The Lifestyle Eating and Performance (LEAP) Program for Improving Quality of Life in Women With PCOS: A Pilot Study of Dietitian-Directed Therapy

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Objectives: To investigate the effectiveness of the Lifestyle Eating and Performance (LEAP) program for reducing health-related Quality of Life (QoL) symptoms in women with Polycystic Ovary Syndrome (PCOS).

Methods: A retrospective chart review was conducted of PCOS clients seen by registered dietitians from a private group practice during 2010–2018. The in-vitro Leukocyte Activation Assay (LAA-MRT) was used to identify hidden non-immunoglobulin E (non-IgE) mediated food allergies and chemical sensitivities. The registered dietitians developed a patient-tailored oligoantigenic diet program for each subject.

The LEAP program is an elimination diet built on the selection of less reactive food and chemicals based on the LAA-MRT results. A symptom survey was used to assess the QoL at the first visit and each follow-up visit. The severity of symptoms over the past month was recorded and quantified based on the frequency of the symptoms from a scale of 0 (low) to 4 (high) with a minimum score of 0 and a maximum of 248 points.

Descriptive statistics were created and reported as means for continuous variables. Mixed model analysis of variance (ANOVA) was performed using R Studio Version 1.1.414 . The study received Institutional Review Board (IRB) approval by California State University Sacramento.

Results: Subjects' ($n = 42$) mean age was 35.2 years, and BMI was 34.4 kg/m^2. The mean symptoms score at baseline was 72.5. After a personal eating plan was implemented based on the LAA-MRT results (mean 18.1 days following the plan), scores reduced to 29.3 ($P < 0.001$). The mean score at the second follow-up (mean 44.1 days) was 19.9 ($P < 0.001$), and at the third (mean 60.0 days) was 14.7 ($P < 0.001$).

Conclusions: Findings from this pilot study highlight that a comprehensive, tailored dietary program can effectively achieve improvements in QoL for women living with PCOS.

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BACKGROUND

- Polycystic ovarian syndrome (PCOS) is a multifactorial condition that impacts women's health of reproductive age with the prevalence in the US between 1.6-6.6% depending on existing comorbid conditions.
- PCOS is characterized by hormonal reproductive imbalance and metabolic abnormalities; however, the etiology of PCOS is still not well understood. There is no established cure for PCOS; nevertheless, treatment options are directed to reduce adverse symptoms associated with this disorder and improve the health outcomes of women with PCOS.
- There is considerable evidence to support the adverse effects of PCOS on quality of life (QoL). Lifestyle modifications, including dietary therapy, are essential for the comprehensive management of PCOS and enhancing QoL.
- Research indicates some dietary approaches to be beneficial for improving metabolic conditions and QoL in women suffering from PCOS; however, the ideal dietary composition is still uncertain.
- To the best of our knowledge, no research has examined the role of oral immunologic tolerance to food and chemical sensitivities from a diet and the implementation of a patient-tailored oligoantigenic eating plan for PCOS.

OBJECTIVE

To investigate the effectiveness of the Lifestyle Eating and Performance (LEAP) program for reducing health-related Quality of Life (QoL) symptoms in women with PCOS

METHODS

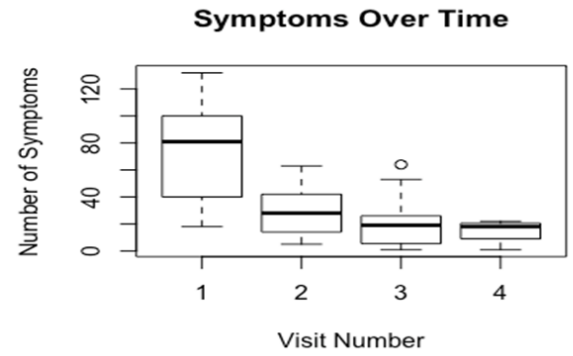
- A retrospective chart review was conducted of PCOS clients seen by registered dietitians from a private group practice during 2010-2018.
- The in-vitro Leukocyte Activation Assay-MRT (LAA-MRT) was used to identify hidden non-immunoglobulin E (non-IgE) mediated food allergies and chemical sensitivities.
- The registered dietitians developed a patient-tailored oligoantigenic diet program for each subject.
- The LEAP program is an elimination diet built on the selection of less reactive food and chemicals based on the LAA-MRT results.
- A symptom survey was used to assess the QoL at the first visit and each follow-up visit. The severity of symptoms over the past month was recorded and quantified based on the frequency of the symptoms from a scale of 0 (low) to 4 (high) with a minimum score of 0 and a maximum of 248 points.
- Descriptive statistics were created and reported as means for continuous variables. Mixed model analysis of variance (ANOVA) was performed using R Studio Version 1.1.414 .
- The study received Institutional Review Board (IRB) approval by California State University Sacramento.

RESULTS

- Subjects' (n=42) mean age was 35.2 years, and BMI was 34.4 kg/m^2. The mean symptoms score at baseline was 72.5.
- After a personal eating plan was implemented based on the LAA-MRT results (mean 18.1 days following the plan), scores reduced to 29.3 ($p < 0.001$) **Table 1**.
- The mean score at the second follow-up (mean 44.1 days) was 19.9 ($p < 0.001$), and at the third (mean 60.0 days) was 14.7 ($p < 0.001$) **Figure 1**.

Table 1. Baseline Characteristics	Women with PCOS (n=42)
Mean Age (years)	35.2±9.1
Mean BMI (kg/m^2)	34.4±9.3
Mean Follow-up (days)	72.5±32.6

Figure 1. Boxplots depicting the distribution of the number of symptoms at each of the 4 visits



CONCLUSION

- Findings from this pilot study highlight that a comprehensive, tailored dietary program can effectively achieve improvements in QoL for women living with PCOS.
- As the basis for future investigations, this study contributes to the scientific knowledge that changes in diet can improve quality of life can in women who have PCOS.