

UNDERSTANDING PROBIOTIC SUPPLEMENTS



Probiotics

- Health Canada Definition:
- *“Probiotics are considered to be live microorganisms which, when administered in adequate amounts, confer a health benefit on the host. It is recommended that the use of the term "probiotics" and similar terms or representations on food labels and in advertising of food products only be used when accompanied by specific, validated statements about the benefits or effects of the probiotic microorganism in the food*



Health Canada Monographs

- Health Canada Probiotic Information: http://www.hc-sc.gc.ca/fn-an/label-etiquet/claims-reclam/probiotics_qa-qr_probiotiques-eng.php#a3
- Probiotics Monograph: <http://webprod.hc-sc.gc.ca/nhpid-bdipsn/atReq.do?atid=probio&lang=eng>
- Other Nutrients: <http://webprod.hc-sc.gc.ca/nhpid-bdipsn/monosReq.do?lang=eng>



U.S.

- In the US – Probiotics are not regulated
- Typically the FDA regulates drugs but probiotics do not fall into this category
- Dietary supplement may make claims as to how the a supplement may effect the body without FDA approval
- They cannot make health claims: ie – reduces the risk of a disease
- There is talk about creating monograpahs – but this tends to be by industry



U.K.



- MHRA Medical and Healthcare Products Regulatory Agency
<https://www.gov.uk/government/organisations/medicines-and-healthcare-products-regulatory-agency/about>
- Does not have a clear process for accessing information
- Supplements must use the words “live bacteria” or “bacteria cultures” as the word “probiotic” implies a health claim as does the word “prebiotic”
- Nutrition and Health Regulations:
https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/204320/Nutrition_and_health_claims_guidance_November_2011.pdf

Identifying Strains

- Difficult to identify specific strains as they often same genus and strains are highly similar
- Accurate identifications of strains is critical to research and creating supplements
- Sequencing the full genetic code (genotyping) needs to be done through genetic testing
- Also, phenotyping (like genetic fingerprinting) provides the understanding of what the strain does (ie: secretes lactic acid)
- Current research is focusing on probiotics and antibiotics concurrently for AAD and C. Diff



Supplements

- Supplement manufacturers have to confirm that the strain they are using has been tested (Health Canada, FDA, MHRA verification)
- Other considerations for a product:
- Does the function define it's identity?
- Will it survive the manufacturing process?
- Does it make it to where it needs to be?
- Does it do what it is supposed to do?
- Measured as CFUs (*colony-forming unit*) - is a unit used to estimate the number of viable bacteria
- Look for research and materials from company for the answers



Making It More Complicated...

- Supplement manufacturers all work on technology “to build a better mouse trap” and want to protect proprietary information
- This makes it difficult for practitioners and consumers to know what to pick
- Each company will tell you that their strains, their methods for delivery and efficacy are the best
- It is up to Health Canada, FDA, MHRA to verify manufacturing standards
- Look for studies using the strains or studies of the companies product to verify potential uses
- Research may be using strains not yet in products

Supplements Brands

- So many – each claiming theirs are the best
- Just like food – there is no one right probiotics for everyone
- Different brands work differently on different people
- What works for one client many not work for another
- Here are a few companies and their products to give you an idea of what is available



Renew Life

- *Uses a unique, water-based enteric coating that protects the probiotics against being destroyed in the acidic environment of the stomach, yet still allows for the probiotics to populate in the intestinal tract –uses a lot of human microflora.*
- Has a number of probiotics –
- Flora Baby - 4 Billion, 5 strains, 1 + year old
- Flora Bear - 1 billion, 4 strains, 4 + year old, chewable
- Ultra Flora Kid - 10 Billion, 9 strains 3+ year old
- Flora Smart - 2 billion, 6 strains
- Flora Smart Extra Strength- 6 Billion, 6 strains



Renew Life

- **Ultimate Flora – 10 strains, 50 billion**
- Ultimate Flora Ultra Potent – 100 billion, 10 strains
- Ultimate Flora VS – 50 billion, 9 strains
- Ultimate Flora Colon Care – 80 Billion, 10 strains
- Boulardi Max – 10 Billion



Premature Infants Study

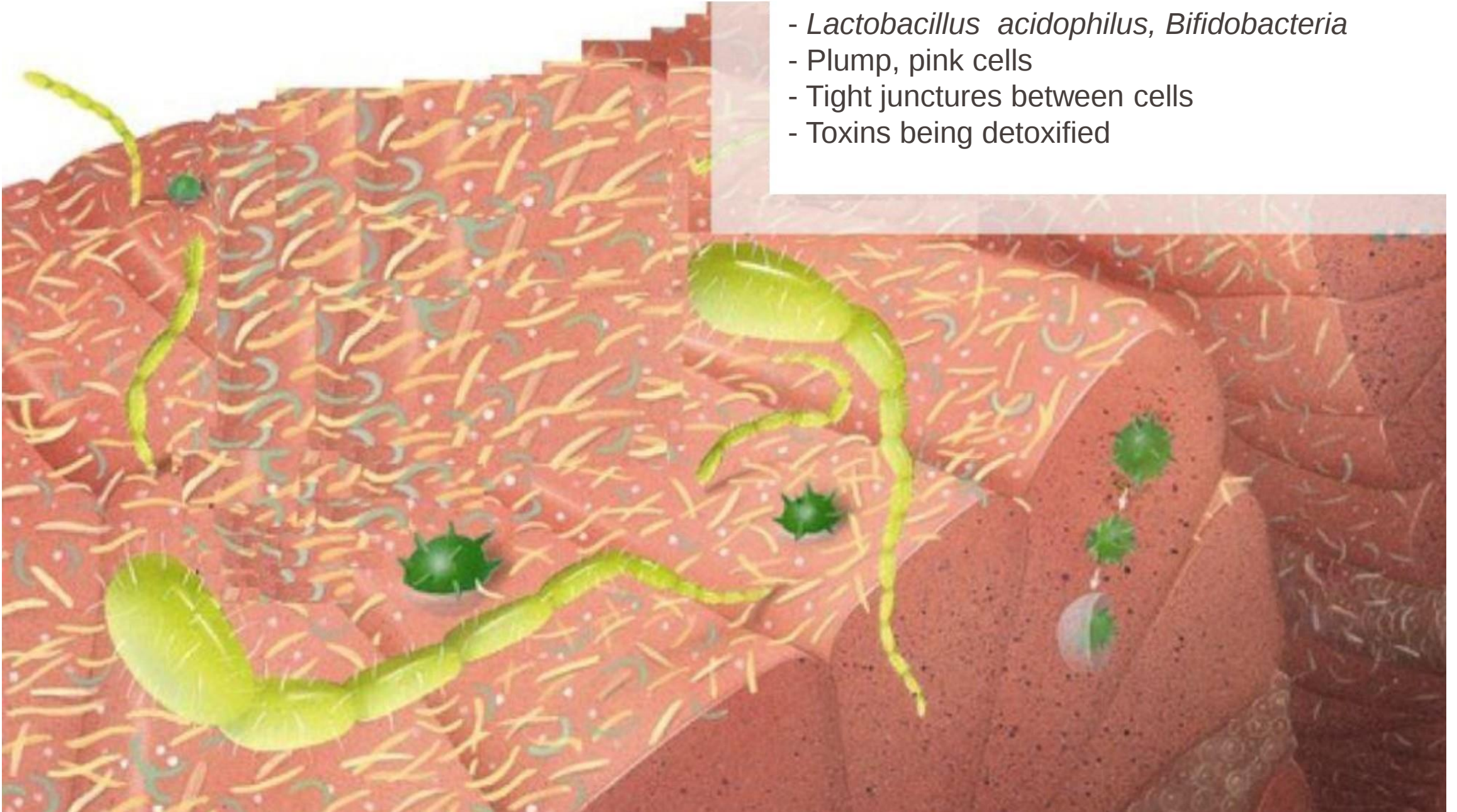
- Necrotizing enterocolitis (NEC) is a condition seen in premature infants where portions of the bowel suffers tissue death (it is not seen in still borns)
- A probiotic with B. breve, B.infantis B. bifidum, B. longum and L. Rhamnosus GG was significant were administered to 294 infants with 317 infants as the control
- *A product that is readily available in North America, that has excellent quality control, and that contains strains similar to those that have been shown effective in randomized controlled trials substantially reduced the frequency of NEC in our neonatal intensive care unit. (J Pediatr 2014)*

Metagenics

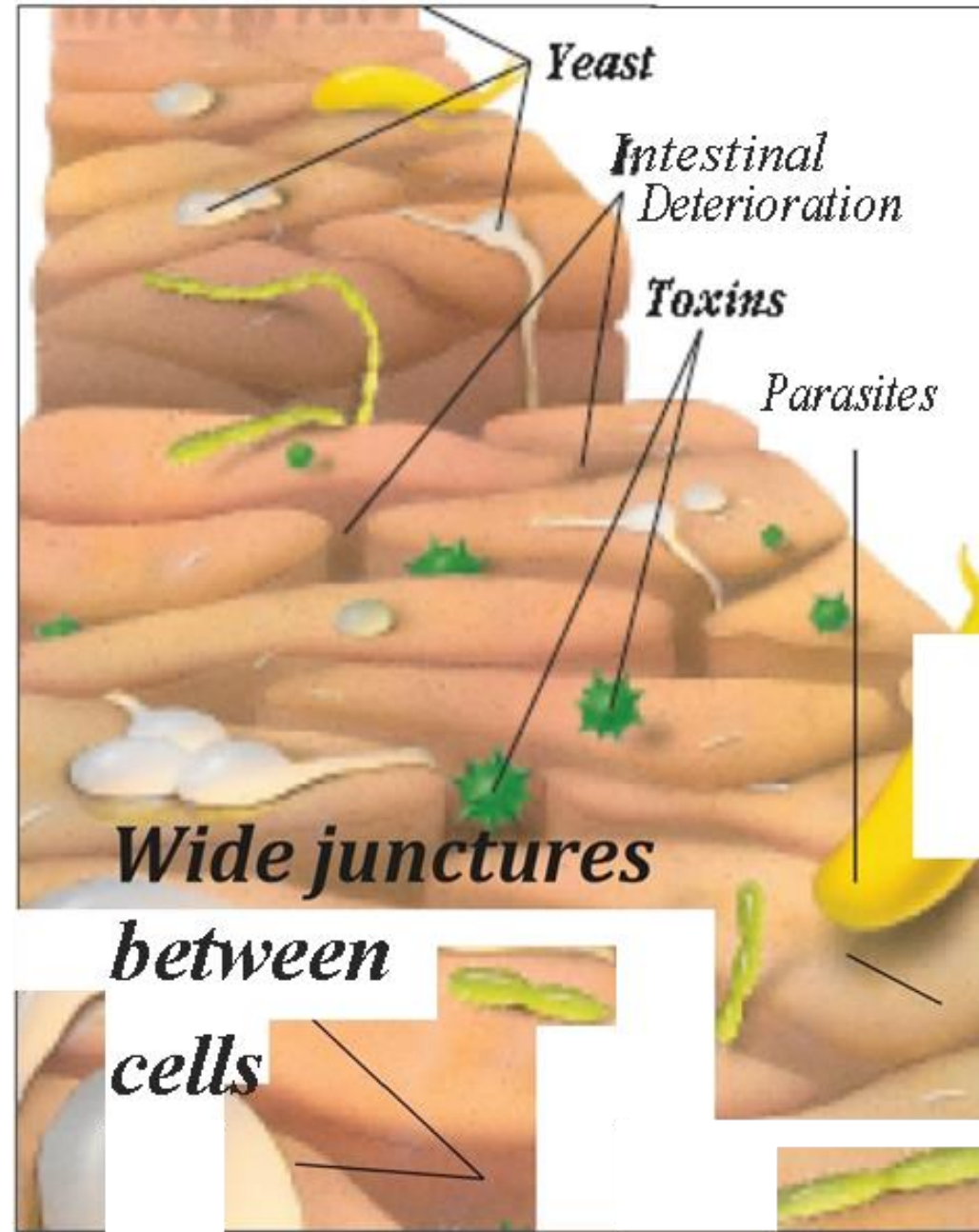
- Human Microflora and uses a lot of research for their products
- Research on specific strains does not transfer to other strains within that species
- “...it has been clearly demonstrated that probiotic properties are strain-specific and cannot be extrapolated to other strains.”
- (Best Pract Res Clin Gastroenterol. 2003 Oct;17(5))
- Microflora diversity is critical to digestive health
- A number of different probiotics



- Abundant healthy bacteria
- *Lactobacillus acidophilus*, *Bifidobacteria*
- Plump, pink cells
- Tight junctures between cells
- Toxins being detoxified



Atrophied Unhealthy Cells



Clinical study on children using *L. acidophilus* NCFM/*B. lactis* Bi-07

6 month double-blind, placebo-controlled
study, 326 eligible children (3-5 years old)

Objective: Probiotic consumption effects in healthy children during the winter season

Arm 1

(N=104)
placebo

Arm 2

(N=110)
L. acidophilus NCFM
5 billion CFU

Arm 3

(N=112)
L. acidophilus NCFM &
B. animalis lactis Bi-07
10 billion CFU



<http://pediatrics.aappublications.org/content/124/2/e172.short>

Pediatrics 2009;124:172–179.

Clinical study on children using L. acidophilus NCFM / B. lactis BI-07

Daily consumption of NCFM and Bi-07 and of NCFM alone significantly support immune health in children.

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Genstra (Seroyal)

- **Natural pH and bile acid resistance: No enteric coatings required:**
Human-sourced microflora bacterial strains have high survival rates through various stomach pH (1.8- 4.2) thus maximizing intestinal tract exposure and eliminating the need for enteric coatings (capsule/tablet barriers that control digestive absorption).
- **Naturally strong adherence: High ratio of intestinal tract carriage:** CFU (Colony Forming Unit) levels are important but effectiveness is best determined through intestinal tract carriage. Human-sourced microflora bacterial strains have a naturally strong adherence to epithelial cells thus ensuring high ratios of intestinal tract carriage.

Probiotics

HMF Baby (10 Billion) 5 strains with FOS and GOS

- for mother (pre-birth) and baby at 6 months

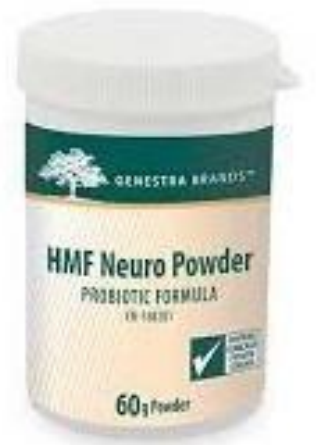
Reduced atopic eczema incidence by 57% and decreased skin prick reaction to cow's milk and egg allergens by 44%.

- Various products from 2 -150 billion – usually four strains
- Product guide has a chart for comparison
- HMF neuro – exorphin degrading
- Specific strain to degrade



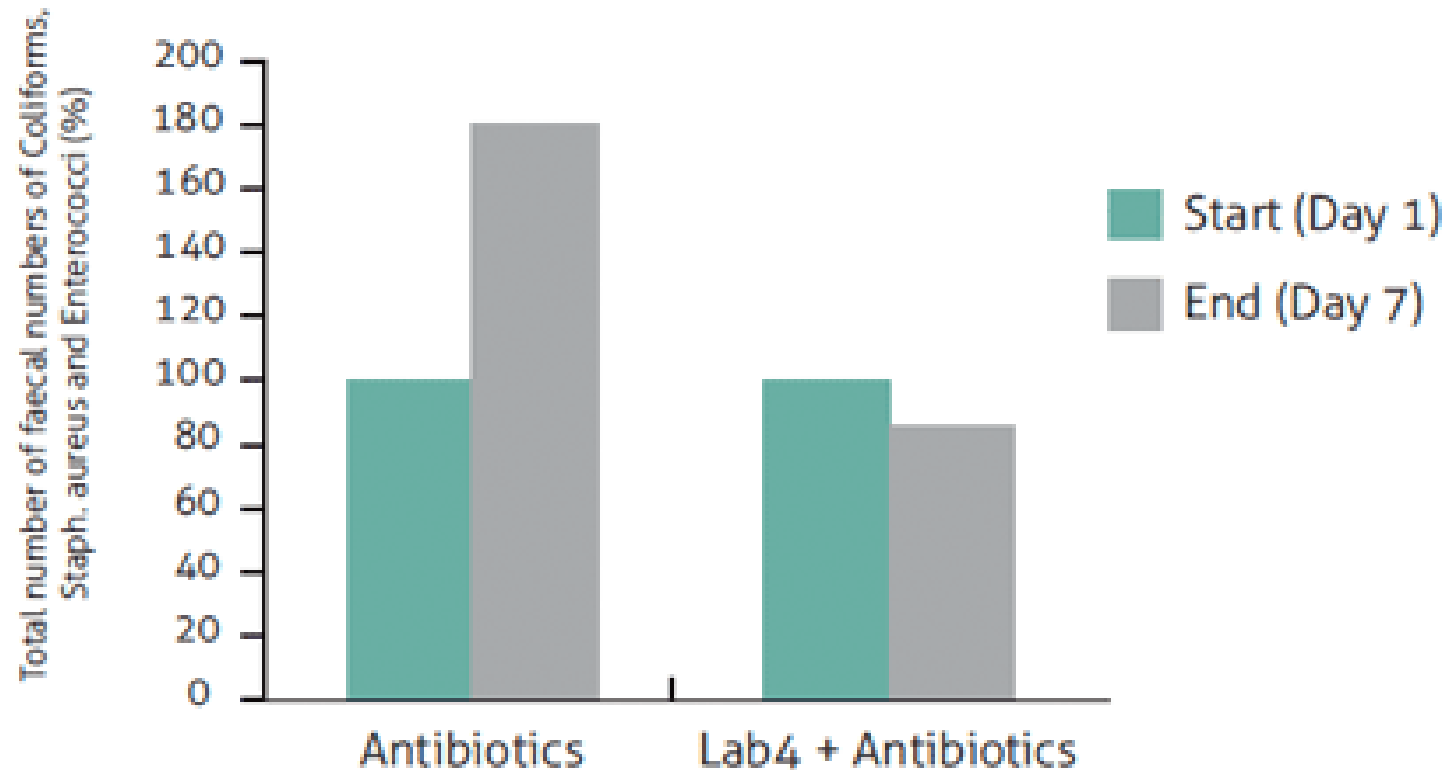
HMF Neuro

- Exorphins can be either food peptide opioids or microbial peptide opioids
- Gluten exorphins are opioid-like peptides that form when gluten is digested
- May disrupt brain function (and enter blood stream through leaky gut) May be a factor people in autism and schizophrenia
- HMF Neuro has been formulated with specific strains to degrade exorphins from food especially wheat

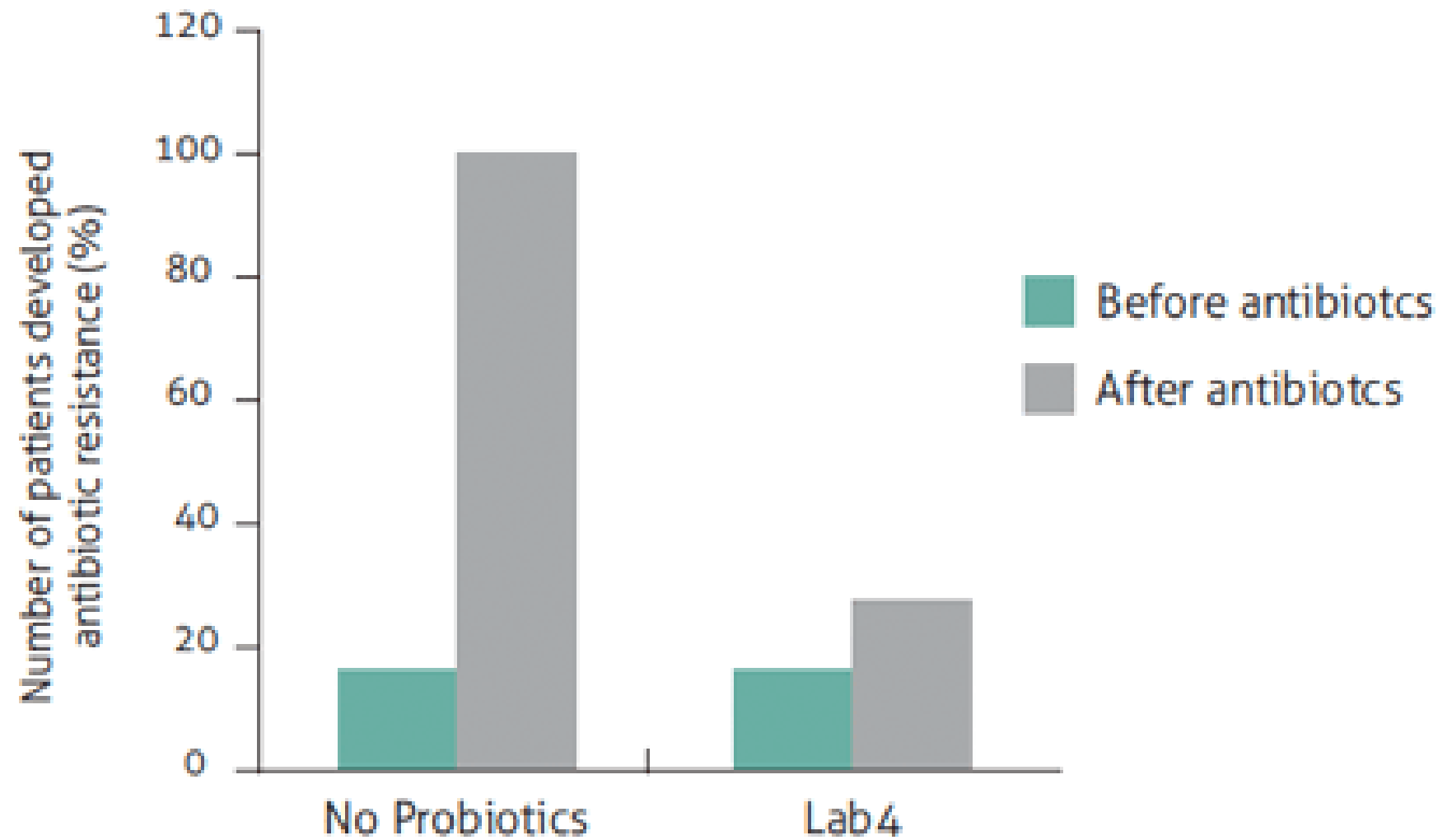


Antibiotic Care for taking after antibiotics - 16 strains, 100 billion (with FOS)

Post Antibiotic Therapy

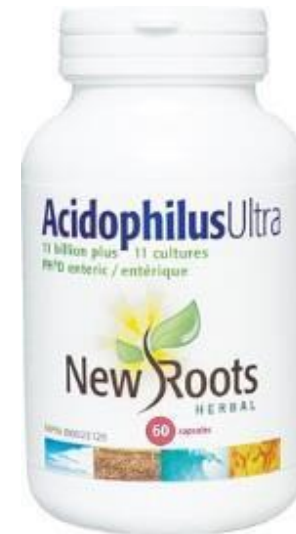


Antibiotic Resistance



New Roots Herbal

- Do their own enteric coating - a water based coating that resists the acidity of the stomach and only opens up within the small intestine at a PH of approximately 5
- Human microflora
- Use existing research to formulate
- Have a wide range of products:
- Hospital Defense (S Boulardi) for C.Diff)
- Probiotic Intensity – 18 strains, 20 billion, FOS,
- Colostrum for serious bowel diseases
- Traveler's Probiotic
- Femina Flora – for vaginal yeast infections



New Roots Herbal

- Acidophilus Ultra – 10 strains, 11 billion – maintenance of healthy flora, immune, ulcer, pregnancy, IBS
- Probiotic Urgency – 8 strains, 50 billion
- Helps reduce gas, bloating, constipation, diarrhea, bad breath, dull complexion, strong body odor, vaginal infections, deficiency in B-complex vitamins, lack of energy, red eyes and many other symptoms of chronic disease, helps immune, lactose intolerance, C.Diff, Candidiasis, aid digestion and absorption



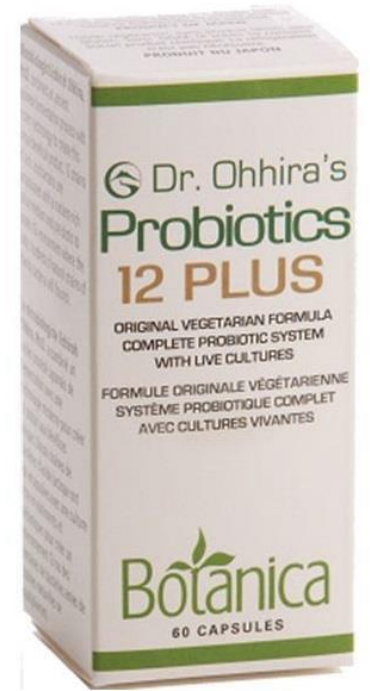
Bioflor 7

- Liquid active bacteria (similar to a food bacteria form)
- 5 strains - L. Acidophilus, L. Paracasei, L. Plantarum and B. Lactis plus they recently added Bascillus Coagulans
- Also contains aloe vera, prebiotics beta glucans (support the immune system and are anti-inflammatory) and arabinogalactans (found in fruits and vegetables and signals colon bacteria enzymes to begin fermentation process)
- Also contain a B Complex (catalyst for good bacteria)
- Cap and vial system with B Complex and probiotics in the cap and prebiotics and aloe in the vial. Once mixed they provide quick a delivery to the digestive system



Botanica

- Dr Ohira's Probiotics 12 strains (900 Million)
- Includes 6 wild fruits, 2 seaweeds and 2 herbs for prebiotics
- Shelf stable
- Fermented naturally – increases in number as it ages
- Lactobacillus Fermentum ME-3 research shows it raises glutathione levels in the body



Molkasan - A Vogel

- Made from fermented whey (from organic milk) – providing alkalizing minerals and L+ lactic acid – fosters the right ph to aid the growth of the good bacteria (4.5-5.0)
- L+ lactic acid form is better metabolized and is produced by lactic acid bacteria (LAB)
- Yeast and pathogenic bacteria thrive at a higher ph because good bacteria cannot produce the enzymes to control them
- Is considered a prebiotic product



Megaspore Biotic

- <http://www.gomegaspore.com/>
- <http://www.gomegaspore.com/webinar-2/>
- Spore: Stripped-down, dormant form of bacteria to which the bacterium can reduce itself.
- Spores are dormant, tough, and non-reproductive structure produced by certain bacteria
- Becomes active bacteria in the right environment
- Clostridium and Bacillus are two types of bacteria that can exist in spore form



From Megaspore Site

- Studies from the Human Microbiome Project and world leading probiotic experts, have found that in order for a supplemented probiotic to be beneficial for its host it must:
- Be an organism that naturally exists in the gut already.
- Be supplemented in a higher concentration than what naturally exists in the gut.
- Be able to survive the harsh environment of the stomach acid and upper digestive tract.
- Should naturally occur in our environment and be stable in both the gut and the environment.

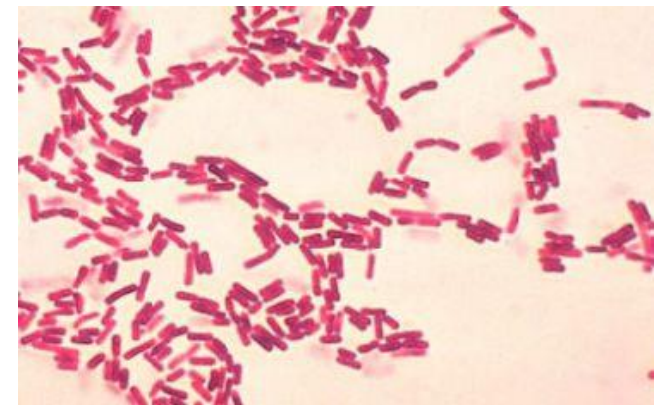


From Megaspore Site

- *Lactobacillus sp.* and *Bifidobacter sp.* dominate the marketplace as the most frequently used probiotic strains. It is true that these are naturally occurring bacteria in the intestinal tract, but they are not designed to exist and thrive outside of the gut and are thus may be destroyed by the stomach acid and bile salts when supplemented orally.
- These bacteria are not found in our environment because they have not evolved for life outside the gut, and therefore they are not natural probiotics.
- They also exist in numbers that exceed 20 trillion cells in the digestive tract, and so supplementation with even 100 billion cells would not be enough to get the desired immune stimulation.

Bacillus spores

- Bacillus spores are the most widely prescribed prescription probiotics in the world - studied extensively in human clinical trials and have a very long history of use.
- Are a normally occurring organism in the gut
- Exist with a typical population of about 2 million cells so supplementing 4 billion is a much higher concentration than what naturally exists in the gut which will cause the stimulation we require for the probiotic effect.
- Are robust and survive the harsh environment of the stomach acid 100% intact
- Occur naturally in our environment but also thrive in the gut



Why these 5 strains?

Bacillus Subtilis HU58™

- Widely used, safe and highly effective.
- Produces over 12 effective antibiotics
- Makes nattokinase and vitamin K2
- Highly important for immune development - GALT

Bacillus Indicus HU36™

- Potent immune stimulation
- Produces high levels of carotenoids—lycopene, astaxanthin, beta-carotene, lutein.
- Produces quinols and vitamins
- The most effective antioxidants on the market.

Bacillus Licheniformis

- Produces antibiotic bacitracin.
- Produces protease for digestion and helps protein digestion.
- Produces whole spectrum of B vitamins and Folic acid

Bacillus Clausii

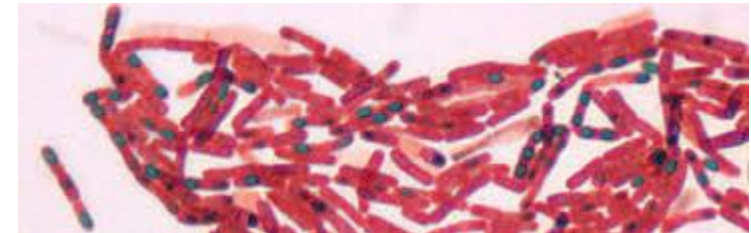
- Most widely used probiotic drug in the world.
- Potent immune stimulator
- Antibiotic resistant for use during antibiotic treatment

Bacillus Coagulans

- Very well studied and long history of use.
- Very effective against IBS, Crohn's
- Produces L+ optical form of lactic acid
- Potent immune stimulation

Controversial Part

- Claim that no probiotic makes it past the stomach acid and had some proof of this (yet we know that lactobacillus stains live there)
- Some strains are more acid resistant.
- Probiotic research is real.
- There is evidence that dead probiotics have benefits such as stimulating immune response
- So there is more to know and research
- However, they seem to work well.



In Conclusion

- Now that you are all confused.
- There will always be trial and error to find the best product for the client
- Don't develop a bias
- A good gut health protocol takes time and rotating probiotic supplements is good – just explain this to the client
- Fortunately, we have food to work with, too

