

Received: 28 January 2025 | Accepted: 08 April 2025 | Published: 03 May 2025

Paper presented at the **2nd Conference of the Hellenic Scientific Society of Aesthetics**
30 November-1 December 2024 | University of West Attica, Athens, Greece

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The role of diet in hirsutism

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ABSTRACT

Hirsutism is observed in 5-10% of women during their reproductive years and is a particularly distressing disorder that affects the quality of life of these women. Many studies have found the role of diet and lifestyle modification to be beneficial in managing non-communicable metabolic diseases; however, there is limited research on their role in hirsutism. Patients with hirsutism, in prevalence, exhibit insulin resistance, hyperinsulinemia, and hyperandrogenism (except for patients with Idiopathic hirsutism), while the majority of them are over-weight and obese. Dietary patterns, such as DASH, ketogenic, and intermittent fasting, have been studied for their positive effect on hirsutism.

KEYWORDS

hirsutism, BMI, diet, nutrients, hair

How to cite this article: Chante A., Roussaki-Schulze A. V.: The role of diet in hirsutism. *Rev. Clin. Pharmacol. Pharmacokinet. Int. Ed.* 39(Sup1): 9-11 (2025).
DOI: [10.61873/NMDM6216](https://doi.org/10.61873/NMDM6216)

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1. INTRODUCTION

Increased hair growth is the main characteristic of hirsutism. It is a symptom in cases of disorders such as Polycystic Ovary Syndrome (PCOS), Congenital Adrenal Hyperplasia (CAH), Cushing's Syndrome, Adrenal or Ovarian Tumours, and Idiopathic Hirsutism [1]. The clinical types mentioned commonly include metabolic diseases like insulin resistance and hyperinsulinemia, with most individuals being overweight or obese [2]. It is a disorder that has a particular impact on the woman's psychology, which affects her lifestyle. Many people seek natural methods to manage symptoms due to two main challenges: the inability to administer medications for an extended period, which is often necessary to control the syndrome, and the restrictions against using these medications during pregnancy.

2. DIETARY STANDARDS

The DASH diet is a nutritional system with significant results, which appeared to be equally effective

in women with Polycystic Ovary Syndrome (PCOS). It is a diet with proportions of 50-55% carbohydrates, 15-20% proteins, and 25-30% total fats, while it is rich in vegetables, fruits, whole grains, meat, reduced salt intake, low-fat dairy and sweets. Sixty women, 20-40 years old, overweight and obese (BMI 25-39.99 kg/m²), participated in a study to study the effect of the DASH diet (Dietary Approach to Stop Hypertension) on changes in androgen levels, body composition and their anti-oxidant status. The women were randomly separated into two groups (DASH and control groups). The groups followed a 12-week program with specific conditions. Energy requirements were calculated based on the Harris-Benedict equation, considering the level of physical activity and resting energy expenditure. The adjustment of two diets includes energy restriction by 350 kcal for women with a BMI of 25-29.9 kg/m² and 500 kcal for women with a BMI of 30-39.9 kg/m². Participants were required to keep a food diary for 3 days each month, as well as a 24-hour recall each month by a dietitian, and there would be additional counselling by a dietitian every 2 months. Of the 60 women, 55 completed the program [3]. The results showed that the DASH diet significantly reduced androgens, androstenedione, and free testosterone levels while increasing the levels of SHBG and antioxidant capacity (DPPH reduction). Furthermore, this change was not associated with weight loss [3].

Intermittent fasting has also been studied for its effectiveness in weight loss. A group of women with Polycystic Ovary Syndrome (PCOS) has recently followed it. This group of women has followed an 8-hour intermittent fasting regimen in this study. Patients were allowed to eat and drink freely from 1:00 PM to 9:00 PM, while they were required to abstain from food from 9:00 PM to 1:00 PM the next day. They were encouraged to drink plenty of fluids, sugar-free beverages, and water during fasting. The program lasted 6 weeks, and the results were encouraging. The results showed decreased BMI, WHR (waist-to-hip ratio), and markers related to insulin resistance (fasting insulin, fasting glucose, HbA1c, HOMA IR score). Furthermore, hormonal parameters associated with hyperandrogenism (AMH, LH, FSH, prolactin, total testosterone, free testosterone, DHEAS, TSH, SHBG), as well as the lipid profile (LDL-C, triglyceride, HDL-C), were significantly improved [4].

The first study of a ketogenic diet in women with polycystic ovary syndrome (PCOS) showed equally encouraging results [5]. Precisely, 17 women with PCOS followed a modified ketogenic diet (mixed ketogenic diet) for 45 days (6 weeks). The characteristics of the PCOS group were BMI >25, age 18-45 years, not taking medication, and

no specific diseases. The dietary protocol included a total daily calorie intake of 600 kcal (low-calorie ketogenic diet), daily protein intake of 1.1-1.2 g/kg/ideal body weight, 30 g carbohydrates, and 30 g fat. The protein group included fish (3 times a week), meat, or eggs. At the same time, some of these should consist of a high biological value milk protein supplement with zero carbohydrate and fat content. The vegetable group included all leafy vegetables. A necessary condition of the protocol was that the meal included 10 g of olive oil from the fat group, while additional options were seed oil and nut oils. The determination of the above proportions aims to induce ketosis [6]. Breakfast and lunch included milk protein, while dinner included two dishes, one of them the meat portion, adapted to the needs of each patient, and the second the vegetable portion, in free quantities, given that the total amount of carbohydrates would not exceed the component amount of 30 g. Patients were required to drink at least 2 litres of water daily and take multivitamins and mineral supplements daily to avoid nutritional deficiencies [6]. The results showed a very significant difference in anthropometric and biochemical measurements. However, the main achievement of this protocol was regulating the menstrual cycle. Of the 17 participating female patients with Polycystic Ovary Syndrome (PCOS), 5 achieved a regular cycle after years of amenorrhea, 12 of them have restored the regularity of the cycle, and 5 out of the 12 patients achieved natural pregnancy after years of trying [5].

After reviewing research, it is observed that women with Polycystic Ovary Syndrome (PCOS) often experience specific hormonal imbalances and associated symptoms. Also, women with Polycystic Ovary Syndrome (PCOS) present symptoms and metabolic disorders similar to those found in the general population. The study of the Mediterranean diet in these cases is extensive [7]. However, research on the effects of the Mediterranean diet on women with PCOS is limited. A study was conducted involving 224 women, which included 112 patients with polycystic ovary syndrome (PCOS) and 112 women without PCOS. The participants were 18 to 40 years old, had a body mass index (BMI) of up to 39.9 kg/m², and engaged in daily aerobic exercise for 30 minutes. The study examined the percentage of women adhering to a Mediterranean diet pattern. The PREDIMED questionnaire was utilized in this study to assess dietary habits among women diagnosed with polycystic ovary syndrome (PCOS). The findings indicated a concerning trend: these women were not following a lifestyle consistent with the principles of the Mediterranean

diet, which is known for its numerous health benefits [8].

According to epidemiological studies, dietary habits play an essential role in the development of gynaecological disorders, such as fibroids, endometriosis, malignant tumours, and Polycystic Ovary Syndrome (PCOS) [9]. A weight loss of at least 5%, through a diet with a caloric intake of 1200 kcal/day and daily exercise, can significantly improve the anthropometric characteristics of obese women with PCOS, increase the ovarian volume and the number of micro follicles, and restore regular ovulation cycles [10].

3. DISCUSSION

Hirsutism is a common symptom of various disorders (Polycystic Ovary Syndrome, Congenital Adrenal Hyperplasia, Cushing's Syndrome, Ovarian and Adrenal Tumours). Nutritional interventions are crucial for the development of these disorders and the management of hirsutism and offer specialized solutions. Most studies have focused their interest on Polycystic Ovary Syndrome (PCOS), which is the most common disorder. However, considering that most symptoms of these disorders are common, the findings could indirectly serve as a reference point for further application to all disorders.

ACKNOWLEDGMENTS

I would like to extend my deepest gratitude to Professor Angeliki-Victoria Roussaki-Schulze for her great support.

CONFLICT OF INTEREST STATEMENT

The authors declare no conflicts of interest.

REFERENCES

- Camacho-Martínez F. M., Hirsutism.: Hair, Hair Growth and Hair Disorders [Internet]. [cited 2023 Jun 23]; 357 – 77 (2008). Available from: https://link.springer.com/chapter/10.1007/978-3-540-46911-7_17
DOI: [10.1007/978-3-540-46911-7_COVER](https://doi.org/10.1007/978-3-540-46911-7_COVER)
- Mahmoudieh L., Amiri M., Rahmati M., Habibi Moeini A.S., Sarvghadi F., *et al.*: Idiopathic Hirsutism and Metabolic Status: A Population-based Prospective Cohort Study. *J. Clin. Endocrinol. Metab.* 108(1): 114–23 (2022). DOI: [10.1210/clinem/dgac538](https://doi.org/10.1210/clinem/dgac538)
- Azadi-Yazdi M., Karimi-Zarchi M., Salehi-Abargouei A., Fallahzadeh H., Nadjarzadeh A.: Effects of Dietary Approach to Stop Hypertension diet on androgens, antioxidant status and body composition in overweight and obese women with polycystic ovary syndrome: a randomised controlled trial. *J. Hum. Nutr. Diet.* 30(3): 275–83 (2017)
DOI: [10.1111/jhn.12433](https://doi.org/10.1111/jhn.12433)
- Feyzioglu B. S., Güven C. M., Avul Z.: Eight-Hour Time-Restricted Feeding: A Strong Candidate Diet Protocol for First-Line Therapy in Polycystic Ovary Syndrome. *Nutrients.* 15(10): 2260 (2023). DOI: [10.3390/nu15102260](https://doi.org/10.3390/nu15102260)
- Cincione R. I., Losavio F., Ciolli F., Valenzano A., Cibelli G., *et al.*: Effects of mixed of a ketogenic diet in overweight and obese women with polycystic ovary syndrome. *Int. J. Environ. Res. Publ. Health.* 18(23) (2021). DOI: [10.3390/IJERPH182312490](https://doi.org/10.3390/IJERPH182312490)
- Nuwaylati D., Eldakhakhny B., Bima A., Sakr H., Elsa-Manoudy A.: Low-Carbohydrate High-Fat Diet: A SWOC Analysis. *Metabolites.* 12(11): 1126 (2022). DOI: [10.3390/metabo12111126](https://doi.org/10.3390/metabo12111126)
- Tsigalou C., Konstantinidis T., Paraschaki A., Stavropoulou E., Voidarou C., Bezirtzoglou E.: Mediterranean Diet as a Tool to Combat Inflammation and Chronic Diseases. An Overview. *Biomedicines.* 8(7): 201 (2020). DOI: [10.3390/biomedicines8070201](https://doi.org/10.3390/biomedicines8070201)
- Barrea L., Arnone A., Annunziata G., Muscogiuri G., Laudisio D., *et al.*: Adherence to the Mediterranean Diet, Dietary Patterns and Body Composition in Women with Polycystic Ovary Syndrome (PCOS). *Nutrients.* 11(10): 2278 (2019). DOI: [10.3390/nu11102278](https://doi.org/10.3390/nu11102278)
- Afrin S., Alashqar A., Sabeh M. El., Miyashita-Ishiwata M., Reschke L., *et al.*: Diet and nutrition in gynecological disorders: A focus on clinical studies. *Nutrients.* 13(6) (2021). DOI: [10.3390/NU13061747](https://doi.org/10.3390/NU13061747)
- Crosignani P. G.: Overweight and obese anovulatory patients with polycystic ovaries: parallel improvements in anthropometric indices, ovarian physiology and fertility rate induced by diet. *Human Reprod.* 18(9): 1928–32 (2003). DOI: [10.1093/humrep/deg367](https://doi.org/10.1093/humrep/deg367)