Cancer will affect approximately one third of all people living in Western societies, so the search for effective medical treatments remains an ongoing and urgent priority. One aspect of this search is to understand how cancers develop. Several contributing factors which may lead to cancer have been identified, such as smoking for lung cancer and excessive sun exposure for skin cancer. Yet not everyone who is exposed to these factors develops cancer, so there must be other factors in play. We now believe that there are a series of steps that occur before a cell completely loses its ability to control its growth and becomes cancerous. These steps include both genetic and environmental factors and helps explain why most cancers are generally slow to develop and tend to appear later in life.

One of the contributing factors to the development of cancer seems to be exposure to certain viruses. It is estimated that 10-20% of all cancers are linked to viruses, though the exact mechanisms remain unclear. The first indication that viruses might be involved in cancer came in 1908 when two Danish researchers found that leukemia in chickens could be caused by a filterable agent, i.e., a virus\(^1\). This was followed in 1911 by a study done by Peyton Rous at the Rockefeller Institute in New York which demonstrated that a virus caused sarcoma in chickens\(^2\). Fifty years later, Rous received a Nobel Prize for his work, but these early studies were largely ignored.

As time went on, an increasing number of animal cancers were linked to viruses. This motivated researchers to identify similar viruses in humans. The first link of a virus to a human cancer was Epstein-Barr virus (EBV) to Burkitt’s lymphoma, a cancer endemic to certain areas of Africa, which is spread by mosquitoes\(^3\). Later, EBV was associated with other cancers, including Hodgkin’s lymphoma (approximately 40% of all cases\(^4\)), lymphoproliferative disease\(^5\), and nasopharyngeal carcinoma\(^6\). Also, of significance is that immunotherapy against EBV has shown promise in attacking associated Hodgkin’s lymphoma\(^7\) and nasopharyngeal carcinoma\(^8\). Other viruses associated with human cancers include HTLV-1 virus (adult T-cell leukemia/lymphoma)\(^9\), human papilloma virus (cervical and other cancers)\(^10\), Hepatitis B virus (liver cancer)\(^11\), Hepatitis C virus (liver cancer, lymphoma)\(^12\), and Kaposi’s sarcoma-associated herpes virus (Kaposi’s sarcoma\(^13\) and body cavity lymphoma\(^14\)).

Many of these viruses are able to incorporate their genetic material into the host DNA, which may be a contributing factor to the development of cancer later down the road. Viral infection is but one of many steps that results in cancer. Certainly, the incidence of viral infection is much higher than the incidence of the resultant cancer, which begs the question: is there a naturally-occurring counterbalance to the initiation and progression of cancer? And more importantly, a second question arises: what can be done to prevent viral cancers from developing?
The reality is that cancerous cells are present in the human body at any given time. As many as 10,000 cancerous cells arise every day. The immune system, in particular natural killer (NK) cells, normally eliminate these cells almost as quickly as they appear. As a specialized type of lymphocyte, natural killer cells have the ability to detect cells with abnormal or viral markers on their surface and subsequently destroy them. Thus, when a cancerous tumor develops, the real cause is a compromised or non-functioning immune system.

The immune system may become compromised, or less effective, for a variety of reasons. Foremost, living in the modern world constantly challenges an otherwise robust immune system. This includes environmental toxins, new or evolving pathogens, and the development of leaky gut syndrome (intestinal permeability) due to overuse of antibiotics, pain medications, some pharmaceuticals, GMO foods, and unhealthy lifestyle behaviors. The result is an over-stressed immune system which can no longer operate at a level necessary to destroy cancer cells. A state of chronic immune deficiency can leave individuals vulnerable to a variety of pathogenic infections and allow viral-induced cancers to take hold.

**Healing Intestinal Permeability & Modulating the Immune System**

The best way to prevent such cancers is to prevent them from arising in the first place, and the best way to do that is to maintain a healthy, optimally functioning immune system. This entails a two-pronged, albeit simultaneous, approach. Since greater than eighty-five percent of the population has leaky gut syndrome, it makes sense to treat the condition as if everyone has it, as there is no downside in doing so. Intestinal permeability must be healed in order to stop the crossover of viral gut-based pathogens (and other toxins, undigested food, etc.) into the bloodstream. Bovine colostrum is an excellent source of epidermal/epithelial growth factor (EGF) which helps to heal existing intestinal permeability. It takes about six weeks to heal leaky gut syndrome, assuming poor lifestyle behaviors (smoking, excessive alcohol consumption, etc.) are permanently avoided. After which, a continuous supply of EGF via daily colostrum supplementation will help prevent intestinal permeability from recurring and maintain overall gut health.

Modulating the immune system for optimal performance (the ability to destroy cancer cells) depends on the immune factors present in bovine colostrum. The primary immune factors include proline-rich polypeptides (PRPs) and lactoferrin. PRPs, also known as transfer factor, or colostrinin, are essential to balancing the immune system; they are classified into two major groups of short chain peptides – anti-microbial and anti-inflammatory. These powerful immune modulators help regulate the thymus gland and stimulate the production of either helper or suppressor T lymphocytes, depending on the need to either stimulate or suppress immune system activity. PRPs also induce the growth and differentiation of B lymphocytes and stimulate cytokine production. The anti-microbial PRP-2s stimulate the immune system to fight pathogens, and the anti-inflammatory PRP-3s quell the inflammatory processes once the infection is defeated. Because PRPs are not species specific, bovine colostrum is an excellent as well as abundant source of these highly beneficial immune factors.
Lactoferrin is an iron-binding protein critical to defeating pathogens in the body. First, it sequesters iron so that pathogenic gut bacteria are unable to colonize and second, it binds to and destroys bacteria, viruses, and fungi on contact. Although human colostrum contains the highest quantity of lactoferrin, bovine colostrum contains significant quantities which can be extracted for oral supplementation in humans. Studies examining bovine lactoferrin have demonstrated beneficial *in vitro* anti-cancer effects on breast, colon, and lung cells\textsuperscript{15,16}. It also blocks entry of the human papilloma virus (HPV) into target cells *in vitro*; HPV has been implicated in the development of cervical and other cancers\textsuperscript{17}. As researchers learn more about the benefits of lactoferrin, colostrum, and other specific milk-derived peptide fractions, the focus of cancer prevention and adjunct protection during chemotherapy will include this nature-made clinical nutrition\textsuperscript{18,19,20}.

In summary, keeping the immune system running efficiently is the single best way to prevent viral-caused cancers. In patients who have already developed cancer, new research suggests that fasting for as little as seventy-two hours can regenerate one’s entire immune system\textsuperscript{21}. Fasting "flips a regenerative switch" which prompts stem cells to create new white blood cells, essentially regenerating the patient’s immune system. Researchers also found this to be true in elderly people whose immune system becomes less effective with aging, thereby making them more susceptible to cancer. The 72-hour fast also protected cancer patients against the toxic effects of chemotherapy on the immune system.

The Center for Nutritional Research recommends patients begin supplementing with powdered bovine colostrum (Colostrum-LD™ from Sovereign Laboratories) following the initial 72-hour water fast\textsuperscript{*} to attain the immune-modulating effects as well as healing intestinal permeability. The rationale is that there should not be any additional IGF-1 (Insulin-like Growth Factor) on board until after the first 72 hours; Colostrum-LD™ contains verified quantities of IGF-1. The suggested dose is one tablespoon every 4 hours or as prescribed by one’s physician. Colostrum-LD™ is the only colostrum clinically proven to heal and prevent leaky gut syndrome; its liposomal coating ensures that colostrum’s healing components bypass stomach digestion and reach the cells, intact and bioavailable, where they are needed. Additionally, CNR recommends using an oral spray containing concentrated immune factors derived from bovine colostrum (i.e., IC-Immune Concentrate™ from Sovereign Laboratories) two to four times per day during the entire course of therapy. PRPs are best administered in the back of the throat for maximum absorption. Colostrum is not a one-time therapy, and its benefits go beyond the realm of fighting viral-caused cancers. It is a lifetime commitment and regular daily supplementation will help the body attain its best possible health and success in aging.

\textsuperscript{*}The 72-hour water fast is only advisable if it can be tolerated by the patient.

*These statements have not been evaluated by the Food and Drug Administration (FDA). These products are not intended to diagnose, treat, cure, or prevent disease.*


