Managing Menstrual Pain

Dr. Joseph Olejak

Part I

Assessment, Normal Physiology, Classification of PMS & Diet

Two Areas of Concern For Many Women

Menstrual Pain
  • Pain associated with menstruation (usually abdominal cramps)

PMS or PMT
  • Premenstrual syndrome
    • Can affect many body parts
  • Premenstrual tension
    • Largely CNS based

Assessment

When making an assessment some areas to consider are:
  • Nerve supply to affected tissues
  • HPO axis function
  • End-organ function (ovary & uterus)

Nerve Supply

HPO Axis
Overview of HPO Axis

Role of Hypothalamus

The secretory part of the brain
Responsible, among other things, for the release of gonadotropin-releasing hormone (GnRH), which acts on the pituitary

Role of Pituitary

GnRH stimulates release of follicle-stimulating hormone (FSH) and luteinizing hormone (LH) from the pituitary and affects the ovaries.

Role of Ovaries

FSH secretion by the anterior pituitary stimulates follicular growth of granulose cells, preparing the body for ovulation.

LH surge triggers ovulation.

Graph of FSH LH

PMS Symptoms

Some emotional symptoms could be:
- Tension or anxiety
- Low mood
- Crying spells
- Mood swings
- Irritability
- Appetite changes or food cravings
- Difficulty falling asleep
- Social withdrawal
- Poor concentration

PMS Symptoms

Some physical symptoms could be:

- Minor joint or muscle pain
- Minor headache
- Fatigue
- Weight gain related to fluid retention
- Abdominal bloating
- Breast tenderness
- Acne flare-ups
- Temporary constipation or diarrhea


PMS Classifications

PMS-A (anxiety type) high estrogen, low progesterone
PMS-C (refined sugar craving) high insulin
PMS-D (low estrogen and low serotonin) low mood
PMS-H (hyperhydration) bloating and swelling


Theories of PMS

Cyclic changes in hormones
Chemical changes in the brain due to fluctuating sex hormones can affect the role of neurotransmitters (serotonin, gamma-aminobutyric acid, and glutamate). It is thought that these compounds play a crucial role in mood states. Changes in these could trigger PMS symptoms.

Stress
It is unclear if stress can cause PMS, but stress could aggravate symptoms.

Poor eating habits
Some PMS symptoms have been linked to high-carbohydrate diets (caffeine, sugar, and sodium); low levels of vitamins and minerals; too many salty foods, which may cause fluid retention; and drinking alcohol and caffeinated beverages, which may cause mood and energy-level disturbances.

References:

Cyclic Changes in Hormones and PMS

Signs and symptoms of premenstrual syndrome change with hormonal fluctuations and disappear with pregnancy and menopause. As LH spikes and estradiol increases, symptoms get worse. Glutamate levels in rat studies have also been found to spike prior to menstruation.

Low Mood and PMS

Low circulating levels of serotonin are thought to be a factor in PMS.


Stress and PMS

HPA axis activation raises cortisol.

Poor Eating Habits and PMS

Two things:
  • What are you going to remove from the diet?
  • What are you going to add?

If people are married to their habits, you will have more success adding dietary elements.

Factors That Influence Normal Menstrual Function

Stress
Hormonal imbalances
Inflammatory-response function to the menses

Stress

Diet

Standard American diet
High-carbohydrate diet

Standard American Diet

Could include:
  Sugar
  Omega-6 fatty acids
  Trans fats
  Dairy products
  Gluten

  Refined-flour products
  Feed-lot raised animals
  Red meat and processed meat
  Alcohol
  Food additives

How does high carbohydrate intake affect hormone regulation?

As insulin rises, sex hormone-binding globulin (SHBG) decreases. SHBG binds estrogen; without it, estrogen levels rise.

Higher progesterone-to-estrogen ratios are linked to PMS.

Assessing Patient for Nutritional Support: 3 Areas

1. Detailed and focused history
2. Physical exam
3. Lab tests

History: Start With a Detailed Endocrine Questionnaire

Ask specific and focused questions about diet.
Ask about medication use (Rx and OTC).
Ask about stress (in relationships, in the workplace, in finances).
Ask about level of exercise.
What supplements is the patient on?
Ask about menstrual history, including:
  • Age at onset of menarchy
  • Regularity of periods
  • Length of menstrual bleeding
  • Type of bleeding (heavy, clotted, spotty, scant)

History: Probe for Type and Frequency of PMS Symptoms, and then Triage in Order of Importance

Emotional
Dysphoria
Anxiety
Low mood
Irritability

Altered Physiology
Abdominal bloating
Abdominal cramps (central abdomen or lower left/right quadrant)
Temporary constipation
Swelling or tenderness in the breasts
Noncystic acne
Minor joint and/or muscle pain

Physical Exam

Palpate over left/right ovary and uterus.
Check for lumbar subluxation—a sign of viscerosomatic involvement.
Are lymphatic drainage points for the sex meridian, found on the pubic symphysis, tender?

Lab Tests

Adrenal stress index test for high cortisol (salivary)
Female endocrine panel for estrogen/progesterone balance
Abdominal ultrasound

Part II

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Nutritional Support for Normal Menstruation

Mediterranean diet

The value of glandular extracts

Combining herbs and glandulars

Employ Mediterranean Diet

Key Elements of Diet

Fewer calories per day: 1,500-1,600 versus 2,000-3,000 per day

More omega-3 fats

Variety of phytonutrients, especially those foods that provide donor molecules to detoxification (sulfur, methyl, and cysteine) like garlic, onion, cruciferous family, and beets

More vegetables and less carbohydrates

Whole grain rather than refined carbohydrates

Extra-virgin olive oil, flaxseed oil, avocado oil, and sesame seed oil for cooking and seasoning

No margarine, trans fats/hydrogenated fats, or omega-6 fats

Fish and free-range fowl protein versus cornfed beef

Lots of water

Lots of fiber

Evening Primrose Oil

Key ingredients:

- 90 mg gamma-linolenic acid (GLA) from Oenothera biennis seed

Actions:

- The omega-6 fatty acid in Evening Primrose Oil contains 90 mg of GLA per capsule.
- GLA, while an omega-6 fatty acid, does support a healthy inflammatory response via the GLA paradox.
  - DGLA operates through both competitive inhibition and direct counteraction with delta 5 desaturase enzyme.
  - Supplementing dietary GLA increases serum DGLA without increasing serum AA.


GLA Paradox

These statements have not been evaluated by the Food & Drug Administration. These products are not intended to diagnose, treat, cure or prevent any disease.
Tuna Omega-3 Oil

Key ingredients:
• Tuna oil: 300 mg DHA and 60 mg EPA in 2 perles

Actions:
• Omega-3 fatty acids are incorporated into phospholipids in the cell membrane.
• They are then acted upon by phospholipase and converted to eicosanoids.
• Eicosanoids from omega-3 fatty acids affect blood flow and blood vessel elasticity while supporting a healthy eicosanoid balance.

Recommended dose: three per day

Research on O3 FA

Supplementation with omega-3 polyunsaturated fatty acids in the management of dysmenorrhea in adolescents.

CONCLUSIONS:
• This study suggests that dietary supplementation with omega-3 fatty acids has a beneficial effect on symptoms of dysmenorrhea in adolescents. (Harel, Zeev MD; et al AM J OBSTET GYNECOL 1996;174:1335-8.)

Calamari Omega-3 Liquid

Key ingredients:
• Calamari oil: 800 mg DHA and 400 mg EPA in 1 teaspoon

Actions:
• Supports cardiovascular health
• Assists in triglyceride management
• Supports normal blood pressure already within a normal range
• Supports healthy normal blood coagulation
• Supports normal immune function
• Supports normal eicosanoid balance
• Supports cognition
• Promotes emotional balance
• Provides antioxidant activity
• Supports skin, nails, and hair

Recommended dose: one tablespoon per day

2 Types of Glandular Support for Normal HPO Function

Protomorphogen™ extracts
Cytosol™ extracts

Protomorphogen™ Extracts

Symplex™ F
Mammary PMG™

Key ingredients:
• Bovine ovary extract, bovine adrenal extract, bovine pituitary extract, and bovine thyroid extract (processed to remove its thyroxine)

Action:
• Supports cellular health and may support normal function of ovaries and the adrenal, pituitary, and thyroid glands

Recommended dose: three per day

Symplex® F

Key ingredients:
• Bovine ovary extract, bovine adrenal extract, bovine pituitary extract, and bovine thyroid extract (processed to remove its thyroxine)

Action:
• Supports cellular health and may support normal function of ovaries and the adrenal, pituitary, and thyroid glands

Recommended dose: three per day
Mammary PMG®

Key ingredients:
- Bovine mammary PMG®, calcium, and magnesium

Action:
- Supports cellular health
- Contains synergistic factors to support healthy mammary gland function

Combines with:
- Evening Primrose Oil
- Symplex® F

Recommended dose: three per day

Cytosol™ Extracts for Ovary

Ovex® P

Ovex®

Key ingredients:
- Calcium lactate, bovine ovary Cytosol™ extract, magnesium citrate, and mixed tocopherols (soy)

Actions:
- Provides synergistic blend of nutrients for ovarian support
- Supports healthy ovarian functioning
- Helps balance female hormones

Recommended dose: three per day

Herbal Support for Pituitary

Chaste Tree

Key ingredients:
- Chaste Tree from Vitex agnus-castus fruit

Actions:
- Promotes a natural, healthy balance within the female endocrine system (particularly in relation to supporting normal progesterone levels)
- Encourages healthy menstrual cycling
- Chaste Tree increases progesterone due to the dopaminergic effects of the Chaste Tree and decreased prolactin1
- Overall effect is to ensure ovulation and support normal progesterone levels
- Reduces effects of estrogen dominance by correcting a relative progesterone deficiency

Clinical Indications:
- Irregular menstruation
- Promotes healthy menstrual cycling

Recommended dose: one to two per day upon rising

Nutritional Management Guidelines

Time frame for nutritional support

Supplements: dosing and ordering
Time Frames for Recovery
Allow three cycles for change in endocrine function.

Supplements
The difference between dosing Cytosol™ extracts and Protomorphogen™ extracts

Dysmenorrhea
Nutritional Support where primary complaint is spasmodic dysmenorrhea:
• Utrophin PMG®
• Calcium Lactate and/or Magnesium Lactate
• Cramplex

Utrophin PMG®
Key ingredients:
• Bovine uterus glandular extract and magnesium citrate
Action:
• Provides nucleo-protein extracts to support the normal contraction and relaxation of uterine tissue

Calcium Lactate
Key Ingredients:
• Calcium lactate and magnesium citrate
Action:
• Mineral support for muscle contraction and relaxation
Clinical Indications:
• Muscle spasm

Magnesium Lactate
Key Ingredients:
• Magnesium lactate and calcium stearate
Action:
• Support nerve conduction and muscular contraction
Cramplex

Key Ingredients:
- Calcium
- Corydalis tuber from Corydalis ambigua tuber
- Raspberry leaf from Rubus idaeus leaf
- Wild Yam root from Dioscorea villosa root & rhizome
- Cramp Bark stem bark Viburnum opulus stem bark
- Ginger rhizome from Zingiber officinale rhizome

Actions:
- provide antispasmodic activity to ease occasional spasms of smooth muscle including those associated with the menstrual cycle

Clinical Indications:
- Menstrual cramps

Clinical Notes:
When not to use Chaste Tree

Menstrual cramps without PMS: If the woman is experiencing menstrual cramps without PMS then she is progesterone dominant. For this situation utilization of estrogen modulating herbs (such as Black Cohosh) are appropriate.
- For the progesterone dominant woman Chaste Tree is contra-indicated and will worsen symptoms.

Black Cohosh

Key Ingredients:
- Plant: Cimicifuga racemosa
- Part used: root and rhizome

Actions:
- Actein, Acetylaceol, Cimicifugoside and cimigenol act as estrogen modulating and uterine tonic herbs

Clinical Indications:
- Supports normal menstrual function

Menstrual Cramps

Nutritional Support where primary complaint is spasmodic menstrual cramping:
- Utrophin PMG®
- Calcium Lactate or Magnesium Lactate
- Cramplex

Continuity of Nutritional Support

Because the endocrine is a rhythmic system, it is very important to maintain continuity of nutritional support without breaks.
Have patients purchase a three-month supply.
Have supplements ordered and on hand.

Questions and Answers
Healthy Digestive Function

By Joseph Olejak

Aspects of a Healthy Gut

Normal gut flora
Healthy digestive function that includes:
• Healthy stomach function
• Healthy Liver function
• Healthy gall bladder function
• Healthy gut immune function
• Healthy enteric brain function

What Can Go Wrong?
The gut micro-biome can change
Liver function can reduce:
• Bile output
• Detox capacities
• Metabolic functions
Gall bladder stasis
Second brain in gut can alter signaling
Stomach can be too acid or too alkaline

After dyspepsia, what is the second most common GI Complaint?

How Common Is IBS?
Irritable bowel syndrome is estimated to affect 3 to 20 percent of the population, with most studies ranging from 10 to 15 percent.1
However, less than one-third of people with the condition see a health care provider for diagnosis.2
IBS affects about twice as many women as men and is most often found in people younger than 45 years.2

How is that most commonly treated?

Pathophysiology of IBS
Patient complaints & clinical observations (signs + symptoms)

IBS: Definition:
Improper functioning of the large bowel with no intestinal defect is known as Irritable Bowel Syndrome

• IBS is not classified as a disease, but a syndrome; which is a collection of symptoms with no clearly identifiable organic cause.
• The diagnosis is made by exclusion
  • Source: Irritable bowel syndrome at Dorland’s Medical Dictionary

IBS Classification Systems
IBS-D
• Diarrhea predominates and often relieves symptoms

IBS-C
• Constipation predominates and bowel movement often relieves symptoms

IBS-A
• Alternating constipation & diarrhea

Definition
IBS is a functional bowel disorder characterized by chronic abdominal pain, discomfort, bloating, and alteration of bowel habits in the absence of any organic cause.

Definition
Diagnosis of a functional bowel disorder (FBD) requires characteristic symptoms during the last 3 months and onset >6 months ago.

• Irritable bowel syndrome (IBS), functional bloating, functional constipation, and functional diarrhea are best identified by symptom-based approaches.
  • This is called the ROME II DIAG. CRITERIA
  • Source: George F. Longstreth, et al, GASTROENTEROLOGY 2006;130:1480 –1491

Psychological Bowel
This term is not widely used and is not generally considered politically correct. (Don’t tell a patient they have a psychological bowel!)

• Political considerations aside
  • Patients have stress related bowel conditions
  • We must address functional changes in the bowel and the role the sympathetic nervous system plays in activating those changes
  • By support bowel and CNS function together we can change the outcome of gut dysfunction
  • This falls under best practices
Second Brain
(neurogastroenterology)

The ENS is capable of autonomous functions such as the coordination of reflexes; although it receives considerable innervation from the autonomic nervous system, it can and does operate independently of the brain and the spinal cord. More than 90% of the body’s serotonin lies in the gut, as well as about 50% of the body’s dopamine, which is currently being studied to further our understanding of its utility in the brain.

* “enteric nervous system” at Dorland’s Medical Dictionary

Psychological Bowel

A Cochrane Collaboration Report recognizes “psychological treatments for the management of irritable bowel syndrome” and across the board gives rather low marks for any long term benefit.

- Source: The Cochrane Database of Systematic Reviews 2009 Issue 3, Copyright 2009 The Cochrane Collaboration. Published by John Wiley and Sons, Ltd. The full text of the review is available in The Cochrane Library (ISSN 1464-780X).
- http://www.cochrane.org/reviews/en/ab006442.html

What is a Cochrane Review?

Cochrane is considered a very high standard. Cochrane Reviews investigate the effects of interventions for prevention, treatment and rehabilitation in a healthcare setting.

- They are designed to facilitate the choices that doctors, patients, policy makers and others face in health care.
- Most Cochrane Reviews are based on randomized controlled trials, but other types of evidence may also be taken into account, if appropriate.

“Psychological Bowel”

Nutritionally, we don’t treat anything, but we can balance the CNS two ways:

1. Chiropractic care
   - Supports sympathetic and parasympathetic NS balance
2. Nutritional support
   - Support a healthy sympathetic NS response

Signs & Symptoms

Diarrhea or constipation may predominate

Or

Alternating constipation & diarrhea

Signs & Symptoms

Symptoms may occur alone or in combination with other symptoms such as:

- Bloating
- Abdominal discomfort
- Increased frequency of bowel movements
- Painful bowel movements
- Gas
- Diarrhea (and pencil thin stools)
- Constipation
- Increased mucus production
**IBS: Symptoms**

Patients typically present in one of three ways:

1. Alternating constipation and diarrhea along with abdominal pain
2. Chronic watery diarrhea along with increased mucus levels
3. Constipation and abdominal pain secondary to cramping

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**Psychological Symptoms**

Anxiety and/or depression frequently accompany IBS symptoms to varying degrees. If you have good patient rapport:

- Ask about psychological stress
- Make an appropriate referral
- Make nutritional recommendations consistent with stress alleviation

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**Clinical Notes**

Very useful to clearly differentiate between presentation of IBS and similar situations that can easily be confused with IBS such as:

- IBD (i.e. Crohn’s)
- Endometriosis
- Celiac

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**Differential Diagnosis**

Differential Diagnosis:

- Endometriosis
  - In women, abdominal pain in the absence of bowel trouble can be mistaken for IBS.
  - Use these 3 symptoms to differentially diagnose:
    1. Menstrual disorders (dysmenorrheal, menorrhagia or menometrohagia).
    2. Abdominal pain (with ovulation but if adhesions are present pain may occur with bowel evacuation).
    3. Infertility

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**Differential Diagnosis**

Celiac Disease

- An autoimmune disorder of the small intestine that occurs in genetically predisposed people of all ages from middle infancy on up.
  - Symptoms include chronic diarrhea, failure to thrive (in children), and fatigue, but these may be absent, and symptoms in other organ systems have been described.
  - A growing portion of diagnoses are being made in asymptomatic persons as a result of increased screening.

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Celiac disease manifested by blunting of villi, crypt hyperplasia, and lymphocyte infiltration of crypts
Differential Diagnosis
Celiac Disease continued ...

• Celiac disease is caused by a reaction to gliadin, a gluten protein found in wheat (and similar proteins of the tribe Triticeae, which includes other cultivars such as barley and rye).
• Upon exposure to gliadin, the enzyme tissue transglutaminase modifies the protein, and the immune system cross-reacts with the small bowel tissue, causing an inflammatory reaction.
• That leads to a truncating of the villi lining the small intestine (called villous atrophy). This interferes with the absorption of nutrients, because the intestinal villi are responsible for absorption.

Wheat Allergy
Common symptoms of a wheat allergy:
• Eczema (atopic dermatitis)
• Hives (urticaria)
• Asthma
• "Hay fever" (allergic rhinitis)
• Angioedema (tissue swelling due to fluid leakage from blood vessels)
• Abdominal cramps, nausea, and vomiting.

These are IgE and Mast cell mediated.

Source: F. Battais, et al. Identification of IgE-binding epitopes on gliadins from patients with food allergy to wheat. Allergy. Volume 60 Issue 6, Pages 815-821. 06/2005

Allergy vs. Celiac Disease
Prolamins and Glutalins trigger mast cells and IgE in wheat allergy

Gliadin is the offending phytochemical in celiac disease

CONCLUSION
Amino acid composition, electrophoresis, and immunological analysis revealed little similarity between proteins in wheat and buckwheat endosperm. In addition, the relative proportions of sub-soluble and alcohol-soluble proteins in wheat and buckwheat flour vary, the latter from only a minor portion of buckwheat-endosperm protein. While it is possible that components in buckwheat may be a low molecular weight, low proline extract of gliadin, this study is unlikely to account for all cases of gluten intolerance. While it is possible that components in buckwheat may be a low molecular weight, low proline extract of gliadin, this study is unlikely to account for all cases of gluten intolerance.

Wheat & Buckwheat Proteins Differ Vastly

Differential Diagnosis
IBS vs IBD
IBS is a functional disorder
IBD is an auto-immune disease.

• Clinical Note: Difference in presentation is the lack of bloody stools.
• Ulcerative colitis, Crohn’s Disease, and Clostridium difficile all present with bloody stools and pathologic changes in bowel mucosa.
**IBS Etiology:**

Rule out the following when making the diagnosis for IBS:

- Excessive laxative use
- Lactose intolerance
- Cancer
- Candida albicans
- Parasites
- Infection
- Poor liver function
- Bowel disease
- Hyperthyroidism
- Insufficient digestive enzymes
- Dysbiosis
- Excessive caffeine intake
- Food allergies
- Insufficient dietary fiber

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**Differential Diagnosis**

Physical Signs to assist in making a diagnosis of IBS

- To eliminate vagueness associated with Diagnosing; consider the following:
  1. Distension of the abdomen
  2. Relief of pain with bowel movements
  3. The onset of loose or more frequent stools with pain

- These 3 items seem to correlate best with the diagnosis of IBS

- Along with a history of antibiotic or psychoactive medication use.

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**Etiology**

**IBS may begin:**

- After an infection (post-infectious, IBS-PI)
- A stressful life event
- At the onset of maturity without any other medical indicators.

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**Psychosomatic Illness:**

- Initially, IBS was considered a psychosomatic illness and the involvement of biological and pathogenic factors was not verified until the 1990s.

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**Etiology**

**Infection:**

- The risk of developing IBS increases six-fold after acute gastrointestinal infection
- Post-infection, further risk factors are young age, prolonged fever, anxiety and depression.
- Anecdotal evidence has also pointed to long doses of antibiotics as being a possible factor in developing IBS
- It is believed the antibiotics may destroy the body’s natural bacteria which can lead to IBS


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**Etiology**

**Infection: Associated with IBS and Gut Dysbiosis**

- Considerable evidence implicates intestinal dysbiosis as a significant factor in IBS
- This is even to the point where antibiotics such as rifaximin (which is poorly absorbed) are being used to treat IBS
- This is despite the fact that prior antibiotic use is strongly associated with an increased risk of developing IBS (OR 3.7)

  *Sources:
  2. Quigley EM. J Dig Dis 2007; 8(1): 2-7*
Etiology

Infection:
- Small Intestinal Bacterial Overgrowth (SIBO) implicated in IBS.1
- Theory is controversial:
  - Conventional therapies aimed at SIBO have shown success rates of 5 to 80% in IBS patients.2
  - Changes in the colonic flora, especially reduced levels of Bifidobacteria, have also been consistently found.3

Sources:
- Quigley EM. J Dig Dis 2007; 8(3): 2-7

Incidence

IBS is the most frequent GI disorder and accounts for 30-50% of all referrals to gastroenterologists.
- Poorly understood
- It is believed to affect approximately one-fifth of the population, though it is estimated that 60-75% of symptomatic people do not seek medical attention.

Sources:

Medical Approach

Misdiagnosis is often made - Mistaken for infection or inflammation without proper work-up:
- Antibiotics are often improperly prescribed because the source of the diarrhea gets attributed to infection
  - This leads to other, iatrogenic, problems such as: leaky gut and disordered gut ecology
  - If allowed to manifest for years it can eventually lead to autoimmune diseases such as Lupus and RA
- Anti-inflammatory drugs get prescribed because the source of the diarrhea is attributed to inflammation

Common Medications are anti-spasmodics, anti-diarrheals & anti-depressants
- Lomotil
- Lotronex
- Motilux
- Modulon
- Motofen
- Nuley

Medical Approach

If a correct diagnosis is made – the following medications are often used:

Sources:
- Naproxen
- ParX
- Prilosec
- Prinax
- Xanax
- Zantac
- Zelnorm
- Amoxicillin
- Amitriptyline
- Bentyl
- Bentril
- Buscospin
- Claractin
- Desipramine
- Effexor
- Imodium
- Kytril
- Librax

Some Medications Can Be Deadly

FDA Issues Warning
- The FDA concludes that benefits of Zelnorm no longer outweigh the risk
- The drugs manufacturer submitted a new analysis of 29 short-term (1 - 3 months) randomized, controlled clinical trials showing Zelnorm had an increased risk of serious cardiovascular adverse events (e.g., angina, heart attacks, and strokes)

Sources:

Break
Nutrition To Support Healthy Gut Function

Biochemical Pathways & Support For Gut Cellular Functions

Nutritional Considerations

An individualized nutrition protocol is essential
- Must spend the time and query patients
- Dig for information about food intake, response to certain foods, and eating habits
- Obtain a clear idea of the role each factor plays in digestive presentation
  - No two presentations will be alike
  - No two protocols will be alike either!

General Nutritional Considerations

- Eliminate offending foods – most common food allergens are: dairy, wheat, soy & corn.
- Ask patient about mood & stress. Are there emotional overlays that should be considered as an additional contributing factor
- Gall Bladder: How is bile production and flow?
- Is there gut irritation?
  - Use demulcent foods as they support normalization of reduced elimination

Demulcent Foods

Apples and pears contain pectins
- Pectins are a family of complex polysaccharides
Okra is a mucilage fiber
- Mucilaginous plants have the characteristic “goo” or slime

General Nutritional Considerations

- Increase dietary fiber – fiber should be from plant sources other than grains such a wheat and oat.
  - Works best in diarrhea variety
  - Psyllium works best
- Reduce refined sugar – sugar has been shown to reduce intestinal motility in the duodenum and jejunum and contributes to small intestinal bacterial overgrowth.
- What is colon stool pH?
  - If alkaline, needs to move toward acid.
- Is there microbiological balance in the gut?
  - Restoration of intestinal micro-flora is required.
  - The use of WEED & SEED approach

Nutritional Considerations for Patients Presenting with Alternating Temporary Constipation & Temporary Diarrhea

Alternating temporary constipation and diarrhea along with abdominal discomfort:
- Support stomach, liver and pancreatic digestive functions.
  - HCL with Pancreas extract
  - Beets with vitamin A & F
  - Beet root and leaf
  - Liver Support Combo
HCL with Pancreas Extract

Key Ingredients:
- Betaine hydrochloride, pancreatin (3x), bovine pancreas extract, pepsin (1:10,000), bovine spleen and ovine spleen, and ammonium chloride.

Action:
- Supports enzymatic digestion of macro nutrients (fats, carbohydrates & proteins)

Clinical Indications:
- Poor digestion due to inadequate enzymatic digestion of food (especially protein)
- Upper GI gas (bloating and burping) & heartburn

Beets With Vitamin A&F

Key ingredients:
- Carrot (root), beet (root), oat flour, dried beet (leaf) juice, defatted wheat (germ), calcium lactate, magnesium citrate, bovine liver, nutritional yeast, bovine kidney, bovine prostate, alfalfa flour, bovine orchic extract, bovine liver fat extract, flaxseed oil extract, mixed tocopherols (soy), and soybean lecithin with vitamins A, B6 and iodine

Action: Mild liver / GB de-congestant
- Supports fat metabolism
- Thins and mobilizes bile
- Assists in the conversion of blood fat to sugar

Clinical Indications:
- Bloating after eating a fatty meal
- Most helpful for biliary duct stasis

Beet Root and Leaf

Key ingredients:
- Beet (root), oat flour, beet (leaf), and dried beet (root) juice.

Action: Improves bile flow and bile production

Clinical Indications:
- Temporary constipation, cramping after fat meal, and sensitivity on digital palpation of gall bladder
- Sluggish liver and bile production
- Weak bile release by gall bladder

Liver Support Combo

Ingredients:
- Bovine liver extract, Spanish black radish (root), bovine liver, calcium lactate, carrot (root), Tillandsia usneoides, beet (root), and dried beet (leaf) juice plus Vitamin A, Niacin, Vitamin B6, iron, Iodine, Zinc, and Copper

Actions:
- Supports liver detoxification, bile production, and liver function
- Assists conversion of Vit D3 to 25 hydroxycholecalciferol

Indications:
- Use in patients with poor liver clearance of hormone metabolites, poor detox capacity, poor bile production and in all cases of chronic alcohol use

Nutrition and Microbial Balance

“WEED, SEED, and FEED” Program
- Sat & Sun: WEED
  - Flora Balance
  - Enterically coated garlic
- Mon – Fri
  - Herbal product with antioxidant activity
  - Whole Food Fiber
  - Multiple Probiotic

Flora Balance

Key ingredients:
- Anise fruit
- Andrographis herb
- Phellodendron stem bark
- Oregano leaf essential oil

Action:
- Re-establishment of normal gut flora

Clinical indications:
- Support for healthy gut function
Garlic

Key Ingredients:
- Garlic bulb and parsley leaf

Action:
- Digestion support

Clinical Indications:
- Disordered gut ecology as evidenced by CDSA (comprehensive diagnostic stool analysis)

Nutrition and Microbial Balance

Mon thru Fri: SEED AND FEED
- Herbal with Antioxidant Activity
- Multiple Probiotic
- Whole Food Fiber

Herbal With Antioxidant Activity

Key Ingredients:
- Rosemary leaf 5:1 extract from Rosmarinus officinalis
- Green Tea extract from Camellia sinensis leaf
- Turmeric rhizome extract from Curcuma longa rhizome
- Grape seed extract from Vitis vinifera seed

Action:
- Astringent

Clinical Indications:
- Need for antioxidant support
- Bacterial balance in gut

Multiple Probiotic

Key Ingredients:
- Probiotic Blend of Bifidobacterium, BB-12®, L. acidophilus, LA-5®, L. paracasei, L. casei 431®, and S. boulardii (4 billion cfu) with Inulin
- Galactooligosaccharide (GOS)(milk)

Action:
- Supports normalization of gut flora

Clinical Indications:
- Lower GI gas & bloating

Whole Food Fiber

Key Ingredients:
- Oat fiber, beet fiber, rice (bran), carrot (root), beet (root), apple pectin, carrot fiber, and oat bran concentrate.

Action:
- Support elimination and peristalsis
- Source of FOS

Temporary Diarrhea and Fiber

- Fiber is useful to firm up stools, cleanse the gut of mucus accumulation and reduce hyper-permeability of the intestines.
- Fiber may be insoluble:
  - Can contain psyllium seed husk,
  - Psyllium seed husk can bind if not taken with a significant volume of water
- Practitioners can use this “side effect” as an advantage to collect water in the gut and reduce diarrhea.
Psyllium Fiber Product

Key Ingredients:
- Psyllium (husk) powder, collinsonia (root) powder, apple pectin, fennel (seed), and fenugreek (seed) powder

Action:
- Support elimination and peristalsis
- Binds 10x its weight in fluid - water is a must!
- Psyllium increases butyrate production by bacterial fermentation
- Butyrate is a short chain fatty acid essential for the health of gastric mucosa

Clinical Indications:
- Low fiber diet and weak elimination
- Note: can bind, use with plenty of water

Nutrition & Environmental Stress in Gut Epithelium

Related Nutritional support:
- Tuna oil
- Boswellia combination

Whole Food Fiber

Key Ingredients:
- Oat fiber, beet fiber, rice (bran), carrot (root), beet (root), apple pectin, carrot fiber, and oat bran concentrate.

Action:
- Support elimination and peristalsis
- Source of FOS

Clinical Indications:
- Low fiber & high refined carb diet with reduced frequency of elimination
- Weak elimination and poor gut ecology
- Best for patients with history of constipation

Omega 3 FA/Tuna Oil

Key Ingredients:
- Tuna oil (DHA/EPA in a 5:1 ratio)

Actions:
- The n-3 fatty acids including EPA and DHA are incorporated into cell membrane phospholipids.
- Omega-3 fatty acids may then be removed from phospholipids by phospholipase, and enzymatically converted to eicosanoids.
- Eicosanoids have multiple biological functions: platelet aggregation, vasodilation, thrombus-forming potential, and healthy inflammation response to exercise.
- Fish oil decreases production of prostaglandin E2 and thromboxane A2 (a potent platelet aggregator and vasoconstrictor).
- EPA and DHA lead to a decrease in leukotriene B4 (a potent mast cell degranulating agent and an inducer of inflammation).
- Omega-3 fatty acids are incorporated into membrane phospholipids and alter membrane fluidity, signal transduction and gene expression. Fish oil inhibits hepatic triglyceridaemia and stimulates fatty acid oxidation in the liver, resulting in decreased triglyceride (triacylglycerol) concentrations.

Clinical Indications:
- Due to ratio of DHA/EPA this is most indicated for neurological support

Therapeutic Dose:
- 2-4 g/day

Omega 3 FA/Cod LiverOil

Key Ingredients:
- Cod Liver Oil
- 1,140 IU vitamin A
- 120 IU vitamin D
- 220 mg EPA per serving
- 300 mg DHA per serving

Actions:
- Supports mitochondrial function.
- Contains Naturally Occurring Coenzyme Q10 (CoQ10).
- CoQ10 is a fat-soluble substance used in the body’s energy-generating process. The minimal processing selected for Standard Process Cod Liver Oil has the beneficial side effect of retaining CoQ10 from cold livers. Each serving of Cod Liver Oil contributes a small amount of CoQ10.
- Vitamin A support epithelial tissue function.
- Supports normal response to environmental stressors.

Clinical Indications:
- Due to ratio of DHA/EPA, vitamins A & D, this is indicated for both epithelial and neurological support.

Boswellia

Key Ingredients:
- Boswellia from Boswellia serrata gum oleoresin containing boswellic acids
- Celery Seed from Apium graveolens fruit
- Ginger from Zingiber officinale rhizome
- Turmeric from Curcuma longa rhizome Containing curcuminoids

Action:
- Support the normal function of the kidneys to clear acidic waste products effectively.
- Maintain and support healthy joints.
- Promote the body’s normal resistance function.
- Support healthy circulation.
- Support healthy response to environmental stressors.
- Provide antioxidant activity protection.

Clinical Indications:
- Joint dysfunction.
- Epithelial dysfunction.
Clinical Notes on Boswellia

The combination of the herbs Boswellia, Celery Seed, Ginger, and Turmeric make this a good formula for any system issue related to eicosanoid pathways.

Nutrition and Cramping

To address alterations in the normal smooth muscle contractile pattern in the GI tract:

- Related Nutritional support:
  - Calcium lactate
  - Magnesium lactate
  - Smooth muscle relaxant

Calcium Lactate

Key Ingredients:
- Calcium lactate and magnesium citrate

Action:
- Mineral support for normal muscle contraction and relaxation

Clinical Indications:
- Spasm of smooth muscle

Magnesium Lactate

Key Ingredients:
- Magnesium lactate and calcium stearate

Action:
- Support normal nerve conduction and muscular contraction

Clinical Indications:
- Spasm of smooth muscle

Smooth Muscle Relaxant

Key Ingredients:
- Calcium
- Corydalis tuber from Corydalis ambigua tuber
- Raspberry leaf from Rubus idaeus leaf
- Wild Yam root from Dioscorea villosa root & rhizome
- Cramp Bark stem bark Viburnum opulus stem bark
- Ginger rhizome from Zingiber officinale rhizome

Actions:
- Provide antispasmodic activity to ease occasional spasms of smooth muscle including those associated with the menstrual cycle

Clinical Indications:
- Alteration in normal smooth muscle contraction

Nutritional Support Second Brain

For patients who experience occasional stress where it is affecting the function of the second brain:

- Aqueous Orchic Extract
- Minerals with Orchic Extract
- Kelp, Alfalfa & Calcium Lactate
- Kava kava
<table>
<thead>
<tr>
<th>Aqueous Orchic Extract</th>
<th>Minerals with Orchic Extract</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Key ingredients:</strong></td>
<td><strong>Key ingredients:</strong></td>
</tr>
<tr>
<td>• Niacin and B6 with</td>
<td>• Calcium, Niacin, Vitamin B6,</td>
</tr>
<tr>
<td>bovine liver, bovine</td>
<td>iodine with bovine orchic</td>
</tr>
<tr>
<td>orchic extract, calcium</td>
<td>extract, magnesium citrate,</td>
</tr>
<tr>
<td>lactate, porcine stomach, bovine spleen, ovine spleen, soy (bean), defatted wheat (germ), magnesium citrate, and porcine brain</td>
<td>manganese lactate, bovine liver, porcine stomach, soy (bean), bovine spleen, ovine spleen, para-aminobenzoate, defatted wheat (germ), porcine brain, and ascorbic acid</td>
</tr>
<tr>
<td><strong>Actions:</strong></td>
<td><strong>Action:</strong></td>
</tr>
<tr>
<td>• Relaxes vasculature, supports male gonads, and calms CNS</td>
<td>• Supports sympathetic nervous system</td>
</tr>
<tr>
<td>• Physiological stress reliever via its oxygenation effect on nervous tissue</td>
<td><strong>Clinical Indications:</strong></td>
</tr>
<tr>
<td>• Contains orchic hyaluronidase</td>
<td>• High levels of stress, loss of sleep, high muscle tone (esp. in cervical region)</td>
</tr>
<tr>
<td></td>
<td><strong>Clinical Indications:</strong></td>
</tr>
<tr>
<td></td>
<td>• Stress, tension, failure to calm, agitation, and difficulty sleeping.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Kelp, Alfalfa, &amp; Calcium Lactate</th>
<th>Kava Kava</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Key Ingredients:</strong></td>
<td><strong>Key Ingredients:</strong></td>
</tr>
<tr>
<td>• Calcium, Iodine, Magnesium</td>
<td>• Kava root 7:1 water extract</td>
</tr>
<tr>
<td>• Calcium lactate, <em>kelp</em>, magnesium citrate, <em>alfalfa</em> (whole plant), and water</td>
<td>• From <em>Piper methysticum</em> root containing kavalactones 50 mg</td>
</tr>
<tr>
<td><strong>Actions:</strong></td>
<td><strong>Action:</strong></td>
</tr>
<tr>
<td>• Supports central nervous system by balancing PNS and SNS</td>
<td>• Active in mood modulation including occasional anxiety</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Synergistic Support Gut Lining</th>
<th>Healthy Digestive Function</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Aloe Vera:</strong> The polysaccharides in Aloe feed the microflora aid the restoration of the normal symbiotic microflora and support columnar epithelium.</td>
<td><strong>Questions &amp; Comments</strong></td>
</tr>
<tr>
<td>• Note: Use one that has the bitter alkaloid compound called anthraquinones removed.</td>
<td><strong>Healthy Digestive Function</strong></td>
</tr>
<tr>
<td>• Dosage: 25ml 2-3x daily in water or juice. Best used for a minimum of three months for maximum clinical benefits.</td>
<td><strong>Healthy Digestive Function</strong></td>
</tr>
<tr>
<td><strong>Healthy Digestive Function</strong></td>
<td><strong>Questions &amp; Comments</strong></td>
</tr>
</tbody>
</table>

**Healthy Digestive Function**

**Questions & Comments**
Upper Thoracic Challenge
Looking Deeper

Dr. Joseph Olejak

Upper Thoracic Area

Affects a number of organs
• Stomach
• Heart
• Lung
• Liver

One Area

Due to time considerations we’ll cover one area (digestive function – stomach and gall bladder) in-depth and briefly discuss other sections:
• Heart
• Lung
• Liver

Digestive Function

Challenged digestive function afflicts millions of people each year.
• One major area is occasional stomach acid
  • The prevalence of weekly heartburn and other symptoms of gastrointestinal upset rose nearly 50% over the last decade, according to one of the largest studies ever to examine the issue.
  • The study followed more than 30,000 people in Norway for 11 years. When the study started, 11.6% of the people reported symptoms at least once a week. That percentage rose to 17.1% by the end of the study. That’s a 47% increase.
  • Source: http://www.webmd.com/heartburn-gerd/news/20111222/study-acid-reflux-prevalence-increasing

Definitions cont’d

Dyspepsia is another name for decreased digestive function
Defined as an impairment of the power or function of digestion.
Patients commonly call it “heartburn”
Causation

- The symptoms of heartburn may have causation in either excess stomach acid or inadequate digestion resulting in the formation of organic acids.
- Reduction in LES (Lower Esophageal Sphincter) tone related to smoking, alcohol, fatty foods
- Other possible causes may be eating excessive amounts of food, overweight, pregnancy, yeast or and anxiety.

Smoking, Salt & Heartburn

- People who smoke or use high amounts of salt are at higher risk for heartburn
  - Smoking 1-5 years increases risk by 20%
  - Salting food at mealtime increased risk by 70%
  - NEW YORK (Reuters Health) - People who smoke or use high amounts of table salt on their food appear to be at increased risk for GI upset, European researchers report. In contrast, tea and alcohol, which have been identified as culprits in past studies, did not increase the risk.
    * Source: Gut, December 2004

Background Issues

Major factors thought to be involved in the etiology of GI upset are:
- Inappropriate relaxation of the lower esophageal sphincter (LES), perhaps triggered by gastric distension
- Poor functioning of the LES through low basal sphincter tone. This factor particularly applies in patients who also have irritable bowel syndrome.

Aspects of the “Enteric Brain”

Enteric Nervous System (ENT) can work independently of CNS
- Peristalsis occurs even when vagus nerve cut
- Interstitial Cells of Cajal (ICC)
  - Thought to act as pacemakers regulating the rhythm of gut contractility.

Amyloid plaques and neurofibrillary tangles have been identified in the gut.

Cautions

**Clinical Pearl**: Cooked cabbage in clinical trials had a 90% rate of improvement
- Known as Cabbogen
  - Can give cabbage raw or cooked, but raw cabbage juice is often too acid
Heartburn – Self treatment

Patients self treat heartburn using over-the-counter antacids which neutralize stomach acid with calcium carbonate, an alkali.

Digestive Hyper Acidity
The Medical Approach

Orthodox medical treatments utilize preparations that reduce stomach acid secretions by working on the acid producing cells of the stomach

- Known as Proton Pump Inhibitors

Effects of higher stomach pH

Raising the pH of the stomach from its normal range of 1.5 to 2.5.
Hydrochloric acid helps the conversion of pepsinogen to pepsin, the chief gastric enzyme involved in protein breakdown.
If the secretion of hydrochloric acid and/or pepsin is inhibited or decreased, proper protein digestion and mineral absorption will be compromised.

Evaluating Stomach Acid

The current allopathic view of Digestive Hyper Acidity is an excess of stomach acid. However, a lack of stomach acid, hypochlorhydria, could equally be at fault and presents with a similar set of symptoms.
Determining which physiologic state is of utmost importance when coming up with a treatment strategy.

Medical Tests for Evaluating Stomach Acid

Heidelberg Capsule:
- Patient swallows a pH meter which emits a radio signal.
- At the end of the test the patient gets to fish the capsule out of the toilet so it can be reused.
Simple Qualitative Acid Test

Have clients swallow one tablet of Betaine HCL or a tablespoon of vinegar.

• **POSITIVE:** If heating or burning in solar plexus is noted shortly afterward this is an indication of excess stomach acid.

Doctors may want to have something handy to put out the stomach fire after a positive test.

Symptoms of decreased gastric activity

- Bloated after meals
- Iron deficiency
- Temporary constipation or diarrhea
- Supplements cause indigestion
- Indigestion
- Fragile fingernails
- Bad breath
- Coated tongue
- Undigested food in stools

Effects of Aging on the Ability to Secrete Stomach HCL

Medical physiologists adhere to the notion that the ability to secrete gastric acid decreases with age. The progressive loss of stomach acidity could be the result of digestive abuse over the years from an excess consumption of processed food lacking natural enzymes.

Long term use of devitalized food places stress on the digestive enzyme secreting cells.

Part II

Nutritional Considerations

- **Disclaimer**

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Dr. Olejak’s recommendations for Standard Process product dosages are sometimes different than the dosages that appear on the product labels. Please refer to the product labels or to the product descriptions found in the product catalog or online at standardprocess.com for the Standard Process dosage recommendations.

Treatment Considerations

- **Differential Diagnosis**
  - Rule out duodenal or peptic ulcer
  - Decide if problem is hyper or hypo acidity
  - Trophorestoration of mucus membrane

- **Reduce non-ulcer related GI inflammation**

- **Immune system support**

- **Balance the “enteric brain” with nutrition appropriate for nervous tissue**
Protocol Where Hypochlorohydria (too little HCL secretion) is the problem

Zypan®
And/or
Digest

Zypan®

Chief indication is to improve protein digestion.
Major indication for the need for this digestive product is upper GI intestinal gas.
- Gas forming micro-organisms thrive in an alkaline environment
- In a healthy person the gut should always be acid

DiGest

Dosage: 5ml 15-20 minutes before each meal.
- Upper Digestive Formula Tablets: suck or chew 1 tablet before meals
  - Tablets have Mandarin orange peel, gentian (both in the tablet and as a coating for vagal response), dandelion root, ginger, silymarin, chamomile, and chen pi

Clinical pearl: patients will generally experience a slight warming in the solar plexus after administration. This is a sign the stomach is “gearing up” for the meal to come.

Protocol for Hyperchlorohydria (too much stomach acid)

Gastrex®
HiPep

Zypan®
Key Ingredients:
- Betaine hydrochloride, pancreatin (3x), bovine pancreas extract, pepsin (1:10,000), bovine spleen and ovine spleen, and ammonium chloride.

Action:
- Supports enzymatic digestion of macro nutrients (fats, carbohydrates & proteins)
- Facilitates optimal pancreatic digestive processes.
- Supports broad digestive support through pancreatic factors

Clinical Indications:
- Heartburn and dyspepsia due to inadequate enzymatic digestion of food (esp protein)
- Upper GI gas (bloating and burping) & heartburn

DiGest

• Key Ingredients:
  - Dandelion root from Taraxacum officinale root
  - Tangerine from Citrus reticulata fruit peel
  - Milk Thistle from Silybum marianum fruit
  - Ginger from Zingiber officinale rhizome
  - Gentian root from Gentiana lutea root
  - Tangerine (Citrus reticulata) fruit peel essential oil
  - Chamomile (Matricaria recutita) flower essential oil

• Actions:
  - Stimulate gastric juice output and appetite, support healthy digestion and intestinal function, promote healthy gastrointestinal tone, promote healthy intestinal flora, cleanse the liver, and promote normal response to environmental stresses in the gut

• Clinical Indications:
  - Heartburn and lack of digestive function due to too few stomach secretions
Gastrex®

Key ingredients:
- Okra (fruit), bentonite (montmorillonite), Tillandsia usenoides, anise (seed), bovine liver, porcine stomach, choline bitartrate, alginic acid, calcium lactate, porcine duodenum, allantoin, defatted wheat germ, exsiccated disodium phosphate, oat (straw) extract, para-aminobenzoate, and porcine brain with niacin, B6 and Vitamin C

Action:
- Supports mucus membrane, reduces acidity of the stomach and supports gastric function

Clinical indications:
- Heartburn, gastritis, challenge to mucin layer and occasional heartburn

HiPep

Key Ingredients:
- Deglycyrrhizinized Licorice from Glycyrrhiza glabra root
- Chamomile flower from Matricaria recutita flower
- Meadowsweet herb from Filipendula ulmaria
- Chamomile (Matricaria recutita) Flower essential oil

Actions:
- reduce occasional stomach acid secretions, promote healthy mucosal tissue within the upper gastrointestinal tract, promote healthy tone and function within the upper gastrointestinal tract and assist the normal functioning of the esophageal sphincter

Clinical indications:
- Excess stomach acid

Mucoprotection

Licorice and mucilaginous demulcent herbs (Marshmallow, Slippery Elm) to enhance mucoprotection.
- These are best taken before meals, and should be taken at least half an hour before eating.

Dermatrophin PMG® combines well here

Mucin Production

Long term gastric acidity challenges the protective mucin layer of the stomach and duodenum
- The Vitamin C Complex is essential for mucin production
- C Complex Contains
  - P factors
  - J & K factors
  - Vitamin K
  - Ascorbic acid
  - Tryosinase (organic copper)

Immune Support

Echinacea - C

Thymex®

Echinacea - C

Key Ingredients:
- Echinacea angustifolia (root), Echinacea purpurea (root), dried buckwheat (leaf) juice, and buckwheat (seed) with Vitamin C

Action:
- Acts as a biological modifier of immune system via a general hormetic effect
- Supports leukotaxis and innate immune system support
- Supports phagocytosis and improves lymphatic drainage
Aqueous Thymus Extract

Key ingredients:
- Thymus Cytosol™ extract with vitamin C

Actions:
- Supports lymphatic drainage and reticulo-endothelial system

Aqueous Thymus Extract

Digestive tract laced with lymphatic tissue
- GALT (gut associate lymphoid tissue)
- About 70% of the body’s immune system is found in the digestive tract. The GALT is made up of several types of lymphoid tissue that produce and store immune cells that carry out attacks and defend against pathogens.
- Thymex® supports all lymphatic tissue

Digestive Lymphatics

Chamomile

Indicated with lack of normal inflammatory response to minor GI upset in the gut.
- Active constituents: α-bisabolol and chamazulene

Chamomile

Key Ingredients:
- Chamomile flower from Matricaria recutita flower

Actions:
- Reduce gas buildup in the intestines, encourage relaxation and support a healthy nervous system response, support normal intestinal motility support the integrity of the intestinal mucosa, support healthy digestion and appetite, and stimulate the body’s normal tissue restoration functions

Clinical Indications:
- Irregular menstruation during transition to menopause
**Chlorophyll (fat soluble)**

A fat soluble pigment containing vitamins A, D, E, and K

- Used here because of its natural healing support action on epithelium.

---

**Chlorophyll (fat soluble factors)**

Key Ingredients:

- Vitamin A (as Beta-carotene), fat soluble extract (from sesame [seed], alfalfa [whole plant], sunflower [seed], carrot [root], Tillandsia usneoides, buckwheat [leaf], and pea [vine])

Actions:

- Demulcent: coats and soothes the mucus membrane
- Detoxifier: neutralizes guanadine
- Supports blood, tissue oxygenation and healing
- Source of vitamins A, D, E & K

Clinical Indications:

- Support for healthy mucous membrane in the stomach

---

**Clinical Pearl**

If patients have trouble digesting the fat soluble factors in Chlorophyll (fat soluble fraction) consider the following:

- Purified bile salts in Cholacol®
- Dose: 1 with chlorophyll

---

**Patient Recommendations**

Eat at regular meal times and eat in a relaxed atmosphere.

Avoid foods which tend to reduce lower esophageal tone, such as fatty foods, chocolate, coffee, tea, and onions. The foods in this list will vary from person to person.

Lose weight

---

**Patient Recommendations Cont’d**

Don’t eat after 8 p.m.

Don’t stuff yourself

- Aka “Thanksgiving Syndrome”

Dairy products may also be a problem

- Therefore, consider a 30-day elimination of dairy to rule it out as a problem.

---

**Additional Considerations**

Poor bile flow may be a contributing factor.

If HCL with pancreas extract, Upper GI Support, Acute Gastric Support, and Gastric Mucosal Support do not completely resolve digestive issues consider the following protocols to stimulate bile production and release.
To stimulate bile:

**AF Betafood®**

- **Betafood®**

AF Betafood®

---

**Betafood®**

- **Key ingredients:**
  - Beet (root), oat flour, beet (leaf), and dried beet (root) juice.
- **Action:**
  - Improves bile flow and bile production
  - A good source of methyl donor groups and aids in detoxification (methylation)
- **Clinical indications:**
  - Sluggish liver and bile production
  - Weak bile release by gall bladder

---

**Globe Artichoke**

**Key Ingredients:**
- Globe Artichoke leaf 1:2 extract from *Cynara scolymus* leaf

**Actions:**
- Support normal bile production and secretion
- Support healthy liver function and tissue integrity
- Support gallbladder function
- Strongly hypolipidemic

**Clinical Indications:**
- Support healthy cholesterol already in a normal range and healthy GI function

---

**AF Betafood®**

- **Key ingredients:**
  - Carrot (root), beet (root), oat flour, dried beet (leaf) juice, defatted wheat (germ), calcium lactate, magnesium citrate, bovine liver, nutritional yeast, bovine kidney, bovine prostate, alfalfa flour, bovine orchic extract, bovine liver fat extract, flaxseed oil extract, mixed tocopherols (soy), and soybean lecithin with vitamins A, B6 and iodine
- **Action:** Mild liver / GB de-congestant
  - Supports fat metabolism
  - Thins and mobilizes bile
  - Assists in the conversion of blood fat to sugar
- **Clinical indications:**
  - Bloating after eating a fatty meal
  - Most helpful for biliary duct stasis

---

**Additional Support**

- **Globe Artichoke:**
  - 15-30ml/week. This herb facilitates bile flow and production and also has the additional quality of supporting natural hepatotrophorestorative (liver healing) process
  - Taking bitters before a meal produces HCL production taking after improves bile flow
- **LivTon®:**
  - 1 tablet 3x/day with meals. The herbs in this formula facilitate bile flow and production.
  - Contraindicated in pregnancy and lactation and with closure of the gallbladder.
  - Use with professional supervision if gallstones are present.

---

**LivTon®**

**Key Ingredients:**
- Globe Artichoke leaf from *Cynara scolymus* leaf
- Dandelion root from *Taraxacum officinale* root
- Milk Thistle fruit from *Silybum marianum* fruit
- Bupleurum root from *Bupleurum falcatum* root
- Fringe Tree from *Chionanthus virginica* stem bark

**Actions:**
- Support healthy liver and gallbladder function, support the normal processing of hormones in the body encourage healthy digestive function, enhance healthy bowel function, encourage the healthy function of the organs of elimination help and maintain healthy blood

**Clinical Indications:**
- Reduced bile production and bile flow to GI tract
Dietary suggestions - Beets
Recommend your patients start eating red beet root and red beet tops, as this will help bile flow and bile production.
Patients can steam fresh beets 15-20 minutes and cut off the greens and use in a salad or a sauté.
Warn clients that their stools will be red the next day or you may get a phone call from a worried patient.

Heart Support
- Cellular Vitality
- Hawthorn
- CardioPlus®

Lung Support
- Allerpex®
- Broncafect®

Liver Support
- Livaplex®
- Milk Thistle (Silymarin)

Upper Thoracic Challenge
Looking Deeper
Questions & Comments

Stress & Neck Pain
Dr. Joseph Olejak
What’s The Question?

Stress By Another Name?
What are some other names that stress goes by?

Physiology of Stress
Physiological responses:
• Varying levels of muscle tension, shallow breathing, increased heart rate, slowed digestion and blood vessel narrowing ... depending on the level and duration of stress

Emotional responses include:
• nervousness, agitation, fear and worry attached or unattached to a clearly identifiable stimulus.

Audio Clips
http://www.youtube.com/watch?v=C4MFxcFolkY
(MEATLOAF)
http://www.youtube.com/watch?v=dY7aA0s6yiE
(GREIG)

The CNS Responds First
(fast thinking initial reactions and impressions)

If a threat is detected (or remembered) the brain responds with a state of hyper-arousal to perceived danger.

The Autonomic Part
Not The Voluntary Part
Stress Activates The Sympathetic NS

SNS activates the following physiology via Catecholamine hormones, such as adrenaline or noradrenaline which facilitate immediate physical reactions associated with a preparation for violent muscular action. These include the following:

- Acceleration of heart and lung action
- Paling or flushing, or alternating between both
- Inhibition of stomach and upper-intestinal action
- General effect on the sphincters of the body
- Constriction of blood vessels in many parts of the body

Dilation of blood vessels for muscles
Inhibition of the lacrimal gland (responsible for tear production) and salivation
Dilation of pupil (mydriasis)
Relaxation of bladder
Inhibition of erection
Disinhibition of spinal reflexes
Shaking
Liberation of nutrients (particularly fat and glucose) for muscular action

Rest, Pleasure, and Food Turn On The Parasympathetic NS

Parasympathetic system activates systems that are responsible for:

- Known as “rest-and-digest” or “feed and breed”
- In particular activities that occur when the body is at rest, especially after eating, include:
  - sexual arousal, salivation, lacrimation (tears), urination, digestion, and defecation.

What Regulates This?
What Regulates This?
The triune brain is a model of the brain proposed by the American physician and neuroscientist Paul D. MacLean.
• The triune brain consists of the reptilian complex, the paleomammalian complex (limbic system), and the neomammalian complex (neocortex), viewed as structures sequentially added to the forebrain in the course of evolution.

Ultimately The Brain Itself Is An Endocrine Organ
Through the actions of the hypothalamic nuclei the brain sets in motion the numerous endocrine responses that lead to:
• **Reproduction**: Hypothalamic Pituitary gonadal Axis
• **Survival**: Hypothalamic Pituitary Adrenal Axis
• **Metabolism**: Hypothalamic pituitary thyroid axis

What Turns On The Stress Response?
The brain does not differentiate between a real threat and an imagined threat.

What Turns On The Stress Response?
Whether you are on a life boat with a Bengal tiger or lying in bed worrying about:
• Your mortgage
• Your business
• Your taxes
• Your kids
• Etc., etc. etc.

The brain does not differentiate between a real threat and an imagined threat.

The Amygdala Hijack
1. Amygdala blocks ‘clear’ thinking
2. Data sent to amygdala
3. Data also sent to cortex
4. Amygdala does quick threat assessment
5. Sensory data fed to Thalamus
6. ‘Unthinking’ response
The Amygdala Hijack

If the amygdala perceives a match to a stimulus, i.e., if the record of experiences in the hippocampus tells the amygdala that it is a fight, flight or freeze situation, then the Amygdala triggers the HPA (hypothalmic-pituitary-adrenal) axis and hijacks the rational brain.

- Amygdala hijack is a term coined by Daniel Goleman in his 1996 book Emotional Intelligence: Why It Can Matter More Than IQ.
- Drawing on the work of Joseph E. LeDoux, Goleman uses the term to describe emotional responses from people with the actual stimulus.

Why Is The Amygdala Central To The Stress Response?

Functions of the Amygdala:
- In complex vertebrates, including humans, the amygdalae perform primary roles in the formation and storage of memories associated with emotional events; like survival.
- Research indicates that, during fear conditioning, sensory stimuli reach the basolateral complexes of the amygdalae, particularly the lateral nuclei, where they form associations with memories of the stimuli.

NO AMYGDALA – YOU BECOME LUNCH

Chronic Amygdala Activation Leads To Muscle Activation

In one study of supermarket cashiers a positive correlation was found between stress and muscle tension.

- Stress levels were found to be significantly elevated at work, as reflected in the catecholamines, blood pressure, heart rate, electromyographic (EMG) activity, and self-reports. Fifty cashiers (70%) suffering from stress related neck-shoulder pain (trapezius myalgia)

Etiology

Dietary imbalances
Consider hormonal imbalances if anxiety is pre-menstrual
Excessive caffeine and/or sugar intake
Food additives
Bio-chemical challenges to brain chemistry
Exogenous stressful events
Unresolved emotional issues
Difficulty sleeping
Part II
Nutritional & Associated Support

Disclaimer

Standard Process sponsored this talk to provide health care information to practitioners and to provide them the opportunity to hear about the views, recommendations, and experiences of other practitioners.

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Dr. Olejak’s recommendations for Standard Process product dosages are sometimes different than the dosages that appear on the product labels. Please refer to the product labels or to the product descriptions found in the product catalog or online at standardprocess.com for the Standard Process dosage recommendations.

Patient Considerations
Address joint dysfunction and muscle tone issues with chiropractic, massage, eStim, US, etc.
Use of nerve tonics to address activated limbic system
Moderation of the sympathetic response through the use of minerals
Nutritional and herbal support for adrenal glands should always be considered
  • (due to continued stimulation and taxation of the adrenal glands (tonics, adaptogens, trophorestoratives)
Meditation

Parasympathetic Support
Anxiety results in over activity of the sympathetic nervous system.
  • The goal of nutritional therapy is to restore balance by nurturing the parasympathetic side.
Evaluate group “1” (one) of the Symptom Survey Form
  • The questions relate to SNS activation

Group 1

Other Parasympathetic Support Products
Three Standard Process products are specific for addressing parasympathetic system
They are listed in order of strength (highest to lowest)
  • Orchex®
  • half Nicinamide-B6 and half aqueous orchic extract
  • Min-chex®
  • 65% Min-Tran & 35% Orchex
  • Min-tran®
  • Sea Kelp
### Orchex®

**Key ingredients:**
- Niacin and B6 with bovine liver, bovine orichic extract, calcium lactate, manganese lactate, porcine stomach, bovine spleen, ovine spleen, soy (bean), defatted wheat (germ), magnesium citrate, and porcine brain.

**Actions:**
- Relaxes vasculature, supports male gonads, and calms CNS.
- Physiological relaxer via its oxygenation effect on nervous tissue.
- Contains orichic hyaluronidase (aka “spreading factor” from its effect on smooth muscle in hypertension.)
- Niacin and B6 are included for its use as an adrenal hormone precursor.

**Clinical indications:**
- Stress, tension, failure to calm, and agitation.

### Min-Chex®

**Key Ingredients:**
- Calcium, Niacin, Vitamin B6, iodine with bovine orichic extract, magnesium citrate, manganese lactate, bovine liver, porcine stomach, soy (bean), bovine spleen, ovine spleen, para-aminobenzoate, defatted wheat (germ), porcine brain, and ascorbic acid.

**Action:**
- Supports sympathetic nervous system.

**Clinical Indications:**
- High levels of stress, loss of sleep, high muscle tone (esp. in cervical region).

### Min-Tran®

**Key Ingredients:**
- Calcium, Iodine, Magnesium.
- Calcium lactate, kelp, magnesium citrate, alfalfa (whole plant), and water.

**Actions:**
- Supports central nervous system by balancing PNS and SNS.

### Basic Nutritional Support For Stressed Patient with Stress-related Neck Pain

- **Primary Protocol**
  - Min-chex®
  - Drenamin®
  - Valerian complex

### Drenamin®

**Drenamin®** is a combination of Drenatrophin PMG®, Cataplex® G and Cataplex® C for adrenal support.

The adrenal glands are included in the protocol because with any form of stress the General Adaptation Syndrome (GAS) occurs.
- Hans Selye described any stressor as eliciting an adaptive response – the end point of adaptation being exhaustion.
- Anxiety taxes the adrenal glands as well as the immune system.

**Key Ingredients:**
- Calcium lactate, defatted wheat (germ), bovine liver, bovine adrenal, porcine stomach, nutritional yeast, bovine adrenal extract, choline bitartrate, alfalfa extract, dried buckwheat (leaf) juice, buckwheat (seed), magnesium citrate, oat flour, mushroom, bovine bone, para-aminobenzoate, allantoin, porcine brain, veal bone, carrot (root), soybean lecithin, rice (bran), and mixed tocopherols (soy) with Vitamin C, Riboflavin, Niacin and Vitamin B6.

**Action:**
- Supplies Vitamin C, Riboflavin, Niacin, and Vitamin B6.
- Supports production of adrenal hormones (involved in energy production and hormonal regulation of glucose metabolism and aging).
More from Selye...

“...since stress is defined as anything which demands an adaptive response, all forms of treatment can potentially be forms of stress...”

- It is for this reason that we use an appropriate dosage of nutrition
- Appropriate treatment leads to recovery
- Excessive treatment leads to challenges

Valerian Complex

Key ingredients:
- Valerian from Valeriana officinalis root & rhizome
- Passion Flower from Passiflora incarnata herb
- Spiny Jujube seed from Zizyphus spinosa seed

Actions:
- Relaxes muscle tissue and acts as a central N.S. relaxer

Clinical indications:
- Stress, tension, agitation, failure to calm, and difficulty sleeping

What About Other Presentations of Neck Pain?

Neck Pain with an overlay of anxiety?
Neck pain with Adrenal Depletion?
Neck pain with PMT?

Neck Pain With Stress

Kava Forte – one tablet three times per day
- Use instead of Valerian Complex in the primary protocol

The Emergence of Kava

Late last century the herb Kava (Piper methysticum) was emerging as a serious player to support mood, calm the nerves and promote relaxation and sleep. Several clinical trials had reported its efficacy and the experience of health care professionals was that it worked well in real life
**Kava: 2003 Meta-analysis**

Outcome measure ⇒ Improvement in HAMA

“Kava extract appears to be an effective symptomatic treatment option” for mood support in a relatively small sample

Adverse events reported were “mild, transient and infrequent”

7 RCTs, 380 participants


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**Kava and Sleep**

Statistically significant group differences were demonstrated in favor of the Kava group as measured by a sleep questionnaire on ‘Quality of sleep’ (p=0.007) and ‘Recuperative effect after sleep’ (p=0.018)

A multicenter RCT assessed a Kava ethanol extract to support sleep and mood in 61 German patients

Kava extract 200 mg/day (containing 140 mg kavalactones) was used for 4 weeks

Lehr S. J Affect Disord. 2004;78(2):101-110

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**Kava in the Support of Mood**

75 participants

8-week double-blind trial, placebo controlled

1 week placebo run-in phase

Water extract of Kava (120 mg of kavalactones) increased to 240 mg in non-responders

Support was measured using the HAMA as the primary outcome


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**Kava in the Support of Mood**

Significant support for mood in the kava group compared to placebo (P = 0.046)

Among a subset of participants, this effect was larger (P = 0.02)

26% of the kava group were classified as significantly supported (HAMA ≤ 7) compared to 6% of the placebo group (P = 0.04)

Kava Safety, Addiction and Sexual Effects

Australian RCT, 8 weeks duration
Dosage: 120-240 mg kavalactones, equivalent to 2.5 to 5 Kava Forte tablets
No serious adverse effects, no participant in either group developed clinical signs of hepatic abnormality
Withdrawal or addictive behaviors were not observed


Kava Forte

Key Ingredients:
• Kava root 7:1 water extract
• From Piper methysticum root containing kavalactones 50 mg

Action:
• Active in mood modulation including occasional anxiety

Clinical Indications:
• Promotes relaxation and relieves anxious feelings, Calms the nerves, Eases the effects of everyday tension and stress,
• Promotes sleep, & Supports the relief of muscular tension

Dose:
• 1 tablet 2-3x per day

Kava Forte: Key Features

High Quality Kava Cultivars:
MediHerb® uses only the noble cultivars of Kava – the prized varieties chosen by traditional producers of Kava

Water Extracted
Traditionally Kava is extracted in water
We believe MediHerb® is the only company to invest in research on water extracted Kava

Kava Forte Key Features: Bioavailability

Analytical Research:
• MediHerb® investigated the difference in bioavailability of water versus ethanol extracts of Kava in-vitro

Kava Forte: Cautions

US FDA advises that a potential risk of rare, but severe, liver injury may be associated with kava-containing dietary supplements. Ask a health care professional before use if you have or have had liver problems, frequently use alcoholic beverages, or are taking any medication. Stop use and see a doctor if you develop symptoms that may signal liver problems (eg unexplained fatigue, abdominal pain, loss of appetite, fever, vomiting, dark urine, pale stools, yellow eyes or skin).

Kava Forte: Cautions

Not for use by persons under 18 years of age, or by pregnant or breastfeeding women
Not for use with alcoholic beverages
Excessive use, or use with products that cause drowsiness, may impair your ability to operate a vehicle or dangerous equipment
Not for prolonged use
Do not exceed recommended dose

Stress Related Neck Pain

St. John’s Wort -- one tablet three to four times per day when there is pain
• Two Italian studies showed St. John’s Wort effective for pain.

Stress-Associated Neck Pain With Adrenal Depletion?

Lots of options to add to Drenamin in the Primary Protocol:

Withania Complex
Adrenal Complex
Drenatrophin PMG®
Eleutherococcus

Withania Complex

Key Ingredient:
• Skullcap from Scutellaria lateriflora
• Licorice root from Glycyrrhiza glabra
• Withania (Ashwaganda) from Withania somnifera root
• Korean Ginseng from Panax ginseng root containing ginsenosides

Actions:
• Acts as an adaptogen and has demonstrated effects including antioxidant activity: On Immunomodulation, on stress reduction, on rejuvenation, on hemopoiesis, and on the nervous system

Adrenal Complex

Key ingredients:
• Rehmannia glutinosa and Glyceriza glabra

Actions:
• Both herbs are adrenal support herbs and act as adaptogens

Clinical indications:
• Adrenal depletion in its many varied forms
Eleutherococcus senticosus

Key Ingredient:
- *E. senticosus* (siberian ginseng)

Actions:
- Acts as an adaptogen helps body deal effectively with stress

Clinical Indications:
- Improve athletic performance and mental performance

Therapeutic dose:
- 950 mcg of eleutherosides / 2-3x day

Adaptogens

The concept of of adaptogenic activity was first elaborated by Brekhman and Dardymov.
A substance must meet specific criteria in order to be regarded as an adaptogen:
- 1) produce a non-specific response and therefore increase resistance against a variety of stressors
- 2) have a normalizing (amphoteric) action on physiological function irrespective of the pathological state, and,
- 3) be innocuous

Stress- Related Neck Pain With PMT

Nevaton®
- Can be added to primary protocol to support emotional aspects of premenstrual tension

Medicate or Meditate?

What Are The Upsides
And DOWNsides?

Try Black Tea

Feeling stressed? New research has found that black tea has an effect on stress hormone levels in the body.
- The study was conducted by researchers at the University College of London (UCL), who found that people who drank tea were able to de-stress more quickly than those who drank a fake tea substitute, and that drinking a black tea concoction four times a day for six weeks can lower levels of the stress hormone cortisol in the blood after a stressful event.
  - Asian News Service, Oct 4, 2006

Meditation

Benefits
- Redirects fight or flight response toward healing
- Drug free
- Clarifies thoughts
- Brings calm
- Reduces anger
- Enhances peace
Serena

A Guided Journey into the Heart of Meditation

Questions & Answers

Special Thanks To Lee Carroll

For notes on Kava