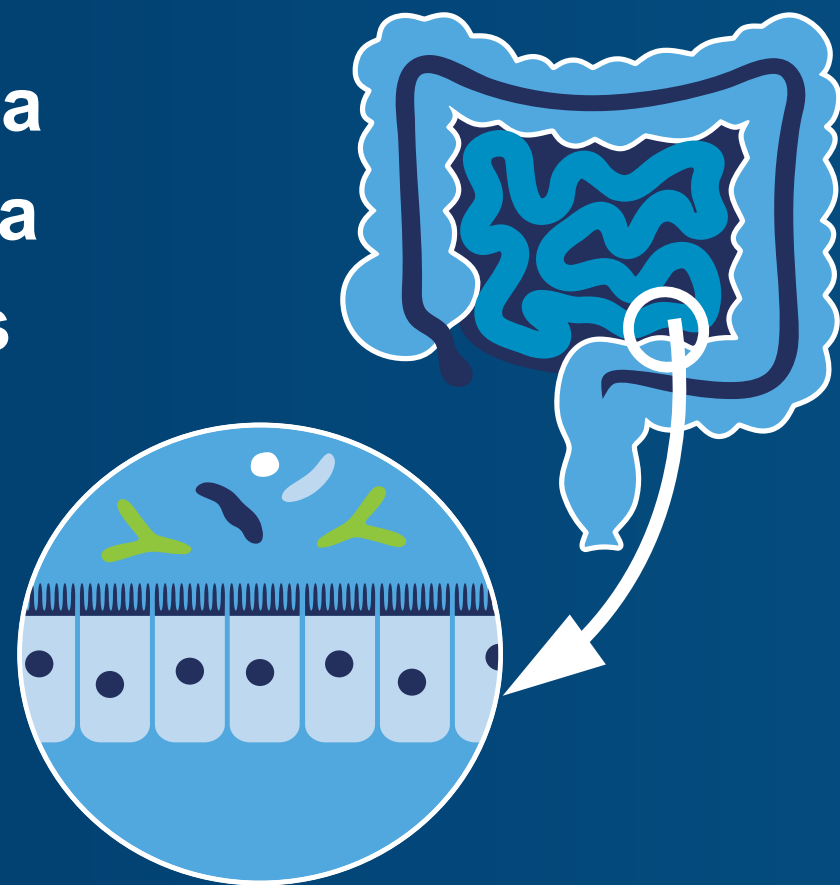


Understanding the gut ecosystem: Microbiota, probiotics and prebiotics explained

1 What's the microbiota?

The microbiota is a community of **trillions of microorganisms** living in the intestine, including:

- ✓ bacteria
- ✓ archaea
- ✓ viruses
- ✓ fungi



Even though each person has a unique combination of commensal^{*1} microorganisms, they all share the same role:



to help digest food and absorb nutrients, support the immune system, and keep the body healthy.

2 What are prebiotics?

Prebiotics are **food** for the **commensal microorganisms**.

Those foods are typically **high in fibers and resistant starches**, but the body can't digest them.

Examples

- ✓ Banana
- ✓ Garlic
- ✓ Onions
- ✓ Oats
- ✓ Asparagus



3 What are probiotics?

Probiotics are **live microorganisms** that may confer a health benefit if ingested in adequate amounts.

They're found in **fermented foods or supplements** and may help **replenish the intestine's commensal microorganisms**.

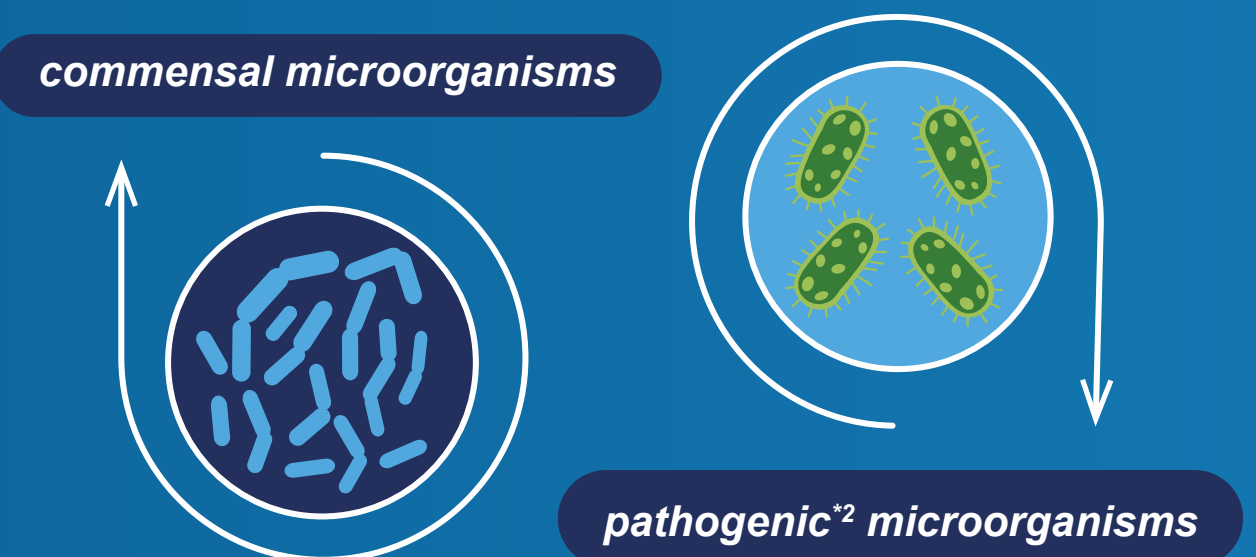
Examples

- ✓ Yogurt
- ✓ Kefir
- ✓ Kimchi
- ✓ Probiotic Supplements



4 How do they work together?

Eating prebiotic and probiotic food may help **increase commensal microorganisms** in the intestine...



...and **decrease the amount of pathogenic microorganisms...**



...which may contribute to a **healthier gastrointestinal microbiome**.

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2. Rinninella E, Raoul P, Cintoni M, et al. What is the Healthy Gut Microbiota Composition? A Changing Ecosystem across Age, Environment, Diet, and Diseases. Microorganisms. 2019;7(1):14. Published 2019 Jan 10. doi:10.3390/microorganisms7010014

*1 Commensal: a commensal is a microorganism that lives in close association with a host, obtaining benefits from the host (like nutrients or a habitat) without harming it.

*2 Pathogenic: a pathogen is any microorganism that can cause disease.