



## What is Bio-Kult?

Bio-Kult was formulated by a team of doctors, nutritionists and scientists dedicated to advancing the research and use of probiotic health supplements.



The healthy body naturally hosts trillions of beneficial bacteria. Amongst other things, they help to support and maintain a strong immune system and a healthy digestive system. Today's lifestyle of stress and poor nutrition can compromise these essential functions. The complete formula in Bio-Kult helps balance and maintain these natural systems against pathogenic and opportunistic organisms.

It is of fundamental importance that we have an adequate level of these probiotic bacteria in our bodies at all times. With fourteen strains of beneficial bacteria at a concentration of 10 billion per gram, Bio-Kult is one of the most powerful probiotic supplements available.

## The power of 14 strains

There are 14 strains of beneficial microorganisms within Bio-Kult:



1. *Lactobacillus acidophilus*
2. *Lactobacillus delbrueckii ssp. bulgaricus*
3. *Lactococcus lactis ssp. lactis*
4. *Lactobacillus casei*
5. *Lactobacillus helveticus*
6. *Lactobacillus plantarum*
7. *Lactobacillus rhamnosus*
8. *Lactobacillus salivarius ssp. salivarius*
9. *Bifidobacterium breve*
10. *Bifidobacterium bifidum*
11. *Bifidobacterium infantis*
12. *Bifidobacterium longum*
13. *Bacillus subtilis*
14. *Streptococcus thermophilus*

## Bio-Kult FAQs

### 1. Is Bio-Kult suitable for vegetarians?

Bio-Kult does not contain any meat-based materials and is enclosed in a vegetable capsule.

### 2. What is the concentration of Bio-Kult?

10 billion CFU/gram, which equates to 2 billion per capsule.

### 3. Can Bio-Kult be taken during pregnancy?

Bio-Kult contains naturally occurring beneficial microorganisms which have been previously shown to be safe to take during pregnancy. However, we would always recommend that advice should be sought from your GP/Health Care Practitioner whenever taking supplements.

### 4. Is there any situation when Bio-Kult should not be taken?

Bio-Kult should be prescribed at the discretion of the Health Care Practitioner for pregnant women, milk allergies, and in cases of immunosuppression.

### 5. I'm lactose intolerant. Can I take Bio-Kult?

Bio-Kult contains probiotic strains that have been shown to produce lactase, the enzyme

needed to break down lactose, which is usually lacking in people intolerant to lactose. Bio-Kult contains traces of milk products at a level which would not affect lactose intolerance sufferers.

**6. I have an allergy to milk. Can I take Bio-Kult?**

Bio-Kult contains traces of milk that would not affect lactose intolerant sufferers, but if you have

an

allergy to milk, we would suggest you talk to your practitioner before taking Bio-Kult.

**7. Are there any side effects from taking Bio-Kult?**

Bio-Kult contains a high concentration of beneficial microorganisms. If there is a pathogenic overload in your gut, and you start off with a high dose of Bio-Kult, in a small number of people a ‘die-off’ side effect, such as bloating, may be experienced for a few days.

**8. I suffer from IBD. Will probiotics help?**

Evidence suggests that increasing the number of beneficial bacteria in the small intestine and colon may improve the health of patients suffering from IBD. Probiotics will not cure IBD, but have been shown to reduce the symptoms of IBD.

**9. I suffer from IBS. Will Bio-Kult help?**

Evidence has shown that probiotics (such as some of the strains contained within Bio-Kult) can reduce the symptoms of IBS, like bloating and gas.

**10. Can I take Bio-Kult at the same time as antibiotics?**

Yes, evidence shows that taking a probiotic at the same time as an antibiotic can reduce the incidence of antibiotic-associated diarrhoea. For the best results, take the probiotic at the opposite end of the day to the antibiotic. Where this is not possible, take the probiotic at least three hours after the antibiotic course.

**11. I’m going on holiday, but regularly suffer from Traveller’s Stomach. Will Bio-Kult help?**

Studies have shown that giving probiotics to travellers reduces the incidence of Traveller’s Stomach.

**12. I regularly suffer from yeast infections, such as Candida. Will Bio-Kult help?**

Evidence has shown that taking a probiotic supplement can help prevent recurrent yeast infections.

**13. I suffer from eczema. Can I take Bio-Kult?**

Yes. Some studies have shown that taking a daily probiotic can reduce eczema symptoms.

**14. I have a leaky gut. Can I take Bio-Kult?**

Yes. Probiotics have been shown to improve intestinal permeability and reduce inflammation in leaky gut patients.

## Gut conditions

Probiotics represent a nutritional live microbial supplement that positively affects the host by enhancing the microbial balance. They work in a number of ways including: competitive exclusion, production of bacteriocins and lowering of gut pH. Although all probiotics' mechanisms of action are not yet fully understood, it is known that they also have an effect on immune responses in the gut, which reduces inflammation. The use of probiotics has been suggested for the prevention and treatment of gut health problems, including acute infectious diarrhoea, antibiotic-associated diarrhoea and inflammatory bowel disease.



## Autism

In recent years, a clear link has been established between digestive problems and autism (1,2).

A crucial part of a normal digestive tract is the 1.5 kg of beneficial bacteria that live there (3,4,5). Without them we simply cannot be healthy. The functions of normal gut flora, known to science so far, are multiple and far reaching.

The role of normal balanced gut bacteria (gut flora) in the healthy child

- The normal Gut Flora have a protective and barrier role against invasive pathogenic microorganisms by producing antibiotic-like substances, antifungal volatiles (AFV) and surfactins, that dissolve the lipid membrane of envelope viruses and bacteria
- They play a major role in the digestion and absorption of all nutrients
- They provide a major source of nourishment and energy for the gut lining
- They synthesise various amino acids, Vitamin K, panthotenic acid, thiamin, riboflavin, niacin, folic acid, pyridoxine, and cyancobalamine
- They help to recycle bile acids and assist normal cholesterol metabolism
- They have a major immunomodulating role by stimulating antibody production, interferon synthesis and inhibition of IgA degradation (IgA is secreted into the lumen of the digestive tract in response to approaching food and is essential for the proper digestion of that food).

This microscopic world within us is highly organised. In healthy people it is dominated by "good" bacteria, which keep under control a huge variety of pathogenic, "bad" bacteria. For whatever, as yet unknown, reason autistic children develop deficient gut flora (1,2).

While only breast-fed, children may develop normally, as mother's milk is the easiest thing on earth for the baby to digest and absorb. It also provides that essential initial immune protection for keeping the "bad" bacteria under control.

As these babies get weaned off the breast to other foods, things can go terribly wrong. Lacking properly established, "good" bacteria in the gut, so essential for appropriate food digestion and absorption, an autistic child can develop multiple nutritional deficiencies (vitamins, minerals, essential amino acids and fatty acids) which have a drastic effect on its development (1,6,7).

In parallel, pathogenic and opportunistic microbes can develop and grow into large colonies and also transform into active states (e.g. Candida, which transforms from its inactive single cell state into a highly invasive micelle). This growth produces a whole host of toxic substances which go into the bloodstream and, to put it simply, poison the child.

The developing brain is particularly sensitive to these "toxins", as well as to nutritional deficiencies. As a result, whatever skills the child has developed while being exclusively breast-fed are gradually lost. There is no normal development of language, comprehension, behaviour etc.

Putting the gut flora right is the first, and the most important, step in the right direction in treating autism! Gut flora is a living organism that is very sensitive to diet, antibiotics, steroids, vaccines and stress (8).

When an efficient probiotic is introduced to the gut, over time it clears out the "bad" microbes together with old putrefaction, and re-establishes the normal gut flora. Once the normal flora is established, the healing process begins and the child starts digesting and absorbing its foods appropriately. The immune system gets the right stimulation and the whole digestive tract changes from being a major source of toxicity (as is the case in autistic children) to a source of nourishment (9).

## **Inflammatory Bowel Disease (IBD)**

Inflammatory Bowel Disease (IBD) is a general term that covers several conditions in which the intestine is persistently inflamed. The two main forms of IBD are Crohn's Disease and Ulcerative Colitis (UC). IBD should not be confused with IBS (Irritable Bowel Syndrome), a completely separate condition in which the intestine is not damaged.

Crohn's and UC are long-term conditions that, although mostly starting in young adults, can start at any age. The main symptoms are diarrhoea and pain and blood in the stool. Currently, there is no cure. Treatments include a range of drugs that reduce the inflammation and, in severe cases, surgery to remove the damaged intestine.

There are three main factors thought to be responsible for intestinal inflammation associated with IBD; genetics, the immune system and gut microflora. It has only recently become clear

that these diseases centre on the immune cells and tissues in the intestine reacting incorrectly to the normal gut microflora.

In human studies, an imbalance in colonic bacteria has been described, including a reduction in potentially protective organisms such as Bifidobacteria spp. and Lactobacilli spp. An increase in pathogenic organisms such as Escherichia coli was also seen which, along with inflammation of the intestinal mucosa, results in the development of lesions on the gut wall (1).

The theory put forward to explain bacterial involvement in IBD is as follows; “a pathogen, possibly a bacterium, reaches the intestine in large numbers and triggers the immune system but, instead of stopping when the pathogen has been defeated, the inflammation carries on as though there were dangerous invaders still present(2).” It is thought that this inflammation continues due to the immune system reacting mistakenly to the normal gut microflora.

The initial trigger for the inflammation is when a pathogen passes through the gut mucosa of the intestinal wall. In normal subjects the epithelial cells form tight junctions and only allow small nutrient particles of digested food through. Patients with IBD have increased gut permeability (‘leaky gut’), which may also allow bacteria to pass through the gut wall.

It is thought that if the introduction of beneficial bacteria, in the form of probiotics, can change the types of bacteria in the gut, then they may be able to alter the immune response of the gut to its microflora. In other words, if you increase the number of beneficial bacteria and reduce the number of pathogenic bacteria, then the immune system may react in the correct way and not cause continual inflammation. Treatment with probiotics has been shown to reduce intestinal inflammation and inflammatory response in experimental models of colitis and to reduce symptoms and inflammation in patients with IBD (3).

The evidence suggests that increasing the number of beneficial bacteria in the small intestine and colon may improve the health of patients suffering from IBD. The result can include a reduction in the severity of symptoms, longer remission periods and improved immune function. Patients may also be able to reduce their prescribed medication and even delay, or prevent, the need for surgery.

## **Dysbiosis**

Article written by Dr. David Dowson

Dysbiosis is the disturbance of the normal bacteria in the gut, with reduced levels of the essential bacteria. The concept of dysbiosis is largely ignored by the medical profession in the UK, but is widely accepted on the continent, particularly in Germany. Veterinary practitioners also recognise the significance and importance of the bowel bacteria, and preparations containing these are commonly added to animal feeds. Much evidence exists to show that dysbiosis is the underlying cause of considerable numbers of illnesses, not just those associated with the intestine. These conditions may be caused by the result of the dysbiosis rather than being a direct effect.

### **The causes of dysbiosis**

The most common cause of dysbiosis – and the reason why it is so common in the west – is the inappropriate use of antibiotics. Viral illnesses are commonly and immediately treated

with antibiotics, but this is usually ineffective. Whilst this may be effective in dealing with an acute bacterial infection, these so-called wide-spectrum antibiotics kill off a large range of bacteria, including the normal healthy bugs in the gut. This is why disturbed bowel action, particularly diarrhoea, commonly follows a course of antibiotics. Ironically, the overuse of antibiotics increases the need for future antibiotics, as the dysbiosis induced by them suppresses the immune system.

Other medications enhance the development of dysbiosis. Hormones, particularly those taken to treat menopausal symptoms, appear to encourage dysbiosis and make it more difficult to treat. This only applies to hormones taken by mouth, and not those administered by an adhesive patch.

Stress, too, has a role in increasing the development of dysbiosis. This may not be a direct effect, but one which results from poor dietary intake and inappropriate eating habits. Convenience foods, together with rapid and infrequent meals, do not help normal bacteria to develop.

### **The symptoms of dysbiosis**

The main symptom of Dysbiosis is disturbed bowel action – which may be either diarrhoea or constipation, or a combination of both – together with excessive wind and abdominal distension. Other symptoms that are a result of the dysbiosis may be present, and may be so severe that the underlying dysbiosis is ignored.

### **The treatment of dysbiosis – the role of the probiotics**

Clearly, the treatment of dysbiosis involves the replacement of the correct bacteria into the gut, but this is not as easy as it appears. Many bacteria taken by mouth do not even reach the intestine, as they are killed by the stomach acid. In addition, as there are trillions of bacteria in the gut, a large dose – and over a prolonged period – is necessary. The type of bacteria is also important, and depends on factors such as dietary habits. In the majority of probiotic formulations the beneficial bacteria are in a dormant state and only become active on exposure to a moist environment.

Preparations that attempt to replace the bowel bacteria are collectively known as probiotics, as they encourage rather than discourage (as with antibiotics). To be successful, therefore, a probiotic must fulfil several criteria:

- It must contain sufficient numbers of bacteria to ensure that enough reach their destination (passing through the stomach without too great a loss)
- The bacteria must be of types applicable to the individual. If possible, they should also be strains that are specific to the human
- They should be presented in an acceptable and palatable form
- The low pH of the stomach can affect the viability of the probiotic strains, so the use of micro-encapsulated strains to enhance colonisation in the gut is an advantage. Also, taking probiotics with your main meal of the day, or just after, will have a buffering effect on the low pH of the stomach.

Clearly, a preparation which is suitable for all is an impossibility, as individuals vary in their needs according to their lifestyles and dietary habits.

## Leaky Gut Syndrome

Along the normal gut lining, there are epithelial cells forming tight junctions that allow only small particles of digested food through to the bloodstream. Leaky gut or intestinal permeability refer to the gut lining, allowing bacteria and some undigested nutrients into the bloodstream. Instead of being absorbed and digested, these molecules circulate throughout the bloodstream. Here, they stimulate the immune system and, in turn, immune system cells react to their presence, as they would to any foreign protein, by initiating an inflammatory reaction that leads to autoantibody production and autoimmune disease development. Evidence for this theory includes the presence of gastrointestinal tissue damage seen in patients with a number of different autoimmune diseases, including irritable bowel syndrome, rheumatoid arthritis and Crohn's disease.

### Causes and symptoms of Leaky Gut Syndrome

Common factors predisposing Leaky Gut Syndrome include antibiotics, alcohol, caffeine, parasites, pathogenic bacteria, some food preservatives and additives, allergic states such as gluten sensitivity and lactose intolerance, corticosteroids, non-steroidal anti-inflammatory drugs, refined carbohydrates, oral contraceptives and fungi. Chronic inflammation from these sources damages the protective coat of immunoglobulin (antibody) A, which interferes with the body's normal ability to inhibit these substances. The resulting toxins then interfere with the liver's ability to detoxify these substances. One result is increased sensitivity to environmental agents such as cigarette smoke, chemical cleaning agents and strong perfumes. Early symptoms include a tendency towards hay fever.

### The use of probiotics in Leaky Gut Syndrome

Probiotics have been shown to improve intestinal permeability and reduce inflammation in Leaky Gut Syndrome patients (1).

## Candida

The yeast *Candida albicans* is present on, or in, most humans as a harmless organism. However, it can also become a major fungal pathogen of humans. Infections can be localised, occurring in areas such as the vagina or the mouth, spreading to affect almost any organ system. Candidiasis can be associated with, or be a predisposing factor for, a number of conditions, including: chronic fatigue syndrome, arthritis, irritable bowel syndrome and allergies.

A study showed that the normal gut flora have a natural resistance to *Candida albicans* but this may be reduced when antibiotics are taken (1). Many women suffer from recurrent yeast infections, indicating that there must be a reservoir of *Candida albicans*. There is a significant association shown between the presence of yeasts in the rectum and in the vagina (2). A review of the literature concluded that, due to the recurrent nature of Candida vaginitis, a complete treatment would not be possible without removing *Candida albicans* from the gut (3).

Probiotic microbes not only suppress the growth of Candida in the gastrointestinal tract and vagina, but they also inhibit the adherence of Candida to the mucosa. The ability of probiotic bacteria to stimulate innate and acquired immune systems in the host and activate phagocytic cells is also thought to play a role in the inhibition of Candida. It is thought that, although probiotics may not be able to cure yeast vaginitis, when combined with anti-fungal drugs they

are useful in reducing the risk of recurrence. The use of probiotics can help fortify natural resistance of the gut microflora to *Candida albicans*, particularly if antibiotics are used.

In a normal healthy individual, overgrowth of *Candida albicans* is prevented by the commensal bacteria, found in the normal balanced microflora. However, antibiotics have the ability to disrupt the bacterial populations within the gut, which can then lead to the overgrowth of undesirable microorganisms like *Candida albicans*. If probiotics are used in this situation then, although *Candida albicans* will not be completely eliminated, yeast counts will be reduced. By reducing the pH of the vaginal tract, probiotics also make it an unfavourable environment for yeast growth.

## **Diarrhoea**

Diarrhoea causes an imbalance in the gut microflora, increased gut permeability and inflammation of the intestine (1). If probiotic bacteria are able to adhere to the intestinal epithelium and colonise the gut, then it has been suggested they can be used to help treat or prevent diarrhoea. There are many studies suggesting that probiotics are effective for the treatment and prevention of different types of diarrhoea (2). The mechanisms of action have been studied. One method is thought to be due to the probiotic bacteria interfering with the invasion and adhesion of pathogens (3). In addition to stopping bacteria infecting cells already exposed, probiotic bacteria may help to protect the gut epithelium from further invasion.

When an infection passes to the intestine, the gut mucosa becomes irritated and secretion is increased. These fluids are produced to flush out the infectious agent and are also associated with increased gut motility. Probiotics help to reduce irritation and inflammation of the gut wall, which has the effect of reducing diarrhoea as a physiological response. Literature suggests that probiotics reduce the symptoms and duration of diarrhoea (4). Researchers have therefore concluded that probiotics are a useful addition to rehydration therapy in treating acute infectious diarrhoea in both adults and children. Probiotics are effective in the treatment of diarrhoea caused by bacterial pathogens and Rotavirus, having the greatest effect if given as soon as possible after the onset of diarrhoea.

## **Antibiotic Associated Diarrhoea (AAD)**

5-30% of people who take a course of antibiotics suffer from diarrhoea (1). As well as being an unpleasant side effect it can, in some cases, lead to chronic or persistent diarrhoea. Antibiotics are taken for a variety of bacterial infections in order to kill the bacteria and prevent disease. However, at the same time as killing pathogenic bacteria, they may also kill the beneficial bacteria within the gut. Antibiotics disturb the gut microflora, reducing colonisation resistance and increasing the risk of developing an intestinal infection, the main symptom being diarrhoea. Oral antibiotics, such as Cephalosporins, Clindamycin and broad spectrum Penicillins, are more likely to cause AAD than parenteral antibiotics (2). [The World Health Organisation defines antibiotic-associated diarrhoea (AAD) as three or more abnormally loose bowel movements per 24 hours.]

### **Causes and symptoms of AAD**

A reduction in the number of beneficial bacteria in the gut causes an imbalance in the microflora and can allow pathogenic species to increase. The gastrointestinal microflora is

less able to resist colonisation by pathogenic species, which causes clinical symptoms, most commonly diarrhoea.

### **The use of probiotics in the prevention of AAD**

Probiotics are used to treat or prevent antibiotic-associated diarrhoea because they replace the beneficial bacteria which are lost during antibiotic therapy. This in turn helps to prevent the colonisation of pathogens, which can cause diarrhoea. If taken at the same time as antibiotic therapy, probiotics are effective in preventing antibiotic associated diarrhoea.

The recommended strategy is to take 2 capsules per day, ideally at least 3 hours after the antibiotic dose, and carry on with the probiotics for at least 2 weeks after the antibiotic course.

Irritable Bowel Syndrome (IBS) is a very common condition affecting approximately 15% of the population at any one time (1). People with IBS usually have three main symptoms: pain in the lower abdomen, diarrhoea, or constipation and abdominal bloating. In IBS the intestine does not work properly, but with no obvious damage to the digestive tract. Patients with IBS may in fact have one or more of the following gastrointestinal complaints: leaky gut, dysbiosis, Candida overgrowth, parasitic infections, food intolerances and allergies.

In addition to increasing the numbers of beneficial bacteria in a person's intestine, probiotics may also reduce the amount of gas produced. People with IBS tend to produce higher than average amounts of gas (2), while Lactobacilli and Bifidobacteria (in probiotics) produce no gas. Evidence has shown that taking a daily probiotic can help reduce the symptoms of IBS (3).

### **Inflammatory Bowel Disease (IBD)**

Inflammatory Bowel Disease (IBD) is a general term that covers several conditions in which the intestine is persistently inflamed. The two main forms of IBD are Crohn's Disease and Ulcerative Colitis (UC). IBD should not be confused with IBS (Irritable Bowel Syndrome), a completely separate condition in which the intestine is not damaged.

Crohn's and UC are long-term conditions that, although mostly starting in young adults, can start at any age. The main symptoms are diarrhoea and pain and blood in the stool. Currently, there is no cure. Treatments include a range of drugs that reduce the inflammation and, in severe cases, surgery to remove the damaged intestine.

There are three main factors thought to be responsible for intestinal inflammation associated with IBD; genetics, the immune system and gut microflora. It has only recently become clear that these diseases centre on the immune cells and tissues in the intestine reacting incorrectly to the normal gut microflora.

In human studies, an imbalance in colonic bacteria has been described, including a reduction in potentially protective organisms such as Bifidobacteria spp. and Lactobacilli spp. An increase in pathogenic organisms such as Escherichia coli was also seen which, along with inflammation of the intestinal mucosa, results in the development of lesions on the gut wall (1).

The theory put forward to explain bacterial involvement in IBD is as follows; “a pathogen, possibly a bacterium, reaches the intestine in large numbers and triggers the immune system but, instead of stopping when the pathogen has been defeated, the inflammation carries on as though there were dangerous invaders still present(2).” It is thought that this inflammation continues due to the immune system reacting mistakenly to the normal gut microflora.

The initial trigger for the inflammation is when a pathogen passes through the gut mucosa of the intestinal wall. In normal subjects the epithelial cells form tight junctions and only allow small nutrient particles of digested food through. Patients with IBD have increased gut permeability (‘leaky gut’), which may also allow bacteria to pass through the gut wall.

It is thought that if the introduction of beneficial bacteria, in the form of probiotics, can change the types of bacteria in the gut, then they may be able to alter the immune response of the gut to its microflora. In other words, if you increase the number of beneficial bacteria and reduce the number of pathogenic bacteria, then the immune system may react in the correct way and not cause continual inflammation. Treatment with probiotics has been shown to reduce intestinal inflammation and inflammatory response in experimental models of colitis and to reduce symptoms and inflammation in patients with IBD (3).

The evidence suggests that increasing the number of beneficial bacteria in the small intestine and colon may improve the health of patients suffering from IBD. The result can include a reduction in the severity of symptoms, longer remission periods and improved immune function. Patients may also be able to reduce their prescribed medication and even delay, or prevent, the need for surgery.

## **Traveller’s Stomach**

### **Cause and Symptoms**

Any food or water from an infected source can cause traveller's stomach. Symptoms may take 2-3 days to develop and are mainly diarrhoea, as well as abdominal cramps and nausea. These symptoms can often last for 10 days on return. Vomiting and fever are less common symptoms.

The most common cause of Traveller’s Stomach is bacterial contamination in food or water (1), with the remainder caused by viruses or parasites.

### **Prevention and probiotics**

The use of probiotics as a preventative for diarrhoea while travelling has been studied. There is evidence that suggests a lower incidence of diarrhoea when Lactobacilli and Bifidobacterium are used both as preventatives and for treatment. Studies have found that, giving probiotics strains to tourists visiting developing countries, had a benefit in preventing diarrhoea(2). It has been suggested that, in order to get the greatest protection from diarrhoea, travellers should start taking probiotics before and during travel, and then continue afterwards (to include the period when taking anti-malarials). This allows the establishment of beneficial bacteria within the gut prior to travel and helps to ensure optimum natural immunity.

The documented beneficial effects of probiotics on diarrhoea include:

- Reduced duration of diarrhoeal episodes
- Reduced stool frequency

- Reduced vomiting
- Reduced risk of diarrhoea
- Faster discharge from hospital
- Shorter recovery time
- Reduced period of pathogen excretion.
- **Atopic Dermatitis**
- Eczema is a skin condition that is suffered by 10-20% of the world's population. It causes the skin to become red, itchy and flaky. This is a result of the skin's inflammatory response to physical or environmental irritants. Anybody can get eczema, although those with a family history will have a greater predisposition to the disease.
- Normally, skin acts as a barrier to protect individuals against disease and infection. This protection is compromised when oversensitivity to external irritants causes a negative immune response, resulting in an eczema reaction. When the skin heals, it thickens and can have a leathery appearance; this process is known as lichenification. Allergic reactions to foods, particularly milk products, animals, dust, cosmetics, and viruses can all trigger an episode of eczema. Environmental factors, such as stress, can also trigger a reaction. This skin condition can appear in infants, children and adults, on any part of the body.
- It has been suggested that some people develop atopic diseases, such as allergic rhinitis, asthma and atopic eczema, due to alterations in their intestinal microflora. It is therefore suggested that probiotics might help to prevent and treat atopic disorders by altering intestinal microflora. Distinctive alterations in the composition of the gut microflora have been found in people with atopic diseases, which suggests that there is interaction between the intestinal immune system and specific microfloral strains in the development of these conditions (1).
- Many children with allergic conditions have a delay in the development of the gut microflora at weaning. A study began treatment with *Lactobacilli* spp. at, or around, birth and observed allergic symptoms for the next two years (2). It was found that those receiving probiotics were half as likely to develop atopic eczema as those infants who did not. Probiotics may therefore be potentially beneficial to the maturation of an infant's immune system. Adding probiotics to the daily diet of children with food allergies has helped to reduce eczema symptoms.
- **Allergic Rhinitis**  
Many people suffer from allergic rhinitis either seasonally, due to pollen (hay fever), or recurrently, from an adverse reaction to food or other substances in the environment. A study monitored the symptoms of children with seasonal allergic rhinitis. They were given fermented milk containing *Lactobacilli* for thirty days (3). The reported symptoms of the patients suggest that this probiotic can effectively and safely improve their quality of life. The researchers concluded that, based on these parameters, probiotic bacteria can help to improve or prevent allergic recurrences in those with seasonal allergic rhinitis.
- **Preventing atopic disorders**  
It has been suggested that infants, who due to family history are at risk of developing atopic conditions, may benefit from their mothers taking probiotics. In a trial, probiotics were given to women before they gave birth. The same probiotics were then given to the infants themselves for six months (4). The frequency of atopic eczema in the probiotic-supplemented group was half that of the placebo group, suggesting that probiotics are effective in the prevention of early atopic disease in high-risk children.

- It is known that breastfeeding offers some protection against atopic disease, but probiotic supplementation of the pregnant and lactating mother may add to this immunoprotective effect. Probiotics were given to mothers during pregnancy and lactation. Their infants were monitored for the next two years and those whose mothers had received probiotics were significantly less likely to have atopic eczema(5).

