

Long-term Health  
Benefits of Probiotics  
in Pregnancy

The Oral Cavity:  
The Next Frontier  
for Probiotics?

Metabolic Syndrome.  
Can Probiotics help?

Probiotics May Reduce  
Mortality Rate  
in Premature Infants

Reducing *Salmonella*  
Outbreaks: Applications  
of Probiotics in Feed

Bactalk Newsletter  
Summer 2010

DIRECTOR GENERAL  
Ioannis Misopoulos

EXECUTIVE BOARD  
Scott Bush  
President  
Danisco, USA

S.K. Dash  
Vice President  
UAS Labs

Nancy Hamren  
Treasurer  
Nancy's Yogurt

PAST PRESIDENT  
Jarrow Rogovin

## Message from the President



Dear IPA Members,

**Why should I belong to IPA?** Several members posed this question to me during our recent World Congress in Miami. It's certainly a valid question, especially during challenging economic times. Let me address my answer to our entire membership.

IPA is the sole organization bringing together probiotic organizations along the entire value chain. From academia to industry, the breadth of IPA membership is truly unique. Plus our membership spans the globe. We are the global voice of probiotics. The key benefits we bring our members are regulatory representation, education, standards settings and category promotion.

### Regulatory Representation

IPA is committed to protecting member interests as dynamic regulatory changes are in the wind. In the past year our Executive Director has represented IPA in meetings with Codex, EFSA, Health Canada and FDA. Access to these regulatory agencies is simply not granted to individual companies. Just as one example, no where but at IPA's 2<sup>nd</sup> World Congress has industry been afforded access to an EFSA panel member. The respectability, credibility and influence which IPA brings to such regulatory meetings is available because our membership is representative of the entire industry. No other probiotic group offers this level of influence and diversity...we are unique.

### Education

IPA's 2<sup>nd</sup> World Congress represented a unique forum for the exchange of research and latest breakthroughs in probiotic technology and new product development. Members gained access to scientific advances and the individuals responsible for them. Just as important as educating

our members on the latest technologies, IPA also serves to educate medical professionals and consumers on the proven health benefits of probiotics. One example is our sponsorship of the film "Probiotics: Micro Warriors of the Digestive Tract". The educational opportunities sponsored by IPA are just the ticket to accelerate probiotic push-through from the medical community and probiotic pull-through from the consumer. No other group is committed to such probiotic education...we are unique.

### Standards Setting

A major criticism of probiotics is the lack of industry standards. Should labels reflect count at time of manufacture or expiry? Which taxonomic guidelines should be followed? What is an effective dose? IPA has established voluntary standards. And we will consider adoption of a logo certifying compliance to such standards. Such logo use will be available for members only. No other group offers probiotic-specific standards and recognition of compliance with them...we are unique.

### Category Promotion

We are a young organization and have just launched a Marketing Committee. Efforts are in the planning stages for the Committee to sponsor promotions aimed at gaining probiotic recognition within the medical community, retailers and consumers. This group will give special consideration of how to promote member companies and their offer. No other group is promoting probiotics like IPA...we are unique.

IPA is only as strong as its membership. I encourage all our members to strongly champion IPA membership within your respective companies as well as to encourage non-member, probiotic-affiliated firms to join our ranks. Thanks for your support!!

Health Regards, Scott

## LONG-TERM HEALTH BENEFITS OF PROBIOTICS IN PREGNANCY

*What happens in utero does not stay in utero.* It has become well known that the maternal nutritional environment impacts the health of the fetus beyond infancy and into adulthood. Although the safety and efficacy of probiotics has been documented in the general population, studies are now also showing evidence of safe and effective use of probiotics in pregnancy and infancy. Their findings may lead to new ways of preventing illness and modifying risk factors using probiotics.

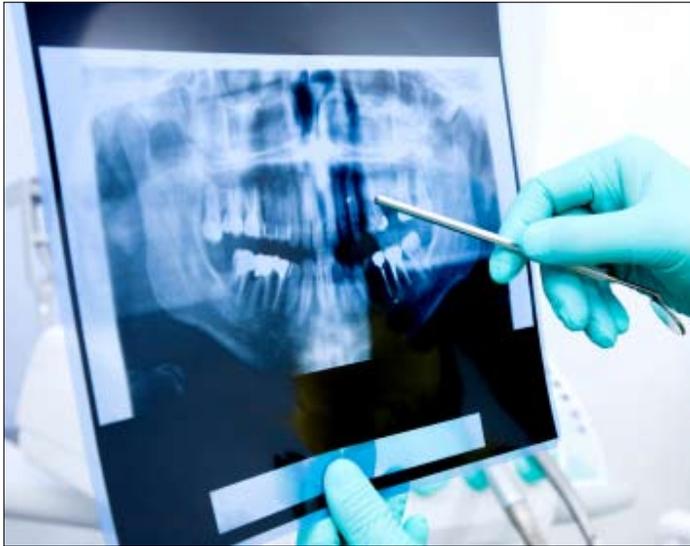
In the March 2010 issue of the Journal of Nutrition, researchers from Wales evaluated the safety of *Lactobacillus salivarius*, *Lactobacillus paracasei*, *Bifidobacterium animalis* and *Bifidobacterium bifidum* in pregnancy for the prevention of allergy in infants. The probiotic cocktail was administered daily to pregnant mothers during their last month of pregnancy and to infant ages 0-6 months. Their findings support the safety of these organisms in late pregnancy and early infancy.



In another study, researchers in Finland have found that probiotics during pregnancy may reduce the risk of developing gestational diabetes and reduce large birth weight. Over 250 women in their first trimester were included in the study and randomized into a placebo control group and intervention group. The intervention group received either dietary counseling and probiotics (*Lactobacillus rhamnosus* and *Bifidobacterium lactis*) or dietary counseling alone. The group of women receiving probiotics had a 13 per cent chance of developing gestational diabetes while the control group and the placebo group had a 34 per cent and 36 per cent frequency of gestational

diabetes, respectively. The study, published in the February 2010 issue of the British Journal of Nutrition, also showed no adverse effects on pregnancy duration or outcome in all of the groups.

The intervention groups with probiotics and dietary changes also reduced the incidence of large birth size. Large birth weight is a significant risk factor for metabolic diseases in adulthood such as diabetes and obesity. These are significant effects that convey long term health benefits to infants as well as their mothers.



## THE ORAL CAVITY: THE NEXT FRONTIER FOR PROBIOTICS?

Much research has been conducted using probiotics for gastrointestinal, urinary tract and immune system benefits. But what about fighting cavities? In the US, 90% of teens and young adults and 94% of adults have evidence of dental caries. Dental caries and other oral pathologies are generally caused by an imbalance in the normal bacteria of the mouth such as an overgrowth of *Streptococcus mutans*, which contributes to dental plaque and tooth decay. As such, research has spawned to uncover probiotics capable of restoring this bacterial imbalance. Studies are now showing that probiotics may not only help fight cavities but also may be beneficial in other oral maladies as well.

In the February 2010 issue of Journal of Dental Research, researchers from Germany identified 6 strains of *Lactobacillus* which could bind to pathogenic *Streptococcus mutans* in the mouth. This could show benefit by removing pathogens without altering the balance of flora in the mouth.

In a pilot study published in the Journal of Periodontology scientists examined the effects of a probiotic milk drink on prevention of gingivitis in 50 volunteers. The probiotic milk drink was administered to the subjects daily for eight weeks. Inflammation markers were measured before and after the eight week period in the group who received the probiotics and in the control group which received no drink. The test group showed that the probiotic milk drink may reduce inflammation and bleeding in the mouth caused by gum disease.

In another study in the European Journal of Clinical Microbiology & Infectious Disease in 2009, Japanese researchers found that a *Bacillus cereus* strain in a mouthwash provided significant benefit for gum disease. The probiotic mouthwash was found to eliminate bacteria that contribute to periodontal disease as compared to a mouth rinse that did not include the probiotic.

Although only a few clinical studies have been conducted so far, the results to date show promise that probiotics could be useful in preventing and treating oral infections, including dental caries, and periodontal disease.

## METABOLIC SYNDROME. CAN PROBIOTICS HELP?

According to the American Diabetes Association, Metabolic syndrome affects more than a third of adults in the United States. Some studies have shown that it affects more than fifty per cent of adults over the age of sixty. Metabolic syndrome is a combination of symptoms that increase the risk of developing heart disease and diabetes. It is diagnosed based on blood pressure, cholesterol, obesity and high blood sugar parameters. Research in each of these pathologies has been conducted using probiotics, although few have looked at metabolic syndrome as a whole.

In the June 2010 issue of European Journal of Clinical Nutrition, Japanese researchers found that administering a fermented milk drink containing *Lactobacillus gasserii* to obese adults daily for 12 weeks resulted in a significant reduction in abdominal obesity and other risk factors. Abdominal fat decreased by 4.6 per cent, subcutaneous fat decreased by 3.3 per cent, body weight decreased by 1.4 per cent, BMI decreased by 1.5 per cent, waist by 1.8 per cent and hip 1.5 per cent. The control group did not exhibit any significant decreases in these parameters.

In the April 2010 issue of Nutrition, researchers found that *Lactobacillus plantarum*, *Lactococcus lactis* and *Streptococcus thermophilus* in yogurt consumed daily for 6 weeks resulted in significant decreases in total and LDL cholesterol.

According to a new study, researchers from France and Finland found that a strain of *Bifidobacterium animalis* improved metabolic syndrome by reducing tissue inflammation and reducing metabolic endotoxemia, thereby counteracting the adverse effects of high-fat diet. The unpublished study was presented at Keystone Symposium on Diabetes on April 16, 2010, in Whistler, Canada and is one of the first studies to evaluate the use probiotics in patients with metabolic syndrome.

The evidence from research thus far has shown probiotics potential role in the management and prevention of the metabolic epidemic.

## PROBIOTICS MAY REDUCE MORTALITY RATE IN PREMATURE INFANTS

Premature birth occurs in between 8 to 10 per cent of all pregnancies in the United States. Prematurity and necrotizing enterocolitis (NEC) contributes to overall mortality in infants. NEC is a serious gastrointestinal disease seen predominantly in very low birth weight infants during hospitalization. NEC is associated with immature intestinal function as well as immature immune responses, intravenous feeding, and abnormal bacterial gas production.

In the May 2010 issue of Pediatrics, a meta-analysis reviewed randomized control studies that examined the effects of probiotic supplementation and prevention of NEC. The trials that were included in the data analysis incorporated probiotic intravenous therapy within the first 10 days of life and continued for 7 days or more and reported at least a moderate degree of NEC. The researchers from Australia found that the risk for NEC and for death decreased dramatically in the groups treated with probiotics. The incidence of NEC and fatality rates were 30 per cent lower than those not receiving probiotic therapy. The authors deem the judicious use of probiotics as not only safe but beneficial in preterm and very low birth weight infants.



## REDUCING *SALMONELLA* OUTBREAKS: APPLICATIONS OF PROBIOTICS IN FEED

Reducing *Salmonella* in livestock remains a growing concern. *Salmonella* infection in the food supply has been found to become more and more resistant to antibiotic therapies. As such, biologic means of management and prevention of disease are in demand. Probiotics have been studied and administered to livestock and found to be effective across many metrics of food production.

Recently, a group of researchers in Malaysia studied *Lactobacillus* strains and their metabolic byproducts in chickens to determine their effects on *Salmonella* infection and other pathogens. The study found that a *Lactobacillus* combination product increased the *Lactobacilli*, *Bifidobacteria* and other beneficial bacteria in the chickens and significantly reduced pathogenic *Salmonella* growth. The short chain fatty acid byproducts also reduced *Salmonella* without disrupting normal gut bacteria as well.

Another study, published in the *Journal of Poultry Science*, examined the effects of a proprietary additive with *Bacillus cereus* in chickens. The probiotic was fed to birds inoculated with *Salmonella*, and performance variables were studied. The experiments were performed with two varieties of chickens (broiler and Leghorn) from birth until slaughter. At the end of the trial, 42% of untreated broiler chickens were still positive for *Salmonella*, whereas *Salmonella* was not detected in probiotic-treated birds. In Leghorn chickens, at the end of the trial only 38% of birds from the probiotic-treated groups were *Salmonella*-positive, whereas 63% of birds were still *Salmonella*-positive in the untreated control treatment. The results of the experiments indicate that feeding the probiotic additive reduced the prevalence of *Salmonella* in poultry and, in the case of broiler chickens, also significantly improved performance variables at slaughter age.

Both of these studies highlight the safety and utility of probiotic use in animal feed for the prevention of infectious disease.

---

**About the Author:** *Helen Davakos ND, DC is a graduate of Bastyr University and has been in clinical practice for 5 years. She is the Vice President of the Illinois Association of Naturopathic Physicians, the chair of legislative committee, and is actively pursuing licensure efforts. She has also served as clinical and academic faculty, lecturer, research analyst and provides nutraceutical consulting services.*

## Probiotics in the News

The surge in probiotic research has put a "bug" in the ear of the media. Check out the following links for some of the latest headlines from reputable sources:

Medical News: Probiotics Help for Diarrhea in the Critically Ill., *Medpagetoday.com*, May 25, 2010  
<http://www.medpagetoday.com/Gastroenterology/GeneralGastroenterology/20267>

Condiments with Hidden Health Benefits, *CBS News Early Show*, June 9, 2010  
<http://www.cbsnews.com/stories/2010/06/09/earlyshow/health/main6564214.shtml>

Probiotics Again Linked to Dermatitis Benefits in Kids, *Nutra Ingredients-USA*, June 15, 2010  
<http://www.cbsnews.com/stories/2010/06/09/earlyshow/health/main6564214.shtml>

Probiotic Prophylactic: Bacteria May Protect Critically Ill Patients Against Pneumonia, *Scientific American*, June 17, 2010  
<http://www.scientificamerican.com/article.cfm?id=bacteria-may-protect-against-pneumonia>

## News from the IPA Office

Recently IPA has established a new marketing committee that will work to outreach and better promote probiotics and its science to healthcare professionals, retailers and consumers. The first meetings have targeted and produced a full blown business plan which will include many new and exciting things such as rebranding our logo and the probiotic documentary we are co-sponsoring along with many of our member companies. To continue being more effective as an organization, IPA is also establishing a new Regulatory Affairs committee that will monitor and proactively plan for the changes in the global regulatory environment. The Regulatory Affairs committee will also attend important regulatory meetings on a global scale and be the spokes representative of IPA on media functions. Furthermore, IPA is restructuring its Scientific Advisory Board to make it more effective on the new projects our organization is involved in and coordinate better with other organizations on common scientific issues.

### BOARD OF DIRECTORS

Rob Hurlbut  
Attune Foods

Peter Rothschild  
Biogaia

Claude Chevalier  
BioK+

Henrik Dalboege  
Chr. Hansen

Scott Bush  
Danisco

Julie O'Sullivan  
Fonterra

Steve Sikorski  
Futureceuticals

George Paraskevacos  
Harmonium Int'l.

Nadine Renard  
Institut Rosell/Lallemand

Jarrow Rogovin  
Jarrow Formulas

Natarajan Ranganathan  
Kibow Biotech

Julie Smolyansky  
Lifeway Foods

Hishashi Matsumura  
Morinaga Milk Co

Don Brown  
Nature's Way

Thomas Blair  
Nestle Purina

Aldo Fuoco  
Nutraceutix

Nancy Hamren  
Springfield Creamery/Nancy's Yogurt

Dr. S.K. Dash  
UAS Labs

Ted A. Nordquist  
Whole Soy & Co.

Ryoichi Akahoshi  
Yakult Honsha

Design: Froeter Design Co.