

Effect of Exercises and Nutrition In Women With Polycystic Ovary Syndrome

Prof.Nadine Sheriff

Professor of OB-Gynecology, Faculty of
Medicine at Kasr Al-Ainy Medical
School, Cairo University

Prof.Elham Mohamed

Professor of Public Health and Head of the
Department of Biological Sciences and
Sports Health Emeritus, Faculty of
Physical Education for Girls

Nourhan Hussein Abd elkarem

MD department of biological Sciences and sports
health. helwan university

Introduction and Research Problem:

Nutrition plays a fundamental and important role in our daily life, and affects it in many ways, and its impact on health depends on the type of food we choose. The individual eats many foods daily, and these foods may have a good or harmful effect on health. Therefore, food must be chosen carefully and consciously in order to live a healthy life. As for patients, nutrition is considered the cornerstone in treating many diseases, and it is a common denominator with medicine in the treatment, and the patient's diet clearly affects the degree and rate of his recovery. (1)

The World Health Organization (WHO) indicates that nutrition is the basis of health and development, and improving nutrition means strengthening the immunity of people of all ages, reducing the incidence of diseases and improving their health. The lack of health and nutritional awareness is one of the most important factors that contribute to the incidence of many nutritional and health problems in Arab societies. (9)

Ibrahim and Ali El-Din (2008) indicate that nutrition is one of the most important social factors that can contribute directly or indirectly to determining the characteristics of the health status of the individual and society. It has become certain that there are overlapping and mutual influences between social factors, food habits and public health, and these relationships illustrate the nutritional reality in a society. Food awareness among members of society plays an important role in the extent of changes that can occur in food habits and their development, which contribute to a large extent in determining the characteristics of the nutritional status and the general health level of societies. (1)

An unbalanced diet can lead to hormonal disorders and many diseases that cause a threat to reproductive health, and the most common of them among women is polycystic ovary syndrome, where data indicate that PCOS is one of the very common endocrine disorders (pcos) in women. affecting 5-10% of women of childbearing age. (3)

This disease is characterized by a lack of ovulation, excessive androgen hormone levels, and decreased chances of fertilization. Polycystic ovaries are linked to insulin resistance, stomach fat accumulation, and obesity in up to 50% of women who suffer from polycystic ovaries.(7)

The increase in obesity rates has had a strong impact on the reproductive health of females, as high body mass index is associated with anovulation, and even infertility in the absence of eggs. It is worth noting that overweight and obese women do not achieve good results even after consuming fertility drugs. (6)

The negative impact of obesity on fertility in women with polycystic ovaries may be associated with severe disorders, whether in the endocrine glands or in the metabolic and building processes. (10)

Unhealthy eating habits and lack of physical activity lead to an increase in obesity rates among women, as studies have highlighted the negative relationship between infertility and obesity in the field of reproductive health. obesity contributes to the most common medical risks during pregnancy diabetes and high blood pressure. obesity plays an important role in the combination of several factors, including environmental, genetics, and lifestyle.(12)

Weight loss has been shown to improve fertility in obese women by restoring ovulation, and improving the response to ovarian stimulation in the treatment of infertility. Therefore, the importance of weight should be considered in women with polycystic ovaries, who are overweight and obese. (5)

urpose of the study:

The research aims to study effect of food on the reproductive health of patients with PCOS in women at the age of (25-45 y).

Study questions

- 1- What is the rate among women with polycystic ovaries at the age of (25-45 y)
- 2- What is the average of LH and FSH hormones in the sample under investigation?

- 3- What is the average percentage of married and unmarried women, abortions and delayed pregnancy?
- 4- What is the average effect of eating different foods on the study sample?
- 5- What is the relationship of exercise to the incidence of polycystic ovary syndrome?

Materials and Method

The study sample:

The sample of study included (100) women with polycystic ovary syndrome (PCOS) at the age of (25-45 y) recruited from the gynecological clinic in Kasr Al-Ainy faculty of medicine Cairo University.

They were chosen intentionally according to the following conditions:

To be a woman with polycystic ovaries and delayed pregnancy.

- Be in the age group between (25-45) years.
- To be from inside the obstetrics and gynecology clinic in Al-Kasr Al Ainy.

Study tools:

1- Questionnaire form:

The questionnaire was designed by the researcher, and the researcher used in preparing the questionnaire form the sources that she benefited from in defining and formulating the scale expressions, and the sources were as follows:

- Previous research studies related to the research topic.
- Documents related to the study topic.

2- Physical components:

Height and weight:

The measurement of weight was carried out by a calibrated medical scale and measured to the nearest (0.1) kg. The measurement was taken using the stadiometer and measured to the nearest (0.5) cm.

BMI:

The BMI was measured by the weight and height formula, which is the weight (kg) over the square of the height (cm).

LH and FSH hormone test:

According to laboratory results (LH and FSH at 2nd day of menses).

Procedures:

- 1) Obtaining the necessary administrative attachments to apply the research.
- 2) Compilation of questionnaires for the sample under study from the Obstetrics and Gynecology clinic in Al-kasr al ainy.
- 3) Procedures statistical processing of the data.
- 4) Discuss and interpret the results.
- 5) Conclusions and recommendations.

Table (1)
Physiological measurements, arithmetic mean and standard deviation of the
“Healthy and Nutritional Behavior Assessment Questionnaire”

(n=100)

Anthropometric measurements and physiological	SMA \bar{X}	standard deviation σ
AGE	33.01	6.45
Height (cm)	164.9	7.38
Weight (kg)	89.69	16.90
Body Mass Index (kg/m ²)	34.95	17.25
Waist-Hip Ratio (cm)	98.01	12.12
FSH (mlu/ml)	4.89	2.82
LH (mlu/ml)	13.32	2.71

It is evident from table (1)

Age, height, weight, body mass index, waist-hip ratio and hormone analyzes (LH), (FSH) for women with polycystic ovary syndrome. there is an increase in the hormone LH and a decrease in FSH from the normal range, the average age of the research sample was 33 years, the average height was 164.9cm, the average body mass index was 38.9, the average waist -hip ratio was 98cm and the average weight was 89.7 kg.

Table (2)
The marital status of the research sample, abortion and delayed pregnancy,
the cause of polycystic ovary syndrome.

(n=100)

Phrase	SMA \bar{X}	standard deviation σ	percentages
Married	80	.402	80%
Unmarried	20	.402	20%
Delayed pregnancy	٦٣	.483	63.7%
Abortion	16	.371	16.3%

It is evident from table (2)

The percentage of married women was the highest, as the results showed 80%, reversed the unmarried women, the percentage was 20%, abortions were 16.3%, and in cases of delayed pregnancy, the percentage was 63% for women with polycystic ovary syndrome.

Table (3)
The nutritional behavior of (proteins group) intake for the research sample
(n = 100)

Food type	SMA \bar{X}	standard deviation σ	once	Twice	More than
			%	%	%
Poultry	2.55	.884	0	72.5	18.8
Meat	1.27	1.35	0	30	18.8
Fish	95	1.00	0	0	47.5
Legumes	2.57	1.56	42.5	18.8	12.5
Egg	3.10	1.39	61.3	17.5	1.3

It is evident from table (3):

The averages range between (3.10, 95.) and a percentage of (61.3%, 0%) and there are statistically significant differences in favor of eating eggs

on a daily basis, while the lowest percentage was in favor of eating meat, poultry and fish daily.

Table (4)
The number of eating some foods by the research sample
(n=100)

Food type	SMA \bar{X}	standard deviation σ	Once	Twice	More than
			%	%	%
Fats and oils	4.00	.00000	100	0	0
Suger	3.60	1.20	90	0	0
Nuts	.287	1.02	6.3	1.3	0
Soda	2.60	1.71	46.3	25	0
Coffee	4.00	.00000	100	0	0
Juice	1.51	.941	1.3	6.3	56.3
Sweets	3.20	.663	33.8	52.5	13.8
Junk food	2.650	1.23	18.8	57.5	8.8
Fries	3.91	.284	91.3	8.8	0

It is evident from table (4):

The averages range between (4.00, 300.) and a percentage (100%, 1.3%) and there are statistically significant differences in favor of eating oils and fats, while the daily intake of vitamins and nuts was one of the lowest percentages.

Table (5)
Arithmetic mean, standard deviation and percentage of practice exercises
(n=100)

Phrase	SMA ¹ \bar{X}	standard deviation σ	yes	No
			percentages	percentages
Do you practice exercises?	.112	3.17	11.3	88.8
Do you have any sports tools?	.0875	2.84	8.8	91.3

It is evident from table (5):

The averages are between (91.3%, 88.8%) percentage of practicing sports activities and don't have any sports tools.

Results:

Table (3,4) shows the number of times food was eaten in the research sample, where the results indicate that the highest percentage obtained by women who eat foods full of oils and fats daily, where the percentage reached 100%, as for the intake of sugars and sweets, the percentage reached 90%

The percentage of women with polycystic ovaries using fried foods was 91%. as for eggs, the highest percentage was recorded for women who ate eggs on a daily basis and amounted to 61% while the lowest percentage for eating fish, where the percentage reached 0%.

It became clear from the results that the research sample does not follow a balanced diet, where there are a lot of fats, calories and carbohydrates, as eating fat and milk stimulates the production of estrogen, which increases the chance of developing polycystic ovary syndrome.

The results also showed in Table (5) a decrease in practicing sports activities was by 88%, as well as a decrease in have of sports tools was by 4%

Also we noticed relationship between obesity and marriage with the highest proportion of polycystic ovary syndroma in obese married women reached to 80 % the percent of un married women which have abesity reached 20 %.

All women with polycystic ovary syndrome showed that the level of luteinizing hormone (LH) in blood samples of women averaged very high (LH > FSH).

Discussion:

It is clear in a report from the National Institute of Science in the United States of America that the fat in milk leads to an increase in the presence of tumors in the breast, uterus and ovaries of American women, while Japanese women who consume milk and fats in animal products are less they have a lower rate of these tumors. It was also found that the frequent consumption of meat, poultry and eggs by American women have a chance of developing uterine and ovarian tumors due to the injection of these animals with hormones in a random way to increase the amount of meat, milk and eggs. thus, there is an unaccounted amount of female

hormones that will reach the bodies of women who eat poultry, eggs and meat in large quantities. (13)

Among the factors that increase the polycystic ovary syndrome are obesity unhealthy habits from high-calorie foods, excess fat, sweetened with sugar, and soft drinks. It is clear from the results that the research sample does not follow a balanced diet, where there are a lot of fats and carbohydrates and less fiber and vegetables. (14)

And the study proved that the sample of the research did not practice sports activity, as it explains **Ahmed Abdel Salam (2016)** physical activity in general and sports training in particular leads to an increase in the activity of hormones in the body, as regular exercise activates estrogen hormone in females, which is secreted by the ovary, and the adrenal cortex activates the secretion of androgen, and both secretions work to improve sudden growth And the rapid that immediately follows puberty in females.(2)

Where studies agree that consumption of unbalanced food and did not practice sports activity leads to an increase in body weight and thus increases the chance of developing some diseases such as blood pressure, arteriosclerosis, obesity and polycystic ovary syndrome, which is one of the common diseases in women.(8)

Conclusions:

- 1- Excess obesity above the normal range is one of the causes polycystic ovary syndrome .
- 2- Wrong eating behavior is one of the causes of polycystic ovaries.
- 3- The type of food eaten and unbalanced eating habits are also factors that exacerbate this syndrome.
- 4- polycystic ovary syndrome grow at any time, but they increase in childbearing age.
- 5- The rate of married women with polycystic ovaries is more than that of unmarried women.
- 6- Women with polycystic ovary syndrome do not engage in any kind of sports activities.
- 7- Women with polycystic ovary syndrome are more likely to have delayed pregnancy than others.

Recommendations:

- 1- Exercising for 30 minutes a day of all kinds helps activate ovulation hormones to get rid of excess weight to reach a normal weight.
- 2- Spreading awareness of the importance of kinetic programs and their positive impact on treatment.

- 3- Avoidance processed foods and fast food because they contain a large amount of hydrogenated fats.
- 4- Avoidance eating sweets that have artificial sugar added, which leads to stimulating hormones and thus has a negative impact on the efficiency of the ovary.
- 5- Refrain from eating artificial milk and its products because they contain hormones that cause hormonal imbalance as well.
- 6- Obese women must first get rid of weight gain before resorting to a physician to treat polycystic ovaries.
- 7- Conducting scientific research to study the new in the treatment of polycystic ovary syndrome.
- 8- Conducting this study on teenage girls with the implementation of a kinetic food program.

References:

- 1- **El-Sayed Ibrahim Youssef, Yahya Ali El-Din Hammad (2008):** Nutritional Education between Theory and Practice, Edition 1, Dar Al-Kutub Al-Ilmia Publishing, Cairo.
- 2- **Ahmed Abdel Salam (2016):** The effect of a specific exercise program on PCOS among obese women, Master's thesis, Faculty of Physical Education in Qena.
- 3- **Pausquali R, Pelusi C, Cacciar M, Gambineri A (2003):** Obesity and reproductive disorders in women . Hum . Reprod .Update.
- 4- **Glueck CJ , Wang P , Goldenberg N , Sieve L(2004):** Polycystic ovary syndrome Int J, Obes Polycystic Ovary syndrome thrombophilia hypofibrinolysis enoxaparin, metformin. clin . Appl .Thromb. Hemost.
- 5- **Roe AH and Dokras A (2011):** The Diagnosis of Polycystic Ovary Syndrome in Adolescents. Rev Obstet Gynecol .
- 6- **Teede HJ, Misso ML, Costello MF, Dokras A, Laven J, Moran L, Piltonen T, Norman RJ, Andersen (2018):** Recommendations from the international evidence-based guideline for the assessment and management of polycystic ovary syndrome. *Fertil. Steril* .
- 7- **The Rotterdam ESHE/ASRM-Sponsored PCOS Consensus Workshop Group (2004):** Revised 2003 consensus on diagnostic criteria and long-term health risks related to polycystic ovary syndrome. *Fertil. Steril*.
- 8- **Valeria C, Elvira V, Polycystic Ovary Syndrome in Insulin-Resistant Adolescents with Obesity (2021):** The Role of Nutrition Therapy and Food Supplements as a Strategy to Protect Fertility.
- 9- **WHO/EMRO (2009):** Regional data on non-communicable disease risk factors. <http://www.emro.who.int.ned>.
- 10- **William B (2009):** **Diagnostic et thérapeutique:** guide pratique de symptôme a la prescription .5ème édition. Estem. Paris
- 11- **James K, William CD, Allen R, (2018):** Gestational Weight Gain in Women With Polycystic Ovary Syndrome: A Controlled Study .
- 12- **Burniat W et al (2002):** Child and Adolescent Obesity. Cambridge University Press. Cambridge, UK.

- 13-**Shehab Muhammad (2014):** Women's Nutritional Guide, first edition, Dar Al-Hekayat Publications in partnership with Rashadpress for printing, publishing and distribution, Beirut, Lebanon.pp 44-51
- 14-**Volen, H. F. (2004):**Women's Health Acore Curriculum Elsevier Australia.Australian Journal of primary Health . volume 10, Number 2.P:1-8.