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POLYCYSTIC OVARY SYNDROME (PCOS) PILOT STUDY ON DIET QUALITY

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Introduction and Objective

Polycystic Ovary Syndrome (PCOS) is a complex gynecological and endocrinological disorder affecting 6% to 21% of reproductive age women[1]. The main characteristics of PCOS include hyperandrogenism, irregular menstrual cycles, lack of ovulation, enlarged ovaries with numerous cysts and infertility[2]. Symptoms vary widely between women, but usually include obesity, hyperinsulinaemia and insulin resistance (in approximately 65% to 70% of women with PCOS)[3]. Therefore uniform therapy and dietary recommendations fail.

The objective of this study was to analyze the quality of diet and dietary patterns of women with PCOS. Actual lifestyle habits and the diet of the women with PCOS have not been extensively researched internationally[4,5] and never in Croatia.

Participants and Methods

The study included women of reproductive age diagnosed with PCOS (N=12), recruited at Lončar gynecological office, Karlovac. Study participants completed a general questionnaire on socio-economic characteristics and two questionnaires regarding their gynecological health and PCOS symptoms. Anthropometry was measured (Seca) while biochemical data was provided by the gynecologist. Diet quality was assessed with a 24-hour dietary recall and quality of diet and exercise habits were assessed with a questionnaire developed specifically for this study. Data from the questionnaire were scored and summarized according to the currently applicable guidelines on healthy eating habits. Better eating habits received higher points (1 to 5 point scale, minimum score 27 points and maximum score 135 points).

The statistical analysis was performed with the Statistica software system (version 12.0, StatSoft Inc., USA), at significance p=0.05. The Pearson correlation test was used for calculating the correlation of the numerical data.

Table 1. Correlation of Selected General and Socio-Economic Variables with Energy and Fat Intake Based on a 24-Hour Diet Recall

Selected variable	kcal	Fat total	SF	MUFA	PUFA	Linoleic acid	Chol.
Age	0.56	0.44	0.44	0.38	0.42	0.46	0.43
Household members	-0.26	-0.13	-0,23	-0.12	-0.23	-0.25	-0.45
Smoking	-0.47	-0.38	-0.43	-0.38	-0.34	-0.34	-0.29
BMI[e]	0.44	0.50	0.36	0.39	0.28	0.28	-0.17
Waist (W)	0.55	0.62*	0.49	0.50	0.42	0.42	-0.12
Hips (H)	0.42	0.49	0.37	0.39	0.35	0.35	-0.08
W/H ratio	0.53	0.59*	0.47	0.47	0.39	0.38	-0.17

*statistical significance at p<0.05, the Pearson correlation test; SF–saturated fats; MUFA–monounsaturated fats; PUFA–polyunsaturated fats; Chol.–cholesterol; BMI–body mass index

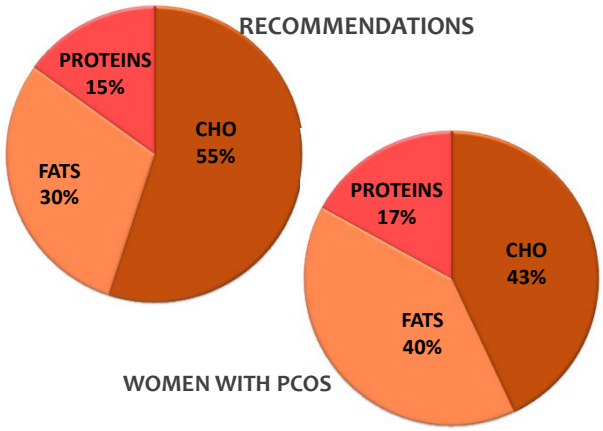

Figure 1. Contribution of separate macronutrients to the total daily energy intake of women with PCOS as compared to the recommendations

Table 2. Correlation of Selected General and Socio-Economic Variables with Protein and Carbohydrate Intake Based on a 24-Hour Diet Recall

Selected variable	Protein total	Plant protein	Animal protein	CHO total	CHO simple	CHO complex	CHO fiber
Age	0.50	0.61*	0.43	0.61*	0.49	0.51	0.55
Household members	-0.19	-0.35	-0.13	-0.41	-0.56	-0.33	-0.49
Smoking	-0.48	-0.42	-0.41	-0.49	-0.47	-0.44	-0.52
BMI	0.17	0.43	-0.00	0.37	0.28	0.29	0.30
Waist (W)	0.24	0.51	0.05	0.46	0.36	0.37	0.39
Hips (H)	0.16	0.40	0.01	0.33	0.26	0.24	0.29

*statistical significance at p<0.05, the Pearson correlation test
CHO–carbohydrates; BMI – body mass index

Results and Conclusions

The total daily energy intake was calculated as the percentage of the RDA intake based on the nutritional requirements for women of reproductive age. Women with PCOS had an average daily energy intake of 82.25% of the RDA, i.e. 2,333 kcal/day. When analyzing the contribution of separate macronutrients to that daily energy intake, discrepancies from the recommendations were found. The main discrepancies are high contribution of fats (40.1%) and increased intake of proteins (17.7%) (**Figure 1**), both involved in abdominal obesity and pancreatic functioning, i.e. insulin secretion.

Total fat intake showed a statistically significant positive correlation with waist circumference and waist to hips ratio (**Table 1**). The results were expected because the intake of fat is associated with abdominal obesity and is related to insulin resistance, both involved in the etiology of PCOS.

In addition, a statistically significant correlation was found between age and intake of total carbohydrates and plant proteins (**Table 2**). Results indicate a potentially negative correlation between the number of household occupants, smoking and physical activity with the intake of macronutrients. Study findings show the potential for a larger-scale study on women with PCOS.

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