ACTIVATED PROBIOTICS™

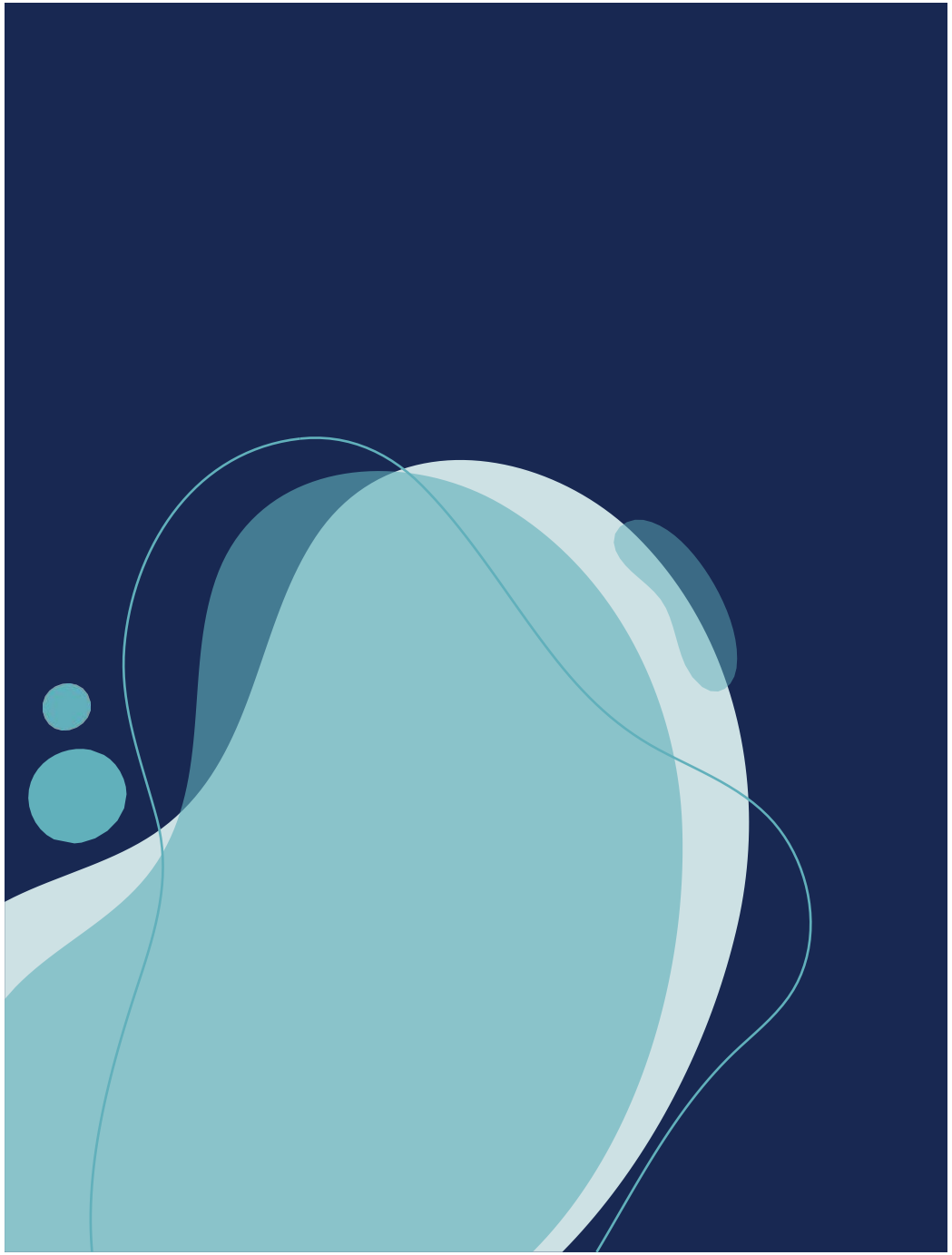
Activated Probiotics' Clinical Update and Training Session:

Biome Daily Kids™ Probiotic

To help enhance immune system function, and reduce the occurrence and duration of common colds in children

THURSDAY 19 MARCH 2020

PRESENTERS: BLAIR NORFOLK & REBECCA EDWARDS



The Activated Probiotics® Difference

Key research partnerships

Microencapsulation

Strain selection and identification (DSM/ATCC)

Unique packaging to maintain product integrity

Biome Daily Kids™ Probiotic

To help enhance immune system function, and reduce the occurrence and duration of common colds in children

Prevalence and potential impact of antibiotics in children

49%

of children aged 0-4 received at least one course of antibiotics in 2013[1]

2x

higher use of antibiotics than some comparable high-income countries, such as the Netherlands [1]

50%

higher risk of asthma by the age of 6 associated with early-life antibiotic exposure [2]

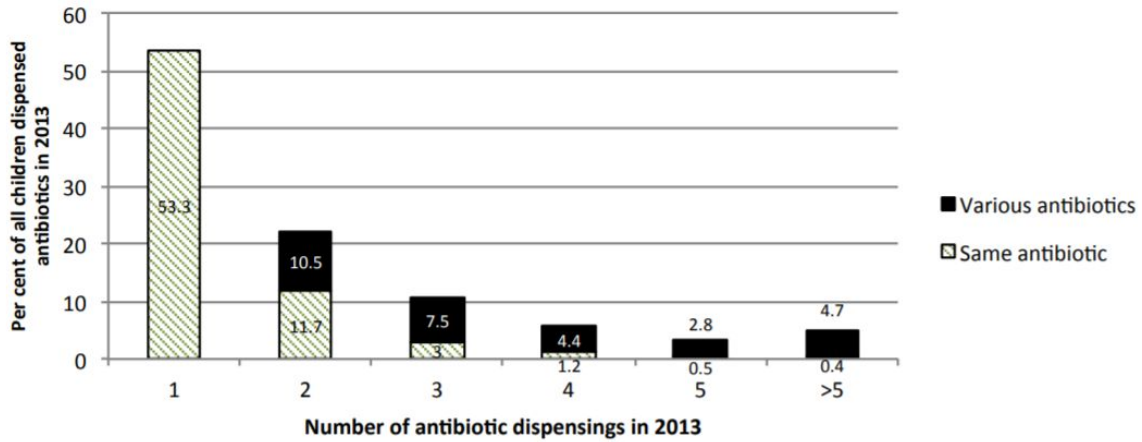


Figure 1. Antibiotic dispenses in all children with antibiotics in 2013 (n = 75,518)

Note: for children with multiple dispenses, 'same antibiotic' was attributed only when all the dispensings were for the same antibiotic

Figure 1. Gadzhanova S, Roughead E. Prescribed antibiotic use in Australian children aged 0-12 years. Aust Fam Physician. 2016;45(3):134–8.

REFERENCES:
1. Gadzhanova S, Roughead E. Prescribed antibiotic use in Australian children aged 0-12 years. Aust Fam Physician. 2016;45(3):134–8.
2. Risnes KR, Belanger K, Murk W, Bracken MB. Antibiotic Exposure by 6 Months and Asthma and Allergy at 6 Years: Findings in a Cohort of 1,401 US Children. Am J Epidemiol [Internet]. 2011 Feb 1;173(3):310–8.

BIOME AUSTRALIA

A call to focus on PREVENTION over treatment

"The majority of antibiotics used were those commonly used for upper respiratory tract infections…

Improving antibiotic use in children, particularly ***minimising their use for upper respiratory tract infections, should be a priority for action...***

Interventions to reduce inappropriate antibiotic use in children are required*"*

- The Royal Australian College of General Practitioners

The benefits of *Lactobacillus rhamnosus GG* (LRGG)

Acute Upper Respiratory Tract Infections (URTIs)

38% Reduction

in the risk of acquiring an URTIs when supplementing with LRGG compared to placebo in children [1,2]

One of these studies took place in childcare settings, settings known to increase the risk of acquiring URTIs.

Antibiotic-Associated Diarrhoea (AAD)

52% reduction

in the risk of AAD when using probiotic supplements, with the strongest evidence being for the use of LRGG[3]

The European Society for Pediatric Gastroenterology, Hepatology, and Nutrition **strongly recommended the use of Lactobacillus rhamnosus GG** for those with existing risk factors for AAD

REFERENCES:
1. Laursen RP, Hojsak I. Probiotics for respiratory tract infections in children attending day care centers—a systematic review. Eur J Pediatr [Internet]. 2018 Jul 12;177(7):979–94. 2. Liu S, Hu P, Du X, Zhou T, Pei X. Lactobacillus rhamnosus GG supplementation for preventing respiratory infections in children: A Meta-analysis of Randomized, Placebo-controlled Trials. Indian Pediatr [Internet]. 2013 Apr 25;50(4):377–81.
3. 1. Szajewska H, Canani RB, Guarino A, Hojsak I, Indrio F, Kolacek S, et al. Probiotics for the Prevention of Antibiotic-Associated Diarrhea in Children. J Pediatr Gastroenterol Nutr [Internet]. 2016 Mar;62(3):495–506.

Probiotics and enhanced immune system function

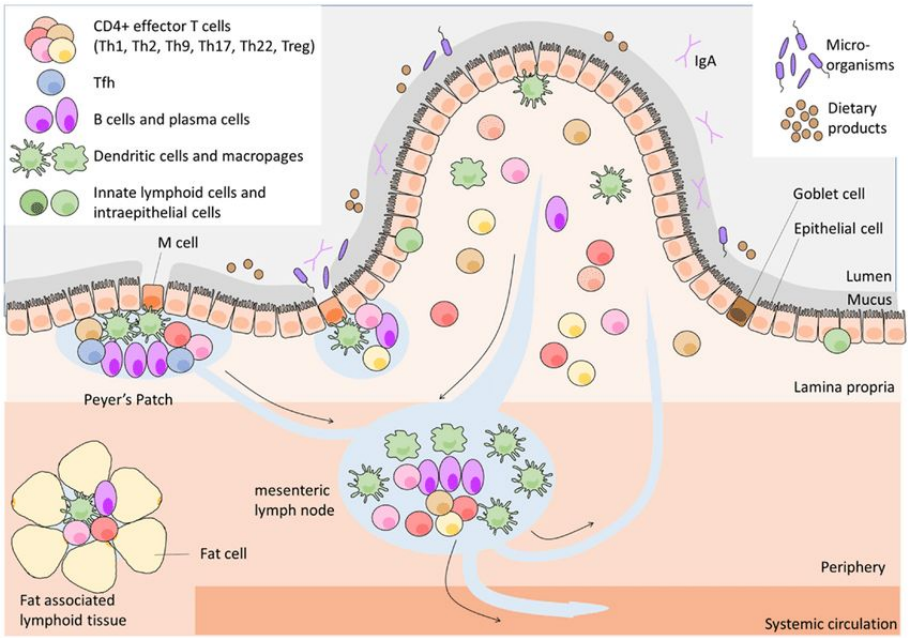


Figure 1. Distribution of immune cells in the gut

Brucklacher-Waldert, Verena & Carr, Edward & Linterman, Michelle & Veldhoen, Marc. (2014). Cellular Plasticity of CD4+ T Cells in the Intestine. Frontiers in immunology. 5. 488. 10.3389/fimmu.2014.00488.

Proposed Mechanism of Action

The gastrointestinal system is home to 70% of the body's immune cells

The gut microbiota and its metabolites, particularly short chain fatty acids such as butyrate, interact with the intestinal epithelial cells and the underlying immune cells.

Bacteria-derived metabolites are thought to trigger a cascade of changes in immune cell phenotypes and cytokine secretion which supports enhanced immune function.

A healthy gut microbiota and various strains of probiotics enhance immune system function via various different pathways, and have been observed to:

- Increase mucin and antimicrobial peptides in the protective mucous membranes
- Induce and activate dendritic cells and macrophages
- Directly activate natural killer T cells
- Increase IgA production by B-cells

This influences the activity of both innate and adaptive immune cells in the gastrointestinal system.

This then alters systemic immune function when immune cells enter circulation and travel across the body.

1. Frei R, Akdis M, O'Mahony L. Prebiotics, probiotics, synbiotics, and the immune system. Curr Opin Gastroenterol [Internet]. 2015 Mar;31(2):153–8.

ACTIVATED PROBIOTICS™

Thank You

THURSDAY 20 FEBRUARY 2020

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