

Polycystic Ovarian Syndrome (PCOS) and Low Glycemic Diet - An Updated Review of literature

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ABSTRACT

One of the most prevalent endocrine disorders, polycystic ovary syndrome [PCOS] is linked to an increased risk of metabolic dysregulation. *Women who have PCOS have been found to have a higher incidence of obesity because of certain eating disorders also including binge eating, which is frequently reported to be linked with obesity.* Women with polycystic ovarian syndrome [PCOS] are intrinsically insulin resistant and have a high risk of cardiovascular disease and type 2 diabetes. Weight loss improves risk factors and hence low-glycemic index [low-GI] diets are recommended. The majority of PCOS women are lean, but they may still have central obesity and metabolic problems. In populations that are insulin-resistant, studies of dietary interventions with a low glycemic index [GI] have shown an increase in insulin sensitivity; However, in PCOS-positive women, there is little evidence of this effect. The objective of this review was to determine whether women with PCOS benefit from an isocaloric, low-GI dietary intervention on insulin sensitivity regardless of weight change. A GI diet may help restore menstrual regularity, reduce inflammatory markers and improve insulin sensitivity in women with PCOS. The main purpose of this review is to discuss the role of nutrition in relation to PCOS, in general, and that of low GI diets, in particular.

Key words: PCOS, polycystic ovary syndrome, nutrition, low Glycemic Index foods

Introduction

PCOS, or polycystic ovarian syndrome, is a condition that affects many women in the reproductive years of their age.

^[1] PCOS affects between 15% and 20% of women who are pregnant^[2] It occurs when the levels of particular hormones are out of balance. As a result, cysts or fluid-filled sacs, grow on the ovaries. Hair loss on the head, excessive hair growth elsewhere on the body (male hair growth), weight gain, depression, and issues with fertility are associated symptoms.

PCOS is also linked to an increased risk of obesity, type 2 diabetes, and heart disease. Unfortunately, there is no effective treatment for it; however, diet and lifestyle modifications can be effective. Even a 5% weight loss can

encourage ovulation and restore normal menstrual cycles in overweight women. ^[4,5]

In the last few years, there has been a debate in the scientific circles regarding the possible role of diet in the management of PCOS. Low Glycemic Index (GI) foods are becoming popular in disease prevention as well as treatment. Primarily, discovered for the treatment of diabetes, low GI foods are at current being considered as a remedy for a broad spectrum of disorders related to food and nutrition. Therefore, we discuss the significance of insulin and low glycemic diet in relation to PCOS in this brief review. Since diet is a modifiable factor and since diet has likely to have a role in the management of PCOS, the main objective of this review is to discuss the importance of diet in the management of

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PCOS, particularly the emerging role of low GI diets in relation to PCOS.

The disease

Polycystic ovary syndrome (PCOS) is the most common endocrine disorder among women of reproductive age, with a point prevalence of up to 15%.^[6,7] Infertility, thyroid dysfunction, anxiety, depression, sexual disorders, a subjectively lower quality of life, and metabolic disturbances like obesity are all linked to PCOS.^[8-11] A specific echogenicity of the ovaries in a pelvic ultrasound, biochemical and/or clinical hyperandrogenism, anovulatory menstrual cycles, and/or rare ovulations are all required for the diagnosis of PCOS.

A Low-glycemic Diet

A meta-analysis found that 49% of women with PCOS were obese.^[12] The chronotype of PCOS women’s eating habits can be influenced, which can result in obesity and adverse metabolic effects. The authors assert that severe insulin resistance and poorer dietary habits are linked to the evening chronotype.^[13] However, it is essential to keep in mind that PCOS women, regardless of their weight, are more likely than control women to experience metabolic consequences due to the presence of visceral adipose tissue. Healthy eating habits and a well-balanced diet are essential for PCOS treatment.^[14] According to some reports^[e.g. 15,16] this group has a higher prevalence of binge eating disorder (BED) than the general population, ranging from 12 to 39 percent.

The hormone called insulin moves sugar from blood into cells, where it can be used as energy or stored. Women who have PCOS frequently have insulin resistance, which means that their cells are unable to use glucose as rapidly as they should. This results in elevated levels of insulin and blood sugar, which in turn causes unpleasant symptoms.^[17,18]

The glycemic index (GI) can be taken into account in a diet to help maintain insulin levels.^[19] The GI is a metric that measures how carbohydrates affect blood sugar levels. Carbohydrates with a high GI break down quickly, releasing glucose quickly into the bloodstream. whereas low-GI carbohydrates release glucose slowly into the bloodstream as they break down. The glycemic index was initially developed as a tool for diabetics because a lower glycemic response typically indicates a lower demand for insulin. However, using the index can be beneficial to everyone. With a value of 100, glucose is the food of reference. To put things in perspective, a baguette has a value of 95, whereas

chickpeas have a value of 33. Instead of putting carbohydrates into one of two general categories—”good” or “bad,” GI may be a more appropriate classification. Carbohydrates with a lower GI may be healthier than those with a high glycemic index.^[19]

A food’s GI indicates how quickly it raises blood sugar levels. Foods that slow the rise in blood sugar and prevent insulin spikes are included in the low-glycemic diet (GI diet). Whole grains, lean proteins, healthy fats, and unprocessed fruits and vegetables make up the majority of the accompanying diet. Sugary foods and drinks, as well as most processed or refined carbohydrates, are also avoided. Many good things can come from a low-carb diet, especially for women who have insulin resistance caused by PCOS.^[20,21] One study found that 95% of women who followed a GI diet for weight loss had more regular periods than 63% of women who followed a standard weight loss diet.^[19] When compared to a standard weight-loss diet, a high-protein, low-glycemic weight-loss diet was found to increase insulin sensitivity and decrease inflammatory markers in 60 overweight PCOS women.^[22]

Based on a comprehensive literature review,^[2-23] Table 1 presents some scientific facts that demonstrate a connection between the effectiveness of diet and exercise in PCOS women.

Table 1: A snapshot of relationship between diet and exercise effectiveness in women with PCOS

1. For a patient of average build who is not very active, the daily energy requirement is between 2,000 and 2,400 kcal. To begin, don’t put too many restrictions on this.
2. Regular exercise: 30 min of moderate work-out everyday will assist with keeping up with body weight. Weight loss may require more intense or prolonged exercise.
3. Fat should account for no more than 30% of daily calories, and saturated fat should not exceed 50% of total calories. Dairy products and spreads should be low in fat.
4. At first, 45-55% of the diet should be composed of carbohydrates. Reduce your intake of refined carbs. Eat foods with a low glycaemic index [GI], a lot of fiber, and whole grains.
5. Satiety and insulin sensitivity may be enhanced by a diet high in protein. Protein should make up 20% of your daily energy, but if you have trouble controlling your eating or keeping your weight off, you can increase this by replacing carbs with protein.
6. Red meat should be limited. For long-chain essential fatty acids [omega-3, polyunsaturated fatty acids], consume oily fish at least once per week.
7. Eat fruit or vegetables at least five times a day. This maintains the diet’s micronutrient content, provides fiber, and promotes satiety.
8. Eat three to four meals a day, preferably on a regular basis. A vital meal is breakfast.

Conclusion

Food varieties low in the GI lessen admission of [quick] carbs that thus can further develop the insulin awareness reaction in patients with Polycystic Ovarian Condition [PCOS]. In addition, women with PCOS may benefit from a low-GI diet by restoring menstrual regularity, lowering inflammatory markers, and increasing insulin sensitivity.

Recommendations

Given the importance of diet in the management of PCOS as supported by a huge volume of research work, a brief part of which is presented in the present review, the medical care team should take into consideration the importance of low GI foods in the management and treatment protocols of their patients. Patients should be encouraged to strict to low GI foods.

Patients' consent Declaration

Not Applicable

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Nil.

Conflicts of interest

There are no conflicts of interest

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