.87	cm	anaerobic capacity
0.87	1.85	0.98	2.5	Liter	vital capacity

It is clear from Table (2) that the skewness values of the sample in the physiological variables ranged between 0.65 to 1.25, and thus all the skew coefficients are limited to (± 3), which means that the sample falls under the moderation curve.

Table(۳)

The homogeneity of the sample members in the biochemical variables

n = 6

skew modulus	Mediator	standard deviation	SMA	measruing unit	Variables
0.91	20.50	0.11	20.53	micrograms/dl	cortisol
0.23-	720.90	0.14	720.93	monograms/dl	testosterone
0.65	74.50	0.52	74.80	mg/dL	glucose

It is clear from Table (3) that the skew values of the sample ranged between -0.23 to 1.25, thus all skew coefficients are limited to (± 3), which means that the sample fulfills the condition of the moderation curve and that it falls under the moderation curve.

Data collection tools:

First: Devices and tools used in the research:

1. A rheostat for measuring height and weight.
2. Pulse meter.
3. Stopwatch.
4. An ergonomic bicycle.
5. Alcohol for disinfection.
6. Medical cotton.
7. Test tubes.
8. Medical plaster.
9. Special cooler (-20HM).
10. Coleman.
11. Plastic syringes, 5 cm in size, for one time use.
12. Swedish benches.

13- Wrestling mat 14- as a digital video princess

15- The ELISA method for measuring the concentration of cortisol and testosterone. 16- Showa Khas - Iron Bar

17- multi-weight weights - medical balls 18 - a multi-use device

19- Weight rowing device.

The measurements used in the research experiment are attached.(2)

First: measuring functional variables

1- Measuring the pulse using a Polor device to measure the number of heartbeats.

2- Measuring the level of anaerobic ability by choosing the vertical jump of Sargent.

3- Measurement of vital capacity with a dry spirometer.

Second: biochemical variables

Measurement of blood sugar level by laboratory analysis.

-Measuring the level of cortisol and male hormone concentration by drawing a blood sample from the vein after performing the physical load in the serum after being subjected to centrifugal force (4000 rpm) at a temperature of 4 degrees for 10 minutes. The hormones were measured by a test (Competitive Enzyme immune assay, provided that samples are cleared in the morning period, after fasting for about (8) hours.

Experimental research:

The researcher conducted an exploratory study to reach the optimal method of work during the basic study, from 11/1/2021 to 11/14/2021.

Purpose of the study:

1- The sample members understand the measurements required of them and the role of each of them while working.

2- Studying the work method during the basic study (the program).

3- Applying the parts of the training program to assess the validity and objectives of the study.

The resistance training program under consideration: Attachment(3)

The training program was implemented for a period of (12) weeks, with (3) three training units weekly. The training units included resistance training, after reviewing the experts whose names are shown in Attachment (1) through the survey form to determine the dimensions of the proposed program, attached.(٣)

Pregnancy intensity levels were determined by heart rate per minute

Steps to conduct the experiment:

Tribal measurement

The tribal measurement was carried out on the research sample of Al Sharqa players of Wushu Kung Fu in the period from 25/1/2021 to ٢٩/١/٢٠٢١ as follows- :

- Growth rates were measured for the variable of height, weight, and training age on 25/1/2021 AD.

- Medical analyzes were carried out for the individuals of the research sample in order to measure the level of the biochemical variables. The samples were saved by the special Coleman for this and the sample was drawn by a laboratory technician on 01/26/2021 AD.

- Measurement of the level of functional variables was carried out on ٢٧/١/٢٠٢١ AD.

Execution of the search experience

The research experience for the proposed program was implemented (3) months (3) weekly units, in the period from 1/2/2021 to corresponding to 23/4/2021 on the research sample.

dimensional measurement

The dimensional measurement of the research sample was carried out as was done in the tribal measurement in the period from 04/24/2021 corresponding to 04/28/2021 CE on the research sample.

Show results:

Table(ξ)

The significance of the differences between the pre- and post-measurement in the level of some variables

Functionalities of Wushu Kung Fu players

Indication level	value (t)	improvement rate	Differences between the two averages	telemetry		Tribal measurement		measruing unit	Variables
				m	s	m	s		
function	4.98	3.97	2.85	0.89	71.66	0.54	74.51	n/s	pulse rate
function	3.98	8.65	2.93	0.77	36.80	0.98	33.87	cm	anaerobic capacity
function	4.10	55.6	1.39	0.54	3.89	0.98	2.5	Liter	vital capacity

Tabular value (T) at the significance level (0.05) = 1.81 •

It is clear from Table No. (4) and Chart No. (1) that there are statistically significant differences between the averages of the tribal and dimensional measurements in the level of some functional variables for Wushu Kung Fu players and in favor of the post-measurement where the calculated (T) value ranged greater than its tabular value at the significance level. (0.5).

Table(°)

The significance of the differences between the pre and post measurements in the level of the biochemical variables

I have wushu kung fu

n=6

Indication level	value (t)	improvement rate	Differences between the two averages	telemetry		Tribal measurement		measruing unit	Variables
				m	s	m	s		
function	4.98	3.97	2.85	0.89	71.66	0.54	74.51	n/s	pulse rate
function	3.98	8.65	2.93	0.77	36.80	0.98	33.87	cm	anaerobic capacity
function	4.10	55.6	1.39	0.54	3.89	0.98	2.5	Liter	vital capacity

Tabular (T) value at the significance level (0.05) = 1.81 •

It is clear from Table No. (5) that there are statistically significant differences between the averages of the tribal and remote measurements in the level of the biochemical variables (cortisol - testosterone) for the Wushu Kung Fu players and in favor of the post measurement, where the calculated value (T) ranged greater than its tabular value at the significance level (0.5).), while the calculated value (T) for the glucose variable was (0.85), which is less than its tabulated value at the significance level (0.5).

Discuss the results

It is evident from Table (4) that there are statistically significant differences at the level (0.05) in all functional variables between the tribal and remote standards for Wushu Kung Fu players, as the researcher attributes this progress to the effectiveness of the training program, as it worked to improve the functional variables.

And that the level of functional abilities in the blood of wushu kung fu players increases according to the performance and descending rates, and the players with a high level can maintain their performance with no increase in the accumulation of lactic acid in the blood, and it also agrees with the study of Massim Alan et al (2005 AD) (31 AD)), that the heart rate during the competition is 200 beats / s higher than in the same race than in the non-competition, and the heart rate can be used to improve skill performance.

Abul-Ela Abdel-Fattah (2003 AD) confirms that the use of multi-effect training doses at the beginning of the training season, given that it works to develop different physical qualities in a balanced manner, equal in effect between periods of fatigue and rest, and this in turn works to develop functional qualities, especially anaerobic work, as he warned From the use of training doses with a uniform effect at the beginning of the training season, and it is preferable to rely on doses with a multi-direction, and pointed out that the use of doses with a unified direction leads to improving results and improving the special physical characteristics and functional capabilities of the body's organs, but it may expose the athlete to severe fatigue (stress) During the training program (٢٧٩ :١)

Where Davies C and Few (2003) indicated that during resistance training, both heart rate and heart rate rise to about 95% of their maximum level.(٨٩٠ :٢٨)

The researcher believes that the decrease in the pulse rate after training is a sign and indicator of the high fitness of the wushu kung fu players, and the reason for the decrease in the pulse rate may be due to the influence of the positive parasympathetic nerve and the negative sympathetic nerve, leading to a decrease in the regulation participation on the pulse rate during resistance training, while the hormonal effect regulating the rate prevails. Cardio during training

The acquisition of physical fitness is one of the slow-improving variables, as no improvement can occur quickly, and the fatigue or muscle stress that falls on the player during training are recent changes, but they quickly change and improve instead of resting from training, as muscle stress is considered one of the most important obstacles that lead to a halt in athletic progress(٦٢:٢٤) .

The level of insulin increases at the beginning of muscle work and when the performance period is prolonged, it decreases and this helps to convert the processes of oxidation of carbohydrates into fats during physical activity for a long time. The level of insulin decreases by more than (50%) after the performance of sports training, unlike the rest of the other hormones, as their secretion increases during sports activity With increasing intensity or prolonging its duration(٦٢:٤)

Abu El-Ala Ahmed Abdel-Fattah and Ahmed Nasr El-Din Sayed (1993AD) see that the anaerobic capabilities of the player are those sports that use the two energy production systems (phosphate - lactic acid). Basic elements are (strength - speed - muscular ability)(١٧٧:٢) .

It is mentioned by Baha Al-Din Salama (2005 AD) that anaerobic capacity is the one that depends on producing energy in the shortest possible time to perform short muscle work depending on the phosphate system. Measurements of anaerobic capacity are measurements of the maximum anaerobic metabolic processes to produce energy, and that anaerobic endurance represents the muscle's ability to Performing muscular contractions at their maximum during a period of time from 10 sec to 2 s(٥:٢١٧)

The muscle strength is directly proportional to the strength of the chest muscles. The more the strength of the breathing muscles increases, the more the athlete can press the rib cage strongly by the muscles between the internal and external ribs and the abdominal and chest muscles, which leads to the release of the largest amount of air, in addition, the higher the training status of the athlete, the more Vital

capacity as a result of the many exercises that improve the work of the lungs and increase the volume of inhaled air(١٦ :٢٣) .

The results of this study agree with the study of Lazem Muhammad Abbas (2013 AD) (28), in the use of high-intensity training method that helps in improving the physiological abilities of players.

Thus, the first hypothesis has been achieved, which states that there are statistically significant differences between the averages of tribal and posterior measurements in the level of some functional variables among Wushu Kong players.

It is clear from Table No. (5) that there are statistically significant differences between the averages of the tribal and remote measurements in the level of the hormones cortisol and testosterone among the Wushu Kong players and in favor of the post measurement, where the value of (T) calculated for the variable cortisol and testosterone was higher than its tabular value, which indicates an improvement in the level of Those variables, while the calculated value of (T) for the glucose variable was less than its tabular value, and thus it became insignificant in the level of glucose in the research sample.

McMillan (2005) states that cortisol increases the production of glucose in the liver, which also leads to an increase in the breakdown of the hormone, in addition to an increase in liver glycogen as a result of the activity of the glycogen synthetase enzyme and a decrease in the immune response, and cortisol works to maintain blood pressure at a normal level as well as cardiac output(٢٠٣:٢٩). .

Anne Loucks (2006 AD) indicates that resistance training of different intensity leads to an increase in cortisol concentration, and that the increase resulting from this increase in cortisol concentration resulting from increased physical load reflects the control of this hormone by the central nervous system.(٦٢:٢٨)

Davies C and Few (2003 AD) mentions that testosterone affects tissues by changing the chemistry of cells and their interaction from the cell nucleus, and the researcher adds that testosterone is responsible for the development of primary sexual characteristics and plays a constructive role by producing protein and muscle growth(٢٢:٢٦) .

The researcher believes that increasing the concentration of testosterone in wushu kung players in the current study may contribute to the process of muscle growth in players.

The researcher attributes these results to the effort that is characterized by skillful performance, which leads to the production of a large amount of calories and the exit of a large amount of sweat, which helps to focus both testosterone and cortisol.

The researcher also believes that the changes in the concentration of cortisol besides testosterone in the current study are not due to the skill changes used regarding some chemical and biological variables.

As Verdua and Fernando et al., (2008) (27) indicate that testosterone is transported after secretion to the target tissues through a special transporter called globulin and enters the cell through cell-specific receptors where it reaches the cell nucleus leading to its primary function, which is the process of growth and increased protein production. The important work, not the hormone secretor, is the intensity of the physical load and the time of performance, as well as the physical exertion affects the increase in the secretion of cortisol and the increase in the hormone is part of the process of major rebuilding in the muscle tissue.

The results of this study agree with Lazem Muhammad Abbas (2013 AD) (3), Imad Al Din Shaaban Ali (2008 AD) (13), Naglaa Salama Muhammad (2005 AD) (18), in improving the level of testosterone and cortisol using high intensity exercises.

Thus, the second hypothesis has been partially achieved, which states that there are statistically significant differences between the averages of the pre and post measurements in the level of the hormones cortisol and testosterone among the Wushu Kong players, and there is no improvement in the level of glucose.

Conclusions:

The proposed resistance program led to an improvement in the level of some functional variables for Wushu Kong players.

The proposed resistance program led to an improvement in the level of some biochemical variables (testosterone and cortisol) among Wushu Kong players.

-The proposed program using resistors did not lead to an improvement in glucose level.

Recommendations:

-Applying the proposed resistance program to wushu kong players during the special preparation period.

-Conducting more studies to know the effect of resistance training on other functional and biochemical variables.

Spreading awareness among Wushu Kong coaches about the importance of using resistances in training Wushu Kong players.

Reviewer

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