

Bacteria, the way of life

Most of us never give a thought to the diverse and vitally important role bacteria play in all life. They pervade the air we breathe the water we drink, the soil we farm, the food we eat and the bodies we inhabit. All life is dependent on a terrain that is thriving with beneficial microbes, for a terrain lacking such, be it soil, water or our gastrointestinal track, is one open to disease and illness.

Our digestive system, like the systems found in the natural world, is an incredible ecosystem of delicately balanced friendly and unfriendly microorganisms that number billions and, like the ecosystems of the planet, are being depleted by are lifestyle, food choices and the gross misuse of manmade chemical substances.

Intestinal Microorganisms

In an ideal environment there are over 400 species of microorganisms that inhabit and coexist, though not always harmoniously, in a complex, symbiotic relationship in our vast internal ecosystem.

Made up of a collection of the dominant good, the bad and the transient, each contributes in some way to our overall wellbeing. This immense population of microorganisms far surpasses the number of tissue cells that constitute our bodies accounting for anything up to 1 kg or more of a person's overall body weight.

Known as intestinal flora/micro-flora they are ingested by the baby from the mother during pregnancy and nourished through the mother's milk, the friendly and beneficial flora flourish providing a foundation that is essential for health.

The Role Beneficial intestinal Flora Play

Most illnesses are associated with insufficient levels of beneficial micro-flora because of the vitally important role they carry out in maintaining and protecting our health. They are responsible for the manufacture of important and essential vitamins like B12 and vitamin K, aid the digestion of food, regulate the hormone levels, maintain the chemical balance (pH) of the entire digestive system, promote the assimilation of nutrients as well as the elimination of toxins thereby protecting the body from harmful pathogens (disease causing) bacteria, viruses, fungi and parasites.

This role can only be maintained as long as the beneficial micro-flora dominate and keep the harmful microbes in check. In the incidence this balance is lost, pathogens start to proliferate and toxicity occurs in the body, which undermines the immune system. A weakened immune system is an open opportunity for pathogens to colonise and this can lead to any number of conditions such as headaches, thrush, constipation, insomnia, skin rashes, eczema, psoriasis, candida albicans and cancer. The Atlantic Centre for Disease Control lists the opportunistic yeast infection, candida albicans as an official symptom of the immune deficiency disease AIDS. Why? Because an AIDS victim has so little immune function that the candida can run amok with nothing to control it i.e. beneficial intestinal flora, acidophilus, bifidus, plantarum etc.

Disruption of Balance and the Consequences

As we witness ever increasing levels of manmade chemicals (70,000+ and rising), finding their way into our food, bodies and environments, it is no coincidence that we see the decline of beneficial microorganisms found in our internal ecosystems and our planet's. A consequence of the over use and dependence on the above is the alarming emergence of super bugs, weeds and pathogens impervious to all modern science/medicine can throw at them; with very little respite in these practices one may wonder if we will ever see the folly of our ways?

Over dependence and use of antibiotics damage our micro-flora colonies as they indiscriminately kill both beneficial and harmful microbes. The medical profession's obsession with killing microbes would even stun the father of antibiotics Selman Waksman, Noble Prize Laureate, who wrote in 1954 "It is usually not recognised that for every injurious or parasitic microbe there are dozens of beneficial ones. Without the latter there would be no bread, nor wine to drink, no fertile soil, no potable water, no clothing and no sanitation. One can visualise no form of higher life without the existence of microbes. They are the universal scavengers; they keep in constant circulation the chemical elements, which are so essential to the continuation of plant and animal life."

The simple act of drinking a glass of water may compromise our health, as the chances are it has been chlorinated and we partly sanitise the intestinal tract and gut every time we do so. Into the bargain chlorine can destroy polyunsaturated fatty acids and vitamin E in the body while generating toxins capable of free radical damage. This might explain why supplementation of the diet with essential fatty acids like flax seed oil, evening primrose and antioxidants like vitamin E, selenium and others help many cases of dry skin and eczema. By

switching to drinking unchlorinated water and repopulating the intestinal tract with lactobacillus and bifidus see various other chronic skin conditions clear up.

Excess consumption of alcohol, coffee and cola and other soft drinks all take their toll. As do denatured junk food, which is loaded with sugars, bleached flours, homogenised fats and any number of artificial additives that over acidifies the body creating a breeding ground for parasites, fungi and viruses.

Stress can also play a major part in disturbing our internal balances and taking up a practice or technique that helps to release stress, such as meditation, yoga or exercising is as much part of a balanced wholesome lifestyle as diet is. Our thoughts and outlook on life too play an important role in our health. By thinking positively will certainly help as will expressing our emotions in a positive and creative way and not holding onto them where they lodge and fester creating an acidic and stressful condition in the body.

Maintaining a Healthy Micro-Flora Ecosystem.

Harmful microbes are the natural result of insufficient beneficial micro-flora and the reaction to nutritional starved tissue. Naturally to correct this imbalance we need to eat a diet high in fibre, unprocessed or as little as needs be and based on organic whole grains & beans, vegetables, both land and sea, cooked and raw, especially raw (if organic) as they can be wonderful sources of transient beneficial microbes. Moreover, green plants have abundant chlorophyll that promotes the growth of intestinal flora and purifies and stops the spread of harmful microorganisms. Seaweeds are excellent in the treatment of candida yeast infections being high in iodine, the standard treatment for yeast infections before the advent of anti-fungal drugs, and high in selenium and other minerals essential for rebuilding immunity.

Cold pressed oils, especially those high in omega essential oils, such as flax and oils high in oleic, virgin olive oil being the highest, contribute to maintaining a healthy internal ecosystem.

Fermented foods are all good sources of beneficial microorganisms and an efficient way to renew and keep the beneficial micro-flora healthy. Here in Japan there are various foods that are still fermented the traditional way, such as, unpasteurised miso, shoyu, amasake, natto, tsukemono, umeboshi and umesu (salted plum vinegar), all are beneficial in promoting and maintaining healthy micro-flora. Raw sauerkraut and rejuvelac are excellent for regenerating intestinal micro-flora.

See recipe section for home made sauerkraut, rejuvelac seed and oat yoghurts.

One of most common forms of fermented food is from cultured dairy products, especially yoghurt. However, dairy proteins are very difficult for our digestive system to break down and as a result high amounts of mucous are formed, the body's way of eliminating undigested proteins, lactose intolerant or not. Moreover, modern milk production practises are inhumane and the excessive use of antibiotics, steroids and hormones leaves dangerous residues in dairy products. The homogenised and pasteurised product of today is a far cry from the raw product our grandparents knew and is best used sparingly.

Probiotic (meaning "for life" in contrast to antibiotics "against life") food supplements containing bifidus, lactobacillus, acidophilus and other bacteria are quality ways of reintroducing beneficial micro-flora especially for those that do not eat fermented foods or have undergone repeated antibiotic usage or generally need a boost.

Some makers of probiotic supplements claim that the introduced flora will perish, if not properly encapsulated, in the acid of the stomach. Whether this is correct or not it's hard to say, however, for thousands of years man has managed very well through the medium of fermented foods to keep his internal ecosystem teeming with life so obviously the beneficial microorganisms are surviving.

See the healthfree site for probiotic supplement known as Flora Source.

By including these simple whole foods in our diets and avoiding the many denatured foods of today we can do ourselves a world of good by maintaining a healthy and thriving terrain where harmful bacteria have no opportunity to take hold and to cause all manner of illnesses. And it's worth remembering that it's thanks to the microbe world we do in fact have life on Earth; basically, we are because they are.

Recipes

All the recipes have been taken and adapted from Paul Pitchford's classic book, "Healing with Whole Foods."

Rejuvelac is a fermented drink that provides an inexpensive source of friendly bacteria helpful for creating healthy intestinal flora. Tastes a little sour though if too sour reduce the fermentation time but if tastes foul discard. Rejuvelac ferments quicker in hot weather. For a stronger sour drink refrigerate after the rejuvelac is first made with the wheat berries and top up with water every time you pour off a batch. Can keep for several weeks.

Ingredients

2 cups of wheat

Water, spring or filtered

Jar

Soak the wheat berries for one day. Discard the water. Rinse berries place in the jar and fill to the top with water (about a litre). Cover lid with a piece of cheesecloth and fasten with a rubber band. Let stand for 2-3 days. Pour off rejuvelac and refrigerate. Add another litre of water and let stand for 1 day then pour off rejuvelac. Compost wheat berries.

Seed Yoghurt is one of the finest pre-digested proteins and ferments that is easily assimilated. The rancidity and oil of seed yoghurt are reduced by fermentation. Great in spreads, sauces and dressings.

Ingredients

1 cup of sesame or sunflower or almonds soaked. (discard water)

1 cup of rejuvelac or water, spring or filtered water

1/2 teaspoon of unpasteurised miso or shoyu when not using rejuvelac.

Blend seeds at high speed, slowly pour in the rejuvelac or water and shoyu or miso and blend until creamy. Let stand in a warm place for 6-10 hours to desired sourness and then refrigerate. Can add previously made seed yoghurt to speed fermentation.

Oat Yoghurt

1 cup of rolled oats

1 cup of rejuvelac or water, spring or filtered water

1/2 teaspoon of unpasteurised miso or shoyu when not using rejuvelac.

Follow the recipe for the above seed yoghurt

Raw Salt-less Sauerkraut (with salt option)

Minimum of 11 kg of vegetables use mainly cabbage, daikon and carrots. If desired add celery, garlic herbs and soaked chopped seaweeds such as wakame, kombu. Any vegetable can be used. Option: add salt 1/2% to 1-1/4% of vegetable weight.

Use a stainless steel or ceramic crock (a 30 litre container will hold approximately 14 kg of vegetables). Grind up vegetables in a food processor or cut them up. If you don't use salt, the vegetables must be made juicer: put them in a stainless steel bowl or an unbreakable container and pound with a baseball bat or something similar until some juice flows out, the more juice the better.

Place the vegetables in the crock. Don't fill to the brim, as the fermenting vegetables will expand. If salt is to be used mix it in now.

Put many fresh cabbage leaves on top of the vegetables. Gently, yet firmly and evenly compress the leaves using your hands and body weight.

Put a plate as wide as possible on the crock. Put a rock or other weight on the plate. Do not put too much weight that the juice is forced up above the fermenting vegetables. Check that the weight is right and the plate is sitting even and flat a few times over the next 24-36 hours.

Let the vegetables sit in a well-ventilated room at room temperature (between 15-22c). After 5 to 7 days (6-7 days at 15c and 5-6 days at 22c) throw away the old cabbage leaves and the mouldy discoloured vegetables on top. Put the remaining sauerkraut in glass jars and refrigerate. Will keep for 4 months to 8 months when kept at 8-10c and opened minimally. Do not freeze. If salt is used then the kraut can be kept at temperatures as high as 10-12c.

The above is probably not realistic for most people so you can try this simpler version with 1 cabbage grated or chopped finely & 1/2 a cup of soaked, sliced kombu.

Sauerkraut with Kombu

Save the outer leaves of the cabbage.

Mix the cabbage and kombu together and then pound with a wooden mallet or board to crush and release the juices. Place in ceramic container or glass jar and cover with the outer leaves; cover with a plate that rests directly on the cabbage.

Place a 1.5 to 2.5kg weight on the plate then cover the container with a piece of cheesecloth, and then a loose lid. Set in a cool place for 1-2 weeks.

Discard leaves and store in the refrigerator in glass jars. Will last for weeks.