

Probiotics and Antibiotics - Getting the best from both

Nick Bennett BSc, RNutr

Introduction

The discovery of antibiotics was one of the greatest breakthroughs of modern medicine. The first great antibiotic (penicillin) itself has been responsible for saving countless lives and since then other antibiotics that either target fairly specific bacteria or are more general have been developed. The problem raising more and more concern these days however is antibiotic resistance. This means that the detrimental bacteria we're trying to destroy are becoming more and more resilient and survive ever-stronger doses of antibiotics. Alongside this, a factor that undoubtedly exacerbates the problem is the fact that many people fail to realise the importance of completing a course of antibiotics after their symptoms have subsided, to ensure the bacteria are well and truly beaten. Failure to complete such a course results in a few resilient bacteria remaining, which proliferate when the antibiotics stop and the problems keeps recurring – often more severely than the last time.

Current usage of Probiotics

Recent research has discovered that 93% of UK state registered dieticians are aware of the role probiotics have to play in clinical practice with 51% reporting that they use probiotics on a regular basis in the management of their clients.

Some doctors prescribe multivitamins alongside antibiotics because B vitamins can be depleted by antibiotic treatment. It has been theorised that this loss of B vitamins is actually due to the destruction of probiotic bacteria that naturally produce these nutrients. Therefore supporting the beneficial bacteria may be the best approach, particularly as there is some concern that large doses of certain B vitamins at the same time as antibiotics may detract from their antibiotic activity.

Helping to support the role of antibiotics

Antibiotic literally means 'against-life' therefore antibiotics can kill friendly and unfriendly bacteria alike. Because of this, a course of antibiotics targeted at a specific infection will also impact upon the beneficial bacteria in the gut. Many people taking antibiotics experience this effect on their gut as a bout of diarrhoea. In 12-20% of cases this is due to overgrowth of opportunistic *Clostridium difficile* in the intestine when probiotic numbers decrease.

Taking a probiotic alongside a course of antibiotics will keep up the probiotic population and therefore keep opportunistic pathogens at bay. Continuation of the probiotic for at least another week after the antibiotic course has finished helps ensure the gut flora is not

left compromised. Care must be taken however to take the probiotic and antibiotic doses as far apart during the day as possible, to give the probiotics the best chance of survival.

The next step forwards

Everyone accepts that antibiotics are important and can have life saving properties in the appropriate circumstances. However, in an age where the fear of antibiotic resistance is prevalent something new is needed to get the best out of the antibiotics while using them as appropriately as possible.

Probiotics provide the answer to this. They are wholly complementary to antibiotics and support the environment in the gut while the antibiotics go in and do their job. Evidence has shown time and again that people who combine the benefits of both probiotics and antibiotics will have a better health result after their course of treatment.

They will be less likely to relapse and need repeat courses of antibiotics because the environment in the gut will be more supportive to good health, due to the active encouragement of the synergy between their bodies and the billions of friendly bacteria.

Research

Approximately 6,000,000 patients per year are prescribed a course of antibiotics. In many cases this leads to diarrhoea or stomach trouble. Antibiotics can adversely affect the gastric flora because they can kill not only undesirable bacteria but desirable and even indispensable ones as well.

A disturbed gastric flora can have various consequences, such as diarrhoea, a compromised digestive process, allergies and reduced immunity functions. Probiotic bacteria have the ability to maintain or restore the balance of the intestinal flora.

There have been over 5000 separate studies performed on probiotics to understand their actions in the body, with more being conducted all the time. One of particular interest is underway at the university of Maastricht in Germany, which has the specific goal of focusing on the role that probiotics can play in preventing the many side effects that come about from taking antibiotics on their own.

The side effects of antibiotics will first be measured in healthy volunteers. This will be followed by a clinical study among patients with problems in the upper respiratory tract. Some of the patients will be administered a probiotic in addition to an antibiotic. Measurements will be performed in the blood, in the saliva and in the stool. The probiotic to be used has been developed on the basis of a literature study and lab tests of a wide range of probiotic bacteria.

Before the release of the results of this exciting trial there is already more than enough evidence to promote the practice of supporting the

consumption of antibiotics with probiotics. In this way you can achieve the best of both worlds – removal of the problem bacteria combined with enhancement of the general health of the gut and subsequently the body.

FAO/WHO report on the benefits of probiotics

A FAO/WHO (Food and Agriculture Organization of the United Nations and World Health Organization) expert consultation on the evaluation of health and nutritional properties of probiotics in food was published in 2001. This report gives overwhelming support to the use of probiotics for gastrointestinal infections, bowel disorders, allergies and urogenital infections. To quote that report:

“the application of probiotics to prevent these disorders should be more widely considered by the medical community”.

Which Probiotic to choose?

There are many different probiotics on the market but it is well known that following a number of consumer tests many do not contain the bacteria they claim or the bacteria that they do contain are different to that on the label.

Restore is a new probiotic product with superior stability and efficacy due to over 10 years of technology and evidence based clinical research. Restore contains 9 different probiotic strains with a total cell count of 1×10^9 viable cells per gram. The selection of the freeze-dried strains is based on their individual characteristics to provide a balance of benefits and to act in harmony with the natural microflora. The other ingredients provide a matrix in which both stability and biological activity of the product are guaranteed.

Confirmation of this activity was demonstrated by an *in-vivo* trial, completed at the University of Maastricht, which showed the increase of *Lactobacilli* in the faeces of students after Restore consumption and therewith the survival of Restore in the gastrointestinal tract.

Ingredients

Cornstarch, maltodextrin, inulin, fructo-oligosaccharides, bacterial strains*, enzymes, minerals, vanilla powder.

*The bacteria contained within Restore are:

Bifidobacterium infantis, Bifidobacterium lactis, Bifidobacterium longum, Enterococcus faecium, Lactobacillus acidophilus, Lactobacillus casei, Lactobacillus plantarum, Lactobacillus salivarius, Lactococcus lactis

References

1. Reid, G.; Burton, J.; Use of *Lactobacillus* to prevent infection by pathogenic bacteria. *Microbes and Infection* 4 (2002) 319-324.
2. Marleau, P. Seksik P, Shanahan F., 2003. Manipulation of the bacterial flora in inflammatory bowel disease. *Best Practice and Research Clinical Gastroenterology*, 17 (1); 47-61.
3. Gismondo MR, et al 1999 Review of probiotics available to modify gastrointestinal flora. *International Journal of Antimicrobial Agents*, 12; 287-292.
4. Schultz C. 1999. Diarrheagenic *Escherichia coli* and acute and persistent diarrhea in returned travellers. Thesis. Department of Medical Microbiology, Academic Medical Centre, University of Amsterdam.
5. Guarner F, Malagelada JR, Gut flora in health and disease *The Lancet*, (361), 9356: 512-519
6. Biller J.A, Katz AJ, Flores AF, Burie TM, Gorbach SL. Treatment of recurrent *Clostridium difficile* colitis with *Lactobacillus GG*. *Journal of Paediatric Gastroenterology and Nutrition* 1995;21:224-226.
7. Fuller R, Probiotics in human medicine. *Gut* 1991;32:439-442
8. Shaw D, et al Therapeutic role of probiotics: Dieticians perspective, *Proceedings of the Nutrition Society* 2003: 62:6A
9. FAO/WHO. Health and nutritional properties of probiotics in food including powder milk with live lactic acid bacteria. 2001.