By Sudha Hamilton

We are not alone. In fact, we are hosts to trillions of micro-organisms, happily munching on our waste products and doing a sterling job within our digestive system.

Probiotics
Fermenting For Life

It may come as a bit of a shock to those of us with obsessive compulsive cleaning tendencies, that killing all the tiny invisible bugs is not a really good idea. Bacteria are all around us, within us and performing vital tasks for our health and the health of this planet. Of course, like everything in existence, there are good and bad bacteria, not intrinsically bad but just bad for humans - and probably quite good for something else. The good bacteria, (or gut flora), are involved in a myriad of useful functions - such as fermenting unused energy substrates, producing vitamins for us, preventing the growth of bad bacteria, producing hormones to help us store fats, and improving our immune functioning. If we did not have all these bacteria munching away our bodies would be unable to digest many of the carbohydrates that we consume – like certain starches, fibres, proteins, and sugars like lactose. Studies with animals indicate that we may need to eat 30% more calories to maintain our stable body weight without the helpful presence of gut flora. The good bacteria transforms carbohydrates into short chain fatty acids, and these are able to be processed by our cells into nutrition and energy. Lactic and acetic acid are also produced by this saccahrolytic fermentation, and they are used by our muscles. There are numerous other positive functions supported by good bacteria in our systems.

Bacteria have also been shown to be implicit in preventing allergies (which are an over reaction of the immune system to non-harmful antigens). Research into children with allergies has confirmed that the make-up of their gut flora is different to those without allergies. The role that bacteria play in training our immune systems to respond to antigens is the key point in understanding this. A baby inside its mother is bacteria free, and develops its gut flora through birth and breast feeding initially.

By the second year of life the infant's faeces contains a similar amount of bacteria as an adult. The prevalence of Inflammatory Bowel Disease (IBD) in our western societies has been linked to our obsession with hygiene. Our predilection for kitchen and bathroom cleaning sprays has "über- sanitised" our homes, and has thus lowered the absorption - and the variety - of useful bacteria

available in the colon to break down waste material. The lack of breastfeeding for the baby boomer generation has also contributed to this situation. Not to mention the pharmaceutically driven overuse of antibiotics that has killed off gut flora in exceptional amounts. The inverse of this occurs in developing countries, and there is no sign of IBD at the rates that we experience it here in the West.

Probiotics, meaning literally "for life", can help with IBD and other conditions associated with bacteria levels, which are out of balance or missing vital components. Originally discovered by science at the beginning of the twentieth century, before being named 'Probiotics' in 1953, it has been defined by Dr Roy Fuller (author of Probiotic's in Human Medicine) as, "a live microbial feed supplement which beneficially affects the host animal by improving its intestinal microbial balance." Of course, sour milk and yoghurt have long been part of healthy regimes employed by cultures around the globe. The naming of particular strains by science is as much about recognizing effective natural approaches to nutrition, as it is about reinventing the wheel and claiming credit for it. Lactobacillus Acidophulis is probably the best known probiotic strain but there are many more including the Bifodobacterium family, the rest of the large Lactobacillus family and Escherichia Coli. Many of these are now available in supplement form, having been combined to form effective treatments for many bowel complaints, helping with lactose intolerance, some cholesterol reduction, improving immune function and lowering blood pressure.

There is a large and still growing body of scientific evidence, indicating that diet supplementation with live probiotic bacteria may confer a significant health effect on the host, when those bacteria are consumed in "adequate" amounts. In fact, one important problem is that more then 400 bacterial species are thought to be present in the normal intestine, with bacterial concentration in the colon equivalent to one thousand billion bacteria per gram. This means that only "high-potency" probiotic products, i.e., those that contain at least a comparable number of live bacteria per gram of product, can be expected to modify the bacterial flora in the gastrointestinal tract in terms of quantitative and qualitative composition. Consult your natural health practitioner for advice on which probiotic supplement is best for your particular condition.

The argument against probiotics by some nutritional scientists is that the bacteria in these supplements and foods cannot possibly survive the naturally occurring acids in our stomach and this is where prebiotic foods come in. Prebiotics are non-digestible ingredients in foods, which stimulate the growth and activity of certain helpful bacteria - fructoologosaccharides and galactooligosaccharides are the two that best fit the bill. These can be found in functional foods like bananas, berries, asparagus, garlic, Jerusalem artichoke, onions, chicory, legumes, oats, tomatoes, spinach and other greens. Perhaps a diet rich in both prebiotics and probiotics is the best solution for those seeking a healthy bowel.

Fermented foods like miso, tempeh, soya sauce, kim chi, sauerkraut and other pickled vegetables also offer lactic acid bacteria. The oriental cultures in particular – who have developed these fermented foods - are well known for their traditionally long lived healthy lives. The pickling process activates certain bacterial properties within the food, and eliminates some of the qualities that inhibit the food's digestion by humans. Pickled or activated nuts and seeds, which have been treated in a solution – a brine or other acidic liquid – for some time and then slowly warmed through a dehydrating process are a great example of this. Delicious and much more digestible.