

Protocol: Post Antibiotic Microbiome Support

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Disclaimer: The Pendulum team has created these protocols in collaboration with practitioners to help healthcare partners make decisions when building treatment plans. When using this protocol, you understand and accept that the recommendations in the protocol are for educational guidance and need to be adapted to meet individual patient needs. This may not be appropriate for every patient.

Description

While antibiotics are vital for treating infections, they indiscriminately target both beneficial and harmful gut bacteria, leading to reduced microbial diversity and balance. This disruption can cause significant and lasting changes in the microbiome, allowing harmful bacteria to thrive and contribute to side effects such as gastrointestinal disturbances and occasional diarrhea¹⁻³. Research indicates that antibiotic use reduces microbiome diversity and causes the loss of key bacteria, particularly keystone species like *Akkermansia muciniphila* and butyrate-producing strains like *Clostridium butyricum*. These essential bacteria are vital for gut barrier integrity, immune support, and metabolic regulation. Prolonged antibiotic use can lead to the loss of these critical species, significantly disrupting gut microbiota and altering its composition⁴⁻⁵.

Restoring gut microbiome health following antibiotic use is essential for enhancing microbial diversity and managing related symptoms. Recovery may vary depending on individual factors and the duration of antibiotic therapy. Probiotic therapy, particularly with strains like *Akkermansia muciniphila* and butyrate-producing bacteria such as *Clostridium butyricum*, has proven effective in repairing microbiome damage and supporting restoration. *Akkermansia muciniphila* aids in mucin layer turnover, fortifies the intestinal lining, and produces short-chain fatty acids that further promote microbial diversity⁵⁻⁶. *Clostridium butyricum* enhances gut barrier function by thickening the mucosal layer and increasing tight junction protein expression. Additionally, it can help alleviate occasional diarrhea and gastrointestinal distress often linked to antibiotic use⁷.

In addition to probiotics, prebiotics are essential for effective microbiome recovery. These dietary fibers enhance the growth and activity of beneficial probiotic bacteria in the gut, playing a key role in maintaining microbial diversity and promoting a healthy gut environment. Notably, polyphenols are fiber-free prebiotics that are particularly effective in not only supporting and increasing microbiome diversity, but also in specifically stimulating the growth of *Akkermansia muciniphila*⁸.

Support your supplement plan with prebiotic-rich foods

Top Prebiotic Food List				
Grains/Legumes	Fruit	Vegetables	Nuts + seeds	Extras
Oats	Blueberries	Mushrooms	Flaxseeds	Dark chocolate
Barley	Pomegranate	Garlic	Cashews	Chicory Root
Black Beans	Apples	Artichokes	Pecans	Coffee
Garbanzo Beans	Avocado	Onions	Almonds	Seaweed
Lentils	Blackberries	Asparagus	Walnuts	Green tea

Supplement Plan

*Intended for 3 months post antibiotic use:

Weeks 1-4:

- **Pendulum Akkermansia 500 Pro:** 1 capsule, once daily with food
- **Pendulum Polyphenol Booster:** Support *Akkermansia* and overall microbiome diversity
- Consider supplementation with *Saccharomyces boulardii*
- Consider use of serum bovine immunoglobulins to manage bacteria die-off

Weeks 4-12:

- **Pendulum Glucose Control Pro:** 1 capsule, twice daily with food
- Encourage intake of polyphenols and prebiotic rich foods
 - Supplement as necessary with **Pendulum Polyphenol Booster** to boost *Akkermansia* and support overall microbiome diversity
- Consider supplementation with *Saccharomyces boulardii*
- Consider the use of serum bovine immunoglobulins to manage bacteria die-off

References

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