ADDRESSING PMS WITH DIET AND LIFESTYLE:

A DIETITIAN TOOL KIT FOR HORMONAL BALANCE

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DISCLOSURES

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LEARNING OBJECTIVES

- Discuss the basic physiology behind a woman's monthly cycle
- Identify diet and lifestyle patterns that may exacerbate PMS and menstrual discomfort
- Implement several diet and lifestyle strategies that may support a reduction of PMS and menstrual symptoms

J Acad Nutr Diet. 2019 Jun
OVERVIEW OF THE MENSTRUAL CYCLE
OVERVIEW OF THE MENSTRUAL CYCLE:

A COMPLEX ORCHESTRATION OF HORMONES TAKE PLACE FOR MENSES TO OCCUR

The hypothalamus secretes gonadotropin-releasing hormone (GRH)

This stimulates the pituitary gland to secrete follicle-stimulating hormone (FSH) and luteinizing hormone (LH)

This stimulates the ovaries to produce estrogen & progesterone to prepare the body for possible pregnancy

If pregnancy does not occur, estrogen & progesterone levels drop

This signals for the menses to begin, and the uterus lining is shed

ROLE OF ESTROGEN

- ESTROGEN HELPS TO ENCOURAGE CELLS TO GROW. CAUSE THE LINING OF THE UTERUS TO THICKEN IN ANTICIPATION OF A PREGNANCY.
Many adverse physical and emotional symptoms related to the hormonal fluctuations that happen prior to and during menstruation.

- Cramping
- Bloating
- Breast tenderness
- GI symptoms
- Nausea and vomiting
- Headache and fatigue
- Mood changes
  - As estrogen levels drop, so does serotonin.

“DYSMENORRHEA” SPECIFICALLY REFERS TO PHYSICAL PAIN OR CRAMPS OFTEN EXPERIENCED BEFORE AND DURING THE MENSES.  

CRAMPING:
Muscular contractions in the uterus: help to release the tissue lining via vaginal bleeding.
Lower abdomen, lower back, and even the legs.
Heavier periods may also mean more intense cramping in addition to other PMS-related symptoms: nausea, vomiting, diarrhea, and headaches.  

3. https://www.acog.org/~/media/For%20Patients/faq057.pdf?
“DYSMENORRHEA” SPECIFICALLY REFERS TO PHYSICAL PAIN OR CRAMPS OFTEN EXPERIENCED BEFORE AND DURING THE MENSES. 2, 3

**PRIMARY DYSMENORRHEA**

Pain may vary depending on factors impacting hormone balance during the cycle:

- Birth Control
- Stress Levels
- StreNUOUS AthLETic Training
- Body Fat Percentage
- Diet

**SECONDARY DYSMENORRHEA**

Imbalance or disorder in the reproductive organs

**ENDOMETRIOSIS**

**ADENOMYOSIS,**

**UTERINE FIBROIDs (WHEC ARE OFTEN DRIVEN BY ESTROGEN)**

The symptoms typically differ from primary dysmenorrhea.

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HIGHER RISK FOR MENSTRUAL CRAMPS IF:

- younger than age 30
- started puberty early, at age 11 or younger
- Bleed heavily during periods (menorrhagia)
- Irregular menstrual bleeding (metrorrhagia)
- family history of menstrual cramps (dysmenorrhea)
- Smoker

AND…Diet and Lifestyle!

https://www.mayoclinic.org/diseases-conditions/menstrual-cramps/symptoms-causes/syc-20374938
ROLE OF PROSTAGLANDINS

PHYSIOLOGICALLY ACTIVE LIPID COMPOUNDS CALLED EICOSANOIDS DERIVED FROM ARACHIDONIC ACID

Shortly before a period begins, the endometrial cells that form the lining of the uterus make large amounts of prostaglandins.

When these cells break down during menstruation, the prostaglandins are released.

They constrict the blood vessels in the uterus and make its muscle layer contract, causing painful cramps.

Some of the prostaglandins also enter the bloodstream, causing headache, nausea, vomiting, and diarrhea.
Excessive pain or cramping during menstruation may be related to excessive uterine activity resulting from higher prostaglandin levels.

NSAIDS & Oral contraceptives reduce production of prostaglandins and decrease menstrual flow/ inhibiting the growth of the endometrial cell layer.

90 percent of women who take oral contraceptives experience reduced menstrual pain.

Omega-6 fatty acids

C18:2n6 Linoleic acid

C18:3n6 γ-Linolenic acid

C20:3n6 Dihomo-γ-Linolenic acid

C20:4n6 Arachidonic acid

cyclooxygenase

Prostaglandins H₂

PGF₂α synthase

Series 1 Prostaglandins

Omega-3 fatty acids

C18:3n3 α-Linoleic acid

C18:4n3 Stearidonic acid

C20:4n3 Eicosatetraenoic acid

C20:5n3 Eicosapentaenoic acid

prostaglandin synthase

Series 3 Prostaglandins
BEYOND NSAIDS AND BIRTH CONTROL: INTEGRATIVE STRATEGIES FOR PMS

**DIET**
- Complex Carbs/Fiber
- Calcium Rich Foods
- Higher Omega 3
- Higher Mineral Rich Foods
- Lower Fat
- Lower Sugar
- Lower Salt

**SUPPLEMENTS**
- Calcium
- Magnesium
- Omega 3’s
- B Vitamins
- VIT D?
- Herbal and Other

**LIFESTYLE**
- Sleep
- Stress Reduction
- Exercise
- Yoga
- Body Work
- Acupuncture
- Massage
NUTRITION STRATEGIES
ANTI-INFLAMMATORY DIET

Can bring down levels of CRP and other inflammatory markers associated with PMS symptoms

IDEAS: Add herbs and spices to all meals. Eat more fish. Reduce meat and add in beans. Sautee mushrooms

Bertone-Johnson ERHum Reprod. 2014 Sep;29(9):1987-94
COMPLEX CARBOHYDRATES MAY HELP WITH MOOD AND CRAVINGS AND CAN MAINTAIN HEALTHY BLOOD SUGAR

- Whole grains
- Starchy Vegetables
- Beans and legumes
- Many contain B6 which may be helpful for mood support
- Fiber is key for elimination and hormone balance

1. https://www.acog.org/Patients/FAQs/Premenstrual-Syndrome-PMS?IsMobileSet=false
DIETARY STRATEGIES FOR PMS

LOW SUGAR

IDEAS:
- Balanced meals to prevent cravings
- Hydration
- Naturally sweet foods: dates, figs, sweet potatoes; cocoa nibs mixed with honey
- Bitter foods to help dampen cravings

LOW SODIUM

IDEAS:
- Herbs, spices
- Roasting
- Pepper
- Gomasio
- Rinse canned foods

HIGH FIBER

IDEAS:
- Help to reduce estrogen levels and help the body eliminate estrogen
- IDEAS: Hummus; Grain and bean bowls; add Nuts and seeds to salads;

https://www.acog.org/Patients/FAQs/Premenstrual-Syndrome-PMS?isMobileSet=false
KEEP BLOOD SUGAR BALANCED TO SUPPORT MOOD

1. Eat regularly & don’t skip meals
2. Smaller meals may also help
3. Combine carbs with fat/protein
VITAMIN AND MINERAL INTAKE MATTERS!

HIGHER INTAKE IRON, POTASSIUM, ZINC:

- Associated with fewer PMS symptoms
- Additional studies are needed to confirm these relations.\(^1\)

VITAMIN D: Women with a higher vitamin D intake (median, 706 IU/day) had a lower risk for PMS than women in the lowest quintile (median, 112 IU/day). \(^2\)

- **NOTE:** While higher dietary vitamin D intake was associated with lower risk of PMS, serum vitamin D levels weren’t significantly associated with outcome. \(^3\)

- **IDEAS:** Add in Mushrooms, salmon, eggs,
- Test for levels and consider supplementation

B VITAMINS?

- Intakes of thiamine and riboflavin from food sources were each inversely associated with incident PMS. 1
- No significant associations between incident PMS and dietary intakes of niacin, vitamin B-6, folate, and vitamin B-12 were observed in some studies.
- Some limited evidence suggest high doses (up to 100 mg/day) of B6 may help. 3
- Intake of B vitamins from supplements was not associated with a lower risk of PMS. 1,2

3. https://lpi.oregonstate.edu/mic/vitamins/folate#disease-prevention
CALCIUM RICH FOODS MAY ALSO BE OF BENEFIT

**Study:** A low intake of calcium (median, 529 mg/d), Vs participants with the highest intake (median, 1283 mg/d) had a higher risk of PMS symptoms. ¹,²

**SOURCES:** ³

- Dark leafy greens: 1 cup Collards = 357 mgs
- Sesame: 2 Tbs Tahini = 128 mgs
- Black Eyed Peas: 1 cup = 211 mgs
- Tofu: 3 oz = 163 mgs
- Sardines: 3 oz = 325 mgs
- Dairy as tolerated or preferred
  - NOTE: Also a source of Arachidonic Acid

³. https://www.hsph.harvard.edu/nutritionsource/calcium-sources/
LOWER FAT DIET HAS BEEN SHOWN TO BE EFFECTIVE FOR REDUCING PMS ISSUES

EG: 1800 CALORIES PER DAY

- 25-30% cals from fat = Low fat
  - = 450-540 cals
  - = 50-60 grams/day

Focus on Omega 3’s and MUFA’s

https://www.acog.org/Patients/FAQs/Premenstrual-Syndrome-PMS?IsMobileSet=false
PROSTAGLANDIN PRODUCTION

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Series 3 Prostaglandins

prostaglandin synthase
INCREASE OMEGA 3-RICH FOODS

Omega 3’s shown to suppress pain

- They reduce inflammatory prostaglandin production
- Shown to be effective in reducing symptoms of dysmenorrhea

IDEAS: walnuts, chia seeds, fish, Omega 3 rich eggs, flaxseed, soybeans

# FOOD SOURCES: ARACHIDONIC ACID

<table>
<thead>
<tr>
<th>Item</th>
<th>Preparation</th>
<th>Arachidonic Acid Content (mg/100 g cooked edible portion)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Beef</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Regular ground beef</td>
<td>pan fried</td>
<td>80</td>
</tr>
<tr>
<td>Liver</td>
<td>pan fried</td>
<td>350</td>
</tr>
<tr>
<td>Tenderloin</td>
<td>broiled</td>
<td>50</td>
</tr>
<tr>
<td>Dairy</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Egg (whole)</td>
<td>poached</td>
<td>90</td>
</tr>
<tr>
<td>Egg (yolk)</td>
<td>raw (fresh)</td>
<td>280</td>
</tr>
<tr>
<td>Milk (cow)</td>
<td>whole (fresh)</td>
<td>trace</td>
</tr>
<tr>
<td>Poultry</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Drumstick (chicken)</td>
<td>roasted</td>
<td>120</td>
</tr>
<tr>
<td>Wing (chicken)</td>
<td>roasted</td>
<td>170</td>
</tr>
<tr>
<td>Turkey (all classes)</td>
<td>roasted</td>
<td>210</td>
</tr>
<tr>
<td>Turkey (skin only)</td>
<td>roasted</td>
<td>110</td>
</tr>
<tr>
<td>Other</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Lamb (leg)</td>
<td>broiled</td>
<td>60</td>
</tr>
<tr>
<td>Veal (trimmed cuts)</td>
<td>broiled</td>
<td>110</td>
</tr>
<tr>
<td>Deer</td>
<td>roasted</td>
<td>130</td>
</tr>
<tr>
<td>Fish</td>
<td>broiled</td>
<td>varies</td>
</tr>
</tbody>
</table>

*See references 21 and 22.*
BE MINDFUL OF EXCESSIVE OMEGA 6 FOOD SOURCES

- Note that Omega 6’s DO have some anti-inflammatory properties
  - Sunflower seeds, tahini, hemp

- Higher concentrations in common cooking oils:
  - Corn oil
  - Soybean oil (vegetable oil)
  - Sunflower and Safflower oil
  - Often used in restaurants
HIGHLIGHT ON SPECIFIC FOODS: TRY EXPERIMENTING

**FLAX**

1,2

2 small studies: one using 25 grams (3-4 T) of daily flaxseed found benefit in consuming daily
(Omega 3 s + Fiber)

**IDEAS:** flax in smoothie, bake into muffins and breads, put atop oatmeal, yogurt.

**NOTE:** Natural Medicines Database found insufficient evidence for this to be rated.

**SOY PHYTOESTROGENS**

One study found **68 mg** of isoflavones per day to be effective in reducing the PMS symptoms of cramps, breast tenderness, and headache. 3

Also correlated with a reduction in adverse symptoms **during the menstrual phase.** 4

1. [https://www.hindawi.com/journals/ijfm/2014/174532/](https://www.hindawi.com/journals/ijfm/2014/174532/)
**RD Resources for Professionals: Isoflavones in Vegetarian Diets**

### Isoflavone Content of Selected Foods

<table>
<thead>
<tr>
<th>Food</th>
<th>Total Isoflavone Content (mg)</th>
<th>Food</th>
<th>Total Isoflavone Content (mg)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Soybeans, mature, ½ cup, cooked</td>
<td>47</td>
<td>Miso, 2 tablespoons</td>
<td>14.7*</td>
</tr>
<tr>
<td>Tofu, firm, ½ cup</td>
<td>38.8*</td>
<td>Soy imitation chicken, 3 ounces</td>
<td>13.2*</td>
</tr>
<tr>
<td>Soy flour, full-fat, ¼ cup</td>
<td>37.3</td>
<td>Soy hotdog, 2 ounces</td>
<td>9.7*</td>
</tr>
<tr>
<td>Tempeh, ½ cup</td>
<td>36</td>
<td>Soy cheese, 1 ounce</td>
<td>8.8*</td>
</tr>
<tr>
<td>Tofu, silken, ½ cup</td>
<td>31.2*</td>
<td>Soy infant formula, 4 ounces</td>
<td>6.5*</td>
</tr>
<tr>
<td>Tofu, regular, ½ cup</td>
<td>29.7*</td>
<td>Soy veggie burger, 3 ounces</td>
<td>8.4*</td>
</tr>
<tr>
<td>Edamame (green soybeans), ½ cup, cooked</td>
<td>28</td>
<td>Kidney beans, ½ cup, cooked</td>
<td>&lt;1</td>
</tr>
<tr>
<td>Soy flour, defatted, ¼ cup</td>
<td>27.5</td>
<td>Peanuts, 1 ounce</td>
<td>&lt;1</td>
</tr>
<tr>
<td>Soy protein isolate, 1 ounce</td>
<td>27.3</td>
<td>Pinto beans, ½ cup, cooked</td>
<td>&lt;1</td>
</tr>
<tr>
<td>Soymilk, 8 ounces</td>
<td>23*</td>
<td>Flaxseed, 1 tablespoon</td>
<td>0</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Soy oil, 1 tablespoon</td>
<td>0</td>
</tr>
</tbody>
</table>

*Isoflavone content varies according to brand*

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**ISOFLAVONES (> 68MGS)**

**IDEAS:** EDAMAME AS SNACK; TOFU PUDDING, TEMPEH STIR FRY, ORGANIC SOY MILK.

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EXPERIMENT WITH FOOD BASED DIURETICS

Diuretics are recommended to help with water retention

- **Natural food based diuretics:** celery, parsley, dandelion, cucumber, cilantro

- **IDEAS:** add to smoothies, put in veggie salads or tuna salads.
  - Try Dandelion Tea (only studied in animal studies) ²

1. [https://www.acog.org/Patients/FAQs/Premenstrual-Syndrome-PMS?IsMobileSet=false](https://www.acog.org/Patients/FAQs/Premenstrual-Syndrome-PMS?IsMobileSet=false)
BE MINDFUL OF ENDOCRINE DISRUPTING CHEMICALS

“Endocrine disruptors are chemicals that may interfere with the body’s endocrine system and produce adverse developmental, reproductive, neurological, and immune effects in both humans and wildlife.” ¹

- Look for BPA free cans
- Use Kleen Kanteen or glass water bottles

Avoid microwaving in plastic
Shoot for organic/persticide free when possible
- Pesticides are also known to be EDC³

BPA FREE BRANDS⁶
Annie’s Homegrown
Earthpure
Farmer’s Market
Imagine
Muir Glen
Native Forest
Natural Value

¹ https://www.niehs.nih.gov/health/topics/agents/endocrine/index.cfm
² https://www.ncbi.nlm.nih.gov/pmc/articles/PMC5751186/
³ https://www.niehs.nih.gov/health/topics/agents/endocrine/index.cfm
“Estrogen dominance” is the result of exposure to estrogen mimics in the environment, chronic stress and inflammation, excess alcohol, adiposity and some medications.
POTENTIAL OF CRUCIFEROUS VEGETABLES

- Glucosinolates help upregulate enzymes that help liver to boost detoxification process 1
- May support healthy estrogen balance
- Support elimination of environmental chemicals like endocrine disruptors (BPA) 2
- IDEAS: roast, steam lightly, dip in hummus, slaws,

IDEAS:

- BROCCOLI
- CAULIFLOWER
- CABBAGE
- KALE
- BRUSSEL SPROUTS:
- BOK CHOY
- KOLHLRABI
- WATERCRESS
- HORSERADISH
- DAIKON
- ROMANESCO
- MUSTARD
- COLLARD GREENS
- TURNIPS
- RUTABAGA
- RADISH

NOTE: Careful not to overcook

1. https://lpi.oregonstate.edu/mic/dietary-factors/phytochemicals/indole-3-carbinol
2. https://www.hindawi.com/journals/jeph/2012/713696/
**GINGER**

- Shown in several studies to reduce the symptoms associated with PMS
- Proposed mechanism: affects the prostaglandin system (inflammation)
- It may also reduce bloating
- **IDEAS:** Throw in smoothie, sauté with greens, bake into muffins, ginger tea, trial supplementation

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https://www.hindawi.com/journals/isrn/2014/792708/
MACA:

- Indigenous Andean plant that belongs to the brassica (mustard) family.
- Cultivated as a root crop for at least 2,000 years and used both nutritionally and medicinally.
- Touted to help with female hormone imbalance and menstrual irregularities.
- Studies very small or on animals & anecdotal evidence. More clinical studies are needed to confirm these results.
- Can be costly.
MAY INCREASE PMS SYMPTOMS

- Conflicting studies on the results.
- Worth an experiment!
  - According to the studies, the effects were often dose dependent
- The American College of Obstetricians and Gynecologists (ACOG) currently recommends that people who experience premenstrual syndrome (PMS) avoid caffeine consumption
- IDEAS: Mushroom Tea, Teechino, herbal teas, green teas, “Maca latte” with almond milk! Green tea has anti-inflammatory properties

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MAY INCREASE PMS SYMPTOMS

- Meta-Analysis: moderate increase in the risk of PMS. (1)
- Heavy drinking yielded a larger increase in the risk than any drinking
- Correlation? Causation?
- Worth an experiment!
- IDEAS: Seltzer with bitters or splash of juice; kombucha; True Lemon

1. https://www.ncbi.nlm.nih.gov/pmc/articles/PMC5905748/
POSSIBLE SUPPLEMENTAL RECOMMENDATIONS

Calcium: 1200mgs/day

Magnesium\textsuperscript{2,3} : for cramps, migraines and PMS symptoms
  - 200-400mgs: Mg Glycinate or Mg Citrate if constipation is an issue.

Chaste Tree Berry\textsuperscript{4}: (Vitex) Study: 20mgs/day over 3 cycles improved PMS sx
- Avoid if you have hormone sensitive cancer
- **Meta Analyses:**\textsuperscript{5} 13 studies reported positive effects (NOTE: high risk of bias and heterogeneity in studies)
- Vitex is approved by the German Commission E for use in menstrual cycle irregularities, premenstrual disturbances, and mastodynia (breast pain).\textsuperscript{6}

\footnotesize{1. https://www.acog.org/Patients/FAQs/Premenstrual-Syndrome-PMS?IsMobileSet=false
2. https://www.acog.org/Patients/FAQs/Premenstrual-Syndrome-PMS?IsMobileSet=false
4. https://www.ncbi.nlm.nih.gov/pmc/articles/PMC26589/
FISH OIL OR ALGAE OIL SUPPLEMENTATION

IDEAS: SPRINKLE ON SALAD AS DRESSING

One study (n=120) showed 1000mgs fish oil supplementation to be as effective as ibuprofen.

Others showed improvement with back and abdominal pain with even 300mgs.

2. East Mediterr Health J. 2010 Apr;16(4):408-13
POSSIBLE SUPPLEMENTAL RECOMMENDATIONS

**Pycnogenol**: (Pine Bark): contain a unique combination of procyanidins, bioflavonoids and organic acids

- Studies have shown a clear improvement in terms of **reduction of menstrual cramps and pain** in 73% of women following administration of **30-100mgs** Pycnogenol day for one month. ³,⁴

- **2018 Meta-analyses**: suggest consumption can decrease the level of CRP and have anti-inflammatory effect. ¹

- Small study: n= 58: 30 mg capsules orally twice daily for 48 weeks for **endometriosis**. ²
  - Symptoms from severe to moderate

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HERBAL REMEDIES

RED RASPBERRY LEAF TEA (1,2, 3)

- Traditionally used to help decrease symptoms associated with cramps
  - Anti-inflammatory Polyphenol content
  - High mineral content
  - Potential uterine tonic: contains “fragarine” which inhibits uterine action

- Infuse leaves for 30-60 minutes and enjoy warm or cold. Take away from medicines.

NETTLES (2,4)

- Natural Diuretic
- Anti-inflammatory Polyphenol content
- Source of calcium, magnesium, iron
- May be helpful for heavy periods

1. https://www.ncbi.nlm.nih.gov/pmc/articles/PMC4931538/
2. https://www.ncbi.nlm.nih.gov/pmc/articles/PMC4931538/
3. https://www.ncbi.nlm.nih.gov/pmc/articles/PMC2162889/
Some evidence that taking pyridoxine by mouth can improve PMS symptoms including breast pain.

- **Daily dose is 50-100 mg.** Over 100 mg don’t appear to have additional benefit, and may increase the risk for harmful side effects.

A meta-analysis of nine published Trials: 1,000 women with PMS

- Vitamin B6 is more effective in reducing PMS symptoms than placebo,
- Studies analyzed were small and several had methodological weaknesses

**RCT: N = 94** women found that **80 mg pyridoxine** taken daily over the course of three cycles was associated with statistically significant reductions in a broad range of PMS symptoms, including moodiness, irritability, forgetfulness, bloating, and, especially, anxiety

1. [https://ods.od.nih.gov/factsheets/VitaminB6-HealthProfessional/](https://ods.od.nih.gov/factsheets/VitaminB6-HealthProfessional/)
MAINTAINING HEALTHY WEIGHT, VARIES FROM PERSON TO PERSON

- A higher BMI has been shown to be significantly and positively correlated with physical and psychological premenstrual symptoms.¹,²

- Weight gain has been associated with a significantly higher risk of PMS.

- Additional studies are needed to assess whether losing weight would benefit overweight or obese women who currently experience PMS.³

- Explore with & coach around weight loss if appropriate

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¹ http://oaji.net/articles/2015/1170-1427964872.pdf
LIFESTYLE RECOMMENDATIONS: SLEEP & EXERCISE

SLEEP

- Regular sleep schedule:
  - Getting up and going to bed around the same time, even on weekends, can help reduce mood swings and fatigue.
  - Hormonal changes may influence sleep,
  - Aim to get plenty of rest leading up to a woman’s cycle if particularly vulnerable to sleep changes during cycle. ¹,²

EXERCISE

- Moderate aerobic exercise can help reduce PMS symptoms for many women, partially because exercise helps improve energy and mood.

- Can naturally increase serotonin production. Serotonin can have a positive impact on mood. ³,⁴

³. https://www.ncbi.nlm.nih.gov/pmc/articles/PMC2077351/
YOGA

- A study published in October 2017 in the *Journal of Bodywork and Movement Therapies* concluded that women who practiced yoga **30 minutes per day, two days a week, for 12 weeks at home** had a significant improvement in menstrual pain and physical fitness over the control group.

- Another study, published in January 2017 in the *Journal of Alternative and Complementary Medicine*, found that **Hatha yoga practice was associated with a reduction in levels of chronic pelvic pain** in women with endometriosis.
YOGA AND MEDITATION

- N= 40 nursing students
- Intervention= 60 minute yoga program (including relaxation and meditation) once/week for 12 weeks
- Outcome: Yoga participants experience significant decreases in menstrual cramps and distress levels compared to control group\(^1\)
- Breathing/Meditation all helpful for stress relief which can accompany PMS\(^2\)
Stress Reduction & Mgmt

- **Perceived stress** has been shown to increase severity of premenstrual symptoms.  
  
- **PMS may increase stress** in everyday life during the premenstrual period of the cycle, or the first few days of the cycle.

- **Lavender oil** may be helpful for mood and anxiety.  
  - Diffuse lavender oil or use a body oil with the scent of lavender.

Body Work

- **Acupuncture**
  - May also be effective for reducing PMS-related symptoms:
  - Two additional studies found that having acupuncture **3-7 days prior** to menses was more effective than during menses.  
  - **One study**: significant improvement in menstrual pain compared to baseline.

2. [https://www.ncbi.nlm.nih.gov/pmc/articles/PMC3612440/](https://www.ncbi.nlm.nih.gov/pmc/articles/PMC3612440/)
MASSAGE AS A FORM OF RELAXATION

RCT: “Comparison of the Effect of Massage Therapy and Isometric Exercises“

- Pain intensity significantly decreased in both the massage and exercise groups, with a more significant reduction seen in the massage group.

- Anxiety also significantly decreased in the massage group after the third cycle.\(^1\)

RCT: “The Effect of Aromatherapy Abdominal Massage"

The level and duration of menstrual pain and amount of bleeding were significantly lower in the aromatherapy group than in the placebo group.\(^2\)

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### OTHER CONSIDERATIONS

<table>
<thead>
<tr>
<th>Ask</th>
<th>Ask your physician about getting thyroid and hormone levels checked to ensure that the endocrine system is in balance. Talk to ObGyn about endometriosis.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Check</td>
<td>Check with a counselor if associated mood changes become overwhelming.</td>
</tr>
<tr>
<td>Keep</td>
<td>Keep a diary of symptoms and diet/activities/sleep to determine any personal triggers for PMS symptoms.</td>
</tr>
<tr>
<td>Reach out</td>
<td>Reach out to others (friends, family, partner) for support.</td>
</tr>
<tr>
<td>Engage in</td>
<td>Engage in activities that you enjoy and take time during this time of the month to slow down and relax.</td>
</tr>
</tbody>
</table>
APPS FOR TRACKING PMS SYMPTOMS, OVULATION

- Clue Period Tracker:

- My Calendar:

- My Menstrual Diary:

- The Flow App:
  - http://www.theflow-app.com/
SUMMARY RECOMMENDATIONS

NUTRITION
- Low fat/sugar/salt (DASH/Anti-inflammatory diet)
- High fiber and complex carbs
- Keep blood sugar balanced & support liver function
- Ensure diet rich in minerals anti-inflammatory foods: AXO & Omega 3’s
  - Flax, soybeans, ginger, crucif veggies, green juices, fish,
- Experiment with reducing caffeine and arachidonic acid rich foods
- Consider supplements: Calcium, Mg, Fish oil.

LIFESTYLE
- Reduce and address stress and sleep
- Consider acupuncture, massage, aromatherapy, heating pads
- Encourage movement, yoga
CASE STUDY FOR ASSESSMENT: LISA

SOCIAL HX:

34 yo; Getting MBA; Working part time job as well. Very stressed

HEALTH CONCERNS & SYMPTOMS:

Moody before period. Heavy periods. Terrible monthly cramps accompanied by headaches; Missing class/work as a result.
Currently overweight. 5’6 180lbs. Usually 135lbs. Not comfortable in her body
Health is about more than GENETICS

- Nutrition
- Sleep
- Stress
- Symptoms (onset?)
- Exercise
- Environ-ment
- Family & Personal Medical History
- Blood Chemistries
- Culture/Identity

What is important to the patient?

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CASE STUDY FOR ASSESSMENT: LISA

- **Meds:** NSAIDS regularly
- **Supps:** Centrum Multivitamin (sporadic)
- **Exercise:** Fairly sedentary, sitting a lot at school, in car, at desk
- **Sleeps:** 6 hours night. Not very restful.
- **Stress & Social Connections:** High stress; very little time to do the things she loves: (used to go on girls vacations; reading and documentaries)
- **Environment:** “Germ freak” so always cleaning home and office desk with harsh chemicals
- **GI FUNCTION:** mostly constipated with periodic loose stools.
- **LABS:**
  - Low HDL
  - Elevated CRP
  - Low Vitamin D
**LISA: TYPICAL DAY OF MEALS**

**BKFST:** Chicken sausage & 2 eggs. 2 cups coffee with 2 scoops of coffee mate & 2 T of sugar. Sometime skips. Just has coffee

**Snack:** orange and Frappuchino

**Lunch:** Turkey & bacon sandwich with lettuce, tomato, cheese, 1T mayo on white roll + bag of potato chips. Or microwaves frozen meal from box. Sweetened Iced black tea

**Snack:** Bag of M & M’s. Café Latte

**Dinner:** 1 ½ cups spaghetti with ¾ cup canned tomato marinara sauce + 1/3 cup of mozzarella cheese; Side salad with ½ cup baby carrots and ranch dressing. 2-3 glasses of wine or beer most nights.

**Dessert:** 1 cup ice cream. Craves around her period.

**Bevs:** 2-3 Bottles Aquafina water.

**OTHER NOTES:** eats at desk and on the go. Sometimes binges at night.
DETECTIVE CAPS ON....

- Excesses?
- Deficiencies?
- Connections?
- Lifestyle connections
- What's our assessment? Recommendations?
1. Increase Omega 3 fatty acids in diet. Supplement likely needed.
2. Increase Anti-oxidant and Mg and Ca rich food: add dark leafy greens to sandwich and add variety to salad. Include nuts as snack.
3. Add in fiber rich foods: WG bread/pasta; hummus to sandwich; Vegetarian frozen meal?
4. Suggest Vitamin D and Mg/Ca supplement
5. Replace 1 serv coffee with a tea option or alcohol with seltzer
6. Increase physical activity – dance in the kitchen?
7. Address & Brainstorm sleep and stress reduction strategies
   1. Deep breathing, yoga poses before bed, lavender body oil
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QUESTIONS?

Dietitians in Integrative and Functional Medicine
a dietetic practice group of the
Academy of Nutrition and Dietetics

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- “Mary’s Nutrition Show”

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