

A Bio-friendly Introduction To Modern-day Skin Care

The skin microbiome: a new dimension in skin health and beauty care

Just like in our Digestive Systems, Good Bacteria keep harmful bacteria at bay on our Skin, the largest organ in the body. This Ecosystem is called the “Skin-Biome.” The “skin-biome” needs to be nurtured with a protective shield of beneficial bacteria which previously we used to get from our healthier water supplies, through soil and plants, as was collected naturally in Nature. However, all of this has changed; with more disruptive chemicals being the least of the issues.

With the introduction to micro needling, access to deeper layers of the skin would not be possible to its fullest potential without the use of a good supply of beneficial bacteria helping to do the work from the inside out and the benefit of supplying beneficial bacteria to the skin from the skin surface as well. Many do not realise the importance of healthy microbiome acting as the actual ‘messengers’ running and commanding all healthy responses throughout the body, including all hormonal messaging and balances. This is crucial when evaluating healthy skin care.

The Skin-biome is there to protect us against harmful bacteria often route to skin ‘dis-eases’ (changes or problems) and external environmental damage. Skin-biome are hugely at risk since modern day use of antiseptics, sanitisers, antibiotics, and chemicals as obtained through chemical skincare ranges. Poor diets, poor lifestyle and Stress increase the various battles the skin needs to self-restore. With our latest internal and external use Probiotic Skin Restoration Sprays (one for Acne Skins & One for Normal Skins) we are now able to extract the most important components of beneficial bacteria to enhance the skins’ ability to outcompete with any harmful bacteria, helping restore the skin to its natural, healthy skin-biome balance:

- Contains natural active ingredients.
- Contains environmentally beneficial, live bacteria.
- Eliminates skin odours.
- Successfully restores the biofilm that houses and protects harmful bacteria by inhibit the pathogenic bacteria that cause infections.

For this simple reason, Microbiome have become the key focus not only for Gut Health but also a key driver in the skin Care industry. We have used our unique probiotic formulation in most of our products. The focus going forward has clearly become one of minimalistic vision for products in skin care ranges as well as reduced ingredients and more especially a move away from chemical additions. The more Natural the more acceptable globally. Essential oils are used as Natural Preservatives to support shelf life and feeding the skin to support natural restoration is ideally sourced from natural plant super antioxidants for best skin care going forward.

The Skin is mere a continuance of the internal state and representative of the state of health in both external and internal expressions. So too, the need for a liquid application in readily bio-available format for immediate internal and external responses. You are only as healthy as your gut is but so too, as healthy, and young looking like the state or condition of your skin. Both are bi-directionally equally important. The beneficial bacteria on your skin are alive. If you want to replenish them and rebalance your microflora, you need live bacteria.

Probiotics can lower your skin's pH, keeping your microbiome balanced. Probiotics are the Good Bacteria. Their job is to strengthen your skin and restore or maintain a good balance of bacteria. The added advantage we have in this unique formulation is the various natural plants/herbs used to support not only gut health but enhance skin health acting as super antioxidants.

Harsh cleansers destroy the protective barrier on your skin (you know when this happens: your skin turns all dry and red). This changes your Microbiome (the population of bacteria on your skin): the Good Bacteria slowly disappear, and the bad ones take hold.

Some scientific extracts:

"Fermented products are commonly used for their anti-inflammatory and skin-calming benefits," board-certified dermatologist Dr. Joshua Zeichner says, noting that this makes them useful for those with inflammatory conditions like acne.

"Saccharomyces" (soil-based organisms) lysate extract functions to soothe the skin with its anti-irritant properties. Fermented ingredients reduce the risk of skin irritation by neutralizing toxic substances, such as heavy metals and pesticides that may be present in trace amounts.

"Lactobacillus Plantarum" is a good bacteria that works by creating antimicrobial peptides. According to a 2012 study, it can reduce erythema, repair skin's barrier, and help treat acne.

"Bifidobacterium Longum" Lysate soothes inflammation, reduces dryness, and increases "skin resistance against physical and chemical aggression".

A tip for those serving the skincare industry: For best Skincare suggesting the use of an internal use PROBIOTIC supports daily restoration of the gut and skin biome from the inside out.

Chapter 2: Beauty Inside Out.

AN EVOLUTION IN HUMAN AND SKIN HEALTH

Never has the Microbiome been of such keen and core interest as now. When Hippocrates said all health comes from within, he was generations ahead of the greater understanding for all health and quite simply all skin health. Our Skin is a continuation of our gut and the Microbiome an outward expression of similar. It is a fact that the role and importance of bacteria in human health has been grossly underestimated and misunderstood by members of the public, as well as many in the medical fraternity. This brief overview will help to provide a vital understanding of bacteria in its relationship to the human body, and how the handling of bacteria alone opens the door to a new era in human health.

- ✓ A DAILY PROBIOTIC SUPPLEMENT that scientific studies have proven we just cannot do without any longer!!
- ✓ A DAILY PROBIOTIC SUPPLEMENT that restores vital bacteria no longer provided by modern diet!!
- ✓ A DAILY PROBIOTIC SUPPLEMENT providing natural bacteria needed for good health and growth in adults and children!!
- ✓ A DAILY PROBIOTIC SUPPLEMENT that regulates and aids sensitive digestive tracts and digestive orders!!

Lets' Start With The Basics.

The gastro-intestinal tract's healthy function relies on the presence of beneficial bacteria. Beneficial bacteria aid in digestion, correct pH balance (acidity), the processing of nutrients and the prevention of the build-up of harmful bacteria. The bacteria in your bowels outnumber the cells in your body by a factor of ten to one. This gut flora has incredible power over the Immune System, meaning that the health of the body and your skin is tied into the health of the gut. This becomes understandable when one looks at the fact that there are over one hundred trillion bacteria - about two kilograms worth - that line the intestinal tract. Beneficial bacteria (as well as pathogens) are completely killed off with the use of antibiotics, which many doctors tend to give out like candy to patients who come with any kind of bacterial or viral illness.

A modern-day lifestyle issue is the repeated use of antibiotics can virtually eradicate the beneficial bacteria in the gut, which must build up from scratch again each time a course of antibiotics is taken, allowing bad bacteria and harmful yeasts to take a foot hold in the Gastrointestinal tract and multiply at a high rate.

Beneficial bacteria help to consume available food sources in the intestine and thus deprive harmful bacteria of their normal food sources. Approximately 80% of the body's immune system capability derives from the beneficial bacteria in the GI tract. The average adult body contains approximately 2.5 kg of bacteria, both good and bad. It is estimated that the large intestine (colon) alone should

contain approximately 1.5kg of beneficial bacteria. There are approximately 400+ varieties of bacteria in the digestive tract and take many years to build up through a healthy diet. Therefore, eradicating all of one's probiotic bacteria by taking antibiotics and simply taking a probiotic supplement afterwards (containing 2 or 3 strains of probiotic bacteria) is not really going to build up that same level of diversity of beneficial bacteria as would occur naturally with a good diet.

Beneficial bacteria assist with the following:

- Helps to inhibit potential pathogenic
- Helps to prevent diarrhoea caused by rota virus or
- Helps to reduce the proliferation of
- Assists in increased defaecation and help to reduce
- Help in digestion by altering the pH and improving the uptake of minerals, especially calcium.
- Help to digest lactose for the lactose-intolerant
- Involved in the production of vitamins, for example, B1, B2, B3, B5, B6 B12, A, D and K, and essential fatty
- Assist in protein
- Help to clean the digestive tract.
- Produce natural antibiotics and anti-fungal such as hydrogen

Most active probiotic bacterial cells are destroyed by the stomach before they reach the small and large intestine. Therefore, the exact number taken could in some ways be considered irrelevant or not so critical. The main purpose of taking probiotics is to provide viable cells of beneficial bacteria which can seed or multiply in the small and large intestine. It is not, factually, to physically populate the colon with beneficial bacteria from just the probiotic bacteria that survive and reach the colon. This would be a mammoth task given the small number that reach the colon and the several kilos of beneficial bacteria required there. Providing a regular supply of seeding bacteria to the colon and ensuring optimal conditions (and food) for the beneficial bacteria and adverse conditions (and a lack of food) for the bad bacteria, is the main goal to achieving and maintaining a healthy floral gut balance.

Since the beginnings of life on Earth, bacteria have been a vital part of the life cycle of every living organism on the planet. It is bacteria that allow plants, animals, and humans alike to use the nutrition from their foods. Bacteria are involved in the growth and correct functioning of cells. They help living organisms to create natural vitamins and antibiotics and are a major factor in fighting disease. To sum it all up: life cannot survive without the work of bacteria.

What is new is the means to harness the capabilities of these several types of microorganisms in one effective, self-supporting, and effective group. Most probiotics available today contain only one or two species of bacteria, grown as pure cultures and then freeze-dried so that they may be kept alive. It is not a natural process, and this 'process' does not contain the full range of species that microbes usually interact with as a part of their normal life cycle. Moreover, these probiotics are grown in a sterile environment, with no competition, and so when they are introduced to the wild and variable ecosystems of the "real world," their ability to survive is severely impeded. The microbes in our product range is comprised of a wide range of beneficial micro-organisms, fermented together at body temperature, allowing them to grow, interact and compete naturally. This unique process helps to create a consortium of highly effective, inter-dependent microbes that can survive together in any environment into which they are placed, influencing that environment in a regenerative (rejuvenating) direction, whether it be in a human or animal body, soils, plants, or water.

The reason for our efficacy and results is not, as many people believe, the number of microbes present in the product but, rather the number of microbial species. In the natural world, the various species of microbes are utterly reliant upon each other for growth and stability, as can be seen by the diversity of microbial life in soils and plants. The discovery of optimising our Skin Care with our Liquid Microbial Product Microbes, which closely mirrors natural range of microbes that as found in our soils and food, opened a new world of opportunities.

With newer Technology making this need to support good health inside out has become very viable. One of the products in the Skin Care Range supporting our Micro needling is the 100% natural, unique Probiotic which is highly effective in supplying a combination of beneficial inter-active microorganisms that operate in a revolutionary relationship with each other and in so doing enable living organisms (plants, animals, human bodies) to function to their fullest potential on a physical level.

Other factors to look at when considering our Liquid Microbial Product is that these microbes are all naturally fermented at body temperature, especially relevant when one considers that the human body's most important source of beneficial bacteria is naturally fermented foods. This means the finished products are raw, containing 40 trace minerals, amino acids (up to 18), various organic acid compounds, nearly 100 types of enzymes, B complex vitamins, Vitamin A (in the form of Retonin, the form ready for absorption by the body), as well as the live microbes which make up the solution itself. Importantly, none of these beneficial compounds are added artificially to the brewing process. Rather, they are a natural by-product of the fermentation process of these highly effective bacteria. A natural by-product in this interactive phase is the resultant release of digestive enzymes, a crucial benefit to healthy digestive functioning; also, a missing link from the modern day dried-frozen species commonly in the marketplace.

Due to the increased use of chemical fertilizers and antibiotics in modern agriculture, livestock and animal health, environmental remediation, and human health, neither plants, animals nor humankind, for that matter, receive the benefits of the various bacteria that should be a part of the normal life cycle. The interactive action of our Liquid Microbial Product provides us with mutually

supportive bacteria which can influence the entire bacterial population of any eco-system or the body of any living organism has never been uniformly achieved. Thus, it can be said that we have reached a new era in the evolution of natural technologies.

Understanding PROBIOTICS

The word probiotic means 'for life' and describes the concept that a probiotic encourages the formation of a living colony of specific beneficial bacteria, in this case in the human digestive tract. Today, probiotic means product, in fact it means thousands upon thousands of products globally which have adopted the term.

A quick look at the range of probiotic products available on the shelves immediately reveals two segments: liquid products such as yoghurts or drinks, and dry products such as capsules, tablets, and sachets.

DRY PROBIOTIC PRODUCTS

Dry products come in many shapes and sizes, however the technology behind them is broadly similar and involves freeze-drying. It is possible to freeze simple organisms and cells under low temperature and pressure in such a way that all the water is removed without damaging the delicate structure of the cell or organism itself. In the case of probiotics this places the bacteria in a state of suspended animation which is well suited to long term storage. Once moisture becomes available to the bacteria, they re-hydrate and a proportion of the bacteria will go on to function and divide again as they did before 'freezing.' This means that many strains can be combined into a specific product. However, there are downsides to freeze-drying, not least, the grand expectations placed upon bacteria to re-hydrate and regain function quickly after swallowing into the acidic environment of the stomach.

There really is no word to describe the state that microorganisms are in after freeze drying. One could say "dormant," but this really does not suffice. All the moisture that is part of each microbe has been removed. The theory is that once ingested, these microbes re-absorb the moisture and return to life. Even if they do fully return to their former state with no harm done, nobody has been able to tell how long it takes. If it is more than an hour or two, the microbes will be past the stomach, through the intestine and in the bowel before they wake up. Or even further along.

Any microbiologist will agree with the statement that freeze drying of microbes causes some form of cellular damage, which can affect performance of the microbes. This is the main reason most probiotics on the market contain billions of cfu (colony forming unit) per ml. It is necessary to use tremendous numbers of "weaker" microbes to get the effects of "stronger" microbes.

LIQUID PROBIOTIC PRODUCTS

Liquid products contain live bacteria, which is intuitively a promising idea; to be called a probiotic in the first place a product must contain live bacteria, but it is important that these bacteria once swallowed can reach the gut and colonise to confer a benefit. Live products must also contain a source of nutrition for the bacteria; however, this raises several novel issues. Firstly, storage and shelf-life can be short for some live products especially the refrigerated types (check the labels). Secondly, palatability, since probiotic bacteria are not always tasty creatures. Also, an important consideration is competition between bacterial strains within the same live product; they can compete with one another for resources in the bottle. This problem is one reason it is difficult to develop a multi-strain live product.

All microbes that have a probiotic or beneficial effect on the body are “mesophilic.” A mesophile is an organism that grows best in moderate temperature, neither too hot nor too cold, typically between 20 and 45 °C. Organisms that prefer extreme environments are known as extremophiles. They like our body’s natural temperature and that is why they have formed a symbiotic relationship with other life forms, in this case mammals. Put them in a cold environment and they die. So, the whole concept of “freeze-drying” mesophilic bacteria is a complete contradiction.

Let us also look at the number of probiotic strains in a product - there are single strain products and multi-strain products:

SINGLE STRAIN DRY PROBIOTICS

There are those who believe that a single strain of bacteria may be all that is needed to confer benefit; *Acidophilus* species are a good example, and so there are plenty of producers of single strain freeze dried probiotic tablets, capsules, and powders. The human gut contains more than five hundred varied species of bacteria, so to take a single strain to hit the bullseye may not always deliver success.

SINGLE STRAIN LIQUID PROBIOTICS

With a few exceptions, live probiotic products, particularly the dairy-based products containing yoghurt or milk are single strain probiotics containing bacteria which thrive on the sugar found in milk; lactose (hence *Lactobacillus*). These bacteria tend to be strains from the *Bifidobacteria* or *Lactobacilli* genera which are common in the environment.

MULTIPLE STRAIN DRY PROBIOTICS

As above, freeze drying allows for multiple species and strains to be combined in a sole product without fear of competition, however other problems can arise as a result, chief amongst these being time of re-hydration and recovery of function for the bacteria.

MULTIPLE STRAIN LIQUID PROBIOTICS

On paper, these products deliver the best of both worlds; providing several bites at the cherry in one go and overcoming the problems with dry products. However, the devil is in the detail, and it is exceedingly difficult to deliver a multiple strain live product, which is why they are exceedingly rare. Our Liquid Microbial Product contains multiple strains. As well as being in a liquid form, multiple strains offer you one of the best probiotics on the market. Our Microbial Product is a complex of microbial cultures consisting of multiple strains. Unique in the industry!! The manufacturers are clear that focusing on the population counts are not as important as focusing on the product being in liquid form and the diversity of the microbes. If our Liquid Microbial Product were to have one less strain of microbes, these products would function like all other probiotics and the results would not be as significant.

The principal classes of microorganisms in our Liquid Microbial Product are:

PHOTOSYNTHETIC BACTERIA

Phototropic bacteria are one of the key elements both in our Liquid Microbial Product structure and its workability and benefits. These micro-organisms have been on Earth since before there was oxygen, meaning that their food source was (and is) the gases that we consider harmful or toxic to us today: Hydrogen Sulphide, Carbon Dioxide, Methane and Ammonia to name a few. What this means is that the phototropic bacteria in our Liquid Microbial Product consumes toxins and harmful gases in the human body, giving off oxygen as one of the by-products. The aerobic bacteria (bacteria which use oxygen) then consume the oxygen generated by the phototropic bacteria and they in turn excrete carbon dioxide which the phototropes can again use as food. Even more importantly, however, phototropic microbes also excrete amino acids, antioxidants and other substances that enhance life which can then be used by the body. A unique chain of events even for the evolved modern-day probiotic types currently not even available in the marketplace.

The photosynthetic or phototropic bacteria are a group of independent, self-supporting microbes, considered to be the most versatile bacteria in existence. In soils and plants, these bacteria synthesize useful substances from secretions of roots, organic matter and/or harmful gases (e.g. hydrogen sulphide), by using sunlight and the heat of soil as sources of energy. The metabolites

developed by these microorganisms are absorbed directly into living organisms and act as a food source for increasing populations of other beneficial bacteria.

It is the inter-dependency and mutually beneficial actions of these various microbes which make it possible for them to establish themselves within the human body (or any environment) and motivate the already-existing bacteria in a beneficial and regenerative direction. Any one of these classes of microbes attempting to influence any environment without the others is, therefore, attempting to operate in a synthetic environment because they do not operate alone in the natural world. To word it differently: although Lactic Acid Bacteria, beneficial yeasts and other microbes have properties which are hugely beneficial to organism health, they will never be able to function as they should without the other bacteria (namely phototropic bacteria) that are essential to the establishment of viable survival conditions. It is the phototropic bacteria that produce the oxygen and other substances that allow the vast range of other beneficial microbes to survive and dominate the system.

Due to the increased use of chemical fertilizers and antibiotics in modern agriculture and livestock farming, man is no longer getting, from his foods, the various bacteria that form a part of the survival of the human body, a fact evidenced by the diseases and illnesses of the 20th and 21st centuries. The action of our Liquid Microbial Product in providing man with mutually supportive bacteria which have the ability of influencing the entire bacterial population of the body has never been uniformly achieved. Thus, it can be said that we have reached a new era in the evolution of human health.

LACTIC ACID BACTERIA

Lactic acid bacteria produce lactic acid from sugars and other carbohydrates, developed by photosynthetic bacteria and yeast. Therefore, some foods and drinks such as yogurt and pickles have been made with lactic acid bacteria for decades. However, lactic acid is a strong sterilizing compound, and suppresses harmful microorganisms and enhances decomposition of organic matter. Moreover, lactic acid bacteria promote the decomposition of material such as lignin and cellulose and ferment these materials, thereby removing undesirable effects of non-decomposed organic matter.

Lactic acid bacteria also produce antibacterial compounds that are known as bacteriocins. Bacteriocins act by punching holes through the membrane that surrounds the pathogenic bacteria. Thus, bacteriocins activity is usually lethal to the pathogen. Lactic acid bacteria have several well-established benefits. They can improve lactose digestion, play a role in preventing and treating diarrhoea and act on the immune system, helping the body to resist and fight infection. Several lactic acid bacteria may help prevent initiation of colon cancer. It has also been demonstrated that lactic acid bacteria slow the growth of experimental cancers.

NATURAL BENEFICIAL YEASTS

Beneficial Yeasts synthesize antimicrobial and other useful substances required for cellular growth from amino acids and sugars secreted by photosynthetic bacteria, organic matter, and other microorganisms. The bioactive substances such as hormones and enzymes produced by yeasts promote active cell division. These secretions are also useful substrates for effective microbes such as lactic acid bacteria and actinomycetes.

SOIL BASED ORGANISMS (SBOs)

Bacillus Subtilis is a soil-based organism. Bacillus subtilis is a robust strain that is not only able to withstand the gastrointestinal tract but flourish and positively affect the composition of the microbes in the gut. Studies have shown that this probiotic can produce compounds that are naturally disruptive to harmful organisms. Bacillus subtilis helps displace unfriendly organisms in the body by affecting their ability to colonize.

What Each Species of Good Bacteria Can Do For You and your Skin Health:

- ✓ Bifidobacterium Animalis which aids the gut with digestion, obesity control, improves your skin's appearance, helps to boost the immune system, and prevents colds and flu.
- ✓ Bifidobacterium Bifidum helps with diarrhoea by providing the beneficial bacteria back into the system, it works to strengthen the immune system and helps with candida.
- ✓ Bifidobacterium Longum is a species which aids with allergies, diarrhoea, Irritable Bowel Syndrome (IBS), Celiac and the immune system.
- ✓ Lactobacillus Acidophilus is great to deal with IBS, diarrhoea, immunity, urogenital infections, and allergies.
- ✓ Lactobacillus Bulgaricus is aimed at helping the liver function optimally, helps with Inflammatory Bowel Disease (IBD), colds and flu, diarrhoea, skin conditions, allergies and even colic.
- ✓ Lactobacillus Casei is used to boost the immune system, prevent colds, and flu through strengthened immunity and help with symptoms of diarrhoea.

- ✓ Lactobacillus Fermentum helps to have a boosted immune system, hold off urogenital infections, healthy liver functioning and cholesterol control.
- ✓ Lactobacillus Plantarum assists with IBS pain and symptoms, prevents colds and flu, and boosts the immune system.
- ✓ Lactococcus Lactis SSP. Diacetylactis helps to improve the appearance of one's skin and helps conditions such as eczema and acne, while improving the immune system, easing allergies, and helping with symptoms of IBS.
- ✓ Bacillus Subtilis is a species which helps to ease constipation, deals with IBS, improves the immune system and symptoms associated with diarrhoea.
- ✓ Saccharomyces Cerevisiae simply packs a punch by helping with digestion and immunity.
- ✓ Streptococcus Thermophilus has the function to help digest food properly and efficiently, aid with diarrhoea, eases IBS problems and symptoms, improves the immune system and helps to ease colic.

In conclusion for effective Skin care, removing bad bacteria with effective cleansing, followed by supplying a natural prebiotic (plant sources used as food for "good" bacteria), a probiotic ("good" bacteria"), a postbiotic – (by-products of bacteria) and symbiotic (synchronising of the consortium of microorganisms) is the most modern way of addressing not only internal health but also external health, your skin.

What is good for the gut is in fact good for your Skin; it is that simple!