

Repair

BPC 157

BPC 157, composed of 15 amino acids, is a partial sequence of body protection compound (BPC) that is discovered in and isolated from human gastric juice. Research has shown BPC-157 to have considerable biological healing properties. Experimentally it has been demonstrated to accelerate the healing of many different wounds, including tendons, muscles, nervous system and superior healing of damaged ligaments. This peptide can be very useful to athletes or just the average person who has daily aches, pains or injury. Overuse of our body can cause muscle, tendon and ligament issues that affect our everyday life. The addition of BPC-157 can help heal those everyday aches and pains.

Those who suffer from discomfort due to muscle sprains, tears and damage may benefit from treatment with this peptide. It can also help aid skin burns to heal at a faster rate and increase blood flow to damaged tissues.

Benefits of BPC 157:

- Accelerated wound healing (muscle, ligament, tendon, nerve)
- Anti-inflammatory
- Has been shown to decrease pain in damaged areas
- BPC 157 increases growth hormone receptors
- Promotes the outgrowth of tendon fibroblasts, cell survival under stress, and the migration of tendon fibroblasts
- Improves digestive function
- May improve blood pressure and NO production
- Protects and heals inflamed intestinal epithelium (leaky gut)
- It has also been shown to help in Inflammatory bowel disease
- Protects liver from toxic insults (alcohol, antibiotics, etc) and promotes healing

Advanced Benefits of BPC-157:

- In tendons, BPC-157 increases fibroblast growth via phosphorylation levels of both FAK and paxillin (dose dependently)
- In collagen repair, BPC-157 stimulates EGR-1 which induces cytokine and growth factor generation and early extracellular matrix (collagen) formation
- EGR-1 also increases its co-repressors such as nerve growth factor 1-A binding protein-2 (NAB2)
- BPC-157 can increase decrease B4 (LTB4), thromboxane B2 (TXB2), and myeloperoxidase (MPO) in the serum and inflamed tissues and increase macrophages activity

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Thymosin Beta 4

Thymosin is a hormone secreted from the thymus. Its primary function is to stimulate the production of T cells, which are an important part of the immune system. Thymosin also assists in the development of B cells to plasma cells to produce antibodies. The predominant form of thymosin, thymosin beta 4, is an actin, a cell building protein. One of the main mechanisms of action of Thymosin Beta-4 is its regulation of Actin. This cell-building protein is an essential component of cell structure and movement which leads to its role in tissue repair. T β 4 has been found to play an important role in protection, regeneration, and remodeling of injured or damaged tissues. After an injury, T β 4 is released by platelets and numerous other types of cells to protect the most damaged cells and tissues and to reduce inflammation and microbial growth.

Benefits of Thymosin beta 4:

- Calms muscle spasm
- Improved muscle tone
- Increased exchange of substances between cells
- Encourages tissue repair
- Stretches connective tissue
- Helps maintain flexibility
- Reduced inflammation of tissue in joints
- Encourages the growth of new blood cells in tissue
- Increased endurance and strength
- Prevents the formation of adhesions and fibrous bands in muscles, tendons, and ligaments

Recent studies have revealed that the first gene to be upregulated after an injury is a T β 4 gene. As the body begins the recovery process, T β 4 aids in the creation of new vessels in the injured area, which carry blood, nutrients, and reparative substances to the site. T β 4 also has anti-inflammatory properties and works to decrease the amount of inflammatory substances, called cytokines. Inflammation plays a large role in many of the symptoms associated with a number of other conditions (i.e., Lyme disease, CFS, FM, autoimmune diseases, infections, etc.), making the potential impact of T β 4 quite extensive.

The discovery of the role of T β 4 in the process of immune regulation has led to its use as a valuable therapeutic agent. T β 4 has been used in the treatment of HIV, AIDS, Influenza, colds, and various infections. It has been utilized in the management of various inflammatory conditions, as well as part of treatment following a heart attack due to its cardio and neuroprotective effects.

T β 4 is very well tolerated and has not been found to cause any significant side effects. It can be taken on its own or in conjunction with an existing therapy, making it a versatile and valuable peptide.

Pentosan Polysulfate

More than 27 million Americans are affected by osteoarthritis - a degenerative disease that is the most common form of arthritis. According to the National Institutes of Health, more than 50 million Americans suffer from some form of arthritis.

It is caused by a breakdown of cartilage – the tissue that covers the ends of bones where they form a joint. Healthy cartilage allows bones to glide over one another, and it absorbs energy from the shock of physical movement. In osteoarthritis, the surface layer of cartilage breaks down and wears away. This results in bones under the cartilage rubbing together – causing pain, swelling and stiffness. Bone spurs can develop, permanently changing the joint's shape. OA (osteoarthritis) is by far the most common form of arthritis and has a growing impact on health care. Even now, there is no therapeutic agent that works directly on OA.

Australian researcher and physician, Dr. Peter Ghosh from the University of Sydney has brought an old drug back into the light for arthritis sufferers. The drug is called pentosan polysulfate sodium (known in medical circles as PPS). To date, trials of the drug involving human patients have been proven highly successful. As PPS eliminates pain associated with arthritic disease by acting on bone marrow lesions that cause pain and cartilage degeneration. By controlling these lesions there is a reduction in symptoms and pain.

PPS is a very safe drug and has been successfully used for 70 years to treat urinary infections in women and is FDA-approved and used for the treatment of interstitial cystitis (or painful bladder syndrome) and deep vein thrombosis. The drug is neither an anabolic steroid nor an opioid-based pain reliever so is not considered to enhance performance.

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How does pentosan work?

In osteoarthritis, pentosan reduces the destruction of cartilage by affecting inflammatory mediators. It also increases the number of proteoglycans into the extracellular matrix. Proteoglycans are important because they allow tissues like collagen to withstand compression and swelling forces. Joint cartilage also contains Proteoglycans.

In the synovium, the part that surrounds the inner lining of your joint, pentosan increases both the production and the molecular weight of hyaluronan. Hyaluran or Hyaluronic acid is a compound that occurs naturally in your body, and it is responsible for attracting and retaining moisture. Pentosan also has another anti-inflammatory function due to its fibrinolytic activity. This activity improves the blood flow not only in the synovium but also in the subchondral bone.

Recently, Paradigm Pharmaceuticals an Australian biotech company doing studies on Pentosan had reported an average 51.2% reduction in chronic knee pain by a group of osteoarthritis patients being treated with its injectable Pentosan Polysulfate Sodium drug. Researchers hope that it may work as well in relieving pain in other parts of the body.

Benefits of Pentosan

- Treats bone marrow edema lesions (BMLs)
- Limiting cartilage deterioration;
- Promoting new cartilage formation;
- Thickening the joint fluid – thus acting as a better lubricant;
- Improving blood supply to the joint, in turn helping it heal;
- By virtue of these actions, it provides pain relief for a much longer period of time
- Treats all joints of the body at the same time

Side Effects of Pentosan

Common side effects of PPS include swelling, headache, dizziness, nausea, indigestion, malaise and diarrhea.

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IGF-1

The Insulin-like Growth Factor is one of the endocrine hormones that is produced in the liver. The release of this hormone increases in the presence of Human Growth Hormone. Numerous cells throughout the muscles of the human body are equipped with cell receptors that have a high affinity for Insulin-like Growth Factor. This makes this hormone one of the best growth hormones and a facilitator of general cell growth which it does by targeting different specific tissues and in more autocrine cell communication processes, it facilitates cell division.

Some Benefits of the Insulin-like Growth Factor 1 and some of the reasons why it has substantial advantages include:

- It facilitates protein synthesis in the body.
- It regulates the storage of fat and channels it to be used for the production of energy. This results in a noticeable fat loss.
- Promotes positive effects on metabolism; increasing lean body mass and decreases fat
- It increases the regenerative properties of the body's nerve tissues.
- Upregulates anti-oxidant benefit and ligament strength
- It boosts hyperplasia in muscle cells, which leads to fuller muscle tissues.
- Optimal IGF-1 and growth hormone levels are crucial to bone development during childhood and throughout adult life.

Why Should You Use IGF-1?

In simple terms, the weight gain that you will experience from the use of IGF-1 is not due to water weight. All your weight gain will be caused by actual muscle growth which is a long-term effect. Compared to steroids which are overly known for putting on water weight and often leading to adverse side effects, you will not get 10lbs from Insulin-like Growth Factors, but you will acquire solid muscle gain after every one or two weeks which will be composed of actual heavy muscle.

The most important feature of IGF-1 is its ability to cause hyperplasia in the human body. The body of a person who is on steroids goes through hypertrophy, this means that they will only be increasing the size of the existing cells in their muscles. On the other hand, IGF-1 leads to hyperplasia which purports the growth and development of new cells in the muscles. Generally, you will accomplish much more in terms of muscle density and size at a normal genetic level.

Variants of IGF-1

There are two groups of IGF variants. These are IGF-1 LR3 and DES IGF-1 (which can also be presented as IGF-1 DES). The half-life of IGF-1 is very short, and because of this, it is quickly destroyed by the body. This is the main reason why IGF-1 was modified to produce an amino acid analog IGF-1 LR3 which has a longer half-life. The other variant of IGF-1, DES IGF-1 is a truncated version of IGF-1 which is up to ten times more potent than IGF-1. Both of these IGF-1 variants are similar to IGF-1 but they have different modes of action. This feature allows them to function together in different and specific ways.

IGF-1 LR3

The half-life of IGF-1 LR3 is about 20 – 30 hours. It is more potent than the regular base IGF-1. Because it can be sustained in the body for more than a day, it efficiently binds to cell receptors in the muscle cells and activates cell communication which subsequently improves the growth rate of muscles all day long.

IGF-1 LR3 inhibits the movement of glucose into the body cells which facilitates fat burning and the use of fat in the body for the production of energy. Its long life of close to a day has made it a preferred variant by a majority of patients and physicians because site injections are never necessary. IGF-1 LR3 cycles the whole body and binds to the receptors on muscle cells then acts for about a day, so a daily administration of this dosage is strongly supported.

IGF-1 DES

DES IGF-1 is a shorter version of the base IGF-1 chain. This variant of IGF-1 is five times more potent than the regular base IGF-1. It has a half-life of about twenty to thirty minutes which indicates that it is a very delicate chain. The administration of DES IGF-1 should only be done exactly where you want to experience muscle growth. DES IGF-1 has a higher ability to stimulate hyperplasia in the muscles than IGF-1 LR3. In conclusion, this variant works best when used for site injections and not overall muscle growth.

In addition to these functions, DES IGF-1 is known to bind to receptors, in cells, that have been deformed by lactic acid. Lactic acid is produced in elevated amounts during training and vigorous activities. This characteristic of DES IGF-1 allows it to attach to mutated receptors which signal tissue growth even during training activities. DES can be used more frequently and for a longer time than IGF-1 LR3.

IGF-1 Vs HGH

When we check on facts, the growth hormone is actually a precursor to the IGF-1, but why choose IGF-1 over the Growth Hormones? Growth Hormones do not cause direct muscle growth but instead, they facilitate the growth of muscles by signaling the release of the IGF-1. Human Growth Hormone can prove to be very difficult to qualify for. In order to have it be prescribed to you by a physician, you have to be diagnosed with Adult Growth Hormone Deficiency Syndrome. You must take and fail a Growth Hormone Stimulation Test which then indicates that your body is not producing growth hormone in response to a stimulus. This makes IGF-1 and its variants a much more viable solution for an athlete, someone losing to drop body fat or even those looking to get back into shape.

Side Effects of IGF-1

It should be well noted that the continuous administration of IGF-1 in high doses has been confirmed to cause hypoglycemia, but in this case, it is not as severe as that caused by insulin. It is also stipulated but highly debated that IGF-1 can increase the size of a tumor in cancer patients. Even though this factor might be true in patients with existing cancer cases, everyone should be aware that IGF-1 does not cause cancer. In fact, the human body requires IGF-1 to regulate heart functions, brain cell stimulation and to improve the functioning of the nervous system.

People with low IGF-1 levels generally have a lower protein count and a smaller lean body mass. This can be very unhealthy. You should also know that whenever you have a headache, you don't need a whole bottle of painkillers. Equally, whenever you are on this medication, you should make sure that you administer it in the correct way so that you can avoid some ignorant mistakes and adverse side effects.

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