Floracil50 Research Review

A compilation of research demonstrating the effectiveness of the strains in Floracil50

Floracil50 Formula:

- Bifidobacterium Longum
- Bifidobacterium Breve
- Bifidobacterium Infantis Complex
- Lactobacillus Acidophilus
- Lactobacillus Rhamnosus
- Lactobacillus Casei
- Lactobacillus Reuteri Complex
- Lactobacillus Plantarum

Bifidobacterium Strains: Bifidobacteria, naturally present in the dominant colonic microbiota, represent up to 25% of the cultivable faecal bacteria in adults and 80% in infants. As probiotic agents, bifidobacteria have been studied for their efficacy in the prevention and treatment of a broad spectrum of animal and/or human gastrointestinal disorders, such as colonic transit disorders, intestinal infections, and colonic adenomas and cancer. The number of bifidobacteria naturally decline in humans with age so supplementation is especially important to preserve healthy organism levels.

Lactobacillus Strains: Lactobacillus is a genus of Gram-positive, facultative anaerobic or microaerophilic, rod-shaped, non-spore-forming bacteria. They are a major part of the lactic acid bacteria group. In humans, they constitute a significant component of the microbiota at a number of body sites. In women, *Lactobacillus* species are normally a part of the vaginal microbiota. *Lactobacillus* species produce hydrogen peroxide which inhibits the growth and virulence of the fungal pathogen *Candida albicans in vitro* and *in vivo*. When it is administered in combination with other probiotics, such as Bifidobacterium Strains, L. Strains may help people with irritable bowel syndrome.

The Floracil50 Formula contains 50 Billion CPUs of living probiotic organisms, making it potent enough for therapeutic usage while remaining properly balanced to allow for daily usage. The strains in Floracil50 may help alleviate myriad issues such as irritable bowel syndrome, Crohn's symptoms, helping to balance production of cortisol via the gut-brain connection with the hypothalamic-pituitary axis, intestinal infections, rebuilding of pro-flora after antiobiotic treatments, colonic disorders, and other gastrointestinal distress.

Bifidobacterium Longum:

Clin Exp Gastroenterol. 2014; 7: 473–487.
Published online 2014 Dec 9. doi: 10.2147/CEG.S27530
PMCID: PMC4266241

Systematic review of randomized controlled trials of probiotics, prebiotics, and synbiotics in inflammatory bowel disease

Yezaz A Ghouri, David M Richards, Erik F Rahimi, Joseph T Krill, Katherine A Jelinek, and Andrew W DuPont

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Abstract

Go to:

Background

Probiotics are microorganisms that are ingested either in combination or as a single organism in an effort to normalize intestinal microbiota and potentially improve intestinal barrier function. Recent evidence has suggested that inflammatory bowel disease (IBD) may result from an inappropriate immunologic response to intestinal bacteria and a disruption in the balance of the gastrointestinal microbiota in genetically susceptible individuals. Prebiotics, synbiotics, and probiotics have all been studied with growing interest as adjuncts to standard therapies for IBD. In general, probiotics have been shown to be well-tolerated with few side effects, making them a potential attractive treatment option in the management of IBD.

Conclusion: “Similar to probiotics, fecal microbiota transplantation provides an alternate modality of therapy to treat IBD (IBS) by influencing the intestinal flora.”

The use of *B. longum* was shown to shorten the duration and minimize the severity of symptoms associated with the common cold with a similar effect to that of neuraminidase inhibitors for influenza.

Effect of *Lactobacillus gasseri* PA 16/8, *Bifidobacterium longum* SP 07/3, *B. bifidum* MF 20/5 on common cold episodes: A double blind, randomized, controlled trial

Michael de Vrese, Petra Winkler, Peter Rautenberg, Timm Harder, Christian Noah, Christiane Laue, Stephan Ott, Jochen Hampe, Stefan Schreiber, Knut Heller, Jürgen Schrezenmeir

Bifidobacterium Breve:

RESEARCH ARTICLE | OPEN ACCESS | OPEN PEER REVIEW

Effect of a multispecies probiotic supplement on quantity of irritable bowel syndrome-related intestinal microbial phylotypes

Anna Lyra, Lotta Krogius-Kurikka, Janne Nikkilä, Erja Malinen, Kajsa Kajander, Kyösti Kurikka, Riitta Korpela and Airi Palva

BMC Gastroenterology 2010 10:110 | DOI: 10.1186/1471-230X-10-110 | © Lyra et al; licensee BioMed Central Ltd. 2010
Received: 10 January 2010 | Accepted: 19 September 2010 | Published: 19 September 2010

Conclusion: “The probiotic supplement was thus shown to exert specific alterations in the IBS-associated microbiota towards the bacterial 16S rDNA phylotype quantities described previously for subjects free of IBS. These changes may have value as non-invasive biomarkers in probiotic intervention studies.”

RESEARCH | OPEN ACCESS | OPEN PEER REVIEW

Is *Bifidobacterium breve* effective in the treatment of childhood constipation? Results from a pilot study

M M Tabbers, I de Milliano, M G Roseboom and M A Benninga

Nutrition Journal 2011 10:19 | DOI: 10.1186/1475-2891-10-19 | © Tabbers et al; licensee BioMed Central Ltd. 2011
Received: 13 August 2010 | Accepted: 23 February 2011 | Published: 23 February 2011

Conclusion: “*Bifidobacterium breve* is effective in increasing stool frequency in children with functional constipation. Furthermore it has a positive effect with respect to stool consistency, decreasing the number of faecal incontinence episodes and in diminishing abdominal pain. A randomized placebo controlled trial is required to confirm these data.”

BioMed Research International
Volume 2015 (2015), Article ID 505878, 15 pages
http://dx.doi.org/10.1155/2015/505878

Review Article

The Role of Probiotic Lactic Acid Bacteria and Bifidobacteria in the Prevention and Treatment of Inflammatory Bowel Disease and Other Related Diseases: A Systematic Review of Randomized Human Clinical Trials

Maria Jose Saez-Lara,[1,2] Carolina Gomez-Llorente,[2,3] Julio Plaza-Diaz,[2,3] and Angel Gil[2,3]

[1]Department of Biochemistry & Molecular Biology I, School of Sciences, University of Granada, 18071 Granada, Spain
[2]Institute of Nutrition & Food Technology "José Mataix", Biomedical Research Center, University of Granada, 18100 Armilla, Spain
[3]Department of Biochemistry & Molecular Biology II, School of Pharmacy, University of Granada, 18071 Granada, Spain

Received 5 July 2014; Revised 4 September 2014; Accepted 12 September 2014

Academic Editor: Clara G. de los Reyes-Gavilán

Conclusion: "Inflammatory bowel disease (IBD), which includes Crohn's disease (CD) and ulcerative colitis (UC), is a chronic inflammation of the small intestine and colon caused by a dysregulated immune response to host intestinal microbiota in genetically susceptible subjects. A number of fermented dairy products contain lactic acid bacteria (LAB) and bifidobacteria, some of which have been characterized as probiotics that can modify the gut microbiota and may be beneficial for the treatment and the prevention of IBD. Furthermore, in other associated IBD pathologies, such as pouchitis and cholangitis, LAB and bifidobacteria probiotics can provide a benefit through the improvement of clinical symptoms."

Bifidobacterium Infantis:

Proc Natl Acad Sci U S A. 2002 Oct 29; 99(22): 14422–14427. PMCID: PMC137899
Published online 2002 Oct 15. doi: 10.1073/pnas.212527599
Microbiology

The genome sequence of *Bifidobacterium longum* reflects its adaptation to the human gastrointestinal tract

Mark A. Schell,[*†] Maria Karmirantzou,[*‡] Berend Snel,[§¶] David Vilanova,[*] Bernard Berger,[*] Gabriella Pessi,[*‖] Marie-Camille Zwahlen,[*] Frank Desiere,[*] Peer Bork,[§] Michele Delley,[*] R. David Pridmore,[*] and Fabrizio Arigoni[*,**]

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Conclusion: “Although bifidobacteria represent only 3–6% of the adult fecal flora, their presence has been associated with beneficial health effects, such as prevention of diarrhea, amelioration of lactose intolerance, or immunomodulation. These correlations have led to widespread use of bifidobacteria as components of health-promoting foods.”

Original Article

Bifidobacterium longum as a delivery system for cancer gene therapy: Selective localization and growth in hypoxic tumors

Kazuyuki Yazawa[1,2], Minoru Fujimori[1], Jun Amano[1], Yasunobu Kano[3] and Shun'ichiro Taniguchi[2]

[1]*Departments of Surgery and*

[2]*Molecular Oncology and Angiology, Angio-Aging Research Division, Research Center on Aging and Adaptation, Shinshu University School of Medicine, Asahi, Matsumoto, Japan, and*

[3]*Department of Molecular Genetics, Institute of Molecular and Cellular Biology for Pharmaceutical Sciences, Kyoto Pharmaceutical University, 1 Shichono-cho, Misasagi, Yamashina-ku, Kyoto, Japan.*

Correspondence to: Minoru Fujimori, Department of Surgery, Shinshu University School of Medicine, 3-1-1 Asahi, Matsumoto 390-8621, Japan.
monoru1@hsp.md.shinshu-u.ac.jp

Conclusion: “A strain of domestic bacteria, *Bifidobacterium longum*, which is nonpathogenic and anaerobic, selectively localized and proliferated in several types of mouse solid tumors after systemic application. In this report, we further describe a novel approach to cancer gene therapy in which genetically engineered *Bifidobacterium* is used as a tumor-specific vector. Similarly to wild-type *B. longum*, genetically engineered *B. longum* could be detected in tumor tissue only and was not found in a large survey of normal mouse tissues after intravenous injection. This finding strongly suggests that obligate anaerobic bacteria such as *Bifidobacterium* can be used as highly specific gene delivery vectors for cancer gene therapy.”

Effects of Milk Products Fermented by *Bifidobacterium longum* on Blood Lipids in Rats and Healthy Adult Male Volunteers

J.Z. Xiao, S. Kondo, N. Takahashi, K. Miyaji, K. Oshida, A. Hiramatsu, K. Iwatsuki, S. Kokubo, A. Hosono

Conclusion: “In the human study, 32 subjects with serum total cholesterol ranging from 220 to 280 mg/dl were randomly assigned to two treatments: 1) intake of a low-fat drinking yogurt prepared with ordinary yogurt starters composed of *S. thermophilus* and *L. delbrueckii* subsp. *bulgaricus* (P-group) and 2) intake of a low-fat drinking yogurt prepared with the two ordinary yogurt starters plus *B. longum* strain BL1 (B-group). After intake for 4 wk at 3 × 100 ml/day, reduction of serum total cholesterol was observed in approximately half of the B-group subjects; a particularly significant decrease in serum total cholesterol was found among subjects with moderate hypercholesterolemia (serum total cholesterol > 240 mg/dl). However, the serum lipid concentrations in the P-group subjects were almost stable during the experimental periods. The present results indicate the potential of the probiotic *B. longum* strain BL1 in serum lipid improvement.”

Effect of *Lactobacillus gasseri* PA 16/8, *Bifidobacterium longum* SP 07/3, *B. bifidum* MF 20/5 on common cold episodes: A double blind, randomized, controlled trial

Michael de Vrese, Petra Winkler, Peter Rautenberg, Timm Harder, Christian Noah, Christiane Laue, Stephan Ott, Jochen Hampe, Stefan Schreiber, Knut Heller, Jürgen Schrezenmeir

Conclusion: “The intake of probiotic bacteria during at least 3 months significantly shortened common cold episodes by almost 2 days and reduced the severity of symptoms.”

Lactobacillus Acidophilus:

Curr Issues Intest Microbiol. 2006 Sep;7(2):73-89.

Lactic acid bacteria as probiotics.

Ljungh A[1], Wadström T.

Author information

Abstract

A number of Lactobacillus species, Bifidobacterium sp, Saccharomyces boulardii, and some other microbes have been proposed as and are used as probiotic strains, i.e. live microorganisms as food supplement in order to benefit health. The health claims range from rather vague as regulation of bowel activity and increasing of well-being to more specific, such as exerting antagonistic effect on the gastroenteric pathogens Clostridium difficile, Campylobacter jejuni, Helicobacter pylori and rotavirus, neutralising food mutagens produced in colon, shifting the immune response towards a Th2 response, and thereby alleviating allergic reactions, and lowering serum cholesterol (Tannock, 2002). Unfortunately, most publications are case reports, uncontrolled studies in humans, or reports of animal or in vitro studies. Whether or not the probiotic strains employed shall be of human origin is a matter of debate but this is not a matter of concern, as long as the strains can be shown to survive the transport in the human gastrointestinal (GI) tract and to colonise the human large intestine. This includes survival in the stressful environment of the stomach - acidic pH and bile - with induction of new genes encoding a number of stress proteins. Since the availability of antioxidants decreases rostrally in the GI tract production of antioxidants by colonic bacteria provides a beneficial effect in scavenging free radicals. LAB strains commonly produce antimicrobial substance(s) with activity against the homologous strain, but LAB strains also often produce microbicidal substances with effect against gastric and intestinal pathogens and other microbes, or compete for cell surface and mucin binding sites. This could be the mechanism behind reports that some probiotic strains inhibit or decrease translocation of bacteria from the gut to the liver. A protective effect against cancer development can be ascribed to binding of mutagens by intestinal bacteria, reduction of the enzymes beta-glucuronidase and beta-glucosidase, and deconjugation of bile acids, or merely by enhancing the immune system of the host. The latter has attracted considerable interest, and LAB have been tested in several clinical trials in allergic diseases. Characteristics ascribed to a probiotic strain are in general strain specific, and individual strains have to be tested for each property. Survival of strains during production, packing and storage of a viable cell mass has to be tested and declared.

PMID: 16875422

[PubMed - indexed for MEDLINE]

Conclusion: “A protective effect against cancer development can be ascribed to binding of mutagens by intestinal bacteria, reduction of the enzymes beta-glucuronidase and beta-glucosidase, and deconjugation of bile acids, or merely by enhancing the immune system of the host. The latter has attracted considerable interest, and LAB have been tested in several clinical trials in allergic diseases. Characteristics ascribed to a probiotic strain are in general strain specific, and individual strains have to be tested for each property.”

Drugs and Supplements

Acidophilus (Lactobacillus acidophilus)

Evidence

These uses have been tested in humans or animals. Safety and effectiveness have not always been proven. Some of these conditions are potentially serious, and should be evaluated by a qualified healthcare provider.

Conclusions: “There is good evidence supporting the use of L. acidophilus or yogurt enriched with L. acidophilus for the treatment of vaginal infections. More evidence is needed to support the use of L. acidophilus in treating vaginal yeast infections such as candidiasis, as well as restoring microorganisms in the vagina after treatment for infections. Several studies have used L. acidophilus in combination with other probiotics or supplements, such as vitamin B.”

Int J Environ Res Public Health. 2014 May; 11(5): 4745–4767. PMCID: PMC4053917
Published online 2014 May 5. doi: 10.3390/ijerph110504745

Microorganisms with Claimed Probiotic Properties: An Overview of Recent Literature

Sabina Fijan

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Conclusion: “Probiotics are defined as live microorganisms, which when administered in adequate amounts, confer a health benefit on the host. Health benefits have mainly been demonstrated for specific probiotic strains of the following genera: *Lactobacillus*, *Bifidobacterium*, *Saccharomyces*, *Enterococcus*, *Streptococcus*, *Pediococcus, Leuconostoc*, *Bacillus*, *Escherichia coli*. The human microbiota is getting a lot of attention today and research has already demonstrated that alteration of this microbiota may have far-reaching consequences. One of the possible routes for correcting dysbiosis is by consuming probiotics. The credibility of specific health claims of probiotics and their safety must be established through science-based clinical studies.”

Invited Review: The Scientific Basis of *Lactobacillus acidophilus* NCFM Functionality as a Probiotic

M.E. Sanders, T.R. Klaenhammer

Conclusions: "*Lactobacillus acidophilus* NCFM is a probiotic strain available in conventional foods (milk, yogurt, and toddler formula) and dietary supplements. Its commercial availability in the United States since the mid-1970s is predicated on its safety, its amenability to commercial manipulation, and its biochemical and physiological attributes presumed to be important to human probiotic functionality. The strain has been characterized in vitro, in animal studies, and in humans. NCFM is the progenitor of the strain being used for complete chromosome sequencing and therefore will be a cornerstone strain for understanding the relationship between genetics and probiotic functionality. Both phenotypic and genotypic techniques have verified its taxonomic status as a type A1 *L. acidophilus* strain. It adheres to Caco-2 and mucus-secreting HT-29 cell culture systems, produces antimicrobial compounds, and is amenable to genetic manipulation and directed DNA introduction. NCFM survives gastrointestinal tract transit in both healthy and diseased populations. NCFM inhibits aberrant crypt formation in mutagenized rats, indicative of activity that could decrease the risk of colon cancer. A blend of probiotic strains containing NCFM decreased the incidence of pediatric diarrhea. NCFM led to a significant decrease in levels of toxic amines in the blood of dialysis patients with small bowel bacterial overgrowth. At adequate daily feeding levels, NCFM may facilitate lactose digestion in lactose-intolerant subjects."

RESEARCH ARTICLE

A Metagenomic Approach to Characterization of the Vaginal Microbiome Signature in Pregnancy

Kjersti Aagaard, Kevin Riehle, Jun Ma, Nicola Segata, Toni-Ann Mistretta, Cristian Coarfa, Sabeen Raza, Sean Rosenbaum, Ignatia Van den Veyver, Aleksandar Milosavljevic, Dirk Gevers, Curtis Huttenhower, Joseph Petrosino, James Versalovic

Published: June 13, 2012 • http://dx.doi.org/10.1371/journal.pone.0036466

Conclusion: "While current major national research efforts (*i.e.,* the NIH Human Microbiome Project) will enable comprehensive metagenomic characterization of the adult human microbiota, how and when these diverse microbial communities take up residence in the host and during reproductive life are unexplored at a population level. Because microbial abundance and diversity might differ in pregnancy, we sought to generate comparative metagenomic signatures across gestational age strata. DNA was isolated from the vagina (introitus, posterior fornix, midvagina) and the V5V3 region of bacterial 16S rRNA genes were sequenced (454FLX Titanium platform). Sixty-eight samples from 24 healthy gravidae (18 to 40 confirmed weeks) were compared with 301 non-pregnant controls (60 subjects). Generated sequence data were

quality filtered, taxonomically binned, normalized, and organized by phylogeny and into operational taxonomic units (OTU); principal coordinates analysis (PCoA) of the resultant beta diversity measures were used for visualization and analysis in association with sample clinical metadata. Altogether, 1.4 gigabytes of data containing >2.5 million reads (averaging 6,837 sequences/sample of 493 nt in length) were generated for computational analyses. Although gravidae were not excluded by virtue of a posterior fornix pH >4.5 at the time of screening, unique vaginal microbiome signature encompassing several specific OTUs and higher-level clades was nevertheless observed and confirmed using a combination of phylogenetic, non-phylogenetic, supervised, and unsupervised approaches. Both overall diversity and richness were reduced in pregnancy, with dominance of Lactobacillus species (L. *iners* *crispatus*, *jensenii* and *johnsonii*, and the orders Lactobacillales (and *Lactobacillaceae* family), Clostridiales, Bacteroidales, and Actinomycetales. This intergroup comparison using rigorous standardized sampling protocols and analytical methodologies provides robust initial evidence that the vaginal microbial 16S rRNA gene catalogue uniquely differs in pregnancy, with variance of taxa across vaginal subsite and gestational age."

Ann Ig. 2013 Sep-Oct;25(5):443-56.doi:10.7416/ai.2013.1946.

Vaginal microbiota and viral sexually transmitted diseases.

Nardis C[1], Mosca L, Mastromarino P.

Author information

Abstract

Healthy vaginal microbiota is an important biological barrier to pathogenic microorganisms. When this predominantly Lactobacillus community is disrupted, decreased in abundance and replaced by different anaerobes, bacterial vaginosis (BV) may occur. BV is associated with prevalence and incidence of several sexually transmitted infections. This review provides background on BV, discusses the epidemiologic data to support a role of altered vaginal microbiota for acquisition of sexually transmitted diseases and analyzes mechanisms by which lactobacilli could counteract sexually transmitted viral infections.

Comment in

Antibiotic effects on vaginal microbiota. [Ann Ig. 2013]

Inadequate antibiotic therapy of genitourinary tract infections could be responsible for viral sexually transmitted diseases. [Ann Ig. 2013]

PMID: 24048183

[PubMed - indexed for MEDLINE] **Free full text**

Conclusions: "Healthy vaginal microbiota is an important biological barrier to pathogenic microorganisms. When this predominantly Lactobacillus community is disrupted, decreased in abundance and replaced by different anaerobes, bacterial vaginosis (BV) may occur. BV is associated with prevalence and incidence of several sexually transmitted infections. This review provides background on BV, discusses the epidemiologic data to support a role of altered vaginal microbiota for acquisition of sexually transmitted diseases and analyzes mechanisms by which lactobacilli could counteract sexually transmitted viral infections."

REVIEW

Probiotics in critically ill children [version 1; referees: 2 approved]

Sunit C. Singhi[1], Suresh Kumar[2]

Author affiliations

Grant information

Conclusion: “Gut microflora contribute greatly to immune and nutritive functions and act as a physical barrier against pathogenic organisms across the gut mucosa. Critical illness disrupts the balance between host and gut microflora, facilitating colonization, overgrowth, and translocation of pathogens and microbial products across intestinal mucosal barrier and causing systemic inflammatory response syndrome and sepsis. Commonly used probiotics, which have been developed from organisms that form gut microbiota, singly or in combination, can restore gut microflora and offer the benefits similar to those offered by normal gut flora, namely immune enhancement, improved barrier function of the gastrointestinal tract (GIT), and prevention of bacterial translocation. Enteral supplementation of probiotic strains containing either *Lactobacillus* alone or in combination with *Bifidobacterium* reduced the incidence and severity of necrotizing enterocolitis and all-cause mortality in preterm infants. Orally administered *Lactobacillus casei* subspecies *rhamnosus*, *Lactobacillus reuteri*, and *Lactobacillus rhamnosus* were effective in the prevention of late-onset sepsis and GIT colonization by *Candida* in preterm very low birth weight infants. In critically ill children, probiotics are effective in the prevention and treatment of antibiotic-associated diarrhea. Oral administration of a mix of probiotics for 1 week to children on broad-spectrum antibiotics in a pediatric intensive care unit decreased GIT colonization by *Candida*, led to a 50% reduction in candiduria, and showed a trend toward decreased incidence of candidemia.”

Lactobacillus Rhamnosus:

Peanut allergies: Australian study into probiotics offers hope for possible cure

By medical reporter Sophie Scott

Updated 28 Jan 2015, 7:29pm

Conclusion: “Research is showing that *L. rhamnosus* as a probiotic could stop allergic reactions to peanuts in 80% of children.”

Br J Cancer. 2007 Oct 22; 97(8): 1028–1034. PMCID: PMC2360429
Published online 2007 Sep 25. doi: 10.1038/sj.bjc.6603990

Lactobacillus supplementation for diarrhoea related to chemotherapy of colorectal cancer: a randomised study

P Österlund,[1,*] T Ruotsalainen,[1] R Korpela,[2,3] M Saxelin,[3] A Ollus,[4] P Valta,[5] M Kouri,[1] I Elomaa,[1] and H Joensuu[1]

BMJ. 2007 Aug 18; 335(7615): 340. PMCID: PMC1949444
Published online 2007 Aug 9. doi: 10.1136/bmj.39272.581736.55

Probiotics for treatment of acute diarrhoea in children: randomised clinical trial of five different preparations

Roberto Berni Canani, assistant professor of paediatrics,[1] Pia Cirillo, paediatrician,[1] Gianluca Terrin, paediatrician,[1] Luisa Cesarano, paediatrician,[1] Maria Immacolata Spagnuolo, paediatrician,[1] Anna De Vincenzo, paediatrician,[1] Fabio Albano, paediatrician,[1] Annalisa Passariello, paediatrician,[1] Giulio De Marco, paediatrician,[1] Francesco Manguso, consultant physician in gastroenterology,[2] and Alfredo Guarino, professor of paediatrics[1]

Lactobacillus GG in the prevention of antibiotic-associated diarrhea in children ☆ ☆☆ ★

Jon A. Vanderhoof, MD, David B. Whitney, MD, Dean L. Antonson, MD, Terri L. Hanner, RN, James V. Lupo, PhD, Rosemary J. Young, RN, MS
Show more

Conclusion: "*Lactobacillus rhamnosus* GG has been shown beneficial in the prevention of rotavirus diarrhea in children. The prevention and treatment of various types of diarrhea has been shown both in children and in adults."

Lactobacillus GG in the prevention of gastrointestinal and respiratory tract infections in children who attend day care centers: A randomized, double-blind, placebo-controlled trial☆

Iva Hojsak, Natalija Snovak, Slaven Abdović, Hania Szajewska, Zrinjka Mišak, Sanja Kolaček

BMJ. 2001 Jun 2; 322(7298): 1327. PMCID: PMC32161

Effect of long term consumption of probiotic milk on infections in children attending day care centres: double blind, randomised trial

Katja Hatakka, research nutritionist,[a] Erkki Savilahti, professor of pediatrics,[b] Antti Pönkä, chief of environmental health,[c] Jukka H Meurman, professor of dental infectious diseases,[e] Tuija Poussa, biostatistician,[d] Leena Näse, specialist in clinical dentistry,[f] Maija Saxelin, senior microbiologist,[a] and Riitta Korpela, assistant professor[g]

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Conclusion: *L. rhamnosus GG* may reduce the risk of obtaining respiratory tract infections in children that attend daycare.

Selection of *Lactobacillus* Strains for Urogenital Probiotic Applications

Gregor Reid[1,2] and Andrew W. Bruce[1]

[1]Lawson Research Institute and [2]Department of Microbiology and Immunology, University of Western Ontario, London, Ontario, Canada

Conclusion: The clinical health effects of *L. rhamnosus* GG have been widely studied. Both *L. rhamnosus* GG and *L. rhamnosus* GR-1 appear to protect the urogenital tract by excreting biosurfactants to inhibit the adhesion of vaginal and urinary pathogens.

Am J Physiol Gastrointest Liver Physiol. 2012 Jul 1; 303(1): G32–G41. PMCID: PMC3404581
Published online 2012 Apr 26. doi: 10.1152/ajpgi.00024.2012

Lactobacillus rhamnosus GG culture supernatant ameliorates acute alcohol-induced intestinal permeability and liver injury

Yuhua Wang,[1,2,*] Yanlong Liu,[1,3,*] Anju Sidhu,[1] Zhenhua Ma,[1,4] Craig McClain,[1,5,6,7] and Wenke Feng[1,7]

Alcohol. Author manuscript; available in PMC 2010 Mar 1.
Published in final edited form as:
Alcohol. 2009 Mar; 43(2): 163–172.
doi: 10.1016/j.alcohol.2008.12.009

PMCID: PMC2675276
NIHMSID: NIHMS102753

Lactobacillus GG Treatment Ameliorates Alcohol-induced Intestinal Oxidative Stress, Gut Leakiness, and Liver Injury in a Rat Model of Alcoholic Steatohepatitis

Christopher B. Forsyth,[a] Ashkan Farhadi,[a] Shriram M. Jakate,[a,b] Yueming Tang,[a] Maliha Shaikh,[a] and Ali Keshavarzian[a]

Conclusion: *L. rhamnosus* has been found to reduce intestinal permeability in children who suffer from irritable bowel syndrome, and it also has been found to counter alcohol-related intestinal permeability.

NEWS GENES & CELLS

Belly bacteria boss the brain

Gut microbes can change neurochemistry and influence behavior

BY TINA HESMAN SAEY 5:31PM, AUGUST 29, 2011

Magazine issue: Vol. 180 #8, October 8, 2011, p. 9

Conclusion: Research published in the Proceedings of the National Academy of Sciences on August 29, 2011 reported this bacterium may have an effect on GABA neurotransmitter receptors. Mice who were fed *L. rhamnosus* JB-1 had less anxiety and had different levels of a brain-chemical sensor and stress hormones.

Volume 111, Issue 8 April 2014, pp. 1507-1519 Cited by 39 Access

Effect of *Lactobacillus rhamnosus* CGMCC1.3724 supplementation on weight loss and maintenance in obese men and women

Marina Sanchez [a1], Christian Darimont [a2], Vicky Drapeau [a3], Shahram Emady-Azar [a4] ...

DOI: https://doi.org/10.1017/S0007114513003875 Published online: 03 December 2013

Conclusion: Research published in the *British Journal of Nutrition* in 2013 suggests that *Lactobacillus rhamnosus* CGMCC 1.3724 may increase weight loss in women who are dieting. The research was initiated after several studies showed that the gut bacteria in obese individuals differs significantly from those in thin people. Women in the study lost nearly twice the weight that the placebo group lost. No difference was observed in men, however.

Lactobacillus Casei:

Pediatrics
July 1991, VOLUME 88 / ISSUE 1

A Human *Lactobacillus* Strain (*Lactobacillus Casei sp* strain *GG*) Promotes Recovery From Acute Diarrhea in Children

Erika Isolauri, Tarja Rautanen, Marketta Juntunen, Pekka Sillanaukee, Timo Koivula

Conclusion: “The result indicates that early nutritional repletion after rehydration causes no mucosal disruption and is beneficial for recovery from diarrhea. It is further suggested that *Lactobacillus GG* in the form of fermented milk or freeze-dried powder is effective in shortening the course of acute diarrhea.”

APMIS Explore this journal >

Lactobacillus casei prevents impaired barrier function in intestinal epithelial cells

CHANG SOO EUN, YONG SEOK KIM, DONG SOO HAN, JOO HYUN CHOI, A REUM LEE, YOON KYUNG PARK

First published: 25 October 2010 Full publication history

DOI: 10.1111/j.1600-0463.2010.02691.x View/save citation

Cited by: 14 articles Citation tools

Conclusion: Probiotic, *L. casei*, prevents cytokine-induced epithelial barrier dysfunctions in IECs.

Lactobacillus Reuteri:

ANTIMICROBIAL AGENTS AND CHEMOTHERAPY, May 1989, p. 674–679 Vol. 33, No. 5
0066-4804/89/050674-06$02.00/0

Chemical Characterization of an Antimicrobial Substance Produced by *Lactobacillus reuteri*†

TODD L. TALARICO AND WALTER J. DOBROGOSZ*
Department of Microbiology, North Carolina State University, Raleigh, North Carolina 27695

Received 31 October 1988/Accepted 9 February 1989

Conclusion: Reuterin was found to inhibit the growth of some harmful Gram-negative and Gram-positive bacteria, along with yeasts, fungi, and protozoa.

Validation of the Probiotic Concept: *Lactobacillus reuteri* Confers Broad-spectrum Protection against Disease in Humans and Animals

Ivan A. Casas[1] and Walter J. Dobrogosz[2]

[1]BioGaia Biologics Inc. Raleigh, North Carolina, USA; [2]Department of Microbiology, North Carolina State University, Raleigh, North Carolina, USA

Conclusion: Since about four to five times the amount of reuterin is needed to kill "good" gut bacteria (i.e. *L. reuteri* and other *Lactobacillus* species) as "bad", this would allow *L. reuteri* to remove gut invaders while keeping normal gut flora intact.

^ Abrahamsson T, Jakobsson T, Sinkiewicz G, Fredriksson M, Björkstén B (2005). "Intestinal microbiota in infants supplemented with the probiotic bacterium *Lactobacillus reuteri*". *J Ped Gastroenterol Nutr.* **40** (5): 692, abstract PN 1–17. doi:10.1097/00005176-200505000-00232.

Conclusion: *L. reuteri* is found in breast milk, and oral intake on the mother's part likewise increases the amount of *L. reuteri* present in her milk, and the likelihood that it will be transferred to the child's body.

^ Shornikova AV, Casas IA, Mykkänen H, Salo E, Vesikari T (December 1997). "Bacteriotherapy with *Lactobacillus reuteri* in rotavirus gastroenteritis". *Pediatr. Infect. Dis. J.* **16** (12): 1103–7. doi:10.1097/00006454-199712000-00002. PMID 9427453.

Conclusion: Treatment of rotaviral diarrhea by consumption of *L. reuteri* significantly shortens the duration of the illness as compared to placebo. Furthermore, this effect is dose-dependent: the more *L. reuteri* consumed, the faster the diarrhea stops.

^ Urbańska M, Gieruszczak-Białek D, Szajewska H (May 2016). "Systematic review with meta-analysis: Lactobacillus reuteri DSM 17938 for diarrhoeal diseases in children". *Aliment Pharmacol Ther.* **43** (10): 1025–34. doi:10.1111/apt.13590. PMID 26991503.

^ Szajewska, H; Urbańska, M; Chmielewska, A; Weizman, Z; Shamir, R (September 2015). "Meta-analysis: Lactobacillus reuteri strain DSM 17938 (and the original strain ATCC 55730) for treating acute gastroenteritis in children". *Benef Microbes.* **5** (3): 285–93. doi:10.3920/BM2013.0056. PMID 24463209.

Conclusion: One of the most well-documented effects of *L. reuteri* is in the treatment of diarrheal diseases in children, where it has been shown to significantly decrease the duration of symptoms.

^ Schreck, Bird A; Gregory, PJ; Jalloh, MA; Risoldi Cochrane, Z; Hein, DN (March 2, 2016). "Probiotics for the Treatment of Infantile Colic: A Systematic Review.". *J Pharm Pract*. doi:10.1177/0897190016634516. PMID 26940647.

^ Harb, T; Matsuyama, M; David, M; Hill, RJ (May 2016). "Infant Colic-What works: A Systematic Review of Interventions for Breast-fed Infants". *J Pediatr Gastroenterol Nutr*. **62** (5): 668–86. doi:10.1097/MPG.0000000000001075. PMID 26655941.

Conclusion: *L. reuteri* is also an effective treatment against infant colic.

Lactobacillus reuteri in bovine milk fermented decreases the oral carriage of mutans streptococci ☆

H. Nikawa [a], S. Makihira[a], H. Fukushima[a], H. Nishimura[a], Y. Ozaki[a], K. Ishida[a], S. Darmawan[a], T. Hamada[a], K. Hara[b], A. Matsumoto[b], T. Takemoto[b], R. Aimi[c]

Conclusion: Clinical trials have since proven those people whose mouths are colonized with *L. reuteri* (via dietary supplementation) have significantly less of the harmful *S. mutans*, the bacterium responsible for tooth decay.

Lactobacillus Plantarum:

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Intestinal microbiota, probiotics and mental health: from Metchnikoff to modern advances: Part II – contemporary contextual research

Alison C Bested,[1] Alan C Logan,[2] and Eva M Selhub[3]

Conclusion: *L. plantarum* has significant antioxidant activities and also helps to maintain the intestinal permeability.

^ Bixquert Jiménez, M. (2009). "Treatment of irritable bowel syndrome with probiotics: An etiopathogenic approach at last?". *Revista Española de Enfermedades Digestivas*. **101** (8): 553–64. doi:10.4321/s1130-01082009000800006. PMID 19785495.

Conclusion: It is able to suppress the growth of gas producing bacterium in the intestines and may have benefit in some patients who suffer from IBS.

Gut Pathog. 2013 Mar 16;5(1):4. doi: 10.1186/1757-4749-5-4.

Intestinal microbiota, probiotics and mental health: from Metchnikoff to modern advances: part III - convergence toward clinical trials.

Bested AC[1], Logan AC, Selhub EM.

Author information

Abstract

Rapid scientific and technological advances have allowed for a more detailed understanding of the relevance of intestinal microbiota, and the entire body-wide microbiome, to human health and well-being. Rodent studies have provided suggestive evidence that probiotics (e.g. lactobacillus and bifidobacteria) can influence behavior. More importantly, emerging clinical studies indicate that the administration of beneficial microbes, via supplementation and/or fecal microbial transplant (FMT), can influence end-points related to mood state (glycemic control, oxidative status, uremic toxins), brain function (functional magnetic resonance imaging fMRI), and mental outlook (depression, anxiety). However, despite the advances in the area of gastro-biological psychiatry, it becomes clear that there remains an urgent need to explore the value of beneficial microbes in controlled clinical investigations. With the history explored in this series, it is fair to ask if we are now on the cusp of major clinical breakthroughs, or are we merely in the quicksand of Autointoxication II?

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Conclusion: Lactobacillus plantarum has been found in experiments to increase hippocampal brain derived neurotrophic factor which means L. plantarum may have a beneficial role in the treatment of depression.