

The Reduction of *Candida albicans* “Yeast” Overgrowth Using Fungal Defense and Primal Defense along with Lifestyle Modifications A 23 Patient Pilot Study

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Candida albicans, a member of the yeast family, has been demonstrated to be a contributing factor in numerous health problems. *Candida albicans* is a normal inhabitant of the gastrointestinal tract, where in modest amounts it can, through competition, serve to limit the growth of pathogenic bacteria. The nature of *Candida albicans*, however, is that it is an opportunistic organism and when conditions permit its overgrowth, significant adverse affects can occur.

Numerous books have been written on the involvement of *Candida albicans* in health problems, the most notable being *The Missing Diagnosis* by Orion Truss, MD and *The Yeast Connection* by William Crook, MD. These books and others that followed made the subject of *Candida albicans* and its role in disease, a popular and sometimes controversial topic. There remains no doubt, however, that as an opportunistic organism, yeast serves as an important player in many diseases, often increasing the severity of the problem a patient has.

Numerous factors can alter the body's resistance, change the functioning of the gastrointestinal tract and thereby contribute to an environment that fosters yeast growth. Examples include:

- Antibiotic usage leading to a reduction in bacterial competitors that normally keeps *Candida albicans* in check
 - Use of the birth control pill
 - Ongoing ingestion of refined carbohydrates, alcohol, and other dietary insults that provide readily available nutrients to the yeast organisms
 - Prednisone and other corticosteroid agents
 - The use of immunosuppressant pharmaceuticals

- Severe, long term, emotional stress

- Lack of sufficient rest and sleep
- Other disease processes that lower immune resistance such as AIDS, malnutrition and cancer.

Under one or more of the above circumstances, *C. albicans*, which may have existed as a harmless commensal, can increase in numbers, invade the body's mucus membranes (particularly those of the gastrointestinal tract) and cause significant damage. The yeast cells can develop hyphae, which penetrate the mucosal membrane of the intestine, causing irritation and alterations in gut permeability. This can allow antigenic materials, including undigested food proteins, bacteria and bacterial toxins, to enter the bloodstream and create a burden on the immune system, contributing to a variety of allergic and inflammatory reactions.

A well-known example of *Candida* overgrowth is thrush – a white speckling of the tongue and the back of the throat. This is most often seen in newborns who may come into contact with the yeast when passing through the birth canal. It is also common in AIDS patients and people who have had a prolonged course of antibiotics administered to them.

C. Albicans also can produce vaginitis – inflammation and invasion of the vaginal mucosa, especially during the third trimester of pregnancy and in women who take the birth control pill. The tissue changes that occur may lead to alterations in the balance of cell types in the epithelial lining of the vagina.

The yeast organism can produce a myriad of other physical symptoms. These include depression, fatigue, muscle and joint pains, indigestion, skin problems, intestinal gas, poor

concentration, cravings for carbohydrates, etc. *It is important to remember, however, that yeast overgrowth is not the cause, but rather the consequence of illness-generating conditions.*

Yeast overgrowth is the result of ill health/lowered resistance. The overgrowth then results in additional problems and symptoms. Two steps are therefore essential in addressing yeast related problems:

1. Addressing the specific etiological (causal) factors that resulted in the lowering of the patient's resistance.

2. Implementing measures that foster a *healthy internal environment of the gastrointestinal tract* and improve overall resistance.

Standard allopathic medicine and alternative medicine have *not* addressed these two fundamental issues, but rather have emphasized the destruction of yeast cells. This approach leaves the causal factors responsible for the yeast growth to remain.

Allopathic medicine utilizes toxic drug agents with anti-yeast properties e.g. Diflucan and Nizoral. These drugs carry with them numerous hazards, including the potential for significant liver damage. This is evidenced by package warnings and by the necessity to perform periodic blood tests to check for elevated liver enzymes.

Natural, less toxic, “remedies” used by practitioners of alternative medicine abound. Their drawback similar to prescription medications, is that they have only a limited effect in hindering yeast growth and do nothing to address *the causal factors behind the yeast growth nor to establish an environment that will prevent yeast related problems in the future.*

Testing an Approach that Addresses Causal Factors and Body Resistance

The approach of this study utilized the two steps listed above in order to effectively address underlying factors in yeast overgrowth, i.e.:

1. Address the specific etiological factors that resulted in the lowering of the patient's resistance.

2. Implement measures that foster a healthy internal environment of the gastrointestinal tract and improve overall resistance.

Hypothesis

Subjects with elevated Candida antibody titers¹ in their blood and/or elevated yeast counts in their stool, will experience a lowering of their serum Candida antibody titers and/or stool yeast counts by improving their gastrointestinal environment with ingestion of Fungal Defense and Primal Defense and following the recommended protocol of supportive lifestyle factors for a period of 120 days.

Selection of Subjects

The study consisted of 23 adult subjects who had a serum Candida antibody titer in excess of 150 U/ml and/or a positive finding of yeast of 2+ or greater in a stool mycology test, were not on any immunosuppressant drugs, steroids, or antibiotics and agreed to follow the required protocol for Fungal Defense, Primal Defense and a supportive lifestyle program for a period of 120 days.

Protocol

A baseline of the Serum Candida albicans Antibody, IgG titer was established prior to the subjects beginning the protocol by measuring the antibody level in the serum along with an evaluation of Candida albicans present in the stool via stool mycology.² Those subjects who met the acceptable criteria listed above were instructed in two areas:

1. Fungal Defense and Primal Defense Usage

2. Lifestyle changes to implement
During the 120-day study period, subjects ingested Fungal Defense and Primal Defense as per the following schedule:

Day 1 – One caplet each of Primal Defense and Fungal Defense on an empty stomach with 8 ozs. purified water before bed

Day 2 – 1 caplet each product upon waking 20 minutes prior to food and 1 caplet of each before bed on an empty stomach

Day 3 – 1 caplet each product upon waking and 2 before bed

Day 4 – 2 each upon waking and 2 each before bed

Day 5 – 2 each upon waking and 3 each before bed

Day 6 – 3 each upon waking and 3 each before bed

Day 7 – 3 each upon waking and 4 each before bed

Day 8 – 4 each upon waking and 4 each before bed

Days 9 to 60 – continue 4 caplets of each in the AM and 4 of each in the PM.

Upon completion of the above, subjects continued to consume Primal Defense probiotic "HSO" formula four caps two times per day for an additional 60 days before repeating laboratory testing for the parameter(s) they had originally tested positive for.

Lifestyle and Dietary Modifications

Each subject was interviewed to assess risk factors for Candida albicans overgrowth and counseled on lifestyle change. Subjects were requested to address the following general recommendations that are supportive of overall health:

1. Dietary habits: To abstain from all refined carbohydrates including all products containing refined sugar, refined flour, fruit juices, and alcohol. General dietary guidelines were given, emphasizing the ingestion of fresh vegetables of all kinds, raw nuts, fresh fish, free range poultry, up to two servings of fresh fruit per day, and olive or coconut oil. Up to one cup of cooked brown rice per day was allowed. Water that had undergone reverse osmosis or distillation was recommended to drink.

2. Rest and sleep habits: Subjects were to obtain a minimum of eight hours sleep per night.

3. No recreational drugs of any kind were to be used.

4. Subjects were encouraged to obtain fresh air, sunlight when available, and modest outdoor activity.

Outcome

Twenty-three participants completed the protocol and were re-tested through either blood and/or stool depending on which variable had been positive initially. The results are given below:

Candida Serum Titers²²

Subject	Before (U/ml)	After (U/ml)	Titer Change (-) or (+)
A	284	270	(-5%)
B	202	160	(-21%)
C	322	286	(-11%)
D	334	197	(-41%)
E	168	126	(-25%)
F	485	362	(-25%)
G	226	184	(-19%)
H	226	155	(-31%)
I	240	214	(-11%)
J	178	198	(+11%)
K	463	285	(-38%)
L	405	162	(-60%)
M	305	153	(-50%)
N	226	155	(-31%)
O	218	147	(-33%)
P	407	335	(-18%)
Q	217	185	(-15%)
R	386	147	(-62%)

Stool Yeast Counts

A	3+	0	100% decrease
B	3+	0	100% decrease
C	3+	1+	66% decrease
D	3+	3+	no change
E	2+	2+	no change

Summary of Results

Candida Serum Titers: Seventeen out of 18 blood titers were reduced. One out of eighteen increased i.e. 94% of subjects experienced a reduction in their titers. *Of the seventeen who experienced a drop in their titer, the average reduction was 29% over a period of four months.*

Stool Yeast Counts: Three out of five (60%) stool yeast counts were reduced. Two stool yeast counts (40%) remained the same. None increased.

Subjective Feedback from Participants

Initial Discomforts

During the initial two weeks of the study, a number of complaints were registered by the participants with symptoms they were troubled by. These included fatigue, irritability, bloating, problems with concentration and mild

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flu-like symptoms. By the third week of being on the protocol no further complaints were registered regarding the protocol. The initial symptoms are attributable to three processes:

1. Physiological withdrawal the subjects experienced as they discontinued items such as coffee, alcohol, junk foods and other stimulants and depressants. The withdrawal can also occur due to discontinuing substances that the patient was knowingly or unknowingly allergic to.

2. Elimination of toxic compounds as a healthier dietary regimen was initiated, more sleep was obtained and the body was able to focus more on housecleaning ("detoxification") activities.

3. Die off of yeast and other detrimental microorganisms as a result of destruction of the detrimental microorganisms by systemic enzymes, antimicrobial compounds in the botanicals, and bacterial byproducts such as enzymes and bacterocins, and reducing the food source for the yeast by the creation of a healthier intestinal environment due to dietary changes and the use of Fungal Defense and Primal Defense.³

Notably, all subjects reported improvements in their physical health at the end of the study. None of the subjects, who completed the study, including the one whose blood titer increased slightly, complained of any worsening of their symptoms at the end of the study period. The most common improvements noted by the subjects, upon open ended questioning i.e. "How do you feel now compared to before the study began" were the following:

1. I have more energy and feel better overall

2. My digestion and elimination are better

3. I have fewer aches and pains (muscular and joint) than previously

Other noted changes included improvements in skin problems, feeling less depressed, fewer allergic reactions, more restful sleep at night and less irritability during daily activities.

Discussion

The average decrease in the 17 of eighteen participants who experienced a drop in their blood titers, was 29%. Notably, *blood titers to yeast and other microorganisms are slow to fall, often taking as long as a year to completely reflect changes that have occurred in the body.* It is therefore reasonable to assume that the blood titers in some, if not all of the subjects, would continue to decrease for as long as eight months after their blood samples were drawn and evaluated for the post-titer evaluation.

The reduction of the yeast count in the stool samples is notable. The author, however, does not consider it to be as significant as the blood titer evaluations. There were fewer stool samples in the study and there are questions as to how well stool yeast counts reflect the total body burden. The blood titer is considered to be more reliable.

The favorable outcome for the subjects in the study is believed due to the two-pronged approach that was utilized, i.e. addressing causal factors/improving lifestyle behaviors and taking steps to alter the gastrointestinal environment rather than simply trying to destroy yeast cells. The benefits achieved in this fashion are thought to not only be more comprehensive in terms of achieving improvements in health and resistance, but also more likely to reap long-term benefits for the subjects should they continue to employ these lifestyle changes.

The two products employed, Fungal Defense and Primal Defense, were formulated by Garden of Life, Inc. not to specifically kill yeast cells, but rather to improve the overall internal environment of the gut and thus lead to normalized yeast and bacterial counts on an ongoing basis. Both products contain Homeostatic Soil Organisms (HSOs), bacteria that are normal inhabitants of a healthy gastrointestinal tract. The author has found these helpful in restoring healthier gastrointestinal function in a variety of conditions in his clinical practice. The HSOs help maintain an environment that is not conducive to yeast overgrowth and do so on a continuing basis. A previous study showing the favorable effect of HSOs

in overcoming a number of chronic disease conditions can be found in the peer-reviewed journal *Progress In Nutrition*.⁴ Both products also contain ingredients as a base, believed to assist in furthering a good intestinal environment such as enzymes and botanicals that inhibit yeast growth. Fungal Defense also contains ingredients which discourage yeast growth such as Oregano and Garlic.

Combining the double approach of improving the lifestyle habits of the subjects while improving the internal environment of the gut allowed 94% of the subjects to improve not only their laboratory results but also their general health status. This should allow the subjects the opportunity for ongoing health improvements, not merely a temporary fix.

A relevant question is, how much of the improvements the subjects experienced was due to their lifestyle/dietary changes, and how much was due to employing Primal Defense and Fungal Defense? A study employing three test groups might be used to answer this question...one group employing only the two products, one group employing only the lifestyle changes and the final group (a control group) making no changes at all.

Further studies utilizing a larger subject sample and measuring additional parameters of health status through laboratory testing are also warranted, based on the positive findings of this initial pilot study.

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References

1. A candida antibody titer is a quantitative measurement of the body's immune response (IgG specific in the blood serum) to the presence of Candida in the body.
2. The laboratory analysis is referred to as the Candida Antibody, IgG (Serum) and was performed by Great Smokies Diagnostic Laboratory. The normal reference range for the test is less than or equal to 130 U/ml.
3. These types of reactions are commonly seen at the beginning of programs that increase the body's vitality and rid it of noxious materials including microorganisms. It is often referred to as a "Herxheimer Reaction" named after Drs. Adolph and Karl Herxheimer. They concluded in their studies, regarding the treatment of syphilis, that whenever an organism more complex than a simple bacterium was killed inside the human body, one was prone to having flu like symptoms.
4. Goldberg, P.A. "Primal Defense Homeostatic Soil Organism As Applied To Medically Unresponsive Chronic Disease Conditions In Adults." *Progress in Nutrition* 1/2002.



