ENDOMETRIOSIS-EMPOWERMENT

Strategies for Advocacy, Management and Care

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ENDOMETRIOSIS & FERTILITY SPECIALIZED

Working in the space since 2019 supporting women with pain improvements, bloat, energy & fertility



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AGENDA

WHAT IS ENDOMETRIOSIS?

Symptoms

DIAGNOSIS

New diagnostic tools, non-diagnostic labs to consider in your assessment

KNOWN FACTORS

Hormones, genetics, inflammation, microbiome, stress, nervous system involvement

MEDICAL MANAGEMENT, NUTRITION



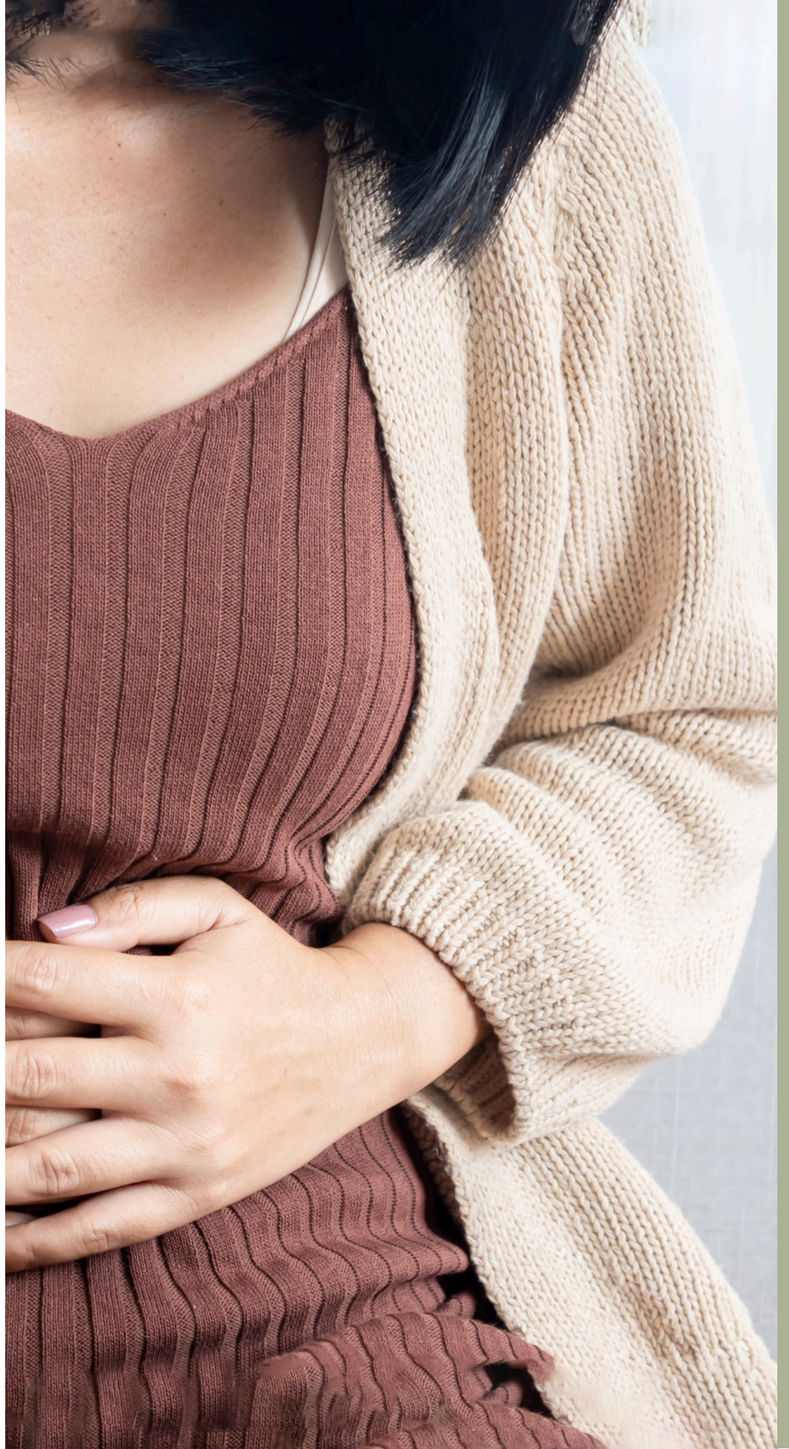
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WHAT IS ENDOMETRIOSIS?

Endometriosis is a complex condition characterized by an estrogen dependent, chronic inflammatory process and immune system dysfunction. Tissue similar (but not identical) to the endometrium implants in, on or around organs of the body, often causing severe pain and infertility.

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SYMPTOMS OF ENDO



Symptoms of endometriosis - heavy, clotty bleeding, severe bloating & pain, fatigue, general weakness, nausea, mood changes, ovulation pain, severe pain, infertility, pain with BMs or urination, pain with sex, bowel symptoms, rectal pain, susceptibility to autoimmune conditions

Symptoms of bowel endo can be non-specific and present as pain with periods and pain with intercourse. Bowel related symptoms include diarrhea, constipation, difficulty passing stool, and rarely bowel obstruction

Habib N, Centini G, Lazzeri L, Amoruso N, El Khoury L, Zupi E, Afors K. Bowel Endometriosis: Current Perspectives on Diagnosis and Treatment. Int J Womens Health. 2020 Jan 29;12:35-47. doi: 10.2147/IJWH.S190326. PMID: 32099483; PMCID: PMC6996110.

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DIAGNOSIS & DIAGNOSTIC TOOLS

Chen-Dixon K, Uzuner C, Mak J, Condous G. Effectiveness of ultrasound for endometriosis diagnosis. Curr Opin Obstet Gynecol. 2022 Oct 1;34(5):324-331. doi: 10.1097/GCO.0000000000000812. PMID: 36036477
Kido A, Himoto Y, Moribata Y, Kurata Y, Nakamoto Y. MRI in the Diagnosis of Endometriosis and Related Diseases. Korean J Radiol. 2022 Apr;23(4):426-445. doi: 10.3348/kjr.2021.0405. Epub 2022 Mar 8. PMID: 35289148; PMCID: PMC8961012..
Simpson CN, Lomiguen CM, Chin J. Combating Diagnostic Delay of Endometriosis in Adolescents via Educational Awareness: A Systematic Review. Cureus. 2021 May 20;13(5):e15143. doi: 10.7759/cureus.15143. PMID: 34164243; PMCID: PMC8214575.

Encourage seeking out a formal diagnosis. Simpson, 2022 shows the longer the condition goes undiagnosed, the more time there is for central sensitization to progress

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Excision	Transvaginal ultrasound
MRI (DIE, cysts)	Saliva test (genetic sequencing + AI)
Blood test (microRNAs or hormonal signatures)	Endosure (sensors electrical signals in the gut)

- Specific patterns in MicroRNA (saliva), cleared for commercial use; high accuracy
- Clues: microRNAs, proteins + hormones that correspond to an endo diagnosis (blood)
- Altered by inflammation & nerve irritation (Endosure)

DIAGNOSIS & YOUR ROLE CONTINUED

- If accessible or within your scope (and the patient needs support accessing a diagnosis) screen:
  - Symptoms: dyspareunia (painful intercourse), dysmenorrhea (painful menstruation), uterosacral tenderness
  - Deep, aching pain in the lower abdomen, back or pelvis, pain with penetration, pain with passing stools, irritability, fatigue
- Zhang 2023 showed taking a family history resulted in an earlier diagnosis of endometriosis and severe pain with menstruation
  - This study also showed that higher Ca-125 levels corresponded with more severe pain with menstruation and a diagnosis of endometriosis.

Zhang JJ, Guo HY, Shang CL, Liu L, Huang CY, Wu ZX, Li Y, Wu Y, Li HJ, Liang HM, Xu B. [Investigation of familial tendency of endometriosis]. Zhonghua Fu Chan Ke Za Zhi. 2023 Jul 25;58(7):501-507. Chinese. doi: 10.3760/cma.j.cn112141-20221222-00768. PMID: 37474323.

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DIAGNOSIS & YOUR ROLE CONTINUED

- Scans for endometrioma (100% accurate diagnosis if endo is visible)
- Test Ca-125 - glycoprotein produced by ovaries & endometrial tissue (avoid testing during menstruation)
    - NOT diagnostic criteria, but a ca-125 >30 was shown to have 92% specificity (meaning few false positives of an endo diagnosis)
- + Ca-125 correlated with infertility in endometriosis patients
- Another study by Su (2024) showed a Ca-125 >25.2 U/mL, Ca19-9 >13.59 U/mL and LDH >125.5 U/L independently correlated to higher odds of endo

Hirsch M, Duffy JMN, Deguara CS, Davis CJ, Khan KS. Diagnostic accuracy of Cancer Antigen 125 (CA125) for endometriosis in symptomatic women: A multi-center study. Eur J Obstet Gynecol Reprod Biol. 2017 Mar;210:102-107. doi: 10.1016/j.ejogrb.2016.12.002. Epub 2016 Dec 5. PMID: 27987404.
Su C, Yang J, Ding J, Ding H. Differential diagnosis of ovarian endometriosis cyst versus ovarian cystadenoma based on serum lactate dehydrogenase combined with CA-125 and CA19-9: A retrospective cohort study. Medicine (Baltimore). 2024 Nov 29;103(48):e40776. doi: 10.1097/MD.0000000000040776. PMID: 39612391; PMCID: PMC11608665.

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OTHER HELPFUL LABS TO RUN:

- Vitamin D - >50ng/dL or 125nmol/L - correlation with endometriomas
- AMH - secreted by the ovaries so abnormally low levels relative to age can be indicative of high inflammation or presence of endometriosis lesions on /around the ovaries
- Ferritin & iron panel - to determine if anemia of chronic disease/ inflammation is present
- CBC - indicative of stress, nutrient deficiencies and dysfunction within the immune system
- Luteal phase progesterone - due to anti-inflammatory and anti-growth promoting nature, can be something you intervene on with patient to help with symptoms
- Zinc (due to association between zinc deficiency and endometriomas)

Ciavattini A, Serri M, Delli Carpini G, Morini S, Clemente N. Ovarian endometriosis and vitamin D serum levels. Gynecol Endocrinol. 2017 Feb;33(2):164-167. doi: 10.1080/09513590.2016.1239254. Epub 2016 Nov 4. PMID: 27809683.
Onuma T, Mizutani T, Fujita Y, Ohgami N, Ohnuma S, Kato M, Yoshida Y. Zinc deficiency is associated with the development of ovarian endometrial cysts. Am J Cancer Res. 2023 Mar 15;13(3):1049-1066. PMID: 37034203; PMCID: PMC10077050.

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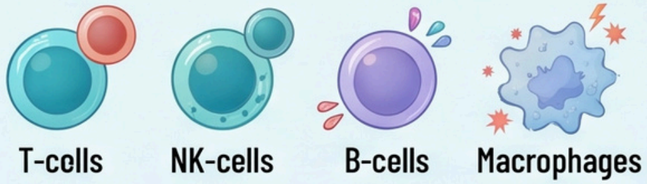


ENDOMETRIOSIS: SYSTEMIC EFFECTS OVERVIEW.

ENDOMETRIOSIS: A COMPLEX SYSTEMIC INFLAMMATORY & HORMONAL CONDITION.

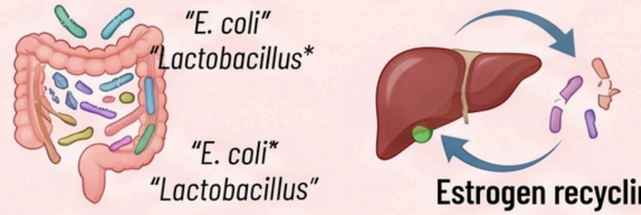


IMMUNE DYSFUNCTION



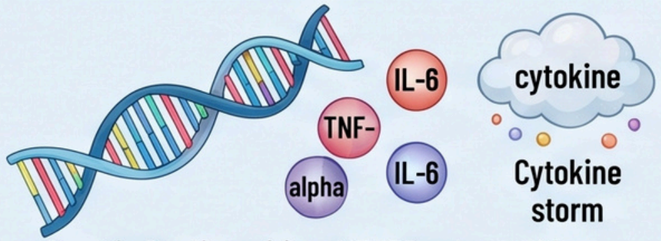
Suppressed T & NK cell activity allowing lesion establishment.
Dysfunctional B & Macrophages unable to clear debris.

GUT MICROBIOME IMBALANCE



Dysbiosis: Increased harmful bacteria, weakened gut integrity.
Impaired Estrobolome: More estrogen recirculated back into the body.

GENETICS & CHRONIC INFLAMMATION



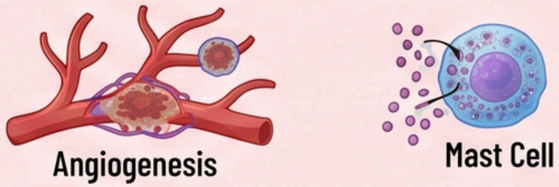
Genetic Predisposition: MTHFR polymorphism.
Cytokine Storm: Overproduction of inflammatory cytokines promoting lesion survival.

HORMONAL IMBALANCE



Progesterone Resistance: Less anti-inflammatory action.
High Estrogen Dominance: Promoting growth of endometrial-like tissue.

ANGIOGENESIS & HISTAMINE



Increased VEGF: Stimulates new blood vessel formation. **Histamine Loop:** Estrogen stimulates Mast Cells; Histamine enhances VEGF.

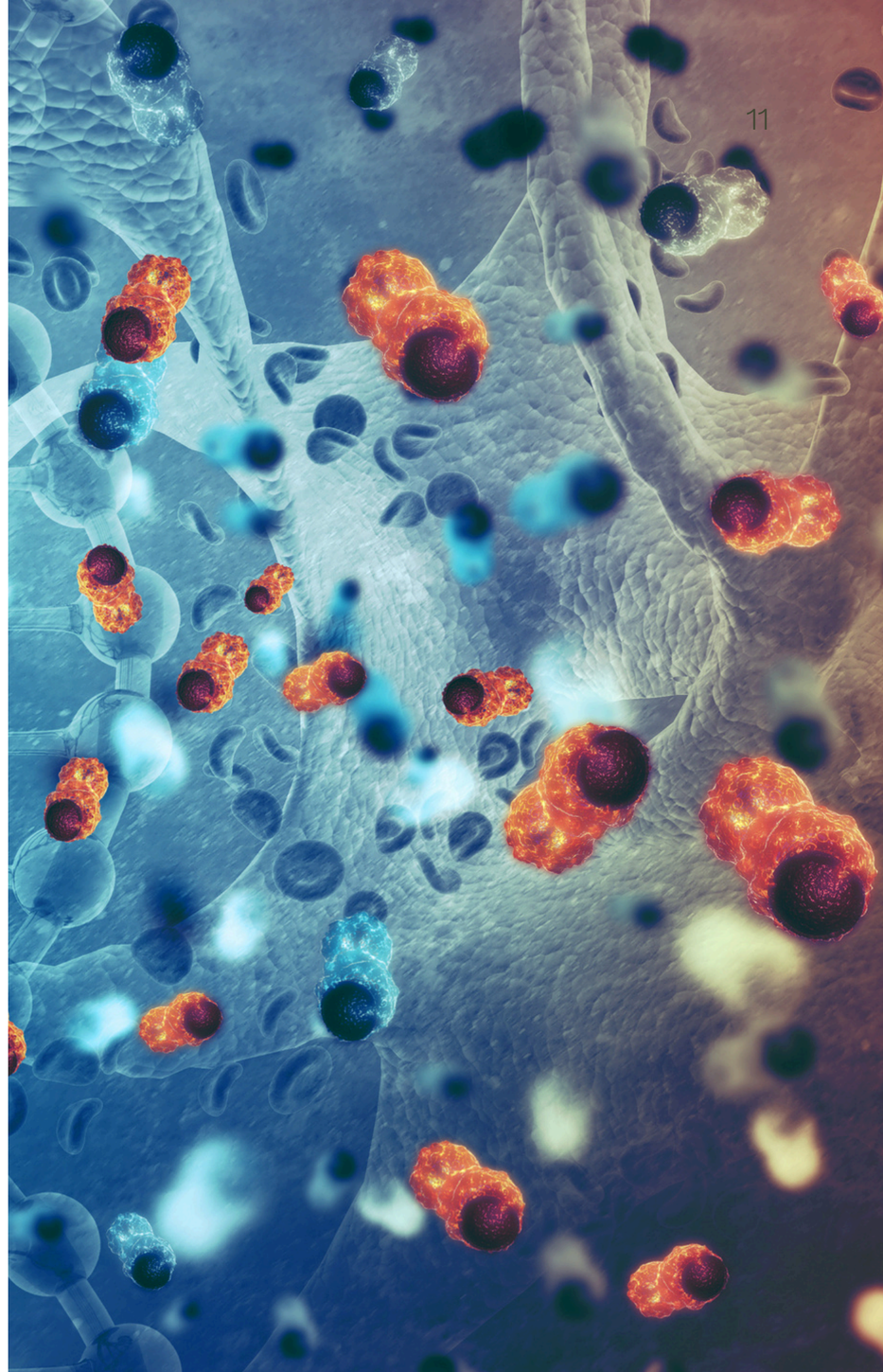
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Riccio LDGC, Santulli P, Marcellin L, Abrão MS, Batteux F, Chapron C. Immunology of endometriosis. Best Pract Res Clin Obstet Gynaecol. 2018 Jul;50:39-49. doi: 10.1016/j.bpobgyn.2018.01.010. Epub 2018 Feb 8. PMID: 29506962
Khan KN, Kitajima M, Hiraki K, Fujishita A, Sekine I, Ishimaru T, Masuzaki H. Immunopathogenesis of pelvic endometriosis: role of hepatocyte growth factor, macrophages and ovarian steroids. Am J Reprod Immunol. 2008 Nov;60(5):383-404. doi: 10.1111/j.1600-0897.2008.00643.x. PMID: 19238747.
Leonardi M, Hicks C, El-Assaad F, El-Omar E, Condous G. Endometriosis and the microbiome: a systematic review. BJOG. 2020 Jan;127(2):239-249. doi: 10.1111/1471-0528.15916. Epub 2019 Sep 19. PMID: 31454452.

IMMUNE INVOLVEMENT - ACTION ITEMS

HOW YOU CAN HELP: VITAMIN D & OTHER FAT SOLUBLE

- Adequate vitamin D levels through diet and/or supplementation
- Fat soluble vitamin found in salmon, tuna, mackerel, liver, egg yolks and fortified dairy products
  - Vitamin D increases anti-inflammatory cytokines (transforming growth factor (TGF-β), interleukin (IL)-4 and decreases pro-inflammatory cytokines (tumor necrosis factor TNF-β, IL-2, IL-6), suggesting that vitamin D may help to improve chronic inflammatory and autoimmune diseases
  - Involved in endometriomas
  - Deficiency has long been associated with autoimmune diseases
  - Always guide patients on supplementation based on labs. Markers:
    - >50ng/mL or >125nmol/L



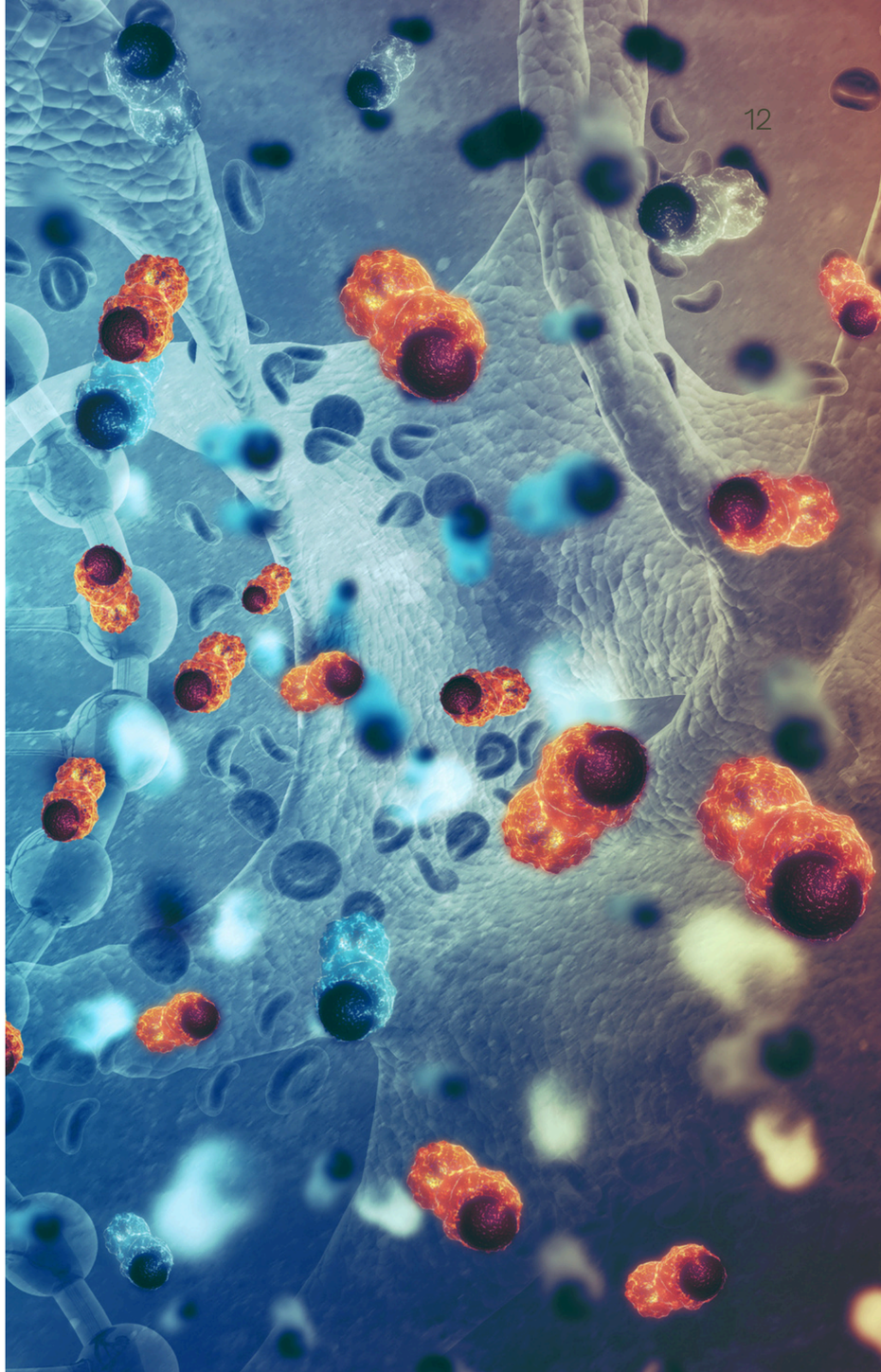
Sassi F, Tamone C, D'Amelio P. Vitamin D: Nutrient, Hormone, and Immunomodulator. Nutrients. 2018 Nov 3;10(11):1656. doi: 10.3390/nu10111656. PMID: 30400332; PMCID: PMC6266123.
Yalçın Bahat P, Ayhan I, Üreyen Özdemir E, İnceboz Ü, Oral E. Dietary supplements for treatment of endometriosis: A review. Acta Biomed. 2022 Mar 14;93(1):e2022159. doi: 10.23750/abm.v93i1.11237. PMID: 35315418; PMCID: PMC8972862.

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IMMUNE INVOLVEMENT - ACTION ITEMS

HOW YOU CAN HELP - IMMUNE SUPPORTIVE MINERALS

- Adequate zinc & selenium through diet and/or supplementation
- Zinc - natural mineral found in oysters, crab, red meat, poultry, beans, pumpkin seeds and lobster
- Selenium - natural mineral found in brazil nuts and shrimp
  - Associated with defects in the innate and adaptive immune response
  - Selenium adequacy seen to help control regulatory proteins in sending signals throughout the body, conferring benefits in inflammatory disease
  - Some studies shown when adequate zinc and selenium were given, there was an inverse correlation with intensity of symptoms



Morgia G, Cimino S, Favilla V, Russo GI, Squadrito F, Mucciardi G, Masieri L, Minutoli L, Grosso G, Castelli T. Effects of Serenoa repens, selenium and lycopene (Profluss®) on chronic inflammation associated with benign prostatic hyperplasia: results of "FLOG" (Flogosis and Profluss in Prostatic and Genital Disease), a multicentre Italian study. Int Braz J Urol. 2013 Mar-Apr;39(2):214-21. doi: 10.1590/S1677-5538.IBJU.2013.02.10. PMID: 23683667.

Hernández Guerrero CA, Bujalil Montenegro L, de la Jara Díaz J, Mier Cabrera J, Bouchán Valencia P. Endometriosis y consumo deficiente de moléculas antioxidantes relacionado con estrés oxidante periférico y peritoneal [Endometriosis and deficient intake of antioxidants molecules related to peripheral and peritoneal oxidative stress]. Ginecol Obstet Mex. 2006 Jan;74(1):20-8. Spanish. PMID: 16634350.

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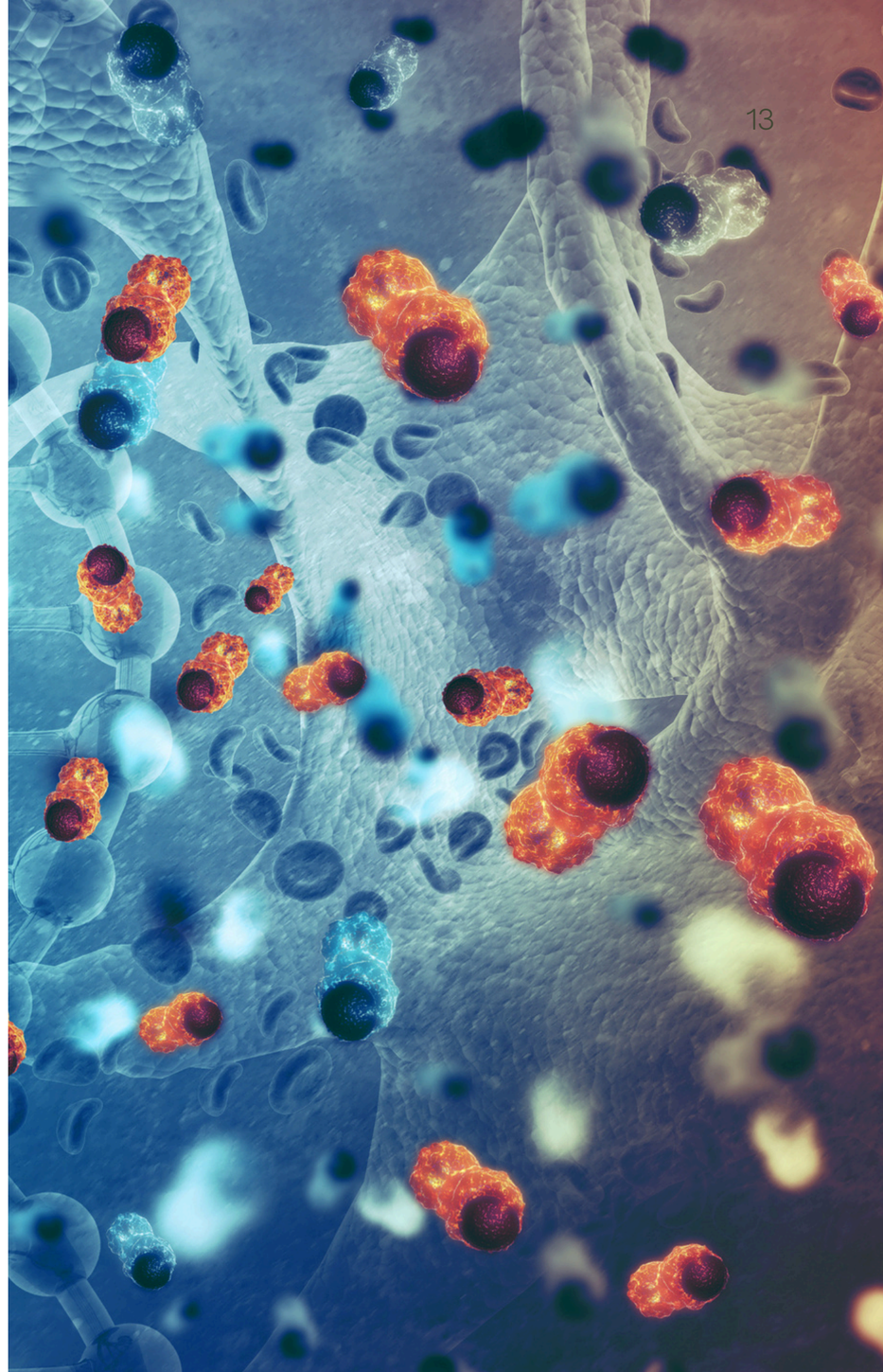
IMMUNE INVOLVEMENT - ACTION ITEMS

HOW YOU CAN HELP - IMMUNE SUPPORTIVE MINERALS CTD

- Zinc - zinc inhibits free radical production & imbalances in important minerals like zinc increase the generation of inflammatory cytokines and increase oxidative stress
  - Lower levels observed in endometriosis patients
  - Linked with endometrioma development
  - While we don’t have a large body of research showing that zinc supplementation makes a difference to pain symptoms or disease behaviour, one study did show that women with endo were able to improve their blood antioxidant levels with the inclusion of more mineral sources in the diet
  - Consider zinc's role in thyroid function, inflammation and hormone production (testosterone, progesterone)
- Care plan considerations:
  - 90ug/dL in bloodwork or >11 umol/L and at 16mg% in HTMA testing
  - Guidance on supplementation and/or food sources
  - I like zinc picolinate and typical recommend supplementation in doses of 15-25mg

Yalçın Bahat P, Ayhan I, Üreyen Özdemir E, İnceboz Ü, Oral E. Dietary supplements for treatment of endometriosis: A review. Acta Biomed. 2022 Mar 14;93(1):e2022159. doi: 10.23750/abm.v93i1.11237. PMID: 35315418; PMCID: PMC8972862.
Messalli EM, Schettino MT, Mainini G, Ercolano S, Fuschillo G, Falcone F, Esposito E, Di Donna MC, De Franciscis P, Torella M. The possible role of zinc in the etiopathogenesis of endometriosis. Clin Exp Obstet Gynecol. 2014;41(5):541-6. PMID: 25864256.
Lai GL, Yeh CC, Yeh CY, Chen RY, Fu CL, Chen CH, Tzeng CR. Decreased zinc and increased lead blood levels are associated with endometriosis in Asian Women. Reprod Toxicol. 2017 Dec;74:77-84. doi: 10.1016/j.reprotox.2017.09.001. Epub 2017 Sep 7. PMID: 28889936.
Mier-Cabrera J, Aburto-Soto T, Burrola-Méndez S, Jiménez-Zamudio L, Tolentino MC, Casanueva E, Hernández-Guerrero C. Women with endometriosis improved their peripheral antioxidant markers after the application of a high antioxidant diet. Reprod Biol Endocrinol. 2009 May 28;7:54. doi: 10.1186/1477-7827-7-54. PMID: 19476631; PMCID: PMC2693127.

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IMMUNE INVOLVEMENT - ACTION ITEMS

HOW YOU CAN HELP

Probiotics

- Reduce pro-inflammatory immune cells and increase anti-inflammatory cell production
- One of the most well established benefits of probiotic supplementation on human health is improved immunity
- Are there specific kinds?
  - L. acidophilus supplementation further heightened cytokine levels; however, after 48 h, bacterial cells exhibited modulatory properties, leading to a reduction in cytokine production.
- Lactobacillus gasseri was effective for reducing menstrual pain and pelvic pain



Ata B, Yildiz S, Turkgeldi E, Brocal VP, Dinleyici EC, Moya A, Urman B. The Endobiota Study: Comparison of Vaginal, Cervical and Gut Microbiota Between Women with Stage 3/4 Endometriosis and Healthy Controls. Sci Rep. 2019 Feb 18;9(1):2204. doi: 10.1038/s41598-019-39700-6. PMID: 30778155; PMCID: PMC6379373.
Xholli A, Cremonini F, Perugi I, Londero AP, Cagnacci A. Gut Microbiota and Endometriosis: Exploring the Relationship and Therapeutic Implications. Pharmaceuticals (Basel). 2023 Dec 7;16(12):1696. doi: 10.3390/ph16121696. PMID: 38139822; PMCID: PMC10747908.
Itoh H, Uchida M, Sashihara T, Ji ZS, Li J, Tang Q, Ni S, Song L, Kaminogawa S. Lactobacillus gasseri OLL2809 is effective especially on the menstrual pain and dysmenorrhea in endometriosis patients: randomized, double-blind, placebo-controlled study. Cytotechnology. 2011 Mar;63(2):153-61. doi: 10.1007/s10616-010-9326-5. Epub 2010 Dec 10. PMID: 21153437; PMCID: PMC3080472.

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IMMUNE INVOLVEMENT - ACTION ITEMS

HOW YOU CAN HELP

Prebiotics

- Compounds in plant foods that foster growth and/or activity of beneficial bacteria
- A large body of research shows benefits to consuming a large amount of plant diversity
  - Vitamin C & E important for lipid peroxidation, key process in chronic inflammation
  - Magnesium intake shown to associated with lower inflammatory markers systemically
  - Green vegetables and fruits - contain lipotropic agents (methionine, choline, folate and B6), which can influence gene expression and alter DNA methylation. A diet low in these can result in undesirable epigenetic changes that is hypothesized to be involved in the pathogenesis of endometriosis
  - Lots of powerful in vitro research on EGCG suppressing estrogen stimulated activation and proliferation of endo lesions. VEGF in endo lesions has been seen to be reduced after EGCG treatment.
    - Encourage consumption of green tea and matcha



Soave I, Occhiali T, Wenger J-M, Pluchino N, Caserta D, Marci R. Endometriosis and food habits: Can diet make the difference? Journal of Endometriosis and Pelvic Pain Disorders. 2018;10(2):59-71. doi:10.1177/2284026518773212
Yalçın Bahat P, Ayhan I, Üreyen Özdemir E, İnceboz Ü, Oral E. Dietary supplements for treatment of endometriosis: A review. Acta Biomed. 2022 Mar 14;93(1):e2022159. doi: 10.23750/abm.v93i1.11237. PMID: 35315418; PMCID: PMC8972862.

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IMMUNE INVOLVEMENT - ACTION ITEMS

HOW YOU CAN HELP

Care plan considerations:

- Provide guidance and support on plant diversity in the diet
- Phytoestrogen checklist - encourage patients to aim for 3+ foods from each color category every day.
- Provide guidance on fiber supplementation if needed
- Direction on GI related supplements, prebiotics, and dietary modifications
    - This needs to be individualized but a few that I have found to be useful include ginger (1g), PHGG (tapering up from ¼ tsp to 1 tsp), nutraflora (FOS), L-glutamine (10g), Organifi red juice powder, NOW brand inulin prebiotic fiber



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IMMUNE INVOLVEMENT - ACTION ITEMS

HOW YOU CAN HELP

Glutamine

- Amino acid, but also an important energy source for immune cells
- Significant depletion seen in chronic inflammatory conditions
- Glycine especially is vital for fighting inflammation, protecting against LPS, controlling the immune system and challenging inflammatory immune chemicals
    - Care plan considerations:
        - Adequate amino acids in the diet
        - I recommend 0.9-1g/kg of body weight, more for someone post operatively

Cruzat V, Macedo Rogero M, Noel Keane K, Curi R, Newsholme P. Glutamine: Metabolism and Immune Function, Supplementation and Clinical Translation. Nutrients. 2018 Oct 23;10(11):1564. doi: 10.3390/nu10111564. PMID: 30360490; PMCID: PMC6266414.
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IMMUNE INVOLVEMENT - ACTION ITEMS

HOW YOU CAN HELP

Omega-3s

- Omega-3s found in tuna, salmon, mackerel, sardines, anchovies and oysters
- Essentially fatty acids that help control the immune system.
- PUFAs have also long been shown to have anti-proliferative, antiangiogenic, anti-inflammatory and anti-apoptotic effects
- In vitro studies have shown that survival of endometrial cells from women with and without endo was significantly reduced in the presence of a high omega-3:6 ratio
- In human studies using visual analog scale (VAS) scores, improvements were also reported with supplementation of omega-3s
- Care considerations:
  - Advise on omega-3 supplementation or adequacy in diet
  - I recommend 1.5-3g minimum based on need and symptom severity. I also always recommend high EPA fish oils at a ratio as close to 4:1 (DHA:EPA) as possible.



Spencer L, Mann C, Metcalfe M, Webb M, Pollard C, Spencer D, Berry D, Steward W, Dennison A. The effect of omega-3 FAs on tumour angiogenesis and their therapeutic potential. Eur J Cancer. 2009 Aug;45(12):2077-86. doi: 10.1016/j.ejca.2009.04.026. Epub 2009 Jun 1. PMID: 19493674.
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Nodler JL, DiVasta AD, Vitonis AF, Karevicius S, Malsch M, Sarda V, Fadayomi A, Harris HR, Missmer SA. Supplementation with vitamin D or ω-3 fatty acids in adolescent girls and young women with endometriosis (SAGE): a double-blind, randomized, placebo-controlled trial. Am J Clin Nutr. 2020 Jul 1;112(1):229-236. doi: 10.1093/ajcn/nqaa096. PMID: 32453393; PMCID: PMC7326593.

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KNOWN FACTORS - YOUR ROLE IN GUT HEALTH

“Gut bacteria communicate with the brain and influence inflammation throughout the body. Therefore, altering the gut bacteria through dietary changes can potentially benefit a variety of endometriosis-associated symptoms.”

Hearn-Yeates F, Horne AW, O'Mahony S, Saunders PTK. The impact of the microbiota-gut-brain axis on endometriosis-associated symptoms: mechanisms and opportunities for personalised management strategies. Reprod Fertil. 2024 May 1;5(2):e230085. doi: 10.1530/RAF-23-0085. Epub ahead of print. PMID: 38739749; PMCID: PMC11227073.

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KNOWN FACTORS - YOUR ROLE IN GUT HEALTH

- The first step is to identify the problem. Constipation is common due to the chronic inflammatory nature of endometriosis
  - First line therapies include hydration, movement and fiber
  - Second line would be to include prokinetics and/or assess motility for slow transit time
    - Ginger (1g), PHGG, motilpro, motility activator, SIBO MMC, gut motility are all great products to use to help
    - Coconut water, celery juice can be helpful for potassium content
    - Magnesium citrate, colon cleanse, C Colon
    - Fat in warm water first thing in the morning can also help stimulate the bowels (gastrocolic reflux trigger)

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KNOWN FACTORS - YOUR ROLE IN GUT HEALTH

- Third line therapies might require further investigation via a stool test or SIBO test
- Interventions that follow will vary
- Focus on digestive health foundations including chewing well, eating seated and without distractions, meal spacing, meal structure and supplementing if needed, to get all essential cofactors needed for digestion
- In addition to vitamin D, pre-biotics, omega-3s and plant diversity, other care considerations include:
  - Resistant starches
  - D-glucaric acid (calcium d glucurate)
  - “Endo belly” vs. digestion-driven

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KNOWN FACTORS - YOUR ROLE IN GUT HEALTH

- Resistance starches - Carbohydrates that are resistant to digestion in the small bowel, but ferment in the large bowel, providing fuel to healthy bacterial strains. Gut health is improved by fermentation of resistant starches in the large bowel. Resistant starches can improve motility, bowel regularity, inflammation and the gut immune system.
  - 20g of resistant starches is recommended but this is hard to capture. My recommendation is to aim for 3 resistant starch portions per week
  - Sources include overnight oats, green bananas, cooked and cooled rice, pasta and potatoes, lupin and lentils
- D-glucaric acid is found in many fruits and vegetables. Consuming dietary d-glucaric acid can help regulate estrogen metabolism at the gut.
  - There are no formal recommendations for d-glucaric acid in the diet, but I recommend trying to get 3+ colors from each color category every day
  - Food sources include oranges, apples, grapefruit and cabbage

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KNOWN FACTORS - YOUR ROLE - HORMONES

1 ESTROGEN DEPENDANT NATURE (ASSESS)

- CD3 estradiol and LH, FSH - can inform about brain-ovary communication (more relevant for fertility purposes)
  - CD3 estradiol should be between 25-70pg/mL or 91.7-256.9pmol/L
- Peak +7 estradiol can tell you if levels are too high
- Peak + 7, 9 and 11 levels of estradiol and progesterone can help you understand if your client has a luteal phase defect.
  - Peak +7 estradiol should be between 145-300pg/mL or 533-1101pmol/L
  - Progesterone should be >18.5ng/mL or >58nmol/L peak +7

2 EDCS (ASSESS & ADVISE)

- PCBs and dioxin exposures are known risk factors for the development endometriosis
- Testing for environmental chemicals is not a first line strategy for me but it could be helpful testing in severe cases or in people with a history of exposure

Dutta S, Banu SK, Arosh JA. Endocrine disruptors and endometriosis. Reprod Toxicol. 2023 Jan;115:56-73. doi: 10.1016/j.reprotox.2022.11.007. Epub 2022 Nov 24. PMID: 36436816.
Buck Louis GM, Peterson CM, Chen Z, Croughan M, Sundaram R, Stanford J, Varner MW, Kennedy A, Giudice L, Fujimoto VY, Sun L, Wang L, Guo Y, Kannan K. Bisphenol A and phthalates and endometriosis: the Endometriosis: Natural History, Diagnosis and Outcomes Study. Fertil Steril. 2013 Jul;100(1):162-9.e1-2. doi: 10.1016/j.fertnstert.2013.03.026. Epub 2013 Apr 8. PMID: 23579005; PMCID: PMC3700684.

3 SUPPORT ESTROGEN DETOX

- Start with the gut. Resolve constipation or issues with elimination.



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KNOWN FACTORS - YOUR ROLE - HORMONES

- The liver is the second of 2 important sites of estrogen elimination.
- Symptoms of a sluggish liver to assess: morning fatigue, bloating or nausea after fatty foods, butter taste in the mouth or a coated tongue, hormone imbalances (PMS, breast tenderness, heavy/clotty bleeding), headaches, skin issues, chemical sensitivities, itchy skin, brain fog, poor memory, constipation or pale skin, bad breath or body odor
- Labs to assess to gauge issues with the liver:
  - AST/ALT - 10-30U/L
  - Fasting insulin - <8 mIU/L or <55pmol/L
  - High ferritin >90ug/L
  - Sluggish thyroid outside these ranges
    - TSH 0.5-2Miu/L
    - FT3 3-4pg/mL or 4.6-6.1pmol/L
    - FT4 1.1-1.8ng/dL or 16.9-27.6pmol/L
    - High cholesterol - LDL >120mg/dL or >3mmol/L and triglycerides >1.7mmol/L or >110mg/dL



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KNOWN FACTORS - YOUR ROLE - HORMONES

- Cruciferous vegetables help support estrogen elimination
- Broccoli sprouts
- Aromatase inhibitors - White button mushrooms, green tea, celery, olive oil
    - My recommendation - 1 of these foods once per day
- Dietary phytoestrogens - tofu, tempeh, edamame, flaxseeds
- Omega-3 fatty acids



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Lu, L.J., et al., Increased urinary excretion of 2-hydroxyestrone but not 16alpha-hydroxyestrone in premenopausal women during a soya diet containing isoflavones. Cancer Res, 2000. 60(5): p. 1299-305.
Deluca, D., et al., Inhibition of 17beta-hydroxysteroid dehydrogenases by phytoestrogens: comparison with other steroid metabolizing enzymes. J Steroid Biochem Mol Biol, 2005. 93(2-5): p. 285-92.
Musazadeh V, Nazari A, Natami M, Hajhashemy Z, Kazemi KS, Torabi F, Moridpour AH, Vajdi M, Askari G. The effect of flaxseed supplementation on sex hormone profile in adults: a systematic review and meta-analysis. Front Nutr. 2023 Oct 20;10:1222584. doi: 10.3389/fnut.2023.1222584. PMID: 37927501; PMCID: PMC10623424.
Wang, X., et al., Suppression of rat and human androgen biosynthetic enzymes by apigenin: Possible use for the treatment of prostate cancer. Fitoterapia, 2016. 111: p. 66-72.

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KNOWN FACTORS - HORMONES - SUPPLEMENTS

- DIM/I3C
  - No formal recommendation, but my recommendation is daily serving
- Resveratrol
- Omega-3s
- Sulforaphane
- CDG
- Chamomile
- B-complex, SAMe, magnesium, choline
  - Gauge dietary adequacy
    - Dietary folate needs are between 400-600 DFE.
    - Choline needs around 425mg per day.
    - Vitamin B6 needs are 1.3-1.9 mg per day.
    - Vitamin B12 needs are 2.6 mcg per day.
  - Other considerations: avoid PAHs, maintain a healthy weight, avoid smoking and alcohol



Hodges RE, Minich DM. Modulation of Metabolic Detoxification Pathways Using Foods and Food-Derived Components: A Scientific Review with Clinical Application. J Nutr Metab. 2015;2015:760689. doi: 10.1155/2015/760689. Epub 2015 Jun 16. PMID: 26167297; PMCID: PMC4488002.
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KNOWN FACTORS - YOUR ROLE IN GENETICS

- Several genetic mutations are relevant for endometriosis management, however only literature on higher prevalence of the MTHFR gene mutation exists in endo patients.
  - Care considerations: advise on avoiding synthetic B-vitamins in fortified foods and supplements, homocysteine testing
- Other considerations: COMT, VDR, CYP1A1, CYP 1B1, CYP3A4
  - COMT - advice on avoiding excess caffeine, chocolate, quercetin and stress. Consider recommendations for supporting COMT like active B-vitamins, magnesium, choline, bone broth
  - VDR - advise on adequate vitamin D supplementation
  - If you see abnormalities in estrogen elimination inconsistent with diet, consider mutations in genes that code for CYP1A1, CYP 1B1 and CYP3A4
  - HMNT/DAO - consider the need for short term low histamine diet, DAO supplementation and adequacy in mast cell stabilizers like vitamin C, ALA, quercetin, luteolin

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KNOWN FACTORS - YOUR ROLE - INFLAMMATION

1 DIET & UNSEXY BASICS

- Sleep, stress management, blood sugar balance, exercise

2 AGES

- Cooking methods
- Food

3 TOXINS/PATHOGENS

- Exposures within the environment

4 HORMONES

- High DHEA-s, testosterone, estrogen, low progesterone, high prolactin

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KNOWN FACTORS -YOUR ROLE INFLAMMATION

- The top 10 most antiinflammatory foods in the world based on the dietary inflammatory index include:
  - Turmeric - shown to reduce CRP and TNF-α
  - Ginger & garlic - inhibit pro-inflammatory pathways and have measurable benefits in chronic inflammatory conditions
  - Extra virgin olive oil - contains oleocanthal, which blocks COX2 enzymes
  - Fatty fish like salmon, mackerel, sardines shown to reduce inflammatory markers like CRP, IL6, TNF-a
  - Berries and colorful fruit - polyphenol content shown to reduce CRP
  - Leafy greens and cruciferous vegetables
  - Whole grains, legumes, nuts and seeds
    - Whole grains shown to reduce IL-6 and CRP - oats, buckwheat, amaranth
    - Legumes like lentils, chickpeas or beans
    - Nuts and seeds like walnuts, almonds, flaxseeds, chia help provide fats, fiber and have been shown to lower CRP and IL-6
  - Green teat/black tea
  - Spices and herbs - rosemary, thyme, oregano, sage, parsley ranked high on the DII
  - Yellow and orange vegetables like carrots, sweet potato, squash and citrus fruits for their beta carotene and flavanones content



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KNOWN FACTORS -YOUR ROLE INFLAMMATION

- I have summarized my top diet recommendations in “the Endo Diet score”
  - Do most of your meals contain at least 3 different colors from plant foods
  - Do you consume 4+ servings of non-starchy vegetable per day
  - Do you consume 2+ servings of fruit per day
  - Do you cook with olive oil or avocado oil most often
  - Do you consume a 60mL or ¼ cup portion of nuts or seeds 3 times per week on average?
  - Do you consume a ¾ cup portion of lentils, chickpeas or beans at least 3 times per week on average?
  - Do you consume more lean meats or more red/processed meats?
  - Do you consume oily fish 3-4 times per week?
  - Do you have at least 1 daily vegetable serving of cruciferous vegetables?



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KNOWN FACTORS - INFLAMMATION - SUPPLEMENTS

- Research is strong to reasonable for Melatonin, PEA, omega-3s, vitamin D, bromelain, NAC, ALA, ginger, vitamin C
- Melatonin - 3-10mg
  - 2025 study showed helpful for pelvis pain and sleep
  - Mosher 2019 reduced impact of estradiol on endo growth (endometrial cell study)
  - Shwertner 2013, 10 mg of melatonin reduced pain, pain with menstruation and bladder pain (reduced daily pain by 40%), and reduced reliance on pain medications
- Researched for its applications in chronic pain
- Stabilizes mast cells which is noted in women with chronic pelvic pain
- Indraccolo 2017 reviewed pain sensitization reduction with PEA
  - **2019 study showed significant improvement in chronic pelvic pain and well-being**
  - **Indraccolo 2022 those who rated higher on the pain scale were more likely to respond to PEA**



Esmaeilzadeh S, Habibolahi F, Moher D, Basirat Z, Gholinia H, Golsorkhtabaramiri M, Mirabi P. Melatonin and sleep parameters in infertile women with endometriosis: first results from the triple-blind randomized controlled trial of administration of melatonin in chronic pelvic pain and sleep disturbance. PLoS One. 2025 Apr 16;20(4):e0321635. doi: 10.1371/journal.pone.0321635. PMID: 40238733; PMCID: PMC12002473.
Mosher AA, Tsoulis MW, Lim J, Tan C, Agarwal SK, Leyland NA, Foster WG. Melatonin activity and receptor expression in endometrial tissue and endometriosis. Hum Reprod. 2019 Jul 8;34(7):1215-1224. doi: 10.1093/humrep/dez082. PMID: 31211323; PMCID: PMC6613342.
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Schweiger V, Schievano C, Martini A, Polati L, Del Balzo G, Simari S, Milan B, Finco G, Varrassi G, Polati E. Extended Treatment with Micron-Size Oral Palmitoylethanolamide (PEA) in Chronic Pain: A Systematic Review and Meta-Analysis. Nutrients. 2024 May 28;16(11):1653. doi: 10.3390/nu16111653. PMID: 38892586; PMCID: PMC11174044.
Indraccolo U, Indraccolo SR, Mignini F. Micronized palmitoylethanolamide/trans-polydatin treatment of endometriosis-related pain: a meta-analysis. Ann Ist Super Sanita. 2017 Apr-Jun;53(2):125-134. doi: 10.4415/ANN_17_02_08. PMID: 28617258.

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KNOWN FACTORS - INFLAMMATION - SUPPLEMENTS

- Reduction in pelvic pain, dysmenorrhea and dyspareunia (vit C 1000mg, 3 x 400 IU of vitamin E)
  - Alnaggar 2022 recent trial showed reduction in dysmenorrhea, dyspareunia and chronic pelvic pain in 2 months of supplementation
- Amini (2021) showed 1000 mg vitamin C and 800 IU vitamin E over 8 weeks decreased dysmenorrhea in the intervention group versus the control. Decrease of dyspareunia (painful sex) and chronic pelvic pain reported
  - Kavtaradze showed 43% pain reduction, 37% reduction in pain with intercourse
- Vitamin E (100mg) + BC favourable effects on pelvic pain



Al-Naggar, Mahmoud A.; Saeed, Ibtesam; Abdelfattah, Ahmed T. Role of Antioxidants (vitamin E and vitamin C) supplementation for Management of Chronic Pelvic Pain Related to Endometriosis
Amini L, Chekini R, Nateghi MR, Haghani H, Jamialahmadi T, Sathyapalan T, Sahebkar A. The Effect of Combined Vitamin C and Vitamin E Supplementation on Oxidative Stress Markers in Women with Endometriosis: A Randomized, Triple-Blind Placebo-Controlled Clinical Trial. Pain Res Manag. 2021 May 26;2021:5529741. doi: 10.1155/2021/5529741. PMID: 34122682; PMCID: PMC8172324.
Vitamin E and C supplementation reduces endometriosis related pelvic pain. Kavtaradze, Nino et al.Fertility and Sterility, Volume 80, 221 - 22
Zheng, Sai-Hua & Chen, Xiu-Xia & Chen, Yi & Wu, Zhi-Cong & Chen, Xian-Qian & li, Xuelian. (2023). Antioxidant vitamins supplementation reduce endometriosis related pelvic pain in humans: a systematic review and meta-analysis. Reproductive Biology and Endocrinology. 21. 10.1186/s12958-023-01126-1.

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KNOWN FACTORS - INFLAMMATION - SUPPLEMENTS

- Not specific to endo 50mg x2, 500mg x3 daily helped reduce menstrual related pain
- Helpful also for nausea and gastric emptying
- Negi (2021) is the most recent meta-analysis on the use of ginger for dysmenorrhea (5 trials). With respect to pain severity, ginger was more effective than placebo and as effective as NSAIDs. With respect to pain duration, ginger was no more effective than placebo.
- Pakniat (2019) performed a 4-arm comparison study on the use of Vitamin D, Vitamin E, Ginger and a placebo. Ginger performed best.



Chen CX, Barrett B, Kwekkeboom KL. Efficacy of Oral Ginger (Zingiber officinale) for Dysmenorrhea: A Systematic Review and Meta-Analysis. Evid Based Complement Alternat Med. 2016;2016:6295737. doi: 10.1155/2016/6295737. Epub 2016 May 5. PMID: 27274753; PMCID: PMC4871956.
Negi R, Sharma SK, Gaur R, Bahadur A, Jelly P. Efficacy of Ginger in the Treatment of Primary Dysmenorrhea: A Systematic Review and Meta-analysis. Cureus. 2021 Mar 6;13(3):e13743. doi: 10.7759/cureus.13743. PMID: 33842121; PMCID: PMC8021506.
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KNOWN FACTORS - INFLAMMATION - SUPPLEMENTS

- Fewer inflammatory cytokines seen with omega-3 intake. Improvements in pain ranking with supplementing with omega-3. 50% drop in pain scores with omega-3 supplementation

- Lactobacillus gasseri OLL2809 protective effects by blocking inflammation. Shown to reduce pain with menstruation
- 30mg of zinc 1-3 times daily 5-more days leading into period can help reduce menstrual related pain (not in endo patients)

- Endometrioma size (NAC)
- 75% of patients had a spontaneous pregnancy using 600mg x 3 daily
- Bromelain + ALA + NAC - 600mg NAC, 200mg ALA + 35mg bromelain reduced pelvic pain, and need for pain relieving medications



Nodler JL, DiVasta AD, Vitonis AF, Karevicius S, Malsch M, Sarda V, Fadayomi A, Harris HR, Missmer SA. Supplementation with vitamin D or ω-3 fatty acids in adolescent girls and young women with endometriosis (SAGE): a double-blind, randomized, placebo-controlled trial. Am J Clin Nutr. 2020 Jul 1;112(1):229-236. doi: 10.1093/ajcn/nqaa096. PMID: 32453393; PMCID: PMC7326593.
Itoh H, Uchida M, Sashihara T, Ji ZS, Li J, Tang Q, Ni S, Song L, Kaminogawa S. Lactobacillus gasseri OLL2809 is effective especially on the menstrual pain and dysmenorrhea in endometriosis patients: randomized, double-blind, placebo-controlled study. Cytotechnology. 2011 Mar;63(2):153-61. doi: 10.1007/s10616-010-9326-5. Epub 2010 Dec 10. PMID: 21153437; PMCID: PMC3080472.
Eby GA. Zinc treatment prevents dysmenorrhea. Med Hypotheses. 2007;69(2):297-301. doi: 10.1016/j.mehy.2006.12.009. Epub 2007 Feb 7. PMID: 17289285.
Anastasi E, Scaramuzzino S, Viscardi MF, Viggiani V, Piccioni MG, Cacciamani L, Merlino L, Angeloni A, Muzii L, Porpora MG. Efficacy of N-Acetylcysteine on Endometriosis-Related Pain, Size Reduction of Ovarian Endometriomas, and Fertility Outcomes. Int J Environ Res Public Health. 2023 Mar 7;20(6):4686. doi: 10.3390/ijerph20064686. PMID: 36981595; PMCID: PMC10048621.
Lete I, Mendoza N, de la Viuda E, Carmona F. Effectiveness of an antioxidant preparation with N-acetyl cysteine, alpha lipoic acid and bromelain in the treatment of endometriosis-associated pelvic pain: LEAP study. Eur J Obstet Gynecol Reprod Biol. 2018 Sep;228:221-224. doi: 10.1016/j.ejogrb.2018.07.002. Epub 2018 Jul 6. PMID: 30007250.

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KNOWN FACTORS - INFLAMMATION - SUPPLEMENTS

- 30mg of pycnogenol twice daily 48 weeks resulted in reduced pain symptoms and Ca1-125 declined
- Results were better in endo participants with smaller endometriomas
- Resveratrol does not show benefit in most studies except for an study by Maia (2012) where it was added to OCP and showed benefit in pain and only one clinical trial since that looked at oxidative markers (Madanes 2022 and reviewed in Hipólito-Reis 2022)



Kohama T, Herai K, Inoue M. Effect of French maritime pine bark extract on endometriosis as compared with leuprorelin acetate. J Reprod Med. 2007 Aug;52(8):703-8. PMID: 17879831.

Maia H Jr, Haddad C, Pinheiro N, Casoy J. Advantages of the association of resveratrol with oral contraceptives for management of endometriosis-related pain. Int J Womens Health. 2012;4:543-9. doi: 10.2147/IJWH.S36825. Epub 2012 Oct 10. PMID: 23091400; PMCID: PMC3474155.

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INFLAMMATION

COOKING METHODS:

- Studies show one effective way to reduce AGE formation in food is to cook animal proteins at high moisture, low heat
- Another option is to marinate animal proteins in an acidic solutions
- Care considerations:
  - Provide recipes that use these cooking methods
  - Encourage poaching, boiling, stewing, steaming, pressure cooking or slow cooking
  - Provide helpful suggestions on how to integrate acidic fruits



Uribarri J, Woodruff S, Goodman S, Cai W, Chen X, Pyzik R, Yong A, Striker GE, Vlassara H. Advanced glycation end products in foods and a practical guide to their reduction in the diet. J Am Diet Assoc. 2010 Jun;110(6):911-16.e12. doi: 10.1016/j.jada.2010.03.018. PMID: 20497781; PMCID: PMC3704564.

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INFLAMMATION - STRESS

- Research shows stress blocks the endometriosis immune response. It reduces T cell activity as well as serine and arginine availability for making energy in response to stress. This promotes invasion of endo lesions
- Trauma of all kinds linked to endometriosis development
- Care considerations:
  - Look not just to external stressors like work or personal life stressors but also physiological stressors like gut dysbiosis, inflammation, high estrogen, chemical exposures, pathogens/parasites, immune stimulants (example: synthetic ingredients in food)
  - Magnesium rich foods - calms the NS and helps with neurotransmitter production - dark chocolate, pumpkin seeds, lima beans, tuna, spinach
  - Omega-3s - help nerve signaling to the brain
  - B-vitamins - nerve repair and mood - organ meats, eggs, beef,cereals
  - Protein - needed to make neurotransmitters and stress hormones like cortisol
  - Blood sugar stability - triggers stress response if unstable
  - Polyphenols + antioxidants - protect nerves
  - Electrolytes - needed for nerve impulse transmission



Lu C, Xu J, Li K, Wang J, Dai Y, Chen Y, Chai R, Xu C, Kang Y. Chronic Stress Blocks the Endometriosis Immune Response by Metabolic Reprogramming. Int J Mol Sci. 2023 Dec 19;25(1):29. doi: 10.3390/ijms25010029. PMID: 38203209; PMCID: PMC10778859.

Reis FM, Coutinho LM, Vannuccini S, Luisi S, Petraglia F. Is Stress a Cause or a Consequence of Endometriosis? Reprod Sci. 2020 Jan;27(1):39-45. doi: 10.1007/s43032-019-00053-0. Epub 2020 Jan 6. PMID: 32046437.

Liebermann C, Kohl Schwartz AS, Charpidou T, Geraedts K, Rauchfuss M, Wölfler M, von Orelli S, Häberlin F, Eberhard M, Imesch P, Imthurn B, Leeners B. Maltreatment during childhood: a risk factor for the development of endometriosis? Hum Reprod. 2018 Aug 1;33(8):1449-1458. doi: 10.1093/humrep/dey111. PMID: 29947745.

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“a condition where the central nervous system, specifically the brain and spinal cord, becomes more sensitive to pain signals. This heightened sensitivity can result in increased pain perception, even from normally non-painful stimuli (allodynia), or an exaggerated pain response to a painful stimulus (hyperalgesia). Essentially, the nervous system amplifies pain signals, making it feel like the pain is worse than it should be.”

Dydyk AM, Chiebuka E, Stretanski MF, et al. Central Pain Syndrome. [Updated 2025 May 3]. In: StatPearls [Internet]. Treasure Island (FL): StatPearls Publishing; 2025 Jan-. Available from: https://www.ncbi.nlm.nih.gov/books/NBK553027/

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INFLAMMATION - STRESS

FOCUS AREAS:

- Focus areas
  - Anti-inflammatory diet
  - Brain body techniques - somatic practices, breathwork, medication, pain reprocessing therapy, vagus nerve stimulation, CBT
  - Neutraceuticals, LDN - ALA, acetyl-l-carnitine, magnesium, glycinate/threonate, PEA, curcumin and omega-3s
  - Lifestyle supports



Sima AA, Calvani M, Mehra M, Amato A; Acetyl-L-Carnitine Study Group. Acetyl-L-carnitine improves pain, nerve regeneration, and vibratory perception in patients with chronic diabetic neuropathy: an analysis of two randomized placebo-controlled trials. Diabetes Care. 2005 Jan;28(1):89-94. doi: 10.2337/diacare.28.1.89. PMID: 15616239.

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INFLAMMATION - STRESS

NEUTRACEUTICALS:

- Acetyl-l-carnitine - doses of 1000mg daily for nerve repair and mitochondrial support
- ALA - 400-600mg daily - antioxidant that reduces nerve inflammation
- Magnesium glycinate or threonate calms the N-methyl- D-Asparate receptor
- PEA - 200-400mg daily - Powerful for neuropathic and pelvic pain
- Curcumin - curamed 1500mg + 60mg pipeline
- Omega-3s are anti-inflammatory and support nerve membranes

ADAPTOGENS:

- Botanical adaptogens
- Skullcap, passionflower – calming to the nervous system
- Ashwagandha, rhodiola – reduce cortisol and central stress signaling



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MEDICAL MANAGEMENT OPTIONS

MANAGEMENT OPTIONS FALL INTO A FEW CLASSES:

- GrHa
- Progestins
- Combo BC
- IUD
- Pain medications
- Unconventional others (LDN, bioidentical progesterone, GLP1)



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GNRH ANALOGUES

GNRH ANALOGUES

- Work by binding to GnRH receptors. They stimulate or suppress the pituitary gland to release LH and FSH. Persistent use causes downregulation of GnRH receptors, decreasing LH and FSH levels and suppressing estrogen ovarian production
- Significant hypoestrogenic side effects including amenorrhea, vasomotor symptoms, sleep issues, urogenital atrophy and bone loss
- **Care considerations:**
  - help with side effects - weight gain/loss, androgen effects, anemia, liver support, cholesterol effects, raise serum calcium
  - Test iron levels
  - Guide on liver supporting diet/lifestyle interventions (TUDCA, Liver Support PX, castor oil packs, sauna use)
  - Dietary sources of calcium, calcium supplementation and/or vitamin D and K2 supplementation for bone health

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PROGESTINS

- One advantage is the low incidence of adverse effects
- Side effects - irregular menstrual bleeding, spotting, weight gain, mood changes (mostly low mood, depression), bone loss
- Dienogest - 74% reduction in dysmenorrhea, 42.7% dyspareunia and 48% for chronic pelvic pain
    - Ovarian lesion reduce in size (Capezzuoli 2022)
    - Helped control pain in rectovaginal endo & bladder endometriosis
    - Improvements in sexual function
    - 2mg as effective as 4mg
- Care considerations - management side effects (weight related), supporting energy, discussing meal structure, exercise, guidance on electrolyte sources, insulin sensitivity, liver support, thyroid support

Tommaso Capezzuoli, Margherita Rossi, Francesco La Torre, Silvia Vannuccini, Felice Petraglia, Hormonal drugs for the treatment of endometriosis, Current Opinion in Pharmacology, Volume 67, 2022, 102311, ISSN 1471-4892, https://doi.org/10.1016/j.coph.2022.102311.

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- There are more reported contraindications than dienogest (Murji 2020). Can help with pelvic pain.
- Small study showed long term use associated with DIE
- Care considerations - consider type of progestin
  - Medroxyprogesterone & dydrogesterone are more structurally similar to progesterone
  - Levonorgestrel, Norethindrone & drospirenone are more structurally similar to testosterone.
- Care considerations - Consider sneaky ingredients like sucralose, lactose or starches
  - Aviane - lactose, cornstarch
  - Loestrin Fe - iron
  - Lo loestrin Fe - mannitol, Na starch, lactose, sucralose
  - Sprintec - lactose, cornstarch
  - Yasmin-28 - lactose, cornstarch, starch
  - Yaz - lactose, cornstarch



Murji, A., Biberoğlu, K., Leng, J., Mueller, M. D., Römer, T., Vignali, M., & Yarmolinskaya, M. (2020). Use of dienogest in endometriosis: a narrative literature review and expert commentary. Current Medical Research and Opinion, 36(5), 895–907. https://doi.org/10.1080/03007995.2020.1744120
Chapron C, Souza C, Borghese B, Lafay-Pillet MC, Santulli P, Bijaoui G, Goffinet F, de Ziegler D. Oral contraceptives and endometriosis: the past use of oral contraceptives for treating severe primary dysmenorrhea is associated with endometriosis, especially deep infiltrating endometriosis. Hum Reprod. 2011 Aug;26(8):2028-35. doi: 10.1093/humrep/der156. Epub 2011 Jun 4. PMID: 21642638.

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- Be aware of potential of BC pills to contribute to or cause symptoms
- Guide patients on counteracting effects of birth control:
    - Effects on blood sugar balance, insulin, nutrient gaps (B12, B6, folate, B2, magnesium, zinc), effects on cholesterol and thyroid labs, candida, leaky gut
- Discuss the importance of meal spacing, additional supplementation, gut health, stomach acid production, plant sterols or other interventions for cholesterol



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IUD

IUDS

- IUD shown to reduce endometrial cell proliferation and increase apoptotic activity
- Shown to reduce menstrual blood loss by 70-90% in the first year of use
- Shown to be effective at reducing pelvic pain symptoms caused by rectovaginal and peritoneal endometriosis
- Doesn’t always suppress ovulation, can help reduce endometrioma recurrence (Carneiro, 2022)
- **Care considerations** - management side effects (weight related), supporting energy, discussing meal structure, exercise, guidance on electrolyte sources, insulin sensitivity, liver support, thyroid support

Carneiro, M. M. (2022). Deciding on the appropriate pharmacotherapy for the treatment of endometriosis. Expert Opinion on Pharmacotherapy, 24(1), 1–5. https://doi.org/10.1080/14656566.2022.2113383

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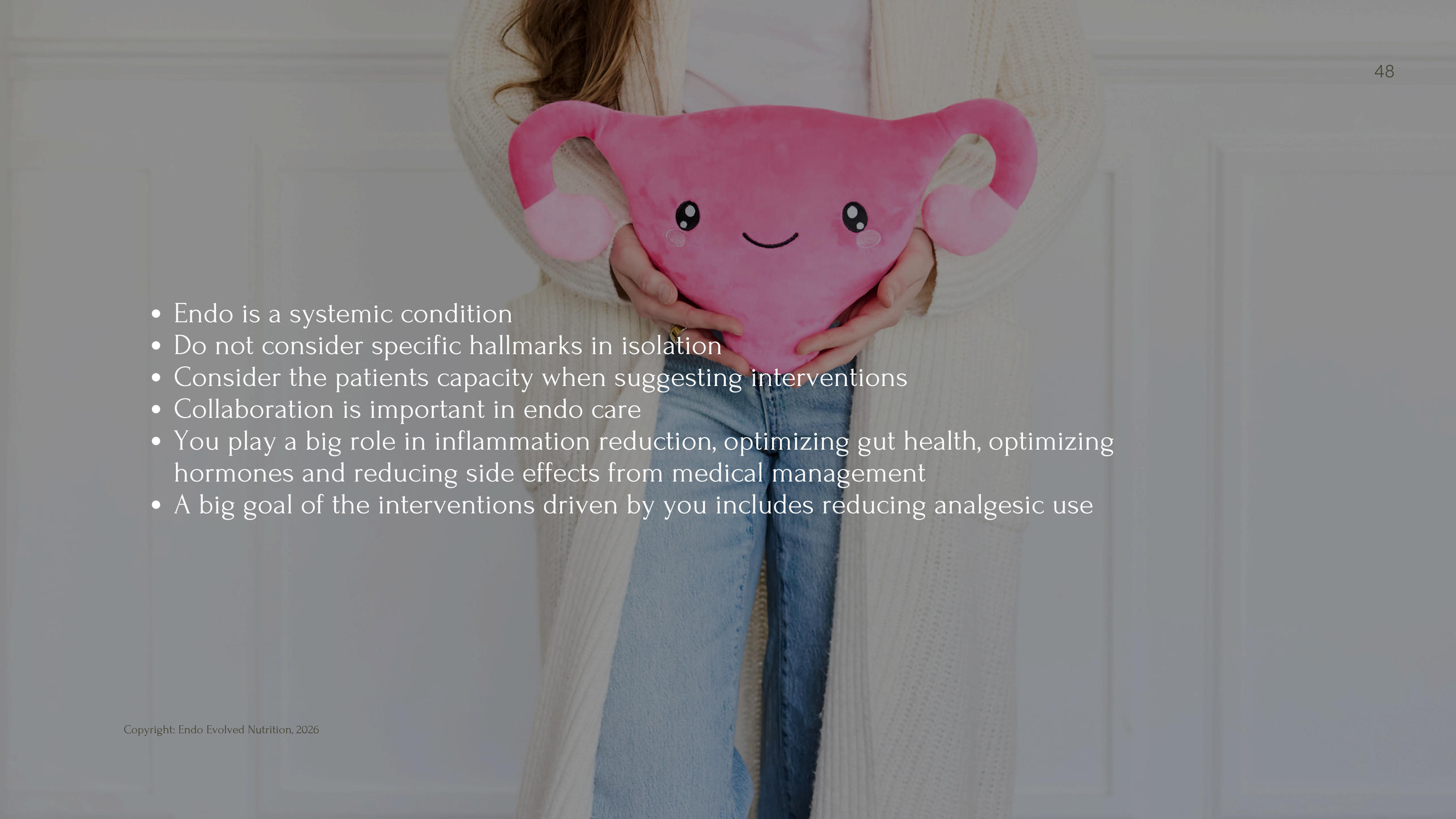
NON-CONVENTIONAL OPTIONS

LDN, GLP1S

- LDN refers to doses 1/10th of the typical dose for opioid addiction treatment. A typical treatment dose for endometriosis and other chronic inflammatory conditions starts with 1.5mg for 7 days, followed by 7 days at 3 mg until arriving at the final dose of 4.5mg which you continue to take indefinitely (or until needed).
  - Research specific to endo and LDN is lacking, but many doctors prescribe off-label for pain symptoms and immune modulation in endo patients. Studies in other autoimmune and chronic inflammatory conditions show promise
- In severe patients with severely affected quality of life, DIE, advocate on their behalf to get access to LDN if possible
  - Only 1 small study in 15 people shows improvements in pain symptoms
- GLP1 - reduced in peritoneal fluid, decrease cell growth (animal studies), promote autophagy (block tissue growth & inflammation)
  - Gastric emptying, liver stress, nausea (thyroid + pancreatic cancer risk increase)

Younger J, Parkitny L, McLain D. The use of low-dose naltrexone (LDN) as a novel anti-inflammatory treatment for chronic pain. Clin Rheumatol. 2014 Apr;33(4):451-9. doi: 10.1007/s10067-014-2517-2. Epub 2014 Feb 15. PMID: 24526250; PMCID: PMC3962576.
Lamvu G. Abstracts from the International Pelvic Pain Society (IPPS) annual scientific meeting on pelvic pain 2023. Pain Rep. 2024 May 15;9(3):e1150. doi: 10.1097/PR9.0000000000001150. PMCID: PMC11098253.

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- Endo is a systemic condition
- Do not consider specific hallmarks in isolation
- Consider the patients capacity when suggesting interventions
- Collaboration is important in endo care
- You play a big role in inflammation reduction, optimizing gut health, optimizing hormones and reducing side effects from medical management
- A big goal of the interventions driven by you includes reducing analgesic use

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