

Psychological symptoms of premenstrual syndrome (PMS) - Can dietary supplements reduce the severity of symptoms?

S. Parsay, PhD*, M. Esfarayeni, EdD, CHES**

* Shahid Beheshti University of Medical Science and Health Services, Tehran-Iran **City University of New York (CUNY), New York



Background

- Premenstrual Syndrome (PMS) is one of the most common disorders of women during their reproductive years that affect their daily activities and productivity.
- PMS is characterized by emotional and physical symptoms occurs during secretory phase of menstrual cycle.
- The etiology is unknown and may be multifactorial. The hormonal changes may affect centrally acting the neurotransmitters such as serotonin.
- Tryptophan is precursor of Serotonin
- Carbohydrate intake increases level of plasma tryptophan

Purpose

- To evaluate the effect of protein and carbohydrate supplements on severity

Design

- Crossover Clinical Trial

Research Tool

- A Modified Premenstrual Daily Symptom Diary (PDSD) was used to measure the severity of psychological, behavioral and physical symptoms in scale of 1-4.

Methods

- 255 • Undergrad students completed the PDSD and recorded their symptoms for two months.
- 200 • Participants reported different level of PMS symptoms
- 80 • Participants entered the intervention
- 76 • Participants completed the course of intervention

Methods

Inclusion Criteria

- Having at least one somatic and one behavioral or psychological symptoms diminished with the onset of menses for two consecutive months .

Exclusion Criteria

- Irregular menstruation
- Mental disease or Chronic disease
- Pregnancy and lactation
- Stressful events during course of intervention
- Hormonal contraception or hormone therapy

Intervention Arms

Carbohydrate Food

Adding 210 kcal
Juice (200cc)
Honey (30 g)
Date (1)

Carbohydrate Supplement

Adding 205 kcal
50 g carbohydrate supplement powder

Protein Supplement

Adding 205 kcal
50 g Protein Supplement Power

Group 1

1st month

Protein supplement

2nd month

Carbohydrate supplement

3rd month

Carbohydrate Food

Group 2

Carbohydrate Food

Protein supplement

Carbohydrate Supplement

Group 3

Carbohydrate Supplement

Carbohydrate Food

Protein supplement

Participants added assigned dietary supplements/foods to the regular daily diet for a week before starting period in three months

Results

Frequency of the Symptoms before Intervention

	Mild		Moderate		Sever		Total	
	No	%	No	%	No	%	No	%
Psychological	32	42%	38	50%	6	8%	76	100%
Behavioral	51	67%	23	30%	2	3%	76	100%
Physical	67	88%	9	12%	0	0%	76	100%

Frequency of PMS Severity in Intervention Groups

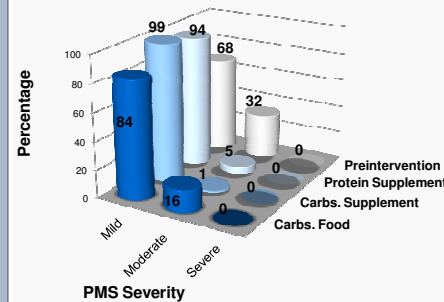


Table of differences among the intervention groups in different categories of symptoms.

Symptoms	Carb Food Group	Carb. Supplement Group	Protein Supplement Group	F	p value
	Mean of Differences ± SD				
Psychological	-0.40±.28	-0.75±.54	-.58±.51	289.2	<.001
Behavioral	-.27±.25	-.65±.38	-.50±.39	274.8	<.001
Physical	-.09 ± .2	-.42±.29	-.33± .27	254.2	<.001
PMS	-.26±.18	-.62±.34	-.47± .32	375.5	<.001

Table of mean of difference of severity of the symptoms pre and post intervention in Carbohydrate food and supplement groups

Symptoms	Carb. Supplement Group	Food Group	t paired test/ P value	
	Mean of Differences ± SD			
Psychological	Irritability	.75 ± .84	.14 ± .33	t=6.01, p<0.001
	Anger	.80 ± .71	.80 ± .40	No difference
	Anxiety	.96 ± .76	.20 ± .39	t= 8.76, p<0.001
	Depression	1.12 ± .78	1 ± .66	No difference
	Crying /tearfulness	.34 ± .48	1 ± .30	t=4.20, p<0.001
Behavioral Symptoms	Loneliness	.55 ± .73	.08 ± .39	t=5.73, p<0.001
	Tiredness lack of energy	.81 ± .65	.11 ± .41	t=8.87, p<0.001
	Insomnia	.43 ± .50	.13 ± .40	t=4.52, p<0.001
	Changes in sexual interest	.28 ± .42	.47 ± .29	t=4.61, p<0.001
	Difficulty concentrating	.71 ± .62	.10 ± .36	t=7.74, p<0.001
Physical Symptoms	Food craving/ over eating	1 ± .66	1 ± .31	No difference
	Headaches	.52 ± .56	.1 ± .26	t=6.29, p<0.001
	Breast tenderness & swelling	.51 ± .55	.08 ± .34	t=6.72, p<0.001
	Back pain	.52 ± .51	.11 ± .41	t=5.29, p<0.001
	Abdominal pain	.43 ± .49	.1 ± .44	t=4.88, p<0.001
Muscle and joint pain	.46 ± .59	.08 ± .56	t=4.69, p<0.001	
Weight Gain	.22 ± .45	.08 ± .34	t=2.57, p<0.001	
Nausea	.42 ± .49	.10 ± .40	t=5.1, p<0.001	
Edema	.28 ± .35	.03 ± .33	t=5.31, p<0.001	

Spearman tests indicate that there is a positive and significant correlation between effect of carbohydrate consumption in forms of supplement or food and reducing PMS symptoms (**r=.83, r=.35 p<.001**) respectively). It means adding carbohydrate supplements could reduce more symptoms in severer PMS .

Conclusion

Consumption of carbohydrate supplement powder might be useful in patients who suffer form different level of PMS and can improve moderate to severe psychological and behavioral symptoms of PMS.