COLOSTRUM, THE WHITE GOLD DISCOVERY

Research done by Dr Lance S. Wright, MD for Immunetree Colostrum

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WHAT YOU ARE ABOUT TO DISCOVER

I would like to introduce you to the wonders of *colostrum*, an incredible healing food that gives an amazing boost to the body's immune system, as well as helps repair much of the damage caused by both disease and aging.

This information will give you an understanding, not only of the power of *colostrum*, but how your own body works, and what it needs. Once you have the facts about *colostrum*, you will be able to make educated decisions about how it can help you. It is only through this kind of education that you can be empowered to take control of you own health and wellbeing.

And so, we introduce you to a "new" healing food that is as a natural birth itself, and, as you will see, more powerful than any nutritional supplement available. The biggest and best help for newborn babies can also be the help you need to attain the health you've always wanted.

HOW SUPPLEMENTAL *COLOSTRUM* IS MANUFACTURED

We all receive the benefits of *colostrum* from our mothers when we are born. But the use of human *colostrum* for supplementation would be very problematic. Besides the delicate matter of collection, very few, if any mother would be willing to deny their newborn *colostrum* in order to supply it for any other reason.

Since all female mammals produce *colostrum* after giving birth, it makes sense to look to an animal source to supply colostrum for human supplementation, and diary cows are the most logical choice. Firstly these animals produce large amounts of *colostrum* – far more than could be consumed by their calves. Bovine *colostrum* also has other benefits. It is the one proven source of *colostrum* that can be received by all other mammals, including humans. This is because many of the key ingredients in bovine *colostrum*, including immunnoglobulins, IGF-1, and other growth factors, are molecularly identical to those found in human *colostrum*. Bovine *colostrum* also includes a hormone that prevents the calf, and anyone else who consumes it, from experiencing anaphylactic shock, or any other negative reaction to the specific antigens in the *colostrum*. In other words this hormone makes bovine *colostrum* completely safe for humans and all other mammals (yes, *colostrum* can also help heal sick pets).

Unlike blood, which is still best received when it matches exactly, bovine *colostrum* supplementation can, in fact, do more for humans than human *colostrum*. Dr John F Ballard showed that cow colostrum was 100 times more potent than human *colostrum*, mainly because of its rich concentration of immune factors. In 1979 study proved bovine *colostrum* contains 86% IgG; the most important immunnoglobulins in the body, while human *colostrum* contains only 2%.

Since we are not baby cows, how do we take advantage of the many health benefits of bovine *colostrum*? A very safe, clean and effective process for manufacturing bovine *colostrum* is the key. The cattle used for this process are grade "A" cattle. The *colostrum* that is produced for human supplementation should be collected from the cattle during the first 6 hours after the birth of the second calf, and only after the calves have had their fill. It is important to collect during the first 6 hours because the high concentration of immune factors begins dropping after that time very rapidly.

Take a look at how the different factors change over just the first few hours after birth and you will see the difference in quality:

FUNDAMENTALS OF DAIRY CHEMISTRY: TRANSITION FROM *COLOSTRUM* TO NORMAL MILK

Time in Hours after calving	Total Protein as a %	Casein as a %	Albumin as a %	Fat as a %	Lactose as a %	Ash as a %	Total Solids as a %
0	17.57	5.08	11.34	5.10	2.19	1.01	26.99
6	10.00	3.51	6.30	6.85	2.71	0.91	20.46
12	6.05	3.00	2.96	3.80	3.71	0.89	14.53
24	4.52	2.76	1.48	3.40	3.98	0.86	12.77
30	4.01	2.56	1.20	4.90	4.27	0.83	13.63

Much of the *colostrum* today is being called first milking and then being denatured in one way or another i.e. by taking the fat out or by taking a milking which contains a higher lactose/milk percentage.

CRITERIA FOR GOOD QUALITY *COLOSTRUM*

The first way of denaturing *colostrum* is to take the fat out. All the research shows that by taking the fat out you remove approximately 95% of the growth factors found in *colostrum*, also, by removing the fat you also remove the insulin factors, a few of the immune factors and all of the GOOD cholesterol. The second way people denature *colostrum* is by using an inferior grade or milking of *colostrum*. You see, if you take a "true" first milking the lactose found in *colostrum* is very minimal and doesn't induce a lactose reaction, however, when you take even 12 hours *colostrum* then you are taking quite a bit more lactose and the *colostrum* has to have lactase added into the mixture. What first milking *colostrum* does for you is generate your body's ability to digest the sugars found in lactose products so you can eat whatever you want.

THE INGREDIENTS OF DRIED BOVINE *COLOSTRUM*

Bovine *colostrum* is 50% - 60% protein, 30% - 40% of which is made up of the five immunnoglobulins. Of particular note are IgA (51mg/100ml), IgG (87mg/100ml, and IgM (131mg/100ml). *Colostrum* is also rich in vitamins and minerals, including vitamin C, D, B1, B2, B6, folic acid, iron, magnesium, zinc, copper, selenium and phosphorus. The vitamins found in the largest amount are vitamin A, vitamin B12 and vitamin E. Vitamin A is vital to the health of the overall immune system, especially the thymus gland. It also has antioxidant properties. Vitamin B12 also boosts the immune system. In fact, one study proves that high levels of B12 can double aids in nervous system functions, and blood synthesis, and vitamin E is a powerful antioxidant.

These ingredients, in and of them, would make bovine *colostrum* a healthy dietary supplement. But what really makes *colostrum* amazing, and of such benefit to us are the immune and growth factors. The individual factors that fall under these two categories work both independently, and synergistically, to boost the body's immune, healing and growth responses.

There are over 37 different immune factors found in *colostrum*. These include the five immunnoglobulins, Lactoferrin, Polyproline-Rich Peptide, Leukocytes, Interferon and Cytokines. These immune factors can boost the immune system as well as directly fight off disease.

The growth factor in *colostrum* stimulates cell division and muscle and bone growth in newborns. In adults, these factors promote quick cellular repair, which means faster recovery from injury and disease-caused cellular damage. In addition, growth factors have been shown to slow the aging process, meaning fewer wrinkles and greater muscle mass. *Colostrum* growth factors include epithelial growth factor (EgF), insulin-like growth factor –1 (IGF-1), growth hormone (GH), and transforming growth factors A and B (TgF A & B). *Colostrum* also contains one very important ingredient. Studies from 1975 and 1994 confirm that bovine *colostrum* contains permeability factors, which allow the immune and growth factors to remain active until they reach the bowel where they can perform their functions. These permeability factors, a trypsin inhibitor and a protease inhibitor, prevent the digestive enzymes and acids from breaking down the active proteins. Without these inhibitors, everything from growth hormone to immunnoglobulins would be broken down into amino acids, which are of considerably less help to the body. The existence of this third, very important group of factors confirms that, with *colostrum*, nature has provided us with a perfect health elixir.

MAJOR *COLOSTRUM* COMPONENTS

The most important components of *colostrum* can basically be broken down into two major categories: immune system factors and growth factors. The immune factors can be divided into to major categories: protective and regulatory.

- Protective Factors: Immunnoglobulins
  Immunnoglobulins, or antibodies, are powerful weapons in the war against disease, especially viral infections. They have been proven effective in neutralizing many strains of viruses and bacteria as well as yeasts, and have been used to treat such diseases as multiple sclerosis, rheumatoid arthritis, hepatitis A, anemia, Chronic Fatigue Syndrome and chickenpox, among others. Because of this incredible power, immunnoglobulins are the most important immune factors in *colostrum*. Luckily, they are also the most abundant. Bovine *colostrum* contains all five immunnoglobulins found in humans, but contain large amounts of the four key antibodies: IgG, IgM, IgA and Secretory IgA.
- Trypsin Inhibitors and Protease Inhibitors
  These immunnoglobulins remain molecularly intact as they pass through the digestive system. This allows them then enter the body unbroken or to stay in the bowel. This is an important characteristic of the antibodies found in bovine *colostrum* since most infectious diseases enter into the body through the bowel. The antibodies that stay in the intestinal tract can then fight off invading organisms before they can colonize and penetrate into the body.
- Leukocytes (White Blood Cells)
  Leukocytes play a very active and important role in fighting off infections and cleaning up the toxins left by invading substances. Bovine *colostrum* contains various living white blood cells, the most abundant of which are neutrophils and macrophages. The leukocytes in colostrum can also stimulate the production of interferon, which, as its name suggests, interferes with the reproduction of viruses.
- Lactoferrin
  Powerful antibacterial, anti-inflammatory antiviral agent. In helping the body to more effectively use iron, Lactoferrin deprives bacteria of the mineral, making it impossible for the antigen to reproduce. Lactoferrin also has the ability to latch onto bacteria and, in a sense, weaken them until other immune factors can destroy them. Lactoferrin also contains many antibodies, and an anti-inflammatory agent. Recent studies have proven that Lactoferrin from bovine *colostrum* can inhibit the growth of the HIV virus. It is also effective in fighting cytomegalo virus.
- Lysozyme
  This protein, designed to destroy bacteria by breaking it up, can also kill viruses on contact. It is found in saliva and tears and has recently been added to baby formula.
- Peroxidase
  A more recently discovered immune factor, this enzyme generates the release of hydrogen peroxide, which then burns, or hydrolyzes, dangerous bacteria.

- Insulin-Like Growth Factor-1 and Growth Hormone
  Though technically considered growth factors, both IGF-1 and growth hormone can render significant aid to the immune system. Their growth promoting characteristics have been proven to have a profound effect on the thymus gland, a major organ of the immune system.
- Regulatory Factors
  Equally as important as the factors that actually neutralize and destroy invading microorganisms are the factors that regulate immune function by stimulating immune response when it is too low, and suppressing it when it is too high. If these regulatory factors are missing, the consequences can be very severe. A depressed immune system allows invading substances to reproduce inside the body resulting in all kinds of infection and disease. On the other hand, an immune system that cannot shut itself off begins attacking the healthy cells of the body. This is what's called an autoimmune response, and it leads to allergies and diseases such as multiple sclerosis, lupus, Alzheimer's disease, and rheumatoid arthritis.

PROLINE-RICH POLYPEPTIDE (PRP)

A hormone that regulates the thymus gland, stimulating an under active immune system or down-regulating an overactive immune system as seen in autoimmune disease (MS, rheumatoid arthritis, lupus, scleroderma, chronic fatigue syndrome, allergies, etc.). PRP also helps regulate immune function by increasing the permeability of the skin's vessels.

- Cytokines
  Cytokines help regulate immune function by influencing T-cell production, lymph activity and the production of immunnoglobulins. With this broad influence, cytokines are able to regulate both the force and duration of an immune response. One of the cytokines, interlukin-10, works to reduce inflammation caused by arthritis.
- Lymphokines
  Lymphokines are peptides, released by stimulated white blood cells, that control immune response.

WHAT ARE GROWTH FACTORS?

The growth factors found in *colostrum* include epithelial growth factor (EgF), insulin like growth factor-I and II (IGF-I and IGF-II), Fibroblast Growth Factor (FgF), Platelet-Derived Growth and growth hormone (GH). All of these help stimulate cellular and tissue growth. A 1989 study published in Comparative Biochemical Physiology pointed out that the high levels of growth factors found in bovine *colostrum* promote cell growth by stimulating the formation of DNA, which is essential to the survival of every cell in the body.

It is only natural that the first food a baby receives be rich in growth factors. These help stimulate the rapid growth a baby's body undergoes during the first years of life, strengthening both bone and muscle and helping the child's organs develop properly. Though adults are no longer growing, they can still benefit from the work the growth factors do in the body.

The best-known and most studied growth factors are the Insulin-Like Growth Factor-1 (IGF-1) and growth hormone (GH). Growth hormone is produced by the pituitary gland in the brain. Essential particularly during the adolescent years, growth hormone controls the body's growth by regulating the metabolism of proteins, carbohydrates, electrolytes and fat, as well as influencing the production of hormones.

IGF-1 is so named because of its close resemblance to the hormone insulin. This chain of amino acids, produced in the liver, is actually a by-product of growth hormone release and is responsible for muscle cell division. IGF-1 even improves the function of growth hormone throughout the body.

Some companies now market genetically engineered versions of both IGF-1 and GH and use them in healing, muscle-building and anti-aging therapies as well as AIDS treatments. These factors were first identified and isolated by studying bovine *colostrum*. Since that time, several studies, including a 1991 British report, have concluded that the growth factor IGF-1 found in bovine *colostrum* is molecularly identical to the IGF-1 produced naturally in the human body. This means that individuals taking *colostrum* will experience all the benefits the IGF-1 provides to the body, without encountering any negative side effects. In addition, bovine *colostrum* is the natural source with the highest concentration of IGF-1.

HEALING AND REGENERATION ABILITY

Just as the growth factors are able to re-grow the thymus gland, they have also been proven to re-grow tissue and repair other damage done to the body. In fact, these regenerative effects extend to nearly all the structural cells in the body. So not only will *colostrum* immune factors fight off disease and illness, but the growth factors come in and act as the clean up and repair crew. *Colostrum* really is a complete formula for healing, wrapped up in a neat little package.

All of the growth factors work in different ways to promote this healing. A 1981 study found that bovine *colostrum* contained 7 different nucleosides that are key to both the growth and repair of body cells.

The growth factors promote healing because they are able to encourage growth on a cellular level by enhancing both DNA and protein synthesis. In addition, growth factors improve the body's nutrient uptake, providing the raw materials needed for rebuilding the cells.

In 1990, the University of Arizona concluded that Fibroblast Growth Factor, Insulin Like Growth Factor, and Transforming Growth Factor-b (all found in bovine *colostrum*), when administered together, caused growth and reproduction of cells that then fused together or to the adjacent muscle fiber. This type of quick and strong healing and re-growth means that there is usually less scaring. It also indicates an incredible potential for healing the wounds of diseases like lupus or multiple sclerosis. For example, growth factors like TGF A & B stimulate the reproduction of skin cells to replace those that may have been damaged by lupus. Growth factors also have the potential of stimulating the re-growth of the myelin sheath (a thick, fatty material that surrounds and protects nerve fibers) that is destroyed with a disease like multiple sclerosis.

Recovery from many diseases, particularly in surgical cases or illnesses requiring any amount of bed rest, also involves regaining muscle mass. During the time of the illness and the recovery, a patient is most often unable to use the injured muscle. As a result, the muscle is weakened and muscle mass is lost, further slowing the healing process. Growth factors found in *colostrum* (particularly GH) speed up rehabilitation by strengthening the muscle on a cellular level.

GROWTH FACTORS IN ACTION

IMPLICATIONS FOR ATHLETES AND ANTI-AGING

Lean Muscle Mass

The very impressive lean muscle building properties of *colostrum* growth factors is of particular interest to athletes. In the muscle cells, it is IGF-1 that is a powerful influence. What this means is that muscle themselves were designed to interact with IGF-1 and it is IGF-1 that tells the cells to divide and multiply at a rapid rate. Growth hormone initially appeared to be the main promoter of muscle growth, but in actuality, growth hormone is just the catalyst. GH tells the muscle cell to make IGF-1, which then is responsible for the nutrient uptake, proliferation and differentiation of muscle cells. This increase in the number of muscle cells increases to overall mass, and therefore the strength of the muscle. To make the process even more efficient, fibroblast growth factor (FGF), also found in bovine *colostrum*, promotes the creation of even more IGF-1 receptors in the muscle tissue, for optimum muscle growth.

Recovery

The stimulation of muscle cell growth is also key to another aspect of athletic performance – recovery time. Each time we work our bodies strenuously, we cause some minor damage. For example, muscle-building workouts often cause tiny little tears in the tissue of the muscle that was stressed. The good news is that the growth factors work to repair this damage quickly and strengthen the muscle for its next use. It has been proven that colostrum, and its muscle building growth factors give athletes a quicker recovery after a workout.

Burning Fat

Dr Jorgensen of Sweden tested the effect of growth hormone on adults who had low amounts of lean muscle mass, and who had lost strength and exercise capacity. On all three counts, Jorgensen noted a distinct improvement. In addition, Jorgensen observed that even though the lean muscle mass increased, the overall body weight did not. This indicates that fat was actually lost as muscle was gained. One explanation for the increase in muscle and decrease in fat is growth hormone's control over the body's metabolism. Because of this control, GH, by stimulating the production of IGF-1, is able to tell the body to burn fat for fuel. By regulating metabolism, GH and IGF-1 restore proper balance in the body. The final result is a decrease in body fat. This means that, for those of us fighting the battle of the bulge, we now have a powerful weapon for weight loss on our side.

Growing Younger

Many of the benefits of *colostrum* that we've mentioned thus far also have impressing implications for aging. Lean muscle mass and body fat percentages become harder and harder to keep in balance as we age. But even more impressive is what the growth factors can do to combat and even reverse the signs of aging. It is now a well-documented fact that the amount of hormones in the body all decline as we age. One of the key hormones in the growth hormone and it's counterpart, IGF-1. In fact, it has been reported that by the age of 40, our IGF-1 concentrations are less than half of what they were at age 20. Since these growth factors are responsible for the body's metabolism, as well as individual cell growth, it is obvious that a deficiency in growth hormone or IGF-1 would have some definite and drastic results.

These results are what we see as the typical signs of aging. The hormone deficiency causes the skin to thin, and dry, muscle mass and bone density to decrease, cholesterol levels to rise, cardiovascular function to weaken and mental abilities including memory to decline.

In 1990, a landmark study in the New England Journal of Medicine proved that growth hormone treatment not only stopped the body from aging, but also actually reversed the effects of years of hormone deficiency. Dr Daniel Rudman, the author of the study, treated 26 men between ages of 61-80 with growth hormone. Patients experienced a decrease in overall body fat (of up to 14%), an increase in bone density and lean muscle mass. In addition, their skin was thicker and more elastic. Rudman said the changes were equivalent to those incurred over a 10-20 year period of aging. So, the damage of a decade's worth of aging was undone in just a 6-month treatment period.

Luckily, growth hormone, substance that brought about this incredible transformation, is one of the growth factors that is naturally in bovine *colostrum*. By using the growth factors in *colostrum*, particularly growth hormone and IGF-1, we can regain some of that lost muscle mass and strength, thereby maintaining or improving our overall level of mobility and independence. On an even more impressive note, growth factors also strengthen the muscles of key organs (i.e. the heart) helping them function better.

Bone mass is also a key to remaining healthy in old age. Treatment with the growth factors found in *colostrum*, however, stimulates bone growth, improving bone strength and density.

In addition to stimulating cell growth, the growth factors also help strengthen bones by improving the body's absorption of calories, proteins, carbohydrates and minerals, including calcium.

Skin Deep

Growth hormone works with the body to improve your skin from the inside out. As we age, our skin thins as the cells in the dermis layer die. The thinning skin is dryer and without elasticity. Growth factors stimulate cell growth in the dermis, improving both skin thickness and elasticity. The result is firmer, younger-looking skin. Many *colostrum* users have also reported hair re-growth. It appears that the growth factors also stimulate cell proliferation in the scalp and hair follicles often reversing hair loss. But growth hormones go even one step further by working directly in the brain. Growth hormone affects neurotransmitters in the brain, not only improving mood, but also enhancing mental functions and memory.

COLOSTRUM AND SPECIFIC DISEASES

Leaky Gut Syndrome

This is the name given to a very common health disorder in which the intestinal lining is more permeable than normal. Leaky gut syndrome is at least as common as all the immune system diseases put together. Basically, it is caused by inflammation of the gut lining. The inflammation causes the spaces between the cells of the gut wall to enlarge, allowing the absorption of large protein molecules which are usually broken down to much smaller pieces before being passing into the body. The inflammation also damages the protective coating of antibodies of the IgA family normally present in a healthy gut. Since IgA helps us ward off infections, leaky gut problems make us less resistant to viruses, bacteria, parasites and candida. These microbes are then able to invade the bloodstream and colonize almost any body tissue or organ, thereby causing disease.

We have already discussed how the immune and growth factors in *colostrum* do not break down during the digestive process. These whole factors are then able to work their magic in the intestines, and are very effective at combating leaky gut syndrome. Several factors, including the immunnoglobulins and Lactoferrin, attack the pathogens in the intestines, inhibiting their reproduction, and preventing their attack on the intestinal wall. *Colostrum* growth factors are also anti-inflammatory and play a huge role in treating a leaky gut. In addition, they repair damaged cells and keep the mucous layer of the intestines sealed and impermeable to toxins. This is evidenced by *colostrum* ability to control chronic diarrhea.

Auto-immune Disease

Auto-immune diseases are caused by the damage done by the immune system when it cannot turn itself on. Auto-immune disease includes lupus, rheumatoid arthritis, multiple sclerosis, Addisons disease, childhood asthma, fibro myalgia, chronic fatigue syndrome, thyroiditis, vasculitis, Chrohn's disease, colitis and Raynaud's disease.

In cases of auto-immune disease, some allergen triggers a severe allergic response that in turn damages the body tissue. For example, multiple sclerosis is an auto-immune disease that affects different parts of the nervous system through the destruction of the myelin sheaths, the membrane that protects the body's nerves. This destruction produces any number of symptoms, including blurred vision, staggering gait, numbness, dizziness, slurred speech and even paralysis. In short, the results can be devastating.

The difficulty came in figuring out how to "turn off" the immune response that was causing the damage. In 1983, Polish researchers discovered a small protein chain called Polyprotein-rich Peptide (PRP) in colostrum. This immune factor was found to have the same ability to regulate the immune system as the hormones of the thymus gland. PRP is able to stimulate T-cell precursors to form helper T-cells, thereby promoting the immune system into action against pathogens. More impressive, however, in relation to auto-immune disease, is PRP's ability to "turn-off" the immune system. It does this by telling the T-cell precursor to produce T-suppressor cells. These are the cells that slow down an overactive immune response, thereby stopping the attack on the body's own tissue.

Further studies showed that PRP was not species-specific meaning that PRP in bovine *colostrum* could be used very effectively to combat a multitude of auto-immune diseases. The growth factors also found in *colostrum* can then come in and repair any damage already done by an auto-immune disease. We've previously discussed the healing powers of growth hormone and IGF-1. These factors, combined with transforming growth factors A and B, work to stimulate tissue repair in the skin, the myelin sheath and other connective tissues throughout the body, reducing pain and swelling, and increasing mobility and freedom.

Diabetes

Type I, or juvenile onset diabetes, can also be considered an auto-immune disease. Tests at UCLA and Stanford University showed that a protein called GAD, found in cow's milk, and could trigger an allergic response that damages the insulin-producing cells of the pancreas. Without insulin, the body is unable to use glucose for energy, so is forced to burn fat instead. But, once an individual has developed Type I diabetes, the treatment options are very few. A 1990 study suggested that colostrum supplementation would be a very beneficial treatment for diabetics, based on the fact that a key growth factor, IGF-1, can stimulate glucose utilization. Researchers found that plasma levels of IGF-1 were lower in diabetic patients than in healthy individuals. After administering IGF-1 to patients, the doctors noticed a two-fold increase in glucose transport to muscles. The IGF-1 in *colostrum* could painlessly do the job of the daily insulin injections most diabetics now have to endure. Do be aware, however, that any change in insulin medication should only be made under a doctor's supervision.

Heart Disease

We have heard so much in recent years about heart disease and what we can do to prevent it. Altered immunity may be the hidden cause of arteriosclerosis and cardiovascular disease. For example, the American College of Cardiology recently reported that a common type of Chlamydia bacteria has been associated with arterial plaque information in over 79% of patients with heart disease. Also, a recent New England Journal of Medicine article concluded that heart disease is the result of immune sensitization to cardiac antigens. In other words, once heart tissue is damaged, the immune system begins creating anti-bodies, which then cause more harm. Because heart disease resembles an auto-immune response in this way, *colostrum* PRP can help limit the severity of the disease by toning down the immune systems attack on damaged heart tissue. In addition, the other immune factors found in *colostrum* can directly combat the Chlamydia bacteria. Finally, IGF-1 and growth hormone in *colostrum* can lower LDL-cholesterol while increasing HDL-cholesterol concentrations. Colostrum growth factors promote the repair and regeneration of heart muscle and the regeneration of new blood vessels for collateral coronary circulation.

Cancer

Cancerous cells are continuously being formed and destroyed in almost every human body. The problem comes when a weakened immune system allows for cancerous cells to spread and destroy other healthy tissues. Ironically, chemotherapy, the treatment of choice for many cancers, compromises the body's natural immune function, leaving patients susceptible to even more infection.

The 1985 Steven Rosenberg Book, Quiet Strides in the War on Cancer, first popularized the benefits of natural immune boosters in the treatment of cancer. Rosenberg had great success with cancer patients, including one complete cure, by using a treatment that flooded the body with killer immune cells, as well as chemical messengers called cytokines. Since Rosenberg's time, the same cytokines found uniquely in *colostrum* (interleukins 1, 6, 10, Interferon G and Lymphokines) have been the single most researched elements in the search for the cure for cancer.

Colostral lactalbumin has been found to cause the selective death of cancer cells, leaving the surrounding non-cancerous tissue unaffected. Lactoferrin has similarly been reported to posses' anti-cancer activity. The incredible mix of immune and growth factors in *colostrum* can inhibit the spread of cancer cells. And, if viruses are involved in either the initiation or the spread of cancer, *colostrum* could prove to be one of the best ways to prevent the disease in the first place.

AIDS (HIV Virus)

A couple of features make the HIV virus one of the most frightening bugs to catch. First of all, the virus mutates so quickly that the body cannot produce an antibody to destroy it. Secondly, how can we fight the virus off a virus that directly targets the body's main defense – the immune system? In fact, it is not finally the HIV virus itself that poses the deadly threat associated with the AIDS disease. Instead, the HIV virus attacks the immune system, rendering it extremely vulnerable to other invaders. In cases of severe immune damage, a simple cold or flu can be deadly.

The Colostral immune factor Lactoferrin is one of the best ways to reduce viral levels in the body. For example, Lactoferrin inhibited HIV infection of certain body cells. In addition, the immune factor was able to completely block Cytomegalovirus infection. The Harmsen study also concluded that bovine Lactoferrin was up to 2.5 times more potent that human Lactoferrin.

Many of the immune factors in colostrum also help to stimulate or "jump start" a weakened immune system. Lactoferrin, for example, is responsible for "turning on" the immune system in newborn babies, and has been proven to do the same thing for adult AIDS patients. In addition, *colostrum* growth factors also boost the body's immune function.

The growth factors in *colostrum* also play an important role in preventing AIDS associated with severe weight loss. Wasting occurs when the AIDS-infected body begins using muscle for energy.

Mass wasting is most often brought about by severe, chronic diarrhea, one of the first symptoms of AIDS. Cryptosporidia and Rotavirus take advantage of the weakened immune system, causing acute diarrhea. This results in a loss of vital nutrients and fluids and also depletes much of the supply of intestinal antibodies leaving the sufferers face much of the research thus far has focused on finding a way to prevent diarrhea. A 1992 study by Rump and associates showed that, out of 37 immune deficient patients with chronic diarrhea, 72.4% experienced a significant improvement with the use of immunnoglobulins from *colostrum*. Over half of the patients remained diarrhea free for at least 4 weeks after the treatment. A 1992 study said that *colostrum* immunnoglobulins have been able to treat opportunistic, diarrhea-causing infections in AIDS patients, where no other treatment was effective.

While we can't yet fully wipe out the HIV virus, the immune and growth factors in *colostrum* show absolutely tremendous power in boosting the immune system and strengthening the body of AIDS sufferers.

Crohn's Disease

Crohn's disease is a chronic inflammation of the intestinal wall. The disease typically affects the full thickness of the intestinal wall. Most commonly it occurs in the lowest part of the small intestine (ileum) and the large intestine, but it can occur in part of the digestive tract from the mouth to the anus and even the skin around the anus.

There are many different levels of disease manifestation, but most people with the disease experience gastrointestinal distress due the bowel inflammation, persistent diarrhea and wasting associated with diminished nutritional uptake. These individuals are much more susceptible than normal to enteric (gut) infections. Regular utilization of very high quality bovine colostrum, such as that distributed by Immune Tree, would be very advantageous to affected individuals for the following reasons:

a) insulin-like growth factor-1 (IGF-1) is a hormone-like substance in colostrum. IGF-1 is the triggering substance for the whole super family of 87 proteins that control most of the processes in very cell in the body. One of the main functions is regulation of the metabolic pathway by which the body converts glucose (sugar) to glycogen. Glycogen is stored in the muscles and the liver and is the main source of energy when the muscles are exercised. Another major function of IGF-1 and the super family is regulating how cells use amino acids to build proteins. Having sufficient IGF-1 available is extremely important in metabolically compromised individuals and is essential to reversing the wasting aspects of the disease.

b) Another function of the IGF super family is the repair of damaged cells. Most of the proteins in the super family are present in almost every cell in the body, but require activation and direction by the attachment of IGF-1 to specific sites on a cell's surface. Again having sufficient IGF-1 available is critical to affect cell repair.

Lupus

Systemic Lupus Erthematosus (SLE) is one of the most complex and vicious autoimmune diseases that result in episodes of inflammation in joints, tendons, and other connective tissues and organs. Different tissues and organs become inflamed in different people and the severity of the disease ranges from mild to debilitating, depending on the number and variety of antibodies that appear and the organs affected. It is much more prevalent in young women in their late teens to mid thirties. Accurate diagnosis may take years since the symptoms mimic other disorders like arthritis, fibromyalgia and chronic fatigue.

Lupus is traditionally considered incurable and most patients have little hope of remission. Traditional treatment involves a variety of drugs and medications, which often end in a backlash of secondary symptoms. The most widely used medications for lupus are immunosuppressive drugs and cytotoxic (cyto=cell, toxic=damage) drugs, both of which increase an individual's susceptibility to infections. The immune system is suppressed in hopes of slowing the production of autoantibodies, but as result, patients have reduced ability to fight infections. Lupus patients are very prone to respiratory and urinary tract infections and these infections last longer than in the general populous. Due to the use of immuno-suppressant and cytotoxic drugs, those with lupus experience longer and more frequent treatment with antibiotics. Those with lupus are at high risk of salmonella and yeast infections, which are aggravated by the use of antibiotics, and result, from a compromised intestinal tract.

For those who understand the value of colostrum for use with lupus, might be able to avoid some of the consequences of the traditional drug therapy. Thus gain long lasting relief from symptoms.

Colostrum is helpful for the lupus sufferer in many ways:

a) It contains numerous anti-inflammatory compounds.
b) It contains rejuvenating compounds that help restore the integrity of the intestinal tract.
c) It contains a compound known as PRP (proline-rich peptide),

which has been found to help balance the overactive immune response with autoimmune diseases.

d) It helps support healthy levels of serotonin, the feel good hormone, thus overcoming depression often common with chronic health issues.

e) It supports overall hormonal balance. Hormonal balance plays a particular role in the relief of lupus symptoms.

Many naturopathic physicians believe in treating the whole person. This involves the understanding of the emotional and even spiritual causes of disease. If the individual is willing to address these underlying causes, and undertake a program of change, which involves natural remedies and lifestyle changes, the response from the SLE sufferers is extremely good, with an 80% remission rate. Whole colostrum is the foundation of this program.
It has an extremely good track record with lupus.

Multiple Sclerosis

Multiple Sclerosis (MS) is a progressive autoimmune disease. It is a disorder in which the nerves of the eye, brain, and spinal cord lose patches of myelin. The term multiple sclerosis come from the multiple areas of scarring (sclerosis) that represent many patches of demyelination in the nervous system. The causes are unknown but a likely explanation is that a virus or some unknown antigen somehow triggers an autoimmune process, usually early in life. Recent research indicates that inherited genetic factors make individuals more susceptible to the disease.

Colostrum is an amazing resource of natural substances necessary to support the development and repair of cells and tissues, to assure the effective and efficient metabolism of nutrients and maintains a healthy immune system. Autoimmune diseases represent an immune system that attacks the body's own tissue, in this case the nerve sheath, and, therefore, is out of control. With ageing our immune system loses its ability to regulate itself efficiently, primarily because the thymus, a glandular structure in the upper chest that is considered the seat of the immune system, begins to shrink after puberty and almost disappears by the time we are fifty years old. It has been shown that the thymus can be restored to normal function by the growth factors in colostrum. In addition, colostrum contains specific hormones, namely thymosin subunits (alpha & beta) that regulate the functions of the thymus and other substances, like proline-rich peptide (PRP) that help to keep the immune system under control.

HOW TO TAKE *COLOSTRUM*

THE HEALING CRISIS

The many immune and growth factors in *colostrum* can bring about an incredible healing. But, by working with the body to fix problems that cause us to feel ill, *colostrum* is tries to undo years of damage to the body. In other words, the problem goes deeper than the symptoms.

Unfortunately, there is more to disease than pain control, which often only suppresses the symptom rather than correcting the health problem. Under the surface the problem still exists. These problems, compounded by years of poor diet, toxic accumulation and immune suppression won't simply go away overnight or after one dose.

Some of the people who begin taking *colostrum* experienced what is referred to as a healing crisis. As the immune and growth factors in *colostrum* begin to heal the various body systems, they do a massive Spring-cleaning, trying to rid the body of toxins. This elimination process is not always pleasant and the healing crisis may seem unbearable, but knowing that it is a necessary step on the way to complete health, makes it tolerable.

Symptoms of a healing crisis may include nausea, vomiting, diarrhea, chills, fever, headaches, muscle aches, itching and coughing and can last from 2 to 7 days. Most often, though, the discomfort is gone in 48 hours. These symptoms are signs that the *colostrum* is trying to eliminate the toxins in body tissues, left over from years of illness, stress, pollution, cigarette smoke, chemicals from food and a sedentary lifestyle.

We warn you of this so that you do not five up hope and do not discontinue the use of *colostrum* should you experience a healing crisis. You may feel you want to decrease your intake of *colostrum* for a couple of days, but some health care professionals actually recommend increasing your dosage of *colostrum* during the crisis to speed the detoxification. Really, a few days of discomfort are a small price to pay for the incredible health benefits.

HOW MUCH IS ENOUGH?

Here are some recommendations for getting started taking colostrum. Basically, you have only two options for beginning a *colostrum* regimen. You can either: "bite the bullet" and begin with full dosing, or you can more gradually build up to the recommended daily dose. If you are ready to dive right in, simply begin taking 3 - 4 capsules twice a day. Generally the capsules contain 500mg of *colostrum*, so you would start out taking 3000 – 4000mg per day. Understand that, if you gradually build up to the recommended daily dose, you may not see results as quickly as individuals who begin taking 3000 – 4000mg of *colostrum* per day, but it is even more important that you feel comfortable with the steps you are taking to improve your health. One simple way of gradually building to the recommended dosage is to begin by taking one capsule twice a day. Continue this way for the first week, and then add a capsule a day each day after that.

Whichever way you choose to start, you should eventually be taking 3000 – 4000mg of colostrum per day, which usually works out to be 6 – 8 capsules per day. For a majority of people, this dosage is very effective at maintaining good health under normal circumstances. At times of illness of stress, however we recommend that you increase your dosage by a capsule or two for a few days, and then return to the maintenance dosage. *Colostrum* is also a very effective treatment for children who are ill, but in this case, the dose is generally only one capsule a day. Generally, children's bodies naturally produce adequate amounts of immune growth factors into adolescence. As a result, children should not user *colostrum* continuously, but should reserve it for help in treating the occasional illness or in special

circumstances. Once the child is well again, the *colostrum* use should be discontinued. The amount of *colostrum* a child needs will vary depending on the illness as well as the individual's size. Sometimes as little as 250mg a day will be sufficient.

DAY AND NIGHT: WHEN AND HOW TO TAKE *COLOSTRUM*

A good rule when taking anything, be it aspirin, a vitamin supplement or a capsule of *colostrum*, is to always take it with a glass of water. Not only is water one of the best body cleansers around, but it also washes the capsule further down the digestive tract. This makes it less likely that the capsule will dissolve in the esophagus, which can cause a heartburn sensation, and more likely that the *colostrum* will travel down to the small intestines. This is where *colostrum* does its magic.

In order for *colostrum* to have the maximum beneficial effect, the small intestines need to be relatively free of food. Taking the supplement on an empty stomach will increase the amount of *colostrum's* key components that can interact with the intestinal lining. This interaction then allows many of the factors to be absorbed into the bloodstream to travel to the parts of the body where they can have the greatest effect. Food in the intestinal tract may compete with the *colostrum* for the available binding sites in the intestine. Taking colostrum on an empty stomach will yield the best results. However, if you have to, it is better to take *colostrum* with food than to miss any of your daily dosing.

It is also important to take *colostrum* in at least two doses each day. Two doses are often easiest to remember and the effects of one dose, no matter how big, may not last the entire day. Most people find that a morning and night schedule works best for taking *colostrum.* However, about 30% of people discover that if they take *colostrum* too late in the day, they may have trouble sleeping for several hours. This is because *colostrum* causes both an increase in energy and in brain function, sometimes making it hard to rest. If you do experience insomnia after taking *colostrum*, simply adjust so that you take your later dose of *colostrum* in the afternoon rather than at night.