Parasitic Disease

What Is It?

A parasite is an organism that lives off another organism. Parasites living inside the human body will feed off cells, energy, digested food and supplements. Technically, parasites would include bacteria, viruses and fungi, as well as worms and protozoa (single-celled microscopic organisms). For the purposes of this book, however, only worms and protozoa will be considered under the category of parasites. There are more than 3,000 varieties of parasite,¹ and they all fall within one of four categories:²

• **Tapeworms** (Cestoda) – These large parasites generally reside in the intestinal tract, and can grow up to 12 meters in length. The most common varieties are beef and pork tapeworms.
• **Roundworms** (Nematoda) – Also known as threadworms, these parasites range from 0.2 centimeters to 35 centimeters in length. They may reside in the intestinal tract or migrate into lymphatic vessels, the pancreas, heart, lungs, liver or body cavities.
• **Protozoa** – These microscopic single-celled parasites migrate through the bloodstream to all parts of the body.
• **Flukes** (Trematoda) – These parasites range in length from one to two and a half centimeters. They generally travel through the tissues to the liver, kidneys, lungs or intestinal tract.

Some human intestinal parasites include:

• Enterobius sp.
• Giardia lamblia
• Cryptosporidium
• Blastocystis hominis
• Necator americanus
• Entamoeba histolytica
• Dientamoeba fragilis
• Ascaris sp.
• Strongyloides stercoralis
• Dipylidium caninum
• Toxocara sp.
• Trichinella sp.
• Trichuris sp.

Parasites that affect other areas of the body include:

• Babesiosis
• Leishmaniasis
• Toxoplasmosis
• Trichomoniasis
• Trypanosoma (chagas and sleeping sickness)
• Plasmodium falciparum (malaria)

What Causes It?

Parasites are ubiquitous, which is to say they are everywhere. While precautions can be taken to avoid them, some degree of exposure is probable even when extreme care is taken to prevent parasitic infection. While everyone is exposed to parasites to some degree, not everyone will suffer equally from their ill effects.

What determines whether parasites will set up housekeeping in the body or pass harmlessly through it? While there are many factors at work, the most important
is the degree of resistance or the strength of the body’s immune system. This, in turn, depends heavily upon exposure to toxins. Some of the damaging chemicals to which people are regularly exposed include pesticides, personal care products, household cleaners, industrial wastes, solvents, drugs, etc. The threat of heavy metals, especially those used extensively in dentistry, such as mercury and nickel, represents another hidden, yet dangerous exposure to toxins. When the body is heavily burdened with these toxins, the table is set for the arrival of the uninvited guest—the parasite. If the body is further weakened through poor diet, infection, other disease processes or stress in any form, its resistance to parasitic infestation will be lowered further.

Nutritional deficiency appears to contribute to parasite infestations. The effect of nutrition on the internal environment of the body plays a key role in determining whether parasites will pass through harmlessly, or begin to proliferate.

Decreased output of enzymes by the pancreas and deficiency of hydrochloric acid (HCl) in the stomach are two factors that can predispose the body to parasitic infection. Stomach acid is one of the body’s first defenses against parasites, for in its presence, parasites are destroyed due to the extremely high acidity.

Parasites can enter the body through the mouth, the nose, and the skin, including through the bottom of the feet. They can also be transmitted via vectors, or insect carriers. Common sources of parasites include:

- Contaminated soil
- Contaminated fruits and vegetables
- Raw or rare meat
- Pets
- Mosquitoes
- Contact with feces (such as through day-care centers)
- Polluted water/tap water
- Contact with someone who has parasites

Another factor that has contributed significantly to the growing parasite epidemic is the widespread use of drugs that suppress immunity as a side effect. Many of the drugs in common use today are immunosuppressive and therefore increase our susceptibility to parasitic infestation.

Although many external factors contribute to the parasite problem, by far the biggest factor is an internal one: a toxic colon. Colon toxicity is largely the result of an unwholesome lifestyle and resulting bacterial imbalance in the colon. Once the ideal ratio of good to bad bacteria in the colon is disrupted, the resulting imbalance creates an environment conducive to parasite infestation. Factors that contribute to this imbalance include:

- Antibiotics
- Refined carbohydrates
- Steroid drugs
- Birth control pills
- X-rays/radiation therapy
- Chlorinated water
- Stress
- Low-fiber diet
- Pollution
- Poor digestion and elimination
- Mercury toxicity (often from mercury and nickel dental fillings)

These factors can also set the stage for overgrowth of the yeast Candida albicans. For this reason, Candida and parasites tend to appear together.

It’s not just third-world countries that have parasite problems or Americans who travel extensively, as many people believe. No one is immune from parasite infestation. It is a growing problem in industrialized nations, as recent studies show. Dr. Omar M. Amin, of the
Parasitology Center in Scottsdale, Arizona, completed a large parasite study in 2000. His study involved analysis of two fecal specimens from each of 2,896 patients throughout the United States. Dr. Amin found that one-third (32 percent) of the patients tested positive for parasites showing one or more of 18 identified species.

While the parasite problem is widespread and growing, it often goes unrecognized. Because parasitic infestation has generally been considered a disease of the tropics, the typical MD is not likely to consider it when making a diagnosis, especially since parasitology is seldom presented in mainstream medical journals or medical schools. There are presently only five nationally reportable parasitic diseases: Cryptosporidiosis, cyclosporiasis, giardiasis, malaria and trichinosis, and, apart from the records kept by the Center for Disease Control (CDC) in the United States, there is little tracking for parasites in this country. With lack of information and little training, doctors aren’t apt to look for parasites as an underlying cause of illness, which, in fact, they often are. That being the case, accurate statistics are not widely available with regard to parasitic infestation. Nonetheless, a growing number of holistic practitioners are concluding, based on their own clinical observations, that the parasite problem is epidemic in proportions—in developed, as well as in developing nations.

Cryptosporidium outbreaks from contaminated public water sources continue to be of concern due to the organism’s ability to survive chlorination. In 1993, it was estimated that 403,000 people were infected with Cryptosporidium due to poor water quality. Even as recent as 2007, a Cryptosporidium outbreak that affected recreational waters was reported. This indicates that there is still a problem with the organism reaching public water supply.

**What Are the Signs and Symptoms?**

It is important to bear in mind, however, that parasites can mimic other disorders and/or produce no noticeable symptoms. When they do cause symptoms, a wide range can be displayed. These can include:

- Diarrhea or constipation
- Digestive complaints (gas, bloat, cramps)
- Mucus in stools
- Foul-smelling stools
- Coughing
- Food and environmental sensitivities
- Depressed secretory IgA (an antibody)

Parasites can affect tissue anywhere in the body. Some of the disorders that have been associated with them include arthritis, appendicitis, recurrent yeast infections, allergies, asthma, bronchitis, anemia, irritable bowel syndrome, frequent colds and infections, lactase deficiency, fibromyalgia, gallbladder problems, malnutrition, urinary tract infections, prostatitis, and colitis. Over time, a parasite infection can depress immunity and cause leaky gut syndrome (see the Leaky Gut Syndrome section), which leads to nutritional absorption problems and has been associated with allergies and other autoimmune diseases.

Because they can get into the blood and travel to any organ, parasites can cause problems that are often not recognized as parasite-related. This can result in an incorrect or incomplete diagnosis. For example, chronic infection with Giardia lamblia (giardiasis), considered the most common parasite to affect humans in the US, can be an undetected element or missing diagnosis in chronic fatigue syndrome. Giardial or Blastocystis hominis infection can both be mistaken for irritable bowel syndrome (IBS) or duodenal ulcer. Symptoms of the amoeba Entamoeba histolytica can mimic ulcerative colitis or IBS.

Most people don’t realize it, but it is not only parasites that can cause damage to the body but also the waste they give off. Giardia lambia, for example, invades the upper intestine and gives off toxins that damage enzymes (causing lactose intolerance when the lactase enzyme is damaged). Giardia is often found in mountain streams and in some city water systems, as it is not killed by chlorine. Cryptosporidium is another protozoan that has contaminated some city water supplies. It was the second most prevalent parasite found by Dr. Amin in his 2000 study. The first was Blastocystis hominis.

Interestingly, one-third of B. hominis infections were not associated with any symptoms in Dr. Amin’s study. Until recently, this disease-causing organism was considered to be a harmless yeast. In 1967, it was reclassified as a protozoan and deemed a pathogen. It is not unusual for parasites that were once considered harmless to be reclassified as pathogens. Dr. Amin found, in fact, that some protozoa considered as non-pathogenic unexpectedly caused symptoms in 73 to 100 percent of the cases studied. This points to a continuing need to reassess the pathogenic potential of parasites.

The waste products from parasites poison the body, and force the organs of elimination to work overtime stressing the liver. As the detoxification mechanisms become overwhelmed, nutritional reserves are depleted, and the immune system weakens. The net result is disease development.

**How Is It Diagnosed?**

A stool analysis is usually used to detect parasites. However, they can be difficult to detect since they tend to hide in the lining of the intestine, and can live in other organs. If parasites are in the heart or lungs, they will not show up in stool regardless of how well it’s analyzed.
In fact, a single random solid stool sample, analyzed in the traditional manner, is unlikely to even reveal the presence of intestinal parasites. Specialized testing (see the Appendix for laboratory information) is often needed to detect parasites that can be difficult to spot as they go through different stages of their life cycles. Some doctors use purged stool analysis; the patient is given a laxative beforehand to liquefy the stool and loosen embedded parasites. Multiple stool samples are then submitted for analysis. Another approach is the rectal swab test, designed to detect those parasites that live in the mucous membranes that line the intestinal tract.

Another approach, though an invasive one, is to obtain a tissue specimen through a biopsy taken with an endoscope. This lighted, flexible tube is passed into the intestine where a tissue sample is removed through the rectum. Pinworms can be detected in a much more low-tech manner: a piece of tape attached to the anus can pick up these worms or their eggs, which can be detected with microscopic analysis. Blood tests can be used to reveal an elevated eosinophil count, a general indicator for an infection by parasites—except for giardia and amoeba, which rarely cause eosinophilia. IgG and IgM antibody testing can be done for giardia and Entamoeba histolytica. Other types of blood tests, sputum tests, urine tests and even radiologic tests can be used to detect various types of parasites with varying degrees of success. Analysis of aspirated fluids and the growth of tissue cultures may also be used.

Parasites have a complex life cycle. Three of the most prevalent parasites found in the United States and worldwide shed at irregular intervals. This means that the parasite might be in the stool two to four days a week but not the rest of the week. If the person is tested for the parasite on a day it is not present, there will be a negative test result. The person would then go untreated. Therefore, it would be best for repeat stool samples (at least two to three) to be taken on non-consecutive days.

It is best to have parasite testing done by a laboratory, such as Dr. Amin’s, that specializes in parasitology. While testing technique is constantly being modified and improved, false negatives still occur. Therefore, parasites cannot be positively ruled out based on even the best lab results. When positive lab results are found, they can be very helpful in designing an effective treatment protocol.

**What Is the Standard Medical Treatment?**

When parasites are detected, they are most often treated with drugs, usually Flagyl (metronidazole), despite its many adverse side effects and the fact that many parasites have become Flagyl-resistant.
Interestingly, certain parasites may actually be useful in some situations involving human health. Dr. Joel Weinstock and others have shown that an intentional creation of a low-grade infestation with a parasite known as Trichuris suis (pig whipworm) in humans lowers the inflammatory response in patients with inflammatory bowel disease (IBD), namely Crohn’s and ulcerative colitis.

Experiments done with humans involved drinking a suspension of Gatorade and 2500 eggs from pig whipworm several times over 4 to 6 months. This did not bother the humans in any way. It turns out the pig whipworm is not a human pathogen, and does not stay in the human more than a few months. However, during this time, it reprograms the gut lining to be more tolerant not only the worms but also to gut microflora. IBD often involves an exaggerated hyperimmune response to normal flora which causes profound inflammation. It appears that the interaction between this parasite and the immune system in the gut lining and gut wall produce immune tolerance. This immune balancing occurs due to an increase in gut levels of what is known as T regulatory lymphocytes. Many of the patients have stayed in remission even after stopping the whipworm therapy.

There have also been some reported benefits using this treatment in autistic children who also often have inflammatory gut issues that closely resemble Crohn’s Disease. I believe we will continue to see more beneficial uses of not only probiotics but pro-parasitics as well, both of which can reprogram how our intestines react to the microbes in its environment.

Helminths seemed to stimulate regulatory T cells, an increasingly studied class of immune cells that work to dampen and control immune responses, including both the Th1 and Th2 variety. Science, 2005;305 v9.

However, the immune system may have evolved to operate optimally in the regulated environment of infection, and, in our more hygienic environment, we are prone to overzealous reactions to innocuous targets generating the rapidly increasing levels of allergy and autoimmunity being experienced in the developed world.
Because it will not always be possible to identify the type of parasite you have or even to know with certainty that you do have parasites (given the limitations of the testing procedures), it is highly advisable to make a parasite cleanse a regular part of your natural detoxification program.

Often the onset of a parasitic infection involves flu-like symptoms which, like the flu, resolve after a week or so. This is because the parasite has gone into a dormant stage. A month or two later, the flu-like symptoms return. In more severe cases, a prescription drug may be necessary in conjunction with the cleansing program. The medication will probably have to be taken more than once due to the cyclic nature of the parasitic life cycle.

A chronic parasitic infection can lead to more serious health conditions. A comprehensive stool analysis (CSA), (see the Appendix) that specifically looks for parasites can be helpful. An interesting note about parasitic infections is that symptoms often increase during the full-moon.

The following program can have fewer side effects than prescription medications, though prescription medication may be needed. It is a good idea to have a health care practitioner’s supervision when following the protocol below. This protocol can also be helpful for people who consume sushi frequently, who travel overseas, and for people who swim in lakes and rivers.

**Recommended Testing**

- Comprehensive stool analysis (CSA) (See the Appendix.) specific for parasites

**Diet**

- Because Candida and parasites tend to travel together, it is wise to treat for both simultaneously. This will require strict adherence to an anti-Candida diet.

(See the Appendix.) You’ll want to adhere to this diet for the duration of your parasite cleanse, generally one to three months.

- After that, follow the Fiber 35 Eating Plan for daily maintenance.

**Lifestyle**

- Do not drink untreated water (filter or purify before drinking).
- Have separate cutting boards for meats/fish and fruits/vegetables.
- Have pets tested/treated for parasites.
- Keep pets away from food preparation areas.
- Don’t allow pets to eat out of your dishes.
- Wear gloves when changing cat litter. Wash hands afterward. If immune-compromised or pregnant, have someone else do the chore if possible.
- Wash hands before eating.
- Wash hands after gardening.
- Make sure meat is thoroughly cooked (no pink showing).
- Wash hands after handling raw meat.
- Don’t eat raw meat or fish.
- Wash vegetables and fruits in a diluted hydrogen peroxide/vinegar bath.
- Freeze fish for 48 hours (beef and pork for 24 hours) before preparing. This will kill any parasite larvae. 
- Wash hands after using the toilet.
- Wash hands after changing a baby’s diaper.
- Keep your immune system in good shape.
- Do a parasitic cleanse once or twice yearly.

**Complementary Mind/Body Therapies**

- Stress can be a major component of this disease, so find ways to reduce it with therapies such as meditation, yoga, deep breathing, massage, biofeedback, or music therapy.
- Colon hydrotherapy is excellent for removing waste from the colon and can be helpful during a parasite program.

Brenda’s Bottom Line
<table>
<thead>
<tr>
<th><strong>Recommended Nutraceuticals</strong></th>
<th><strong>Dosage</strong></th>
<th><strong>Benefit</strong></th>
<th><strong>Comments</strong></th>
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</thead>
<tbody>
<tr>
<td><strong>Critical Phase</strong></td>
<td></td>
<td>Daily maintenance recommendations should also be taken during this phase unless otherwise indicated.</td>
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<tr>
<td><strong>Total Body Cleanse</strong></td>
<td>See Appendix</td>
<td>Encourages elimination and detoxification.</td>
<td>Herbal formula should support the seven channels of elimination.</td>
</tr>
<tr>
<td><strong>Parasite Cleanse</strong></td>
<td>See Appendix</td>
<td>Helps to eliminate parasites and encourage a healthy intestinal microbial balance.</td>
<td>This should follow the above Total Body Cleanse.</td>
</tr>
<tr>
<td><strong>Parasitic Digestive Enzyme</strong></td>
<td>Take on empty stomach several times daily</td>
<td>Taken without food can be beneficial in maintaining a healthy intestinal tract.</td>
<td>Make sure formula also contains HCl and L-glutamine.</td>
</tr>
<tr>
<td><strong>Bentonite clay/Glucomannan/Charcoal Formula</strong></td>
<td>Use as directed</td>
<td>Absorbs toxins from possible “die off” reaction and improves elimination.</td>
<td>Take with plenty of water.</td>
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<tr>
<td><strong>Helpful</strong></td>
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<tr>
<td><strong>High Potency Multi-vitamin/mineral</strong></td>
<td>Follow directions on label</td>
<td>Provides needed nutrients that can be deficient in those with parasites.</td>
<td>Powder or liquid formulation would be helpful as it is easier assimilated and absorbed.</td>
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<tr>
<td><strong>Saccharomyces boulardii</strong></td>
<td>10 billion cultures, twice daily</td>
<td>Helps protect against traveler's diarrhea, sometimes induced by parasites.</td>
<td>Look for formula with other immune enhancing ingredients.</td>
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<tr>
<td><strong>Daily Maintenance</strong></td>
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<tr>
<td><strong>L-Glutamine Powder with Gamma Oryzanol</strong></td>
<td>5,000-10,000 mg daily in divided doses</td>
<td>Helps repair the intestinal lining reducing permeability.</td>
<td>Best taken in powder form.</td>
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<tr>
<td><strong>Digestive Enzymes</strong></td>
<td>Take with meals</td>
<td>Helps digest and absorb nutrients from food.</td>
<td>If low stomach acid is found find a formula that contains hydrochloric acid.</td>
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<tr>
<td><strong>Probiotics</strong></td>
<td>50 to 200 billion culture count daily</td>
<td>Helps reduce intestinal permeability and inflammation and maintain balance of intestinal microbes.</td>
<td>Look for multi-strain with plenty of bifidobacteria.</td>
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<tr>
<td><strong>Omega-3 Fatty Acids</strong></td>
<td>At least 2 grams daily of EPA/DHA combination</td>
<td>Helps restore moisture to the intestinal tract.</td>
<td>Look for a concentrated, enteric coated fish oil.</td>
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<tr>
<td><strong>Fiber</strong></td>
<td>4-5 grams twice daily</td>
<td>Helps produce healthy bacteria levels and good elimination.</td>
<td>Use in conjunction with high fiber diet to reach 35 g daily.</td>
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<tr>
<td><strong>Vitamin D₃</strong></td>
<td>At least 1,000 to 2,000 iu daily</td>
<td>Helps heal leaky gut, decrease inflammation, increase overall health.</td>
<td>Research is showing many health complications as a result of low vitamin D levels.</td>
</tr>
</tbody>
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See further explanation of supplements in the Appendix