

SIBO Yogurt & The Three Probiotic Strains

What is SIBO Yogurt?

Developed by Dr. William Davis, SIBO yogurt is a 36-hour fermented dairy product containing three specific probiotic strains that produce bacteriocins — natural antimicrobial compounds that selectively kill SIBO bacteria. The extended 36-hour fermentation amplifies the bacteria to colony counts in the hundreds of billions per serving — far beyond what swallowing capsules directly would deliver.

Of around 30 people who tried SIBO Yogurt in Davis's preliminary observation, 90% normalised breath hydrogen and obtained relief from symptoms. This is from a small, informal observation — not a controlled study — but the reasoning is sound, the risk is low, and many people report positive results.

Davis now suggests people try the SIBO Yogurt before trying anything else, because it's low-risk and the preliminary results are strong.

Dose and Timing

- **Daily amount:** ½ cup (~150ml), mixed from equal portions of each strain
 - **When:** Morning/daytime with breakfast. Davis recommends daytime consumption — if the yogurt kills adverse microbes, you want any die-off reaction to happen during the day and not disrupt sleep.
 - **Ramp-up:** Days 1-3: 2-3 tablespoons. Days 4-7: ¼ cup. Week 2 onward: ½ cup.
 - **Optional:** 2-3 tablespoons with dinner to maintain bacteriocin presence into the evening
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The Three Strains

Each species has many strains. Only the specific strains below produce the bacteriocins needed to target SIBO bacteria. Using the wrong strain will not work.

Bacteria	Required Strain	Product	Amount per 400ml Batch (first batch)	CFU
L. reuteri	DSM 17938 + ATCC PTA 6475	BioGaia Gastrus	4 capsules, crushed	200M per capsule → 800M total
L. gasseri	BNR17	Dr. Mercola Biothin Probiotic	1 capsule, opened	10B per capsule
B. subtilis	HU58	Microbiome Labs HU58	1 capsule, opened	5B per capsule

Other acceptable L. reuteri strains: LRDR, LR007, SD 5865 (but DSM 17938 + ATCC PTA 6475 in BioGaia Gastrus are the standard).

Note on B. subtilis vs B. coagulans: Davis's original recipe used *Bacillus coagulans* GBI-30 6086 (Schiff Digestive Advantage). The updated recipe replaces it with *B. subtilis* HU58, which produces more consistent counts during fermentation and has stronger biofilm-disrupting properties. Both are valid. Davis also recommends fermenting *B. subtilis* separately from the other two strains.

Strain 1: Lactobacillus reuteri (DSM 17938 + ATCC PTA 6475)

What It Is

A lactic acid-producing bacterium that naturally lives in the human gut, urinary tract, skin, and breast milk. Technically reclassified to *Limosilactobacillus reuteri* in 2020 — same organism, updated taxonomy. DSM 17938 is the most studied probiotic strain in the world, with over 200 clinical trials involving more than 19,000 people.

Primary Weapon — Reuterin

L. reuteri produces reuterin, a potent antimicrobial compound able to inhibit the growth of gram-positive and gram-negative bacteria, fungi, and protozoa. Reuterin is created when the bacteria metabolise glycerol. It's a broad-spectrum natural antibiotic that kills a wide range of pathogens without the resistance problems that pharmaceutical antibiotics create. This is the main reason it's in the SIBO yogurt. A microbiologist with 40 years of experience told Davis that they sometimes

clean their bacterial production vats with *L. reuteri* because of how effective reuterin is at killing unwanted organisms.

How It Colonises

The strain employs competitive exclusion, physically outcompeting undesirable microbes for resources and colonisation sites on the intestinal lining. It adheres to mucin, the protective layer coating the intestinal epithelium, using specific surface proteins. By occupying these sites, it prevents harmful bacteria from establishing a foothold. It also survives stomach acid and bile, which many probiotic strains can't do.

Motility Benefits (Directly Relevant to SIBO)

L. reuteri supplementation improved bowel movements and stool consistency. The possible explanation is that *L. reuteri* increased both frequency of colonic myoelectric motility complex and velocity. It doesn't just kill bacteria — it actually speeds up gut motility, providing a prokinetic effect on top of the antimicrobial effect.

Biofilm Trick

L. reuteri forms a biofilm rich in probiotic functions, inhibits the production of proinflammatory cytokines, and prevents intestinal overgrowth by other commensals. The SIBO bacteria form biofilms to protect themselves, but *L. reuteri* forms its own protective biofilm on the intestinal wall that works in your favour, acting as a barrier against pathogenic bacteria.

Other Effects Beyond SIBO

- Anti-inflammatory — reduces proinflammatory cytokines (relevant to systemic inflammation, leg inflammation with sugar, post-nasal drip)
- Increased production of mucin and antioxidant substances, stabilised the mucosal barrier, stimulated mucosal immunity
- Promotes regulatory T cell development — modulates immune system rather than just ramping it up
- Increases oxytocin production — may explain improved mood and sleep reports
- Classified as a psychobiotic — documented effects on the gut-brain axis

The Two Strains in BioGaia Gastrus

DSM 17938 is the antimicrobial and motility workhorse. ATCC PTA 6475 contributes additional anti-inflammatory effects and has been specifically studied for bone health (it's the strain in BioGaia Osfortis). Together they cover both the killing and the healing.

Important Note — Histamine

L. reuteri produces histamine. People with histamine intolerance can react badly — experiencing bloating, headaches, skin rashes, and diarrhoea. However, histamine intolerance is often itself a symptom of SIBO, because the invading bacteria outnumber the histamine-metabolising species in the small intestine. Davis's approach is to start with reduced quantities and build up slowly.

Strain 2: *Lactobacillus gasseri* (BNR17)

What It Is

L. gasseri BNR17 was first isolated from human breast milk. It's a normal inhabitant of the human intestinal tract. *L. gasseri* produces gassericin A, a bacteriocin. Davis considers it a "keystone" species in the gut microbiome, meaning it influences the behaviour and survival of many other bacterial species around it.

Why Davis Chose It for SIBO

L. gasseri stands out for its ability to colonise the upper GI tract and produce bacteriocins — natural antibiotics effective against species such as *E. coli*, *Klebsiella*, and *Staphylococcus*, which are responsible for small intestinal bacterial overgrowth. The key phrase is "upper GI tract." Most probiotics colonise the large intestine. *L. gasseri* specifically colonises the small intestine where the SIBO bacteria are.

Bacteriocin Production

Davis describes *L. gasseri* as producing up to 7 different bacteriocins, making it a "bacteriocin powerhouse." Bacteriocins are small protein compounds that punch holes in the cell membranes of competing bacteria, killing them. These compounds selectively inhibit harmful bacteria while leaving beneficial species alone — not indiscriminate like pharmaceutical antibiotics.

How It Fights SIBO Bacteria

L. gasseri BNR17 is characterised by acid and bile resistance, binding to colonic cells, antibacterial properties against food-borne pathogens including *Staphylococcus aureus*, *Escherichia coli* O157:H7, *Listeria monocytogenes*, *Salmonella typhimurium*, and *Bacillus cereus*, and production of antibacterial substances such as bacteriocin. It also produces lactic acid and hydrogen peroxide, both of which create an inhospitable environment for SIBO bacteria.

Colonisation Evidence

After intervention for four weeks, *L. gasseri* BNR17 was found in all subjects who consumed it, with statistically significant results. It actually makes it through the stomach alive and establishes itself in the gut. Many probiotic strains fail this test.

Confirmed Reduction in IBS Symptoms

Among IBS symptom scores, abdominal pain score was significantly reduced in the high-dose group. Davis's position is that *L. gasseri* reduces symptoms of functional dyspepsia (heartburn after a meal). Directly relevant to reflux.

Bonus Effects

- Visceral fat reduction — multiple studies show *L. gasseri* strains BNR17 and SBT2055 may reduce visceral fat, body weight, and waist circumference by decreasing fat absorption
 - Blood sugar support — BNR17 converts dietary carbohydrates to indigestible fibres (exopolysaccharides), meaning less sugar available for absorption
 - Stress reduction and anxiety — preliminary evidence
 - Candida suppression — preliminary evidence
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Strain 3: *Bacillus subtilis* (HU58)

What It Is

A completely different type of organism from the two *Lactobacillus* strains. The *Bacillus subtilis* HU58 strain was first isolated from a healthy human microbiome by spore expert Professor Simon Cutting at Royal Holloway University London. Unlike *L. reuteri* and *L. gasseri*, *B. subtilis* is a spore-

forming bacterium.

The Spore Advantage

B. subtilis HU58 boasts a near 100% survivability rate through harsh gastric passage, ensuring the full clinical dose reaches the lower gastrointestinal tract intact. *B. subtilis* wraps itself in an endospore — biological armour that protects from extreme heat, pressure, dehydration, and the acidic stomach environment. Researchers once revived *Bacillus* spores from a 25-million-year-old bee preserved in amber. This is also why it survives 36-hour yogurt fermentation reliably and why Davis switched to it from *B. coagulans* (which was less consistent).

How It Works Once It Arrives

Once the spores reach the nutrient-rich environment of the large intestine, they undergo germination — shedding their protective coating, returning to active vegetative state, and colonising the gut lining. During this active phase, *Bacillus subtilis* forms protective biofilms along the intestinal mucosa, interacts directly with host immune cells, and exerts broad-spectrum health benefits.

Antimicrobial Output

B. subtilis HU58 secretes potent antimicrobial peptides known as bacteriocins. Compounds such as amicoumacin A act as targeted natural antibiotics within the gut. It produces over 12 different targeted antibiotics in the intestines and more than two dozen beneficial metabolites total, including nattokinase (a natural biofilm disruptor), B vitamins, short-chain fatty acids, and vitamin K2.

Competitive Exclusion — The Bouncer Effect

B. subtilis HU58 is one of the most potent strains for natural crowding out of unwanted flora in the gut and small intestine. It physically outcompetes pathogens for space and resources. Published data shows a 20% reduction in ammonia and hydrogen gas (the gases SIBO bacteria produce, causing bloating) and a 40% increase in short-chain fatty acid production (SCFAs feed gut lining cells and reduce inflammation).

The Leaky Gut Repair Function

The unique contribution *B. subtilis* brings that the *Lactobacillus* strains don't. HU58 physically tightens gaps between intestinal cells by upregulating key structural proteins — ZO-1, occludin, and claudin-1 — effectively plugging leaks in the gut lining. This prevents translocation of LPS (lipopolysaccharide) toxins into the bloodstream. In a 30-day human trial, participants taking a spore-based probiotic containing HU58 experienced a 42% reduction in circulating endotoxins after a high-fat meal, compared to a 36% *increase* in the placebo group. Directly relevant to inflammatory reactions — if the gut lining is leaky, bacterial toxins enter the bloodstream causing systemic inflammation.

Role in the SIBO Yogurt

B. subtilis can grow and sporulate with high efficiency in anaerobic conditions in the gastrointestinal tract, form biofilms which enhance gut colonisation, and produce surfactants which enhance gut adhesion. It's the enforcer of the three.

How the Three Work Together

This isn't three random probiotics. Each one fills a specific gap:

L. reuteri = the coloniser. Establishes a probiotic biofilm on the gut wall, produces reuterin (broad-spectrum antimicrobial), improves motility, reduces inflammation. The foundation.

L. gasseri = the SIBO sniper. Specifically colonises the small intestine (where SIBO lives), produces up to 7 bacteriocins that selectively target the types of bacteria responsible for SIBO (*E. coli*, *Klebsiella*, etc.), and reduces heartburn/reflux symptoms.

B. subtilis = the tank. 100% survivability through digestion, produces 12+ targeted antibiotics, repairs leaky gut at the cellular level, crowds out pathogens through competitive exclusion, and produces nattokinase (a natural biofilm disruptor — partially doing biofilm work from inside the yogurt).

The 36-hour fermentation amplifies all three to colony counts in the hundreds of billions per serving — far beyond what swallowing capsules directly would deliver.

Yogurt Recipe

Equipment

- 3 yogurt makers (ideal) or 1 with staggered batches
- 12 × 150ml jars (4 per strain, filled to ~100ml each)
- Kitchen thermometer
- Clean saucepan, mixing bowls/jugs, whisk

Ingredients per Strain (400ml batch)

	L. reuteri	L. gasseri	B. subtilis
Milk/cream mix	200ml full cream milk + 200ml pouring cream	200ml full cream milk + 200ml pouring cream	200ml full cream milk + 200ml pouring cream
Culture (first batch)	4 BioGaia Gastrus capsules, crushed	1 Mercola Biothin capsule, opened	1 HU58 capsule, opened
Culture (future batches)	2 tbsp from previous batch	2 tbsp from previous batch	2 tbsp from previous batch
Inulin	1 teaspoon	1 teaspoon	1 teaspoon
Optional	2-3 tbsp milk powder for thickness	2-3 tbsp milk powder for thickness	2-3 tbsp milk powder for thickness

Fermentation Temperatures (Separate Batches)

Strain	Temperature	Time
L. reuteri (BioGaia Gastrus)	36–37°C (97–98°F)	36 hours
L. gasseri (Mercola Biothin)	42–43°C (107–109°F)	36 hours
B. subtilis (HU58)	46°C (115°F)	36 hours

L. reuteri dies above 43°C. The lower temperature of 36-37°C also slows acid production, which reduces whey separation.

If only one yogurt maker is available, use 38°C as a universal compromise temperature for all three — it works, just not at peak efficiency for L. gasseri and B. subtilis.

Method

1. Sterilise. Pour boiling water into all 12 jars and lids, mixing jug/pot, thermometer, and spoons/whisks. Let sit for a minute, pour out, air dry. Don't skip this — contamination is how you get bad batches.

2. Mix the milk and cream. For each strain, measure 200ml full cream milk + 200ml pouring cream into a clean saucepan (400ml per strain). You can do all 1.2 litres in one pot and split later. Optional: whisk in 2-3 tablespoons milk powder per 400ml for extra thickness.

3. Heat. Bring to 85°C and hold for 15 minutes. Stir occasionally to prevent a skin forming. This denatures whey proteins so they integrate into the curd rather than separating, and kills competing bacteria.

4. Cool. Remove from heat and let cool to 37°C. Use thermometer — don't guess. Speed up by placing pot in a sink of cold water and stirring. Don't let it cool below 35°C.

5. Split into three portions. Pour roughly 400ml into each of three separate clean bowls/jugs — one per strain.

6. Add cultures and inulin. Add inulin AFTER heating and cooling — heat degrades the prebiotic fibre chains.

- **Bowl 1 (L. reuteri):** Crush 4 BioGaia Gastrus capsules. Add powder + 1 teaspoon inulin. Whisk thoroughly.
- **Bowl 2 (L. gasseri):** Open 1 Mercola Biothin capsule. Add powder + 1 teaspoon inulin. Whisk thoroughly.
- **Bowl 3 (B. subtilis):** Open 1 HU58 capsule. Add powder + 1 teaspoon inulin. Whisk thoroughly.

7. Pour into jars. Pour each bowl into its 4 jars, filling to ~100ml each. Leave headroom.

8. Set yogurt makers.

- Yogurt maker 1 (L. reuteri): **36-37°C**
- Yogurt maker 2 (L. gasseri): **42-43°C**
- Yogurt maker 3 (B. subtilis): **46°C**

9. Ferment for 36 hours. Don't open lids during fermentation. Set a timer. Bacteria only start multiplying significantly after 24 hours — the full 36 hours is critical. Don't go significantly over 40 hours or bacteria run out of substrate and yogurt becomes overly sour.

10. Refrigerate. Move all 12 jars to fridge. Chill at least 6 hours before eating. Yogurt continues to thicken as it cools.

11. Label and store. Label jars by strain. Keeps 7-10 days in fridge.

Subsequent Batches

Save 2-3 tablespoons of yogurt from each strain as starter for the next batch of the same strain. Future batches only need: milk/cream + inulin + starter. No new capsules needed.

Starter refresh: After approximately 8 generations, go back to fresh capsules. Over successive generations, the bacterial population gradually shifts toward strains best at fermenting dairy rather than producing bacteriocins. Bacteria that spend less energy on bacteriocin production and more on reproduction gradually outcompete the heavy producers. Genetic drift from billions of replication events also accumulates. Refreshing with lab-produced capsules resets the culture to full potency.

L. Reuteri Separation

L. reuteri separation into curds (clumpy top) and whey (watery bottom) is normal and extremely common. L. reuteri produces lactic acid but doesn't create the same stable protein network that traditional yogurt cultures (S. thermophilus, L. bulgaricus) do. It will never behave exactly like store-bought yogurt.

A separated batch is therapeutically identical to a non-separated batch. Bacteria are present in both curds and whey.

To reduce separation:

- Use half full cream milk + half pouring cream (higher fat holds structure)
- Add milk powder (more protein = more structure)
- Ferment at 36-37°C rather than 38°C (slower acid production)
- Use 1 teaspoon inulin, not more (too much fuel = overly aggressive fermentation)
- Use starter from previous batch — subsequent batches are typically thicker and more consistent

If it still separates:

- Stir together before eating
- Strain through fine mesh sieve or cheesecloth for thicker Greek-style result (drink the whey separately — it contains bacteria too)
- Blend with a stick blender for smooth drinkable consistency
- Use in a smoothie

Signs of a Good vs Bad Batch

- **Good:** Tangy/cheesy smell, pleasantly tart taste, thick or semi-thick texture, slight fizz possible
- **Normal (not a failure):** Whey separation, cottage cheese texture, thin/runny consistency, strong tangy smell — all cosmetic, not therapeutic issues
- **Bad (discard):** Pink/orange/green discolouration, foul or rotten smell (not just strong/tangy), slimy film on top, visible mould

Timing Tip

Start a batch early morning or evening so the 36-hour mark falls at a convenient time. At 4 jars per strain, one batch gives roughly 4 days of servings. Start the next batch on day 3 so there's no gap.

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