

Leaky gut syndrome: mystery illness triggered by *Candida albicans*

Abstract

Leaky gut syndrome (LGS) is an unrecognized mystery illness with continuing debate among alternative medicine practitioners, scientist and nutritionists. Medical practitioner claims about the existence of this syndrome is due to wide range of life-threatening chronic diseases including diabetes, lupus, multiple sclerosis, Crohn's disease, celiac disease, rheumatoid arthritis, and asthma. Exponents—largely medical practitioner and nutritionist view at this syndrome, as a cause of improper nutritional diet, parasite/microbial infections or medication. Despite lack of scientific evidence that support direct cause for the existence of LGS, there is no proper diagnosis and treatment procedure available to heal at this syndrome. Some little evidence exist that LGS has been widely noticed in patients with many different digestive complaints including Crohn's, ulcerative colitis and celiac diseases—are closely linked to food sensitivities (gluten) and allergies (dairy allergies). The patients suffering with these diseases were known to recover from their food sensitivities and allergies after successful treatment of *Candida* overgrowth. This evidence indirectly supports the fact that overgrowth and branched hyphal formation of *Candida* in gut might cause inflammation and weakening of intestinal wall, which may promote membrane permeation and leakage of substance from intestines. However, there is much less intensive research is going on to accumulate scientific evidence underlying LGS that serve as a potential risk factor to invite most serious life-threatening diseases. Therefore, it is highly warranted to identify the root causes of this illness for timely diagnosis, treatment and health promotion.

Keywords: leaky gut syndrome, intestinal permeability, mystery illness, *Candida albicans*, food allergies, chronic diseases

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Introduction

Leaky gut syndrome (LGS) or increase intestinal permeability is a common illness affecting a high percent of the population in recent years. This is considered as a hypothetical or unproven medical condition in alternative medicine and nutrition health, where the intestinal wall of human exhibits permeability causing leakage of toxins, microbes, undigested food and other substances that activates protective immune response rather than healing response resulting in food allergies and chronic diseases. The major signs and symptoms of leak gut syndrome includes facial swelling on exposure to severe smells, bloating and gas after eating, food allergies, headaches, irritability and lack of concentration.¹

Debates and controversies on LGS

LGS is a hypothetical medical condition based on the fact that 'leakage' from intestine initiate an immune reaction that leads to chronic diseases.² There is also arousing controversy describing that passage of proteins through leaky gut can cause autism.³ Due to lack of incredible evidence that support direct cause for LGS and its role in chronic diseases, the scientific community is still at debate in terms that any remedies marketed for treatment of this illness would bring the benefits they claim.⁴ Certain debate engrossed that proponents of leaky gut syndrome use ostensible conditions as an opportunity to promote a large number of alternative health remedies including diet, herbal and dietary supplements. Currently, medical practitioners don't have any procedures to diagnose LGS, nor do they have much

concern about its treatment. This would raise critical situations where individual go undiagnosed and unwitting that they are sufferers of LGS. Due to existence of largely unproven debates, LGS is cornered as a proposed medical condition rather than medical condition that sounds too insane to be true.

Leaky gut and yeast infection

Another self-evident claims suggest that LGS is a consequences of gut dysbiosis (alteration in gut microflora). It's well know that human gut encompassed huge diversity of microflora including bacteria, fungi and archaea. The bacteria in gut represent between 300 to 1000 different species (including both beneficial and opportunistic bacteria), which constitutes four different phyla *Firmicutes*, *Bacteroidetes*, *Actinobacteria*, and *Proteobacteria*. The currently known genera of fungi in human gut includes *Candida*, *Saccharomyces*, *Aspergillus* and *Penicillium*. Archaea constitute another large group of human gut flora, which plays as essential role in fermentation of bacterial products. It has been long known that microflora in human gut play an essential role in maintaining digestive health. Beneficial microflora (eg. probiotics) resides within human gut promotes gastrointestinal health by limiting the growth of opportunistic pathogens (such as *Candida albicans*). Due to vast array of unfortunate circumstance including diseases, stress, intake of antibiotics (or) non-steroidal anti-inflammatory drugs (NSAIDs) and improper nutritional diet may alter or destroy beneficial microflora, that ultimately promotes the growth of opportunistic pathogen in gut. For instance, *Candida* over growth (especially *Candida albicans*) in human can cause yeast infection

and LGS as well.⁵ Leaky gut represents the tiny openings develop in intestinal wall, which can be created when *Candida* yeast grows roots or hyphae (plural hyphae) at more serious stage of infection. At more advanced stage of development in *Candida albicans* infection, the plural hyphae invade and push the intestinal wall cells apart that allows pathogenic microorganisms and macromolecules to pass through these opening into blood stream. These components in turn activates the immune response and produce antibodies for protection, thereby leading to food allergies, systemic inflammatory and immune-related symptoms.

Diagnosis and therapy

The symptoms for LGS are not unique as they are shared by other problems too. Routine laboratory tests can help confirm and measure various aspects of LGS including *Candida* levels, digestive function and food allergies. Most laboratory test used for diagnosis of LGS are highly expensive and in some cases the results are not accurate or inconclusive. If LGS is allowed to persist for long time, the intestinal wall will remain inflamed and continue with toxic absorption that may lead to life-threatening conditions. Therefore, assessing the level of *Candida* infestation would be the most precise way for clinical diagnosis of LGS to prioritize the treatment. Blood antibody test can be used to detect *Candida* in blood, however, this method failed to detect *Candida* infection that are localized to gut.

Other way of assessing *Candida* infections is through examination of feces by staining and culture based methods. Analysis of *Candida*-specific metabolites in urine also provides suitable way for assessing *Candida* infections. It is highly essential to keep *Candida* overgrowth under control to prevent LGS. Diet therapy can eradicate large outgrowth of *Candida*. Further, detection of high levels *Candida*

during diagnosis generally requires specific anti-*Candida* treatment. Nystatin, Nizoral, Diflucan, and Sporanox are anti-*Candidal* drug that can control *Candida* overgrowth. The combined use of anti-*Candidal* drug and *Candida*-diet therapy can effectively control *Candida* overgrowth and helps preventing LGS. To conclude, LGS is not fully understood and the symptoms associated with this illness are different for everyone. Therefore, identifying and isolating the cause for this mystery illness can help in timely diagnosis, treatment and health promotion.

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Conflict of interest

Author declares that there is no conflict of interest.

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