

# The Butyrate Protocol

Maximizing endogenous colonic butyrate by feeding parallel fiber-degrader guilds and the cross-feeding network that supplies *Faecalibacterium prausnitzii* & *Roseburia*.

RAMP OVER 4 WEEKS

Diversity > brute dose  
~30 plant species / week

## 1 DAILY FIBER TARGETS at full ramp

FIBER CLASS	G / DAY	BEST SOURCES
<b>Resistant starch</b> (RS2/RS3)	<b>20–40</b>	Raw potato starch (2–4 tbsp, <b>cold only</b> ), green-banana flour, cooled rice/potato, cooked-cooled lentils/beans
<b>Inulin / FOS</b>	<b>5–15</b>	Chicory inulin, garlic, onion, leek, asparagus, Jerusalem artichoke ( <b>high-FODMAP</b> )
<b>Beta-glucan</b>	<b>3–6</b>	Barley (richest) > oats; 60–80 g dry oats ≈ 3 g
<b>Arabinoxylan</b>	<b>5–10</b>	Wheat/oat bran, rye, whole grains ( <b>low-FODMAP</b> )
<b>Pectin / mixed soluble</b>	<b>5–10</b>	Apple w/ skin, citrus, carrot, psyllium (~1 tbsp)
<b>TOTAL FIBER</b>	<b>35–50</b>	The real lever is breadth across all classes

## 2 DAILY CHECKLIST

- Resistant starch base** — raw potato starch in cold water/kefir/ smoothie (**never heat**) **2–4 tbsp**
- Inulin/FOS source** — alliums + 1 chicory or J-artichoke item **5–15 g**
- Whole grain** — oats or barley + a bran/rye serving **~½–1 cup**
- Legume serving** — lentils/beans, cooked then cooled **~1 cup**
- Pectin fruit/veg** — apple w/ skin, citrus, carrot **1–2 ea**
- Fermented foods** — spread across meals (see panel 5) **build to 4–6**
- Probiotic** (optional) — *C. butyricum* and/or *Bifido* + inulin **1 dose**
- Hydration** — fiber needs water to move **2–3 L**
- New plant species** — aim for variety toward ~30/wk **+1 new**

## 3 WHY IT WORKS the relay

Primary degraders (*R. bromii* on RS, *Bifidobacterium* on inulin) break fiber into **acetate & lactate** → cross-feeders (*F. prausnitzii*, *Roseburia*, *Anaerostipes*, *E. hallii*) convert these to **butyrate** in the colon. You can't colonize what you don't feed — so feed every guild at once.

**Read before starting.** Inulin/FOS & alliums are high-FODMAP — with IBS or SIBO they are the exact triggers for bloating & pain; favor the arabinoxylan/RS routes and start minimal. There is a tolerance ceiling where more fiber = more gas with no extra butyrate; diversity beats dose. RS only converts well if you harbor *R. bromii* — response is individual, judge by tolerance & effect. **This is population-level mechanism & ranges, not personalized medical advice** — if you have or manage a GI condition, review with a clinician who knows your case.

## 4 4-WEEK RAMP SCHEDULE

TARGET	WK 1	WK 2	WK 3	WK 4
<b>Resistant starch (g)</b>	5–8	10–15	15–25	<b>20–40</b>
<b>Inulin / FOS (g)</b>	2–3	3–5	5–10	<b>5–15</b>
<b>Beta-glucan (g)</b>	1–2	2–3	3–4	<b>3–6</b>
<b>Total fiber (g)</b>	20–25	25–30	30–40	<b>35–50</b>
<b>Fermented (servings)</b>	1	2	3–4	<b>4–6</b>
<b>Probiotic</b>	—	start	daily	<b>daily</b>

Back off one notch if bloating/gas spikes — that's the tolerance ceiling, not a target. Re-advance once it settles.

## 5 FERMENTED FOODS ~6/day ceiling

Role: diversity + anti-inflammatory signaling + live lactate/acetate producers that feed the relay (Stanford / Wastyk *Cell* 2021). Use **raw / unpasteurized** — shelf-stable canned versions are dead.

- **Kefir** — ~1 cup | **Live yogurt** — ~¾ cup
- **Sauerkraut & kimchi** — 2–4 tbsp each, raw
- **Miso** — ~1 tbsp, stirred in off-heat
- **Natto / tempeh** — 1 serving (*Bacillus*)
- **Kombucha** — lower priority (sugar)

## 6 SUPPORTING PROBIOTICS minor lever vs fiber

- *Clostridium butyricum* (MIYAIRI 588 / Miyarisan) — closest to a direct butyrate producer you can buy
- *Bifidobacterium adolescentis* / *longum* — acetate engine; **pair with inulin**
- *L. plantarum* + multi-strain — lactate for the lactate→butyrate step
- *Akkermansia* (pasteurized) — mucin cross-feed stimulates butyrogens
- Spore *Bacillus* blends — modest SCFA shift