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science for health

Probioticbulletin

An update for healthcare professionals

Yakult UK Symposium

The Yakult Symposium '*Probiotic Relevance: Putting Theory into Practice'* was held on October 21st 2008 at 76, Portland Place, London. The reputation and quality of the invited speakers helped ensure the event was sold out, with over 150 healthcare professionals attending. Fiona Hunter, nutritionist and dietitian, gives her report on the day.

The 2008 Yakult Symposium clearly highlighted the diverse areas in which probiotics may offer benefit in human physiology both in clinical and diseased states. Professor David Richardson began the day with an overview of the new EU legislation pertaining to health claims. It was clear from his presentation that the legislation will have far reaching implications on existing and new product claims and formulations, on all commercial communications (eg, labels, advertising, websites, point-of-sale literature) marketing, research & development strategies and academic research.

Delegates reading the posters

Dr Ailsa Hart, consultant gastroenterologist at St Mark's Hospital, reviewed the evidence which suggests that the gut flora supports the body's defences. The intestinal barrier presents a physical, chemical and immunological barrier to pathogens but much of her presentation focused on the dendritic cells which are present in the gut mucosa. Dendritic cells are known to shape T cell responses which have an important impact on the immune system and there is a growing body of research which suggests that the gut flora may play an important role in shaping the response of these dendritic cells and hence the immune system.

Delegates speaking to Dr Ailsa Hart after her presentation

Dr Miranda Lomer, consultant dietitian in gastroenterology, Guy's and St Thomas' Hospital reviewed the role that probiotics play in the treatment of irritable bowel syndrome (IBS). Several studies support the suggestion that probiotic bacteria can help reduce the symptom severity score and reduce distension and flatulence for patients with IBS. What is still not clear is the mechanism by which they work – there are several proposed mechanisms including modulation of the immune system, upregulation of μ opioid and cannaboid receptors in the epithelial cells, alternation of mucosal metabolism and antibacterial and antimicrobial activity. All of the studies to date suggest that the presentation of bacteria is important to the outcome and in her conclusions Dr Lomer highlighted the need for more clinical trials to determine the dose and strain of probiotic bacteria that were most effective.

The Yakult science stand at the Symposium

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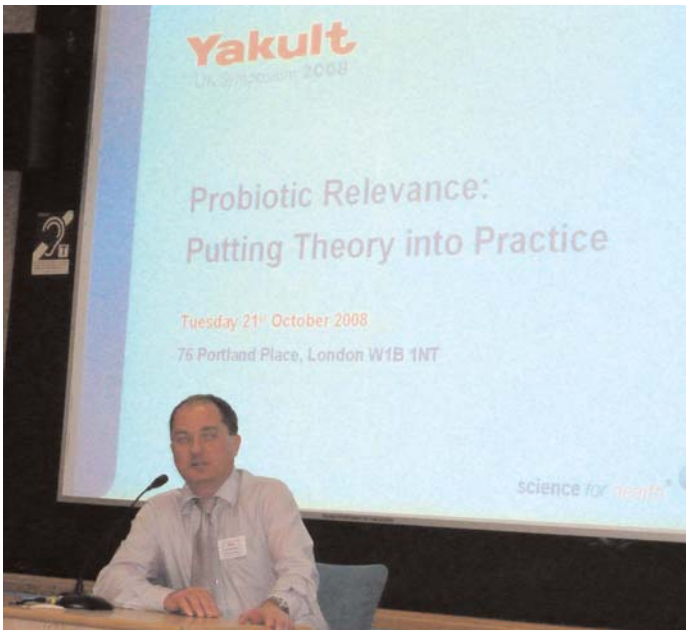
Mike Gleeson, Professor of Exercise Biochemistry in the School of Sport and Exercise Sciences at Loughborough University, gave a fascinating presentation which questioned whether probiotics offered any benefit for athletes and sports people. Prolonged strenuous periods of exercise has been shown to depress immune function and this along with other factors such as lack of sleep, inappropriate diet, increased exposure to pathogens can result in athletes having an increased susceptibility to infection. To illustrate this fact Professor Gleeson revealed that marathon runners were six times more likely to suffer from an upper respiratory tract infection in the week after a race and that between 30-80% of runners complained of gastrointestinal problems including bloating, cramps, nausea, vomiting, diarrhoea, faecal incontinence and faecal blood loss. While in theory probiotics could offer benefits in several areas that could help improve exercise induced immunosuppression there are very few studies which have investigated the potential. In those studies that have been carried out the results are promising. In conclusion Professor Gleeson emphasised the need for more well controlled studies in this area.



Professor Glenn Gibson

Next to the podium was Glenn Gibson, Professor of Food Microbiology at University of Reading. As usual Professor Gibson gave a hugely entertaining presentation which considered where probiotics were going next. He began by listing some of the current clinical trials involving probiotics currently in progress. At the time of publication there are currently 139 trials using probiotics listed on www.clinicaltrials.com. Looking forward Professor Gibson feels that new research in genome sequencing for specific bacteria will help to answer questions about why a particular strain of bacteria has specific characteristics and functions. Two specific areas of research where Professor Gibson feels will see increased interest is in the difference in gut flora between obese and lean people and the relationship between the gut flora and autistic spectrum disorders.

Professor Mike Gleeson

In his presentation Dr Kevin Whelan, from the department of Nutritional Sciences at King's College London, explored the role of probiotics in enteral feeding. Diarrhoea during enteral feeding is a common problem and is caused by a variety of mechanism that may involve the gastrointestinal microbiota. Clinical trials using probiotics to prevent diarrhoea provide contrasting results and more research is needed before we are able to say that probiotics can help reduce the risk of diarrhoea. A recent meta-analysis which looked at the role of probiotics in nosocomial infections and pneumonia in patients on ICU found no difference in mortality, length of stay or nosocomical infections between the two groups. However Dr Whelan pointed out that because different studies use different strains of bacteria and different strains have different microbiological, physiological and functional characterises there are inherent problems with using a meta-analysis on studies using probiotics.

Dr Kevin Whelan

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Dr Raj Mookerjee, a consultant hepatologist and senior lecturer at University College Hospital London, discussed the role of probiotics in liver disease. Sepsis plays an important role in the progression of liver dysfunction to liver failure. The use of probiotics in the treatment of patients with liver disease is a relatively new area of research so at the moment there are very few studies available. However two recently published randomised studies show probiotic efficacy in decreasing post liver transplant infections. Other studies have also shown improved mental state in patients with encephalopathy who are treated with probiotics and an improvement in innate immune function in patients suffering from alcoholic cirrhosis.

Question time with the speakers

Dr Willy Weir, from the West Hertfordshire Hospitals NHS Trust, presented a study which illustrated that cases of *Clostridium difficile* infections were reduced in four care of the elderly wards when patients were given probiotics. His study made a very strong case for giving probiotics to all hospital patients over the age of 65, irrespective of whether they were being given antibiotics.

Dr Weir's findings were supported by the results of a study, also with Yakult, published in the late breaking news section of the symposium. The study carried out by Dr Felix Stockenhuber from the General Hospital of Oberpullendorf in Austria revealed that taking one bottle of Yakult a day reduced the risk of antibiotic-associated diarrhoea from 18% in a control group to 5% in the group receiving the Yakult. 6% of patients in the control group contracted diarrhoea caused by *C. difficile* while there were no cases of *C. difficile* in the group drinking Yakult.

New *Clostridium difficile* information pack

Email science@yakult.co.uk for a free *C. difficile* information pack containing details of the new research presented at the Yakult Symposium.

Irritable bowel syndrome (IBS): An expert's perspective

Eamonn Quigley is Professor of Medicine and Human Physiology and a Principal Investigator at the Alimentary Pharmabiotic Centre at the University College Cork (UCC) Ireland. He recently gave a presentation about IBS and Probiotics at the 17th Symposium on Intestinal Flora, Japan. Deirdre Jordan (Yakult Ireland Science Officer) interviewed him about IBS and his experiences of the conference.

Professor Quigley, in your clinical experience what do you think is the prevalence of IBS in Ireland, or at least what percentage of the cases you deal with are patients presenting with IBS type symptoms?

There is no reason to believe that the prevalence of IBS is any different in Ireland from the rest of Europe which would put it in the range of 8% - 12% of the adult population, with the prevalence being about 2-3 times higher in females than males.

Do you think we are getting any closer to discovering the precise aetiology of the disorder?

Definitely; while we are not there yet, there have been major steps forward. I refer, especially, to the recognition of post-infectious IBS (ie, IBS which develops for the very first time after an episode of gastroenteritis); this has provided us with a direct link between a disturbance in the bacterial population of the gut (the flora or microbiota), inflammation in the lining of the gut and IBS symptoms.

You recently attended the 17th Symposium on Intestinal Flora in Japan, organised by the Yakult Bioscience Foundation, and gave a presentation on probiotics and IBS. How strong do you think the evidence is for probiotics and IBS?

It is very strong for very specific probiotic strains and weaker but still there for probiotics in general (but only for those that have been scientifically tested). In other words, while very few strains can help all of the symptoms of IBS, quite a few can help flatulence and bloating.

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Did you come across any interesting findings at the symposium?
I was very struck by how rapidly this field is progressing and was particularly impressed by new data indicating how the flora (the bacteria in the gut) can influence brain function. This adds to an ever-increasing body of literature and evidence to indicate how the gut flora can influence functions and diseases in areas remote from the gut.

Where do you think the future lies with research into probiotics and IBS?
More bigger and better trials with existing strains; more work on identifying at a molecular level why certain strains work in certain diseases and, the real frontier, identifying the molecules that bacteria produce that generate these beneficial effects.

NICE Guidelines for IBS

Primary care clinicians should not discourage people with IBS from trying specific probiotic products. If people with IBS choose to do this, it should be for at least four weeks, and they should monitor their effect. The probiotic should be taken at the dose recommended by the manufacturer.

Nutritional issues in Crohn's Disease (CD) -Current practice and future trends

Ellen O'Mahony, Clinical Nutritionist, Cork University Hospital, Ireland

I attended a symposium in Scotland on the 15th October 2008 titled *'Nutritional Issues in Crohn's Disease (CD)'*. The symposium covered a wide range of topics including: developments and trends of CD, bone health, and drug and dietary treatment of CD.

Dr James Rose (consultant physician and gastroenterologist) highlighted the increasing incidence of CD. Its prevalence has increased five-fold throughout northern Europe since the 1950s and the reason for this is unknown. The condition affects approximately 1 in 400 people in the UK.

The cause of CD is unknown; epidemiological data supports a genetic contribution, but the environment also plays a part. Dr Rose emphasised the dangers of smoking in CD, which can result in increased relapse rates, increased requirements for drug therapy, poorer quality of life and increased risk of osteoporosis.

Dr Eduardo Schiffrin spoke about bone health in IBD. The risk of osteoporosis and bone fractures in CD is much higher than in the general population. This may be due to long-term corticosteroid therapy, malabsorption and systemic inflammation. Early identification and treatment is important.

Anja St Clare-Jones (pharmacist) gave an overview on IBD drugs. Drug therapy is used to suppress inflammation, and the choice of drug may depend on the location of active disease. Traditional treatment for active CD is corticosteroids and / or immuno-suppressant medications. Infliximab may be used for fistulating disease or when trials of corticosteroids and immunosuppressants have been unsuccessful. Dr RM Beattie (consultant paediatric gastroenterologist) and Dr Richard Russell (consultant paediatric gastroenterologist) echoed the importance of close monitoring of patients treated with Infliximab as its long term safety has not been established.

Since the 1970s liquid diets have been used as an alternative primary therapy for CD. These can be polymeric, semi-elemental or elemental and have no long-term side effects. Many centres successfully use liquid diets as first line therapy for the treatment of relapsed CD, especially in children. Tracey Cardigan (paediatric gastroenterology dietitian) and Dr RM Beattie supported the use of liquid diets in treatment of children with CD and spoke about their experience of using them. The liquid feed is given orally or via a nasogastric tube for a period of approximately eight weeks. Food is then reintroduced slowly over 1-2 weeks introducing low fibre foods initially (local practice may vary). In adults, steroids are more effective than enteral nutrition. In children steroids and enteral nutrition are equally effective. However, the latter is often chosen in children as it has no side effects.

There is ongoing research into other aspects of nutrition and CD. Patients with CD may benefit from taking probiotics. Further research is needed to establish the effect of enteric flora on intestinal physiology and to determine any benefits from alterations in flora composition.

I would like to thank Yakult for funding my trip to Scotland to attend the study day. I found the symposium very informative, and well worth attending.

Contact the science team, by emailing science@yakult.co.uk to find out how Yakult could support your attendance at a study day.

New booklet

Probiotics in health and disease

This up-to-date booklet, with a preface by Professor Glenn Gibson, reviews the mechanisms and latest research on probiotics, focussing on *L. casei* Shirota. Written for healthcare professionals and scientists; email science@yakult.co.uk for your free copy.

How can we support you?

- Free probiotic literature
- Probiotic Bulletin newsletter
- Free supply of Yakult for limited trial period*
- Free educational talks by our team of nutritionists and dietitians
- Advice on probiotics
- Dedicated website www.yakult.co.uk/hcp

*subject to agreement

Conferences and Events

Come and meet us at the following conferences:

Nutrition Advisory Group for Elderly People (NAGE) study day
London, 26th January 2009

Topics in Infection
London, 29th January 2009

Society General Microbiology (SGM) Spring Meeting
Harrogate, 30th March – 2nd April 2009

Contact Us

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Pass it on

If you found the newsletter interesting and think it would benefit your colleagues, please pass it on, or invite them to sign up by emailing the Yakult science team.

The Yakult science team would like to wish everyone a Merry Christmas and a Happy New Year.

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