Naturally fermented greens and grains

The probiotic process that these ingredients have been exposed to complements their inherent make up. These green ingredients are naturally probiotic, they encourage rapid growth and reproduction of friendly bacteria.

Containing lactobacillus cultures, fermented Barley Grass, Wheat Grass, Alfalfa Grass and a wide selection of fermented whole grains. The green smoothie shot powder is a natural food, rich in beneficial bacteria, vitamins, amino acids, essential fatty acids and enzymes.

Probiotics – and the Future

Probiotic is a relatively new term that has been around for the last 20 years or so and is recently becoming a 'buzz' word. It is about using 'good' bacteria to promote health. Probiotic foods go a long way to helping an individual stay healthy.

The probiotic effects have been noted to include:

- a stronger immune system,
- better digestion and assimilation of food,
- vitamin and mineral uptake improvement,
- less infections,
- better sleep patterns and energy levels

Whilst probiotic foods can't deliver all these improvements overnight, many scientific studies have shown that over time these are some of the benefits. Other scientific studies show that a lack of bacteria in the intestines or a germ-free state leads to a weak immune system and low disease resistance.

Populating your intestine with lots of 'good' bacteria means that there is less area for disease causing bacteria to take hold. Probiotic bacteria also produce chemicals that ward off disease causing bacteria. So having lots of these healthy bacteria means that you are guarding against inevitable invaders.

Today there are a lot of reasons to include probiotic foods in your diet regularly.

Our water and food supply is geared to killing bacteria and this affects your intestinal bacteria. Chlorinated water, added preservatives and pasteurization aim to kill all bacteria. Our modern farming techniques also kill off bacteria in the soil and on our fresh foods. The prevalent use of pesticides, herbicides and fertilizers has changed the ecology of the soil. Our salads, fruits and vegetables used to be probiotic themselves but they are no longer sources of 'good' bacteria. Also, we eat many foods that do not encourage intestinal health, coffee, sodas, cakes, biscuits, breads, confectionary, deep fried and overly processed foods are not friendly foods for our 'good' gut flora. Studies have also shown that as we age our populations of probiotic bacteria are reduced.

The good news is that this can be easily corrected over time. Including good sources of probiotic bacteria in the diet is easy. Eat more cultured foods in your diet. They are excellent probiotic foods and can be consumed or added to foods in lots of different ways. Add some of the liquid to your drinking water every day to keep the numbers up. We do loose bacteria daily in our stools, replenishing your probiotics is something that is needed on a daily basis. Try to avoid foods that do not support probiotics, these foods will encourage the populations of pathogenic bacteria and make them stronger which ultimately means you get weaker.

Other studies show that there are benefits just from the DNA of probiotic bacteria itself and that maybe we don't need the whole live bacteria. However, when it comes to probiotics there is so much evidence pointing to the benefits of the whole probiotic process and its tremendous impact on food and the digestive benefits. The bacteria themselves play an immensely important role in breaking down the food itself for us to digest it properly. To have them in pills or just the DNA is short changing yourself the rest of the benefits.

Each and every body can benefit from including probiotic foods in their diet. Whatever your state of health, these foods support health and immunity. No one would argue that fruit and vegetables are not good for you but what we have missed so far is that we need microorganisms to help us. They are not our enemies, we just need the right ones, these little animalcules are our friends. More and more we will find that probiotics continue to be the 'buzz' word, they are the way of the future.

LACTOBACILLUS - RESEARCH UPDATE - 1

Ongoing research continues to identify the ever-increasing roles that Lactobacillus and other lactic acid-producing bacteria play in balancing digestive functions. The implications of this balancing effect go far beyond our early interpretations of the possible benefits to our health.

Part One - Basic digestive Benefits

Over the past ten years we have all been made aware that Lactobacillus bacteria form a significant part of the natural intestinal flora. Large populations of this and other lactic acid-producing bacteria regulate the levels of friendly bacteria and reduce the levels of toxic pathogens which cause ill health. The following material summarizes some of the functions of the group of bacteria of the intestine.

Potential benefits of Lactobacilli Bacteria to Health

1. pH Balance

By altering the pH of the large intestine to a slightly more acidic level, putrefactive bacteria (those potentially detrimental to good health and increasing foul wind production) tend to be inhibited or destroyed. The pH is altered by active Lactobacilli bacteria producing high levels of lactic acid. The presence of this and other acids inhibit the growth of undesirable bacteria, moulds, mould spores and yeast, particularly the Candida form.

2. Improve Digestion, Digestibility of Foods and Reduce Flatulence

Through the bacteria's active enzymes, foods exposed to these bacteria are broken down and pre-digested. When consumed by humans, nutrients are more readily available for absorption and often improve the biological value of foods; yoghurt is a prime example. The presence of active bacteria in the gut of man can aid its own digestive process in breaking down foods. This is particularly important in the aged population where digestion tends to deteriorate in the later years. Because of enzyme activity, the bacteria Lactobacilli can be useful in reducing the wind associated with poor digestion. Foul-smelling wind is usually the result of the bad bacterial cultures using the cholesterol itself or by producing substances which alter the body's metabolism of the cholesterol. Time will determine the validity of the anti-cholesterol properties.

LACTOBACILLUS - RESEARCH UPDATE - 2

Much has been spoken about the role of Lactobacillus in the digestive tract. It has been well-established that balancing bacterial flora plays a key role in the digestive processes. However, little has been explained about the role Lactobacillus plays in the body's defense system. Balancing intestinal flora appears to play an important role in stimulating immune functions.

Part Two - Lactobacillus and Immune Function

When we think about infection, most people have heard of the word antibiotic. However, futuristic research is showing that there are definite benefits with the use of Probiotic bacteria to prevent infection rather that antibiotic therapy to treat infection. Probiotic means Prolife and is usually defined as a mono or mixed culture of live micro-organisms which when applied to man, beneficially improves the host by improving the properties of the indigenous flora.

In man, probiotics are considered to play a role in:

- The formation of well-balanced indigenous microflora.
- Improving the colonisation of the intestinal, respiratory and urogenital tracts.
- Lowering serum cholesterol.
- Non-specific interactions with the immune system.
- Metabolizing lactose.
- Improving the absorption of calcium-rich foods.
- Improving the synthesis of vitamins and the pre-digestion of proteins.

Immune System:

On-going research continues to find that these friendly bacteria appear to directly act with the immune system. Animal studies show that when the intestine is cleansed of all bacteria (good and bad) the defense of the total immune system is very low. Reduced levels of defense chemicals and special white blood cells occurred in these bacterial-free animals. Activation of the white blood cells was seen when indigenous bacteria were introduced.

Further research has shown that live indigenous bacteria or the chemicals they make can penetrate the intestinal wall and stimulate immune cells to form. The word 'translocation' was introduced to describe the passage of live bacteria from the intestine to the lymph nodes and to other organs such as the spleen and liver. It has been proposed that strains of

Lactobacillus may be able to translocate and survive for many days in the spleen or other organs and stimulate immune function. Research from other sources has shown that some strains of live Lactobacillus can stimulate powerful defense cells like the natural killer cells and increase the anti-viral chemicals like interferon.

Potential benefits of Lactobacilli Bacteria to Health

1. Improve gut microflora / improved recovery after antibiotic treatment.

The Lactobacilli family all appear to produce natural agents, e.g. acidophillin and Bulgaricus produces bulgarican, which have the ability to reduce or destroy competing bacteria in foods and in the human gut. Regular consumption of live Lactobacilli bacteria improves the gut microflora and reduces the number of unwanted bacteria. Also, the use of certain antibiotics destroy good and bad bacterial flora in the human gut. Re-population with good bacteria helps to re-establish a healthy balance of bacteria.

2. Lactose Intolerance

Consumption of fermented foods containing lactose appears to improve the digestibility of these foods in those who have a milk or moderate problem with lactose digestion. It is also believed that the presence of live Lactobacilli bacteria in the gut also improves the digestion of lactose in those foods not previously fermented before consumption. This is due to the enzymes which are capable of breaking down the lactose from foods into more suitable form.

3. Ongoing Research and Bowel Health

It has been shown in a number of studies that consumption of some fermented dairy foods reduces the cholesterol-elevating effect of equivalent non-fermented foods. That is - yoghurt appears far less cholesterol-elevating than normal milk. Some studies believe these bacteria contain substances which may lower cholesterol. The effect may be due to the bacteria using the cholesterol itself or by producing substances which alter the body’s metabolism of the cholesterol. Time will determine the validity of the Digestibility of Grains

We don't eat barley, wheat, rye, oats and soybeans raw, they are indigestible that way. Within them and other grains, seeds and legumes, there are substances that stop the nutrients that are stored for growth from spoiling. This is a bit like the preservatives we add to food to keep it from going off. It is how the seeds survive until conditions are correct for growth; their survival mechanism.

Many enzyme-rich raw foods also contain enzyme inhibitors. This is easiest seen with grains, nuts and seeds, which contain both food for the growing plant and enzymes to process this food. Grains and legumes contain phytic acid, an insoluble compound of phosphorus and inositol which binds minerals such as calcium, zinc, magnesium and iron to make them unavailable. Cooking partly deactivates the enzyme inhibitors but does not deal effectively with phytic acid. Cooking also destroys the enzymes themselves. Although enzymes require warmth for optimum activity, they are destroyed by heat as strong as cooking.

These inhibitors that stop plants' food from spoiling or being used up, not only make the enzymes unavailable to us when we eat the seeds (making such foods difficult to digest), but they can also interfere with the digestion of other foods. Soy beans and nuts are said to have the highest levels of these inhibitors. Just as in other areas of nature, where the first step in germination comes after rain, the first step to deactivate the inhibitors is absorption of water - the water content needs to come up from approximately 12 per cent to 45 per cent. This happens to a certain extent while the grain is cooking in water, but it is far more effective to soak the grain.

A variety of fermentation processes have been used with cereals to increase digestibility, palatability and shelf life. Fermentation produces a strong acidic flavour, increases protein digestibility, and relative nutritional value. Fermentation can also reduce cyanide toxicity in cassava and sorghum, trypsin inhibitors in soybeans, and the antinutritional character of phytate and tannins. The fermentation process provides optimal pH conditions for degradation of phytate.

Soy beans are an excellent source of lecithin, essential for the correct metabolism of fats and cholesterol, and of the essential fatty acid, linoleic acid; they are excellent sources of phyto-oestrogens. Fermentation also is reported to convert the harmful phytic acid in soy beans to useful phosphorus and the B vitamin inositol. Also, the action of bacteria, yeasts and enzymes during fermentation converts the trypsin inhibitors and other undesirable compounds to harmless substances.

In scientific studies of fermented cereals the following has been stated:

- The lactic acid fermentation process has been reported to improve the in vitro protein digestibility of nontannin cereal grains.

- Phytate was shown to be completely hydrolyzed after fermentation of germinated white sorghum and, as a result, the amount of soluble iron was found to be strongly increased.
- Protein digestibility was reported to increase from 47% to 73% after lactic acid fermentation of whole-grain sorghum.
- Over a 9-month period, consumption of acid-fermented gruels reduced the incidence of diarrheal episodes in a group of school children; because these foods can be easily digested.
- The growth of rats fed fermented wheat product improved significantly over those fed unfermented wheat, there is an increase in availability of lysine during fermentation.
- A feature of many of these fermentations is that they are capable of improving the digestibility of a raw material and at the same time destroying factors that are toxic, or at least those that might inhibit digestion.

Distribution of Free Fatty Acids During Soybean Tempe Fermentation							
Sample	mg/100g of tempe					Total g/100g of tempe	% of total ether extract
	Palmitic	Stearic	Oleic	Linoleic	Linolenic		
Cooked Soybean, free fatty acids	41	31	127	0	0	0.26	1.09
24-h tempe	420	175	713	2510	293	3.59	13.87
30-h tempe	771	202	802	2543	204	4.77	18.93
48-h tempe	665	202	1359	4138	304	6.93	30.00
69-h tempe	863	367	1671	5032	302	8.19	35.11
Source: Steinkraus, Keith, H. editor. 1996. Handbook of Indigenous Fermented Foods. 2nd ed. Marcel Dekker, Inc. NY. pp40							

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