

## EFFECT OF THE ABUSE OF STEROIDAL ANDROGENIC HORMONES AND THEIR RELATIVE CONTRIBUTION TO THE LEVEL OF HORMONES (TESTOSTERONE, FSH, LH) AND THE PROPORTION OF INFERTILITY IN BODYBUILDERS

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### ABSTRACT

The research aims to identify the impact of using stimulants on some biochemical variables which are (Testosterone, FSH, LH) and the proportion of infertility in bodybuilding athlete in the city of al- Diwaniyah. And also to identify the level of concentration of hormones (Testosterone, FSH, LH) of the bodybuilding athlete in the city of Diwaniyah. While the research methodology, the two researchers used the descriptive method and by the survey manner to appropriate the nature of the research. While the research sample was bodybuilding players in the province of al- Diwaniyah totaling (15) players and have been selected in the intentional manner and through statistical methods the researchers have reached to the most important conclusions which is; A decrease in the level of concentration of both hormones (LH, FSH) in a research sample, there is increase in the level of the concentration of the hormone (testosterone) for a research sample. Appearance of infertility ratio and that was a few for the research sample. As the most important recommendations was the need of athletes to keep away from the use of steroids and stimulants, especially the structural stimulants because of their significant adverse effects on athletes. Tests for the decomposition of blood of athletes who participate in tournaments periodically during training and competition. Emphasis on the results that have been reached that there are a large number of athletes using steroids and working to reduce and to fight this phenomenon through awareness.

**Keywords:** impact, hormones, steroid, infertility, bodybuilding.

### THE INTRODUCTION

The boom of quality that happen in the field of scientific research took a footstep in the progress and prosperity, which has become a requirements of the present era, and this is what we observe today in the technological development in industry, agriculture, medicine and other sciences which surpassed the human perception, including in the field of sports sciences, which has become one of the things that has received a very large attention by the countries of the world. One of these sports is a sport of bodybuilding, and this sport needs a high level of muscle mass which coordinated according to the nature of the muscles in the body of the athlete by the players during a performance in athletic competition and as commonly known ; the nature of competition in the sport of bodybuilding requires a significant level of muscle mass and this consequently led to the orientation of many athletes in general and Iraqis in particular to the use of different types of steroids, including male hormone (Testosterone) and steroidal androgenic hormones (Androgenic Anabolic Steroids) which causes different effects on the glands and to find out the nature of these changes, we must recognize that the

resulting changes depends on multiple factors, including the construction of steroid or group of steroids which given and the way of taking it and the amount of the dose used and the duration of use.

Eating large amounts of structural hormones steroidal androgenic for a long time without a medical reason will lead first to a lack of hormones (FSH and LH) and their concentration in the blood, as well as increasing the concentration of male hormone (Testosterone) due to depending of body on this hormone from an external source, and thereby stop the work of the testicles for the production of the male hormone (Testosterone), and as a result enlargement will occur in the mammary gland, and that taking these hormones will lead also to a lack of a secondary secretion from the testes steroidal androgenic of the internal source. The return of these hormone (LH and FSH) to the natural concentration in the serum takes a period of 6 to 12 weeks after stopping the abuse of hormones; so after taking construction hormones of an external source for a long time will lead to testicular atrophy.

The effect of these hormones on the physical fitness when used by male athletes can be known through what has been demonstrated in multiple studies, these hormones have no benefit in the sports field, but may cause physical damage as a result of misuse of stimulus in the sport

Therefore, the identification of the changes that occur as a result of stimulants use on certain hormones of fertilization and the proportion of infertility give us an accurate perception about the nature of the improper use of steroids and the negative impact on athletes, including bodybuilders, from here came the importance of the research for this the researcher felt to discuss this subject.

#### THE RESEARCH PROBLEM:

The use of steroids has become a scourge hits the world as a result of misuse and non- sporting competition and this is in general in various sports and in bodybuilding sport in particular because of adoption of athletes to use different types of steroids, including male hormone (Testosterone) and steroid androgenic hormones (Androgenic Anabolic Steroids) which causes various effects on the glands and as a result of frequent use may result in the future in atrophy of the testicles due to adoption of the body on the hormones from external sources, and thus may lead to infertility and so we can summarize the problem with the following question: (Is that a doping hormonal such as (Testosterone) and steroid androgenic hormones (Androgenic Anabolic Steroids) among bodybuilding athletes in the city of Diwaniya, who participate in tournaments of country has effect on the level of hormones (Testosterone, FSH, LH) and the proportion of infertility.

#### RESEARCH OBJECTIVES:

- 1- Identify the impact of the abuse of construction steroidal androgenic hormones and their relative contribution to the level of hormones (Testosterone, FSH, LH) and the proportion of infertility in bodybuilding athletes in the city of Diwaniyah.
- 2-identify the level of concentration of hormones (Testosterone, FSH, LH) for bodybuilding athletes in the city of Diwaniyah.
- 3-to identify the proportion of infertility in bodybuilding athletes in the city of Diwaniyah.

#### RESEARCH HYPOTHESES:

- 1-the use of the construction hormones (steroidal androgenic) a significant impact on the level of hormones (Testosterone, FSH, LH) and the proportion of infertility in bodybuilding athletes in the city of Diwaniyah.
- 2- There is a discrepancy in the level of concentration of hormones (Testosterone, FSH, LH) for bodybuilding athletes in the city of Diwaniyah.
- 3- There is a discrepancy in the proportion of infertility in bodybuilding athletes in the city of Diwaniyah.

#### 1-THE CONSTRUCTIVE STEROIDAL HORMONAL (OSAMA 2005: 149) ANABOLIC STEROIDS:

These include stimulants, drugs, and biochemical compounds which are related and similar in composition to the male hormone ((testicular hormone which is called testosterone)) which enters also among the banned drugs, due to the harmful use in the sports field, and its effect in increasing the efficiency of public metabolism in the body in addition to sexual functions.

The use of testosterone as stimulant in the athletes with the age of twenty causes stopping the bony endings in the extremities, also the use of it lead to psychological changes of a person, and negative effects in the functions of the liver and the work of the heart and circulatory system.

Also the use of this hormone as a stimulant between males lead to the occurrence of testicular atrophy and lack of their size and secretions.

**2- LH HORMONE:** called stimulating hormone of corpus luteum, which is secreted by of the anterior lobe of the pituitary gland and this hormone complements the maturation of the egg and then an follicle explosion and egress of the egg. It also stimulates the growth of the corpus luteum to prevent the secretion of other eggs in women, while in the male, it effects on the interface tissue in the testis and stimulates secretion of the testosterone hormone which is responsible for secondary sexual characteristics of males (Ayesh, 2002: 198). This hormone is responsible for secretion of estrogen and progesterone and testosterone. The target organs are the ovary and testis (Bahaa 200: 150). The natural rate of men (from 0.6- 12.0 m.moll) as illustrated in the analysis of this hormone.

**3- FSH HORMONE:** called follicle stimulating hormone, which is secreted by the anterior lobe of the pituitary gland and activates the follicle of female ovary. It also works to stimulate the process of spermatogenesis in male (Ayesh, 2000: 198).

Also the functions of this hormone is the growth and production of sperms in the testis in males and the growth of the egg in the female, the target organs are the ovary and testis (Baha 2000: 150). The natural rate of men (from 1.0 -8.0 m.moll) as illustrated in the analysis of this hormone.

**4-TESTOSTERONE HORMONE:** is responsible for secondary sexual characteristics of male as harshness of sound and bone strength and muscles and hair growth on the face and chin, as well as the growth of the penis and scrotum, prostate, seminal vesicles, and epididymis and so it is possible to prepare testicular hormones industrially and used in the treatment of certain disease conditions, especially relating to vitality and sexual activity (Ayesh, 2000: 198).

This hormone also responsible for the improvement of male sexual functions and growth of the male signs of masculinity among young (hair - sound - male genitalia) the target organs are the male reproductive organs (Baha 2000: 150). The natural rate in men (from 5.6 -28.4m.moll) as illustrated in the analysis of this hormone.

## RESEARCH METHODOLOGY:

The choice of research methodology that is appropriate with the research problem and how to solve the problem, so the researchers relied on the descriptive method and survey manner, with their scientific exact steps with nature of the research problem and goals.

## THE RESEARCH COMMUNITY AND SAMPLE:

Has been identified the research community which is bodybuilders in the city of Diwaniya, the participants in the Iraqi championship men - applicants for the sports season (2013-2014), totaling (100) player under the supervision of the Central Union of the game and then the sample was selected by the intentional way totaling (15) players representing teams of Diwaniyah province and they are (15%) from the research community, the researchers have been taken into consideration their choice of this sample is the use of sample members construction hormones (steroidal androgenic hormones) during training and readiness for tournaments by placing a secret form which is special for each player with the cooperation of trainers through personal relationship with them, knowing that the players' names be kept very secret due to sensitivity of this subject through the discussion of the topic with each player and explain the reasons for that so that the sample members were collaborators dramatically.

**THE MAIN EXPERIMENT OF THE RESEARCH:**

The researchers conducting the main experiment I through pulling samples of venous blood from the research sample in the resting state through coordination with the players and coaches in sports halls for fitness and bodybuilding – men - applicants for the sports season (2013-2014), totaling 15 players was withdrawn the amount of 3 mL of crude blood from each player and put it in special tubes and put it in a cooler box and then transported it to the healing laboratory in Diwaniya to separate serum and then the lab save and transfer the serum, and through it will be analysis of hormones to the laboratory of Dr. Monther Mustafa - the city of Baghdad –alnaser Square due to the presence of the modern devices of hormones analysis that give very accurate results and for the sensitivity of the subject of research in addition to the presence of a dedicated staff in this area.

**SHOWING RESULTS, ANALYSIS AND DISCUSSION:**

Display, analyze and discuss the results of hormones (Testosterone, FSH, LH) and the proportion of infertility in bodybuilders in the city of Diwaniyah.

**Table (1) shows arithmetic means and standard deviations of the hormones (Testosterone, FSH, LH) and the proportion of infertility in bodybuilders in the city of Diwaniyah.**

rank	variables		Unit of measure- ment	Arithmetic mean	Standard de- viation
1	The hormones	LH hormone	ml.mol	0.8333	0.390
2		FSH hormone	ml.mol	2.0667	0.930
3		Testosterone hor- mone	ml.mol	21.133	8.620
4	Infertility rate		%	1.333	0.487

Table (1) shows that the arithmetic mean of the hormone LH is (0.8333) and the standard deviation is (0.390), while the arithmetic mean of the hormone FSH is (2.0667) and the standard deviation (0.930), while the arithmetic mean of the testosterone hormone is (21.133) and the standard deviation (8.620) , for the proportion of infertility ; the arithmetic mean is (1.333) and a standard deviation is 0.390

Through what has been displayed of arithmetic means and standard deviations for the research variables show that there is a decrease in the level of concentration of both hormones (LH, FSH), although it is within the normal ratios with knowing that in some members of the sample was the descent of the two hormones below the level of the normal percentage.

While the ratio of the concentration of the testosterone hormone is high, although it is within the normal ratios with known that in some members of the sample the ratios of these hormones were higher than the level of the normal proportions.

As for infertility and although was low, but it is impressive ratios significantly depending on the opinion of the special doctors who have been offered for them the results of the hormones of the research sample.

Through the previous which mentioned and what has been exposed in the table (1) , the researchers attribute the decline in the level of concentration of both hormones (LH, FSH) to that ;the sample members had used steroidal hormonal during training and thus led to the occurrence of this decline.

The scientific sources confirms that the intake large amounts of construction hormones (steroidal androgenic) for a long time without a medical reason will lead first to a lack of hormones (FSH and LH) and their level in the blood, as well as increase the concentration of estradiol (Oestradiol), and as a result will lead to lack of secretion of the testicles of the steroidal androgenic hormones of the internal source and the return of hormone (LH and FSH) to the normal level in the serum takes a period of 6 to 12 weeks after stopping the abuse of hormones; so after taking construction hormones of an external source for a long time will lead to testicular atrophy (397 - 405: Bahrke 2000).

While the researchers attribute the reason for the rise in the level of concentration of the testosterone hormone to that ; be members of the sample had used steroidal hormonal during the training process and thus led to the occurrence of this rise , the scientific sources confirm that taking large amounts of construction hormones (steroidal androgenic) for a long time without a medical reason will lead to an increase in the concentration of the testosterone hormone leading to stop the work of the testes and dependence on the external source of testosterone and thereby note that the misuse of construction hormones will lead to changes, some of which falls to the normal state after stopping taking it and some remains and so may cause some damages which may be sustained permanently especially after prolonged use of these hormones, the most important of these damages is decrease the number of sperm and sometimes losing them , as well as the lack of formation and secretion of testosterone from the testicles (International Olympic Charter Against Doping, 1998 IOC).

As for the appearance rates of infertility although they are few, but it may be influential in the future and the researchers attribute emergence of these ratios to that ; the members of the research sample take construction hormones during the training period and this commonly used inside the country as the players take so hormones during the training period and before the competition period stop them all dealt in accordance with the special tabulations prepared for that as the players after the end of each tournament (knowing that tournaments during the year is a few may reach to one tournament during the year) they are using drugs to remove the influence of these hormones with taking drugs stimulating the testes as a result of atrophy or for fear of aggravating the situation and this was obtained through private interviews with coaches and athletes and due to the sensitivity of the subject the researcher felt to not mention names.

The scientific sources confirm that have adopted this subject to the consequences of taking construction hormones which leads to the occurrence of infertility, as it leads to atrophy of the testicles and the lack of production of sperm and infertility. In some cases "testicular atrophy" is a term used to express about the small size of the testicles, which is not only an aesthetic problem, Because of the introduction of testosterone to the body from an external source, the testicles stop for receiving the signal to produce their share. Also the brain be informed to decrease the production of sperms and the body derives sperms from an external source, this is usually by a needle under the skin. Hence, the brain sends a signal to the testicles to take rest. This new function may cause the infutility (267 - 268: Marie 1997).

**PRESENTATION AND DISCUSSION OF THE RESULTS OF THE RELATIVE CONTRIBUTION OF THE LEVEL OF HORMONES IN TERMS OF THE PROPORTION OF INFERTILITY IN BODYBUILDERS IN THE CITY OF DIWANIYAH.**

**Table (2) shows the results of the relative contribution of the level of hormones in terms of the proportion of infertility among bodybuilders in the city of Diwaniya.**

The method used	The variables	The correlation coefficient	Degree of freedom	The relative contribution
gradual regression	LH hormone	0.934	1-13	89.87%
	FSH hormone	0.985	2-12	8.52%
	Testosterone hormone	1.000	3-11	1.71%

From the table (2) and during studying the most important hormonal variables (in a manner gradient regression), LH hormone was the most important variable, as the value of simple correlation coefficient (0.934) and the percentage of contribution (89.87%) among the hormonal research variables in terms of the proportion of infertility among bodybuilders in the city of Diwaniya.

The FSH hormone, respectively the second most important variable as the value of multiple correlation coefficient (0.985) and the percentage of contribution (8.52%) among the variables of research while testosterone hormone was in the third one as the most important variable, as the value of multiple correlation coefficient (1.000) and the percentage of contribution (1.71% ) among the research variables.

Through the results that have been obtained through correlation relation and multiple regression equation ,the researchers attribute to the emergence of LH hormone variable as the most important variable of the hormonal research variables in terms of the proportion of infertility among bodybuilders in the city of Diwaniya, the reason that taking construction hormone greatly effects on the LH hormone as continuity of taking this hormone lead to a decrease in the percentage level of this hormone in the blood and thus influence on the work of the sperms which may lead to the occurrence of infertility as taking these hormones and through the banned way and with training will lead to the following:

- 1-Overweight and lack of grease or fat in the body.
- 2- LH hormone deficiency and this decrease increases with increasing duration of taking these hormones.
- 3- Decrease in the number of sperms and testicular size and deficiency of testosterone.

While the emergence of FSH hormone variable in the second rank , the reason may be due to that in addition to the changes and decline, which occurs in the LH hormone accompanied by a reduction in the FSH hormone , taking large amounts of construction hormones ( steroidal androgenic) for a long time without a medical reason will lead first to a lack of hormones (FSH and LH) and their level in the blood and then will lead to a lack of testicular secretion of the steroidal androgenic hormones of the internal source. The return of the hormones (LH and FSH) to the normal level in the serum takes a period of 6 to 12 weeks after stopping the abuse of hormones; so after taking these hormones of an external source for a long time will lead to testicular atrophy (397 -405: Bahrke 2000).

While the emergence of testosterone hormone in the third order as the most important variable, the reason may be due to the intake of construction steroidal hormones will lead to a greater concentration of the hormone during the period of its use in the training, which lead to take this hormone from an external source which causes atrophy of the testicles and possibly stopping their function for sperm production and thus cause infertility (267-268: Marie1997).

The hormones can be arranged according to their contribution in terms of the relative proportion of infertility among bodybuilders in the city of Diwaniyah. As shown in the table (3) and (Figure 2) and as follows:

**Table (3) shows the arrangement of hormones according to their contribution in terms of the relative proportion of infertility among bodybuilders in the city of Diwaniya**

The hormones	The correlation relation	The relative contribution	The rank
LH hormone	0.934	89.87%	first
FSH hormone	0.985	8.52%	second
Testosterone hormone	1.000	1.71%	third

## CONCLUSIONS:

Based on the results that have been reached within the research sample could be reached to the following conclusions:

- 1- Decrease in the concentration level of the hormones (LH, FSH) in a research sample.
- 2- Increase in the level of concentration of the hormone (testosterone) for a research sample.
- 3- Appearance of sterility ratio which is few for a research sample.
- 4- The rise in the level of concentration of the hormone (testosterone) in the blood evidence of using the constriction hormones.
- 5- The decline in the level of concentration of both hormones (LH, FSH) in the blood is an evidence of using the constriction hormones.

#### THE RECOMMENDATIONS:

Based on the conclusions that have been reached within the research sample, the researcher recommends the following:

- 1-must be emphasized on athletes to keep away from the use of steroids and stimulants, especially the constriction stimulants because of their significant adverse effects on athletes.
- 2-tests for the decomposition of the blood of athletes who participate in tournaments periodically during training and competition.
- 3-emphasis on the results that have been reached that there are a large number of athletes using steroids and work to reduce this phenomenon through awareness.
- 4-doing similar studies on the individual activities and collective activities, and on different age groups.

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