

Total Digestive Repair

CARRIE LOUISE DAENELL, ND

Although there are variations along the way, the basic structure of the GI tract is the same throughout its entire length. A good example of this variation is found in the lining of the stomach. This dense layer of cells continually sacrifices itself to protect the deeper stomach lining tissue. Every minute, the lining sheds 500,000 cells, completely replacing itself every three days. Some people, genetically, are unable to replace those shedding cells as quickly as others. This is due to a down-regulation of the enzyme responsible for the conversion of glucosamine 6-phosphate to N-acetyl D-glucosamine – the “building block” of the protein glycocalyx that serves as the structural backbone of the mucous membrane. As you can imagine, those with this genetic “weak link” are the same people who are unable to take digestive “hits” as gracefully as everyone else.

The GI tract also is home to 70% of our immune system’s cells – and the primary reason that many health problems, syndromes, conditions and degenerative diseases are directly related to how well our digestive tract is functioning. At the very least, this means that if our digestive system is compromised, our immune system is compromised. It is impossible to separate the two – they are so very connected. Even relatively minor GI dysfunction can lead to problems, such as:

- Malabsorption
- Malnutrition

- Abdominal pain
- Constipation
- Diarrhea
- Lactose intolerance
- Celiac disease
- Autoimmune problems
- Chronic fatigue
- Fibromyalgia
- Systemic toxicity challenges.

If the immune cells in the GI tract are struggling to stay healthy, we are at a higher risk for developing serious GI illnesses, such as Crohn’s disease and ulcerative colitis. Chronic skin conditions like psoriasis and eczema are also often founded in the digestive tract. Poor digestive health can cause cross-over autoimmune and systemic inflammatory diseases. Chronic fatigue syndrome and fibromyalgia (CFS/FM) are inflammatory disorders intrinsically linked to the GI tract.

Leaky Gut Syndrome

Research has shown that CFS/FM often start when inflammation is triggered falsely by undigested foods, intestinal parasites or *H. pylori* infections. Our body’s natural inflammatory response becomes overwhelmed, causing leaky gut syndrome and consequently CFS/FM. Once the gut becomes leaky, our intestinal lining is no longer able to keep those undigested aspects of our diet away from the blood stream. Once those undigested components make it to the bloodstream, they interact with our systemic immune system. Further, toxins and pathogens can also easily cross into the bloodstream and trigger

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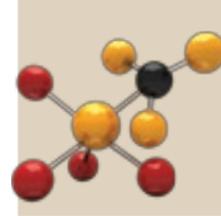
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Salvestrols are phytoalexins metabolised by the CYP1B1 enzyme to induce cell death in diseased cells. They exist in food (vegetables, fruits and herbs) but research indicates their presence has been diminished by modern farming methods, new plant varieties and by food processing techniques. Our modern diet delivers about 2mg of salvestrols per day compared to about 12mg a hundred years ago.

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Protocol 1: Permeability Digestive Restore

Ingredients	Dosage	Rationale
Acid-Stable Digestive Enzyme Support	Two capsules tid with meals.	<ul style="list-style-type: none"> • Digestive enzyme production diminishes with age and in certain conditions • Supplemental digestive enzymes support healthy digestion and assimilation of nutrients (Nakamura et al., 1998; Roberts, 1989; Zorn, 1978; Sandberg et al., 1996) • Acid-stable plant enzymes digest all food types, even in individuals with impaired gastrointestinal pH (Nakamura et al., 1998; Roberts, 1989; Zorn, 1978)
Amylase	32,000 USP	
Protease I, II, III, IV	23,800 DU 30,000 USP 48,750 PC 82,000 HUT	
Lipase I, II	2100 LU 970 LU	
Lactase I, II	1600 LacU	
Phytase	1.7 PU	
Cellulase I, II	350 CU	
Intestinal Barrier Support – Blend of Permeability Factors	Two softgels tid with meals.	<ul style="list-style-type: none"> • Intestinal barrier defects can lead to development of systemic infections <p>Glutamine (Foitzik et al., 1997)</p> <ul style="list-style-type: none"> • Stabilizes gut barrier function • Reduces bacterial translocation • Possesses free radical scavenging and anti-inflammatory capabilities <p>NAG</p> <ul style="list-style-type: none"> • Necessary for biosynthesis of intestinal mucosa <p>Gamma-oryzanol (Minakuchi et al., 1976)</p> <ul style="list-style-type: none"> • Protects gastrointestinal mucosa by reducing hyperacidity • Possesses antioxidant activity <p>Phosphatidylcholine (Fabia et al., 1992)</p> <ul style="list-style-type: none"> • Protects and restores the gastrointestinal mucosa by strengthening the mucous-phospholipid layer <p>GLA (Usami et al., 2003)</p> <ul style="list-style-type: none"> • Precursor in synthesis of prostaglandins • Protects gastric mucosa from irritants
L-glutamine	500mg	
N-acetyl-D-glucosamine (NAG)	250mg	
Gamma-Oryzanol	66mg	
Phosphatidylcholine	56mg	
Gamma-linolenic acid (GLA)	133mg	
		
Antioxidant Support	Two capsules tid with meals.	<ul style="list-style-type: none"> • Oxidative tissue damage by free radicals has been implicated in the development of many chronic degenerative diseases <p>Quercetin (Szabo et al., 1997)</p> <ul style="list-style-type: none"> • Promotes normal mast cell function in the intestinal mucosa <p>NAC (Sun et al., 2002)</p> <ul style="list-style-type: none"> • Precursor of glutathione • Powerful free radical scavenger • Improves endothelial and epithelial barrier integrity <p><i>Ginkgo biloba</i> (Otamiri et al., 1989)</p> <ul style="list-style-type: none"> • Protects intestinal mucosa by reducing neutrophil infiltration and lipid peroxidation
Quercetin	267mg	
N-acetyl-L cysteine (NAC)	100mg	
<i>Ginkgo biloba</i> leaf (24% Ginkgoflavone-glycosides)	28mg	
		
Probiotic Support	Take 1 billion CFU daily, with water.	<ul style="list-style-type: none"> • Acid-stable probiotics support healthy digestion and bowel function (Goossens et al., 2003) • Must survive gastric conditions and be released in the intestine to be effective (Probiotic Comparison Testing, 2002) • Safe and effective for children (Fleming, 2001)
Stable, Gastric-Protected Probiotic Support		
<i>Lactobacillus acidophilus</i> and <i>Bifidobacterium longum</i>	May be taken with or without food.	
Encapsulated Fiber Support	Four capsules qd before bedtime.	<ul style="list-style-type: none"> • Fiber absorbs up to 14 times its weight in liquids, adding form and substance to fecal material (Nick, 2001) • <i>Plantago ovata</i> husk and <i>Avena sativa</i> bran are excellent sources of soluble fiber • While in the intestinal tract, fiber absorbs water leading to increases in the percentage of stool water • <i>Plantago ovata</i> increases stool weight by up to 100% and water content by up to 50% (Marlett et al., 2000; Leng-Peschlow, 1991) • <i>Avena sativa</i> bran increases bile acid synthesis leading to stool softening (clinical study; Andersson et al., 2002) • Encapsulated fiber products must adequately disperse following ingestion to be effective (Unpublished data, 2003)
<i>Plantago ovata</i> <i>Avena sativa</i> <i>Cyamopsis tetragonoloba</i> Pectin (from citrus fruit) <i>Althaea officinalis</i>	Four capsules contain 1727mg	
		
Encapsulated Gluten-Free Fiber Support	Four capsules qd before bedtime.	<ul style="list-style-type: none"> • Supports healthy intestinal elimination and detoxification processes (Marlett et al., 2000; Trepel, 2004) • Promotes normal intestinal flora (Marlett et al., 2000; Trepel, 2004)
<i>Linum usitatissimum</i>	800mg	
<i>Plantago ovata</i>	800mg	
<i>Ulmus rubra</i>	100mg	
<i>Althaea officinalis</i>	32mg	
Binding Support for Elimination of Metals	One capsule qd before bedtime.	<ul style="list-style-type: none"> • Reduced blood lead levels by 8.4% (clinical study; Sallay, 1998) • Significant reductions of mercury and cadmium levels also noted (Hudak et al., 1997; Hammock et al., 2003)
Blend of Humic, Fulvic and Phenolic Acids	One capsule: 75mg	

the systemic immune system to mount a response against these invaders that would otherwise be considered normal, were they to stay where they belonged.

Intestinal permeability can be equated to an internal eating disorder, where the immune system sees perfectly healthy food as the enemy. The systemic immune system makes such an overabundance and variety of antibodies that some of those antibodies serve to attack tissues by accident. This is the definition of "crossover" autoimmunity. Those antibodies were not made genetically/ specifically to bind to our own tissue, but it is a "close enough" scenario where they bind anyway. This begins a cascade of immune problems that fuel systemic inflammation and crossover autoimmune challenges. Once this cascade begins, no quick fix or bandage medication is going to heal this very broken scenario. The good news is the autoimmunity was never meant to be, and is therefore reversible. Shore up the systemic immune system's exposure to undigested food, pathogens and toxins, and the systemic immune system no longer mounts an over-reactive response to that which would otherwise be normal. Clinical problem solved.

Treatment Protocol

As a physician, I have heard that CFS/FM are incurable. In my experience that is a sad underestimation of what is possible in the face of natural medicine, when used not as "green" bandages to treat the symptoms, but to "treat the cause" in order to restore normal function to the body. I know that using "the digestion approach" to treating *and preventing* CFS/FM works, and works well in many cases! Why? Because in many cases we are sincerely treating the cause in order to restore the digestive system and the body's immune system to normal function – which is optimal health.

To reverse the cascade of GI tract inflammation and systemic immune dysregulation that occurs in CFS/FM, I begin with the accompanying basic protocol. If I were to make one important point about this material: Avoid the temptation to pick a favorite portion in an attempt to shortcut the protocol with "the most important" aspects.

It is a comprehensive approach to treating the whole system. Every aspect of the organ system must be supported all day every day at the same time over time in order to yield permanent and optimal results. Obviously, I individualize it for each patient as indicated.

Since I presented this material at the AANP convention in fall 2007, many people have requested the "Carrie Louise Protocol." Without branding the products I use, I submit the following:

- Utilize Protocol 1 for three months to establish healthy intestinal permeability and optimal microflora balance.
- If, after three months of utilizing Protocol 1, significant support of the intestinal permeability is not demonstrated (via urine intestinal permeability baseline comparison), conduct comprehensive stool testing. If testing reveals that additional support for microflora or yeast balance is required, proceed with Protocol 2 for six to 12 weeks.
- Upon completion of Protocol 2, return to Protocol 1 for an additional six weeks, then re-test the stool to determine if another round of Protocol 2 is required. When microflora balance has been established, proceed with Protocol 1 for an additional three months before repeating the urine intestinal permeability study. Compare test results to baseline results for confirmation of restorative progress.
- Maintain Protocol 1 until all parameters are optimal (e.g., urine intestinal permeability study – "green" range on one brand test, "optimal" range on other brands. Simply getting to "yellow" or "normal" doesn't mean that you have met your goal. ▀



Carrie Louise Daenell, ND specializes in women's health, digestion, inflammatory conditions, surgical support and hepatitis C. She earned her doctorate in naturopathic medicine from Bastyr University. Previously she served as managing editor of the *Journal of Naturopathic Medicine*, president of the Colorado Association of Naturopathic Physicians, and on the Board of Directors for the American Association of Naturopathic Physicians. She currently serves on the Scientific Advisory Board for Integrative Therapeutics Inc., is a co-author of *Better Breast Health for Life!*, and is a frequent contributor to professional and consumer periodicals in the natural health field.

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Protocol 1

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Protocol 2

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Protocol 2: Active Intestinal Defense

Ingredients	Dosage	Rationale
Acid-Stable Digestive Enzyme Support	Two capsules tid with meals.	<ul style="list-style-type: none"> • Digestive enzyme production diminishes with age and in certain conditions • Supplemental digestive enzymes support healthy digestion and assimilation of nutrients (Nakamura et al., 1998; Roberts, 1989; Zorn, 1978; Sandberg et al., 1996) • Acid-stable plant enzymes digest all food types, even in individuals with impaired gastrointestinal pH (Nakamura et al., 1998; Roberts, 1989; Zorn, 1978)
Amylase	32,000 USP	
Protease I, II, III, IV	23,800 DU 30,000 USP 48,750 PC 82,000 HUT	
Lipase I, II	2100 LU 970 LU	
Lactase I, II	1600 LacU	
Phytase	1.7 PU	
Cellulase I, II	350 CU	
Intestinal Barrier Support – Blend of Permeability Factors	Two softgels qd before bedtime.	<ul style="list-style-type: none"> • Intestinal barrier defects can lead to development of systemic infections Glutamine (Foitzik et al., 1997) • Stabilizes gut barrier function • Reduces bacterial translocation • Possesses free radical scavenging and anti-inflammatory capabilities
L-glutamine	500mg	
N-acetyl-D-glucosamine (NAG)	250mg	
Gamma-Oryzanol		
Phosphatidylcholine	66mg	
Gamma-linolenic acid (GLA)	56mg 133mg	<ul style="list-style-type: none"> NAG • Necessary for biosynthesis of intestinal mucosa Gamma-oryzanol (Minakuchi et al., 1976) • Protects gastrointestinal mucosa by reducing hyperacidity • Possesses antioxidant activity Phosphatidylcholine (Fabia et al., 1992) • Protects and restores the gastrointestinal mucosa by strengthening the mucous-phospholipid layer GLA (Usami et al., 2003) • Precursor in synthesis of prostaglandins • Protects gastric mucosa from irritants
Antioxidant Support	Two capsules tid with meals.	<ul style="list-style-type: none"> • Oxidative tissue damage by free radicals has been implicated in the development of many chronic degenerative diseases
Quercetin	267mg	Quercetin (Szabo et al., 1997)
N-acetyl-L cysteine (NAC)	100mg	• Promotes normal mast cell function in the intestinal mucosa
Ginkgo biloba leaf (24% Ginkgo-flavone-glycosides)	28mg	<ul style="list-style-type: none"> NAC (Sun et al., 2002) • Precursor of glutathione • Powerful free radical scavenger • Improves endothelial and epithelial barrier integrity Ginkgo biloba (Otamiri et al., 1989) • Protects intestinal mucosa by reducing neutrophil infiltration and lipid peroxidation
Herbal Anti-Microbial Support	Two capsules tid with meals.	<ul style="list-style-type: none"> • Berberine sulfate, <i>Citrus x paradisi</i> and <i>Picrasma excelsa</i> are well-known antimicrobial agents (Amin et al., 1969) • <i>Artemisia annua</i> cured 74% of malaria sufferers within seven days (clinical study; Mueller et al., 2004) • Allicin has demonstrated anti-parasitic activity (Hughes et al., 1991) • Combination provides protection against a wide variety of intestinal pathogens
Berberine sulfate	200mg	
Citrus x paradisi	200mg	
Picrasma excelsa	100mg	
Artemisia annua	100mg	
Allium sativum (0.8% allicin)	100mg	
Encapsulated Fiber Support	Four capsules tid with meals.	<ul style="list-style-type: none"> • Fiber absorbs up to 14 times its weight in liquids, adding form and substance to fecal material (Nick, 2001) • <i>Plantago ovata</i> husk and <i>Avena sativa</i> bran are excellent sources of soluble fiber • While in the intestinal tract, fiber absorbs water leading to increases in the percentage of stool water • <i>Plantago ovata</i> increases stool weight by up to 100% and water content by up to 50% (Marlett et al., 2000; Leng-Peschlow, 1991) • <i>Avena sativa</i> bran increases bile acid synthesis leading to stool softening (clinical study; Andersson et al., 2002) • Encapsulated fiber products must adequately disperse following ingestion to be effective (Unpublished data, 2003)
Plantago ovata		
Avena sativa		
Cyamopsis tetragonoloba		
Pectin (from citrus fruit)		
Althaea officinalis		
Encapsulated Gluten-Free Fiber Support	Four capsules tid with meals.	<ul style="list-style-type: none"> • Supports healthy intestinal elimination and detoxification processes (Marlett et al., 2000; Trepel, 2004) • Promotes normal intestinal flora (Marlett et al., 2000; Trepel, 2004) • Reduced blood lead levels by 8.4% (clinical study; Sallay, 1998) • Significant reductions of mercury and cadmium levels also noted (Hudak et al., 1997; Hammock et al., 2003)
Linum usitatissimum	800mg	
Plantago ovata	800mg	
Ulmus rubra	100mg	
Althaea officinalis	32mg	
Binding Support for Elimination of Metals	One capsule tid with meals.	
Blend of Humic, Fulvic and Phenolic Acids	One capsule: 75mg	

