Saccharomyces boulardii

What is Saccharomyces boulardii?
*S. boulardii* is a unique, non-pathogenic yeast supplement that has been utilized worldwide as a probiotic to support gastrointestinal health. Klaire Labs uses only certified *S. boulardii* to ensure maximum potency, efficacy and safety.

Does Saccharomyces boulardii colonize the intestinal tract?
*S. boulardii* does not colonize the human intestinal tract and is not one of the microorganisms that normally inhabit the intestines. It is a transient yeast that passes through the intestines after ingestion. *S. boulardii* does not attach to the mucosal cells lining the intestinal lumen, but exerts its beneficial effects on the host as it moves through the gastrointestinal tract.

Is Saccharomyces boulardii the same as Saccharomyces cerevisiae?
No, *S. boulardii* is not *S. cerevisiae*. *S. boulardii* is a wild, tropical yeast while *S. cerevisiae* is commonly known as brewer's or baker's yeast. Closely related to *S. cerevisiae*, *S. boulardii* is officially classified as *Saccharomyces cerevisiae var boulardii* Hansen CBS 5926. The two strains have different genetic makeup and enzyme profiles. Unlike *S. cerevisiae*, *S. boulardii* does not make a certain type of reproductive spore called an ascospore and does not use the sugar galactose. It is very resistant to heat and acid and secretes a number of unique physiologically active factors. Only *S. boulardii* has proven gastrointestinal supportive effects.

Is Saccharomyces boulardii the same as the yeast that causes yeast infections or overgrowth?
No, *S. boulardii* is completely unrelated to *Candida albicans*, *C. tropicalis*, *C. kruzie* and other *Candida* species that cause disease and overgrowth in the gastrointestinal and genitourinary tracts. *Candida* species decrease the acidity of the gastrointestinal mucosal environment, ultimately making the intestinal mucosal membrane susceptible to invasion by potentially harmful bacteria and yeast. *S. boulardii* exerts the opposite effect producing lactic and other acids known to inhibit potentially harmful *Candida* yeast species. Animal studies have actually shown that *S. boulardii* plays a role in preventing the *Candida* yeast from reproducing in the gut.

What are the primary uses for Saccharomyces boulardii?
*S. boulardii* has been used to maintain and restore normal gastrointestinal function in the following situations:
- support healthy bowel microflora during antibiotic therapy;
- support in people with diarrhea during or following antibiotic therapy;
- support in children and adults with acute diarrhea;
- support against traveler's diarrhea;
- support during *C. difficile* bowel disorders;
- support in AIDS-associated diarrhea;
- support tube-fed patients with diarrhea;
- support in children with autism;
- and support in people with inflammatory bowel diseases.

How does Saccharomyces boulardii work?
*S. boulardii* benefits the gastrointestinal tract in a variety of ways. It inactivates bacterial toxins, inhibits toxin binding to intestinal receptors and lessens toxin-induced inflammation. It reduces the ability of potentially harmful microorganisms to adhere to and invade intestinal cells. *S. boulardii* stimulates host immune defenses and intestinal enzymes that enhance nutrient digestion and absorption. It produces acids that combat potentially harmful microorganisms, assist in mineral absorption and nourish the colon.
How much *Saccharomyces boulardii* should I take?
Daily doses ranging from 250 to 1000 milligrams taken once to four times per day have been reported in the medical literature. Up to 3000 milligrams per day have been used in people with recurrent *C. difficile* disease. There is no one standard supplement regimen for *S. boulardii*. It is prudent to consult a knowledgeable healthcare practitioner for advice on how much *S. boulardii* to take and for how long.

How long should I supplement with *Saccharomyces boulardii*?
*S. boulardii* is generally used for short-term gastrointestinal support. Often the *S. boulardii* has been used for up to two weeks after diarrhea has resolved. A common supplement regimen lasts 3 to 4 weeks. *S. boulardii* has been taken continuously for 6 months in the setting of Crohn's disease with no side-effects noted.

How should *Saccharomyces boulardii* be taken?
The *S. boulardii* capsules should be taken with beverages or meals. If a person cannot swallow the capsules, they may be opened and the contents mixed with semi-solid foods such as applesauce or beverages. Avoid the use of hot foods or beverages as this may adversely affect the potency and activity of the supplement.

Can *Saccharomyces boulardii* be taken along with other probiotics?
Laboratory and clinical testing have demonstrated *S. boulardii* to be compatible with various lactic acid bacteria including the lactobacilli and bifidobacteria frequently used as probiotic supplements. Clinical studies suggest *S. boulardii* may work synergistically with other probiotics.

Can *Saccharomyces boulardii* be taken along with antibiotics?
*S. boulardii* is naturally resistant to all antibacterial antibiotics and can be taken along with antibacterial antibiotics without adversely affecting its potency and efficacy. In fact, several clinical trials have used *S. boulardii* in conjunction with standard antibiotics in the treatment of *C. difficile* disease and have demonstrated that *S. boulardii* enhances the success of antibiotic therapy in this setting. Additional studies have shown that *S. boulardii* can be taken along with antibiotics to support the gastrointestinal microflora thereby reducing the risk of antibiotic-associated diarrhea.

Can *Saccharomyces boulardii* be taken along with antifungals?
*S. boulardii* can be sensitive to a number of commonly prescribed antifungals including nystatin, Diflucan (fluconazole) and Sporonox (itraconazole) and these antifungal agents are known to kill the *S. boulardii* organisms. If antifungals are prescribed with *S. boulardii* then both products should be taken at different times. *S. boulardii* should be taken at least 1 hour before and 2 hours after any antifungal agent.

Can *Saccharomyces boulardii* be taken along with natural or herbal antifungals?
There is debate within the healthcare community on this issue. However, there are no studies that show natural antifungal therapies such as garlic, grape seed extract, Oregon grape or berberine affect the potency or actions of *S. boulardii*. It presently appears that *S. boulardii* can be taken along with natural antifungals.

Can *Saccharomyces boulardii* be taken with prescription medications or other dietary supplements?
There is no known interaction between *S. boulardii* and prescription medicines except for antifungals. *S. boulardii* has no adverse interaction with other dietary supplements and can be added to any supplement regimen as needed.

Are there any conditions in which *Saccharomyces boulardii* should not be taken?
*S. boulardii* is generally well tolerated however few contraindications exist. People with known allergies to *Saccharomyces cervisiae* should avoid use of *S. boulardii*. Currently no clinical studies on the safety of *S. boulardii* during pregnancy are available. Pregnant women should consult a health care professional before use. There have been reports of opportunistic infections in severely immunocompromised patients and in patients with indwelling vascular catheters after supplementation with *S. boulardii*. In rare cases, people with an indwelling vascular catheter sharing a hospital room with a person taking *S. boulardii* have developed catheter and blood stream *S. boulardii* infections. It is likely these catheter and blood infections were related to careless handling of the *S. boulardii* and poor handwashing by medical staff. *S. boulardii* should be used with caution in severely immunocompromised patients. People with chronic indwelling vascular catheters should not use *S. boulardii*. 
**Is *Saccharomyces boulardii* safe to use in infants and children?**
*S. boulardii* has been shown to be safe in infants and children. In a clinical trial intended to evaluate the efficacy and safety of *S. boulardii* for the prevention of antibiotic-associated diarrhea in infants and children, 250 mg was administered orally twice daily in 269 children aged 6 months to 14 years. No adverse effects were observed during the course of the study.

**What improvements can be expected with supplementation?**
Generally, clinical response is considered positive when the number of stools decrease and improvements in stool consistency, from being watery and foul-smelling to more formed and less odorous, are observed. Also lessening of abdominal discomfort or cramping, along with reduction in stool urgency, and restoration of normal bowel movements provides clinical evidence of improvement.

**How long will it take for *Saccharomyces boulardii* to clear from the gastrointestinal tract after discontinuing use?**
Clinical studies have demonstrated *S. boulardii* is usually eliminated from the healthy gastrointestinal tract within 6 days after discontinuation of supplementation. People with *C. difficile* disease generally clear the *S. boulardii* more rapidly from the intestines, but occasionally *S. boulardii* may be cultured from the stool up to 4 weeks after discontinuing the supplement.

**How should *Saccharomyces boulardii* be stored?**
To maintain potency and stability, *S. boulardii* is best stored under refrigeration. However, *S. boulardii* is relatively heat stable and does not lose potency when left at room temperature for hours and even days.

**Is Klaire Labs® *Saccharomyces boulardii* a hypoallergenic product?**
Yes. Klaire Labs® *S. boulardii* is free of lactose, casein, gluten, corn, soy, egg, sugar and maltodextrin. It is safe for use in children and adults following a gluten-free or casein-free diet. Klaire Labs® *S. boulardii* contains no artificial additives, colorings, flavoring, preservatives or salicylates.

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