IMMORTAL VELVET

GOLD & SILVER

Extracted in Organic Grape Alcohol

CONCENTRATED GROWTH FACTORS

PRODUCT GUIDE

Distributed by: SURTHRIVAL • Springvale, ME 04083
Visit us online at www.surthrival.com
There has never been a supplement with the
STRENGTH GAINS OF HGH, the HEALING
POWERS OF A HYPERBARIC CHAMBER,
ENDURANCE GAINS OF EPO, the HORMONE
BALANCING OF HCG, the TOTAL SYSTEM
REGENERATION of a full matrix of GF(s), 100
MCG’S OF IGF-1 PER BOTTLE, all administered
with a BREAKTHROUGH PATENT PENDING
GLAND STIMULATING FORMULA.
An Introduction in to the Raw Material

This is very important because this is the primary ingredient (backbone) Surthrival’s Immortal Velvet Gold and Silver.

Velvet Deer Antler Extract is one of the worlds oldest Raw Super Foods. It has been used and documented in eastern medicine for over 2 thousand years. It is considered a raw food because first of all it is a raw food, but one that is considered by many as the most nutrient dense in the planet. Clipping the top tips of a certain type of deer’s antler creates this raw food. The deer antlers are actually the only mammalian organs that regenerate. It is along the same concept of cutting a lizards tail off. This organ grows 1 inch a day and contains all essential and non essential amino acids, hundreds of poly peptide combinations and a natural balanced matrix of growth factors with their co factor/co enzymes which prevent any imbalances and stem cells. One of the main components in Velvet Deer Antler is IGF-1. IGF-1 is essentially the end result of HGH. There has been a wealth of negative attention brought on to this polypeptide. The actual negative side effects only come from the synthetically derived versions of IGF-1 isolates (Only the IGF-1 molecule) and HGH. Immortal Velvet Gold and Silver is an all-natural version of these polypeptides IGF-1 and HGH, there fore it will not harm you or cause any negative side effects experienced with synthetics. Also what ever your body is not using or absorbing it will excrete just as it you would with whey protein. Immortal Velvet Gold and Silver is the only 43:1 extract Velvet Deer Antler that that is standardized 100/45 mcg a bottle of IGF-1. This means that it takes 43 lbs down to make 1 lb of our extract. Avinotropin contains only antler tips because they contain the highest concentration of growth factors and other beneficial constituents. We then extract it into 100% organic grape alcohol. The reason for this is so it strengthens the product, acts as an all-natural preservative and helps to stimulate the glands under tongue responsible for absorbing sublingual tinctures. When taking this product you will hold it under your tongue so it may directly pass into the blood stream. Its important to take polypeptides under your tongue and the reason is that polypeptides like IGF-1 breakdown in your digestive tract and become just free form amino acids. Immortal Velvet is also bottled and delivered in all an all Miron glass environment, this prevents the poly peptides from binding to things like plastic containers, if this formula was bottled in a plastic container with in a year it would not contain a single growth factor in it. The Miron glass is also light sensitive, which is used to enhance the Bioactivity and life span of the living antler tips. The reason it is standardized is so we can deliver the same exact amount of growth factors per bottle every time. Since the level on constituents varies with each batch of antler, it is vital to have each batch tested for levels of constituents. Immortal Velvet Gold and Silver marker levels are the IGF-1 molecules.
Since 1930 almost 250 papers have been published on the manufacture, composition and biochemical effect of velvet deer antler extract. Much of this research covers the same ground and the results have consistently shown benefits in a host of areas. Some of these benefits being improved muscle tone, improved fat burning, improved recuperation, improved glandular functions, and increases in lung capacity, increases in hemoglobin, reduced inflammation especially in bones and joints and arthritis, reduced blood pressure and LDL (bad) cholesterol and sharpen mental alertness. Also if getting drug tested for steroids there is no need to worry when taking this product, as explained earlier this is just a very nutrient dense food that has been concentrated to an unprecedented level, processed in it purist form and delivered and package all in the mind set to not compromise the integrity of the formula.

PLEASE NOTE: The information contained in this research manual is for general information purposes only. The information is provided by BioProtein Technology and while we endeavour to keep the information up to date and correct, we make no representations or warranties of any kind, express or implied, about the completeness, accuracy, reliability, suitability or availability with respect to this research manual or the information, products, services, or related graphics contained in the manual for any purpose. Any reliance you place on such information is therefore strictly at your own risk.
Table of Contents

Velvet Antler Constituent Study ................................................................. 1

Antler Anatomy ...................................................................................................... 8

20 Most Valuable Amino Acids ............................................................................ 9
(Antler Tips VS Base Concentration Comparison Chart)

The Delivery System .......................................................................................... 10

General Research and Findings .......................................................................... 15

Further Recent References ................................................................................. 28

Active Ingredient Glossary ................................................................................. 34
Velvet Antler Constituent Study Summary

Deer Velvet is **NOT JUST** isolated IGF-1. It is a highly complex substance that is made of approximately **50% Protein, 35% Ash, 12% Calcium, 8% Nitrogen and 6% Phosphorus.**

**Growth Factors**
- Bone morphogenetic proteins (BMPs)
- Epidermal growth factor (EGF)
- Erythropoietin (EPO)
- Fibroblast growth factor (FGF)
- Platelet-derived growth factor (PDGF)
- Transforming growth factor alpha (TGF-A)
- Interleukins
- Insulin-like growth factor (IGF) I
- Insulin-like growth factor (IGF) II
- Nerve growth factor (NGF) and other neurotrophins
- Transforming growth factor beta (TGF-B)
- Vascular endothelial growth factor
- Growth differentiation factor-9 (GDF9)

**Amino Acids (Essential & Non-Essential)**
- Alanine
- Asparagine
- Aspartic acid
- Arginine
- Cysteine
- Glutamine
- Glycine
- Glutamic acid
- Histidine
- Isoleucine
- Lysine
- Leucine
- Phenylalanine
- Methionine
- Serine
- Proline
- Tryptophan
- Threonine
- Tyrosine
- Valine

**Free Form Amino Acids**
- Beta-Amino Acid
- Amino Acid De-carboxlase
- Di-hydroxyl Phenylalanine (DOPA)
- Gamma-amino Butyric Acid (GABA)
- Aspartic Acid
- Amino-N-butyric Acid
- Amino Adipic Acid
- B(beta)-Alanine
- B-amino-iso-butyric Acid
- Carnitine
- Citrulline
- y-Amino Butyric Acid
- Sarcosine
- Hydroxylysine
- 1-Methylhistidine
- 3-Methylhistidine
- Ornithine
- Phosphoethanolamine
- Phosphoserine
- Taurine
Hormones
• Androstendione
• Dehydroepiandrosterone
• Progesterone
• Luteinizing Hormone
• Estone
• Estradiol

Vitamins
• Vitamin A Retinol and various Retonic Receptors

Minerals
• Calcium
• Copper
• Iron
• Maganese
• Phosphorus
• Potassium
• Sulphur
• Zinc
• Selenium

[ Velvet Antler Constituent Study Summary ]

[ Extra Cellular Matrix Components ]

Protein
- Collagen
  - type I
  - type II
  - type III
  - type IV
  - type VI
  - type X
- Elastin

Glycoconjugates
- Structural Glycoprotein
  - Fibronectin
  - Laminin
  - Undulin
  - Nidogen
  - Tenascin
  - Vitronectin
  - Osteonectin

Glycosaminoglycan
- Proteoglycan
  - Core
    - Aggreican
    - Biglycan
    - Decorin
    - Fibromodulin
    - Lumican
    - Perlecan
    - Syndecan
    - Versican

  - Chondroitin 4-
  - Chondroitin 6-
  - Dermatan
  - Keratan
  - Heparan
Glycosaminoglycans
- Chondroitin sulfate
- Hyluronic acid
- Dermatan sulfate
- Keratan sulfate
- GAG proteoglycan decorin
- PGE2
- 15epi PGE
- PGE1
- PGF1a
- PGF1b

Mono/Poly Saccharides
- Arabinose
- Deoxyribose
- Fructose
- Galactose
- Glucose
- Mannose
- Ribose
- Xylose

Mono Unsaturated & Poly Unsaturated Fatty Acids
- Palmitoleic acid
- Oleic acid
- Linoleic acid
- Linolenic acid
- Gadoleic
- Arachidonic acid
- DHA

Saturated Fatty Acids
- C14:0 Myristic acid
- C16:0 hexadecanoic acid
- C18:0 stearic acid

Phospholipids & Spingolipids
- Lecithin
- Cephalin
- Lysophosphatidyl choline
- Phosphatidyl inositol
- Sphingomyelin
- Lysocephalin
- Lysolecithins
- Ceramide
The active ingredients found in velvet antler include minerals and trace mineral elements; growth hormones and growth factors; protein, collagen and lipids; and glycosaminoglycans.

Minerals and Trace Elements

- **Calcium (Ca):** provides structure for bones teeth, and is essential for nerve impulse conduction, muscle contraction and blood clotting

- **Copper (Cu):** necessary for red blood cell development, bones and nerves

- **Iron (Fe):** essential for blood cells transporting oxygen throughout the body.

- **Manganese (Mn):** needed for development of bones and connective tissue and for normal functioning of the nervous system.

- **Magnesium (Mg):** needed in metabolic reactions and storing and releasing energy in cells.

- **Phosphorus (P):** provide structure for bones and teeth and is a component of nearly all metabolic reactions.

- **Potassium (K):** needed for nerve and muscle function.

- **Selenium (Se):** powerful antioxidant

- **Sulfur (S):** is a component of various amino acids and insulin

- **Zinc (Zn):** part of the enzymes involved in digestion and respiration, and is necessary for normal wound healing and skin health
Growth Hormones and Growth Factors

- **Growth Hormones** affect growth and maintenance of bones, promoting protein and fat metabolism, stimulating cartilage growth and strengthening and lengthen bones especially in children.

- **Growth factors or somatomedins** are small proteins produced naturally in the human body by the liver through the stimulation of growth hormones. It has been theorized that most of the growth effect of growth hormone are directly attributed to its effect of stimulating the production of IGF-1, rather than direct effects of growth hormone itself.

- **IGF-1** or insulin like growth factor- IGF-1 or somatomedin C is the most important of the four growth factors in the human body. See IGF-1 section for an in depth look at this master growth factor. (IGF-2 works synergistically with IGF-1 to produced many of the same benefits) (Good for Every Thing)

- **Epidermal growth factor or EGF**- EGF has growth promoting actions on the skin. It is thought that at least some effects of normal aging, wrinkling and loss of elasticity in the skin are due to lack of GH secretion and thus the reduced production of EGF. (Vital for skin disorders and Health)

- **Bone Morphogenetic Proteins**- is a group of growth factors and cytokine, which are primarily responsible for inducing the formation of bone and cartilage. (Vital for any bone or joint issue)

- **Transforming Growth Factors A & B**- these growth factors promote normal wound healing and anti-inflammatory response. Without these growth factors wound healing would be nearly impossible. They are vita for normal tissue development to occur whether in wound healing or regeneration. (Diabetics lack these growth factors, that is why they have wound healing issues)

- **Vascular Endothelial Growth Factor**-Promote venous, venule, artery, arteriole and capillary health by providing the essential cofactors for repairing and restoring damaged vessels. (Vital for cardiac functions)

- **Nerve Growth Factor**- stimulates the growth of sympathetic and sensory nerve cells and required for neural repair. It also affects peripheral nervous system and promotes healthy development and regeneration of neurons. (Vital for Alzheimer’s, Parkinson’s, Dementia and other Neurological disorders)
• **Neurotrophin Growth Factor**: This growth factor regulates growth, development and survival of neurons in peripheral and central nervous system. It works synergistically with nerve growth factor to promote neurite and nerve survival and development. (Neurological disorders, mood and nerve damage)

• **Fibroblast Growth Factor**: this growth factor is affect the central and peripheral nervous systems, and regenerate the pituitary gland. It also induces formation of new blood vessels and is used in skin grafts. It also synthesis what is know as the extracellular matrix. (See extra cellular matrix section)

• **Interleukins**: responsible for the production of white blood cells, lymphocytes and cytokines. Produces killer T and B cells, and initiates inflammatory response and immune functions. (Vital for cancers, and other immune disorders)

• **Luteinizing Hormone**: is a growth hormone that is responsible for health stimulation and regulation of testosterone and other sex hormones in both men and women. It has a gonadotrophin effect which mean it regulate health levels of sex hormones. (Vital for Menopause, PMS, Andropause, and weight loss) like HCG

• **Pro hormones and sterols**: a type of chemical that is involved in sending chemical messages in the body. Lower cholesterol (LDL/bad), raise (HDL/good) and improve cellular communication.

**Protein, Collagen and Lipids**

• **Protein** (including all essential amino acids): are the structural materials in cells and aid in growth and repair of all tissues. Proteins behind only water are the second most abundant build block in the human body.

• **Collagen**: a major structural component of bones, tendons, ligaments and cartilage. This also reduces the immune attack on joints. Help with skin elasticity and skin anti aging. Also stimulates T cell and interleukin production and has been shown to reduce swelling and pain in joints cause by RA. (Double blind study, Trentham et al. 1993) This same study also showed major improvement in auto immune diseases such and MS.

• **Lipids (all essential fatty acids including omega 3 and 6)**: build cell parts and boost energy for cellular activities. Sphingomyelin and phospholipids help to regenerate nerves and nervous system tissues. (Any Neurological disorder)
- **Glycosaminoglycans (GAGs)**: one of the most powerful anti-inflammatory agent known to regenerate and repair cartilage, clinically proven to be more powerful than the anti-inflammatory drug DEX or dexamethasone. Stimulate immune response against viral, bacterial and fungal infections. Also inhibits the cell division in malignant or benign tumors. (This is one of the most abundant substances in velvet antler and is extremely bioactive)

- **Hyaluronic acid**: are the cement material of connective tissue and a component of synovial fluid that cushions joints. When applied topically has been proven to instantly remove or reduce the appearance of wrinkles for almost 24 hours

- **Chondroitin Sulfate**: extremely potent anti-inflammatory agent. Clinically proven to reduce blood clots, improve blood circulation, decrease the risk of strokes, improve cardiovascular health and act as an anti cancer agent for a wide variety of cancers, and works synergistically with chemotherapy and other cancer medications

- **Glucosamine sulfate**: an amino acid sugar that occurs naturally in the body. Its glue like qualities help to hold tissues together. It is also a major component of synovial fluid, which lubricates and serves as a shock absorber for the joints. Also potent anti-inflammatory and wound healing agent.

- **Erythropoietin**: a hormone produced in kidneys and released into the bloodstream in response to low oxygen levels, thus helping to increase oxygen-carrying capacity of the blood.

- **Hematopoietic** - is the formation of blood cellular components. All cellular blood components are derived from hematopoietic stem cells. They reside in bone marrow. (Antler is a bone once hardened) Velvet antler has been clinically studied and proven to have immunocytochemical reactions indicating that the studied cell populations contain stem cells.

- **Prostaglandins**: Chemical massagers produced in virtually all tissues, causing a broad range of positive effects on many of the body's defense systems. Some of the physiological effects include vaso-derpession, smooth muscle contraction or relaxation (smooth muscle found in heart, and blood vessel). Also reduces swelling associated with arthritis and injuries. Functions on lipid metabolism, as seen in it ability to lower cholesterol and reduce blood clotting (Church, 1999)

- **Phospholipids**: effective structural materials I cell membranes. They help to facilitate the passage of fat in and out of cells and blood.

- **Glycosphingolipids**: involved in cell metabolism and growth.

- **Gangliosides** – fatty acid and sugar combination that helps to regenerate nervous system tissue especially in the brain and the endocrine system.
Velvet antler is the only mammalian organ that completely regenerates, growing at a rate of almost 2 cm daily. No deer are harmed in the process and are fed organically while living in a free range farm facility. The process of removing the antler is stress-free for the animals and is only performed once a year by licensed and trained veterinarians. The reason we use only the upper tips of the antlers is because clinical research has shown, without question, that this portion of the antler contains the greatest concentration of growth factors and amino acids. Immortal Velvet Gold and Silver prides itself in using the finest raw material to produce the highest concentration of beneficial qualities in order to ensure that this extract stands head and shoulders above the competition.
These 20 amino acids are the most vital amino acids, which are the building blocks for proteins. In addition to these 20 basic amino acids, IGF-1 alone contains 79 amino acids. These Amino acids regulate brain, muscle, organ, and endocrine related functions.

* Free amino acid levels comparison in sections of Elk Velvet Antlers.
* Values given are the means (n=4) in nmol/g.

NOTE: Antler tips have an 800% higher concentration of amino acids.

<table>
<thead>
<tr>
<th>{AMINO ACID}</th>
<th>{DEER ANTLER}</th>
</tr>
</thead>
<tbody>
<tr>
<td>BASE</td>
<td>TIPS (43:1)</td>
</tr>
<tr>
<td>ALA - Alanine</td>
<td>12,566</td>
</tr>
<tr>
<td>ARG - Arginine</td>
<td>2,000</td>
</tr>
<tr>
<td>ASN - Asparagine</td>
<td>387</td>
</tr>
<tr>
<td>CYS - Cysteine</td>
<td>134</td>
</tr>
<tr>
<td>GLU - Glutamic Acid</td>
<td>6,144</td>
</tr>
<tr>
<td>HIS - Histidine</td>
<td>12,566</td>
</tr>
<tr>
<td>ILE - Isoleucine</td>
<td>1,408</td>
</tr>
<tr>
<td>LEU - Leucine</td>
<td>5,703</td>
</tr>
<tr>
<td>LYS - Lysine</td>
<td>3,499</td>
</tr>
<tr>
<td>MET - Methionine</td>
<td>1,021</td>
</tr>
<tr>
<td>PHE - Phenylalanine</td>
<td>2,000</td>
</tr>
<tr>
<td>PRO - Proline</td>
<td>4,553</td>
</tr>
<tr>
<td>SER - Serine</td>
<td>2,747</td>
</tr>
<tr>
<td>THR - Threonine</td>
<td>2,972</td>
</tr>
<tr>
<td>TRP - Tryptophan</td>
<td>962</td>
</tr>
<tr>
<td>TYR - Tyrosine</td>
<td>1,258</td>
</tr>
<tr>
<td>VAL - Valine</td>
<td>4,698</td>
</tr>
<tr>
<td>ORN - Orthinine</td>
<td>962</td>
</tr>
<tr>
<td>TAU - Taurine</td>
<td>11,110</td>
</tr>
<tr>
<td>GLY - Glycine</td>
<td>9,939</td>
</tr>
</tbody>
</table>

TOTAL FREE-FORM AMINO ACIDS: 86,629 693,137
The Delivery System

Immortal Velvet Silver and Gold’s complete growth factor matrix is delivered via a one-of-a-kind two step process specially designed for maximum absorption. Step one is the advanced Organic Grape Alcohol Transport Buccal Mucosa Delivery System. This step is a designed reverse suspension delivery system that allows the mucosa glands to become stimulated for enhanced absorption under the tongue. The complete growth factor matrix is absorbed five to ten times more effectively via the mucosa glands over merely swallowing the supplement. Step two is standard ingestion. Ingesting the remaining formula from under the tongue allows the body to absorb all remaining amino acids and polypeptides that did not bypass the receptor glands.

HOW TO ADMINISTER THE FORMULA:

>>> Hold the liquid formula under your tongue for 90 seconds. Then swish the formula around your mouth for an additional 30 seconds for further absorption. Then you may swallow the remnants of the formula for the final stage of absorption.
Why Sublingual Delivery is so Important

Just as people are constantly searching for new products and approaches for increasing their performance and overall health, natural supplement companies are researching new ways to increase the bio-effectiveness of their products. In addition to creating new formulas, a major area of focus is making sure that the delivery of the ingredients is maximally effective, in that they are delivered into the body unaltered, at a high rate of absorption.

One of the most exciting and innovative areas of research in boosting bioavailability for certain nutritional ingredients has been pioneered by the drug industry, and is the development and utilization of Transmucosal or sub lingual delivery systems designed for dissolution and absorption of ingredients through the mucosal tissue of the mouth.

The oral mucosa (lining of the mouth) is permeable to a certain degree and has the ability to absorb some ingredients. Plus, this ability can be greatly enhanced through bioengineering molecules and encasing them in specialized micro-sized delivery systems like organic grape alcohol.

So what does this mean?

It means having the potential to make all natural compounds and proteins 10 to 20 times more potent. It means allowing for the administration of exciting and new all natural protein compounds that can only be administered transmucosally and it also means better results and absorption.

Transmucosal Delivery: For the purposes of this article transmucosal delivery encompasses the administration of a substance using a liquid alcohol based tincture that is held in the mouth, usually under the tongue. Liquid tinctures for transmucosal delivery in the mouth are specially designed to rapidly dissolve in the mouth and release the ingredients for absorption through the mucosal membrane lining the mouth. The primary areas of the mouth where the mucosal membrane has the ability to absorb substances is the area under the tongue (also referred to as sublingual) and the area inside the cheeks (referred to as buccal). The use of the term transmucosal includes delivery of a substance to all of these oral mucosal membranes.
Overview Of Peroral And Transmucosal

Nutrition and other dietary supplement products are usually designed for traditional oral (peroral) route delivery, such as conventional tablets, capsules, liquid gel caps, softgels, and other solid dosage forms. You swallow a tablet, which enters into the digestive system, it gets absorbed (or maybe not) into the body via the bloodstream or lymph system, passes through the liver where alterations may occur, then whatever amount of the bioactive that survived metabolic destruction goes on to the body via the bloodstream to perform its function.

This conventional peroral dosing can sometimes have disadvantages for certain compounds that are subject to a high level of degradation in the gastrointestinal tract and once absorbed into the bloodstream can be subjected to further degradation from first from metabolism in the liver. Another factor that can reduce delivery of ingredients into the body is poor intestinal absorption. This poor absorption of ingredients causes them to simply pass through the intestinal tract, ending up being excreted from the body. Collectively these obstructive processes may reduce the ultimate bioactivity of certain ingredients.

This Poor Absorption Of Ingredients Causes Them To Simply Pass Through The Intestinal Tract, Ending Up Being Excreted From The Body.
We like to believe that theoretically the bioactive constituents of a nutrition product starts out with 100% bioavailability potential, meaning that if it was 100% absorbed into the bloodstream, and was not subject to any degradation along the way to its destination within the body tissues, there could be 100% bioactivity inside the body.

However, 100% bioactivity for all substances is rarely achievable through the peroral dosage delivery route of administration, and for certain compounds the actual effective bioactivity score can be reduced to only 10% or lower. This may mean that 100 milligrams of active constituent in the tablet may only deliver 10 milligrams of usable ingredients into the body.

With ingredients that are subject to high rates of degradation and/or low intestinal absorption, transmucosal routes of delivery may offer major advantages over peroral route delivery. For these sensitive compounds, the transmucosal route of delivery avoids gastrointestinal tract and first pass liver metabolism alteration and destruction of the bioactive substance. Destruction that can take place includes molecular cleavage, functional group alterations, and even compounding with other molecules.

Why We Use Only Organic Grape Alcohol

Grape sugars are unique, and because of their unique actions, grape alcohol does a superior job of extracting medicinal plant constituents. In addition, organic grape alcohol is hypo-allergenic and guaranteed 100% free of genetic modification.” - Gail Edwards, Herbalist

Top 10 reasons to use organic products:

1. Protect future generations. The food, medical and beverage choices we make now will impact our children's health in the future.

2. Prevent soil erosion. Soil is the foundation of the food chain in organic farming. In conventional farming, however, the soil is used more as a medium for holding plants up so that they can be chemically fertilized. As a result, American farms are suffering from the worst soil erosion in history.

3. Protect water quality. Water makes up two-thirds of our body mass and covers three-fourths of the planet. Despite its importance, the Environmental Protection Agency (EPA), estimates pesticides contaminate the groundwater in most states, polluting the primary source of drinking water for than more than half the country's population.

4. Save energy. Modern, industrial farming uses more petroleum than any other single industry. More energy is now used to produce synthetic fertilizers than to till, cultivate and harvest all the crops in the US. Organic farming, on the other hand, saves energy by not depending on synthetic fertilizers and by having its produce travel fewer miles from farm to table.
5. **Keep Chemicals off your plate.** Pesticides are poisons designed to kill living organisms many of whom are important in organic farming. Pesticides are also harmful to humans. In addition to cancer, pesticides are implicated in birth defects, nerve damage and genetic mutation.

6. **Protect farm worker health.** A National Cancer Institute study found that farmers exposed to herbicides has a six times greater risk than non-farmers of contracting cancer. An estimated 1 million people are poisoned annually worldwide by pesticides.

7. **Help small farmers.** More than 650,000 family farms have been lost in the past decade. Organic farming is proving to be one of the few survival tactics left for small family farms.

8. **Support a true economy.** Although organic foods might seem more expensive than conventional foods, conventional food prices do not reflect hidden costs borne by taxpayers, including nearly $80 billion in federal subsidies. Other hidden costs include pesticide regulation and testing, hazardous waste disposal and clean-up, and environmental damage.

9. **Promote biodiversity.** Mono-cropping has left the soil lacking in natural minerals and nutrients. To replace the nutrients, chemical fertilizers are used, often in increasing amounts. Such single crops are also much more susceptible to pests, making farmers more reliant on pesticides.

10. **Need one more...**

### Why is Immortal Velvet Silver and Gold only contained in miron glass bottles?

Growth factor molecules bind to plastic (plastic bottles, droppers and/or spray nozzles) **and not glass**; therefore rendering the product useless over a short period of time.

Miron violet glass blocks the complete spectrum of visible light with the exception of the violet part. At the same time it allows a certain part to be permeable for radiation in the spectral range of UV-A, and infra red light. This unique combination offers optimal protection against the ageing processes that are released by visible light, thus lengthening durability and potency of products.

Sunlight enables all plants to grow. If they continue to be exposed to the sun after reaching maturity, the effect of the light changes and accelerates the molecular decaying process. Miron violet glass works like a natural filter that only lets the sunlight that protects and improves the quality of premium and sensitive substances.
General Research and Findings

Immune System

The human body has its own internal healing and protection mechanism called the immune system. This body system fights of invaders caused by disease, stress, poor diet, meager living habits, and drugs. Some common signs of a weakened immune system are fatigue, listlessness, continuous infections, and slow healing. Having and maintaining your immune system is essential to good health. Your immune system is like an internal army that fights of invaders.

Studies on velvet antler were highly potent in increasing white blood cell counts in humans. This is of course good because white blood cells are the immune system first line of defense when your body is under attack. They also found that velvet antler had potent affect and activity against P388 or leukemia cells.


Velvet Antler contains Stem Cells and Bone Marrow

Studies have concluded that velvet antler exhibits immunocytochemical and morphological traits of typical stem cells. The study found that the tips of velvet antler contain adult somatic stem cells. The study went on to confirm the tip of velvet antler to have a morphological similarity. The immortality of the cultured cells studied, absence of differentiating traits that would be linked to morphology of the cells and positive results of immunocytochemical reactions indicates the studied cell populations of velvet antler to contain stem cells.

Department of Histology and Embryology, Wroclaw Medical University, Wroclaw, Poland. Dec 22, 2005

Velvet Antler and Testosterone and Injury Recovery

In a study conducted in 1998 with the Edmonton, Canadian police department found anabolic and androgenic effect in the supplementation of velvet antler. Velvet antler was shown to significantly increase testosterone levels in blood plasma. The 9-week study also supported the hypothesis the velvet antler increase muscle mass and strength through anabolic effects. Because of the effects serve to increase muscle and nerve strength, they tend to support that this can assist in the recovery from injury and surgery. This is due to the increase in glycolosis and which is vital for the process in the maintenance of health nerve tissue.

(Church 1999) (Fisher, et al. 1998)
Energy and Stamina

For athletes who are strength training find it vital for them to supplement amino acid supplement into their daily diet, no matter how good there diet may be. Velvet antler has an excellent amino acid composition and mineral content. It contains 20 essential and non-essential amino acids.


Two studies by Russian scientist have also shown positive effects of velvet antler for athletic training. The first was to show the anabolic agent in velvet antler and to see how the effected performance and muscular strength. The studies showed that kayakers, weightlifters, bodybuilders and power lifters all increased in both muscular and nerve strength. (proprecieption is increased nerve function this is vital for increasing gains and functions)


Another study done in Russia with the scientist with the Russian Bodybuilding Federation is to resist unfavorable external influences and accelerate the restorative processes (quicker recovery) of the body after intensive activity.

Church, J. (1999, Winter). Testosterone and Velvet Antler. Canadian Elk and Deer Farmer. 6 (1), 41-42

The tip sections of velvet antler have also been observed to stimulate wound healing. (Church 1999). The erythropoietin, increased red blood cell production, his is vital for anemia, stamina and muscle recovery. (Church 1999)

Rheumatoid Arthritis, Osteoarthritis, and Osteoporosis

Rheumatoid Arthritis is a disorder, resulting in chronic inflammation of the joints, tissue around the joints, and other organs in the body. The exact cause of the disorder is not known but it is attributed to:

- Immune system not working properly
- Genetic make up from family health history/ genes
- An unexplained immune system response to a virus, bacteria, or microplasma
- The body’s response to environmental factors

As the disease progresses, cartilage, joints, ligaments and tendons begin to breakdown, causing loss of joint function.

Osteoarthritis is a degenerative joint disease and is the actual breakdown of cartilage the covers the end of bones. It is hereditary and effect 3x more women then men, especially those in there 60s. Some other causes can be from a:

- Bone injury
- Defect in the proteins that make up cartilage
- Wearing and tearing from aging.
Osteoporosis is the most prevalent bone disorder in the world. It is a disease that is characterized by the thinning of bones, causing increased risk of cracking or breaking. New cells are constantly replacing every cell in the human body. When this is interrupted in the bones, bone synthesis and re-absorption is altered, thus leading to osteoporosis. Reason why this occurs:

- Estrogen deficiencies and hormonal disorders
- Normal bone loss accompanying aging
- Diet and malnutrition (chronic deficiency of calcium, protein, vitamin C)
- Congenital or Hereditary diseases

Currently today there is no known cure for rheumatoid arthritis, but treatment focuses on 4 main objectives:

- Reducing inflammation and pain
- Preserving the joint function
- Preventing deformity
- Optimizing function health and well being

**Why velvet antler is the remedy or alternative medicine for this.**

Many of the nutrients found in velvet antler are important for RA, Osteoarthritis and osteoporosis. Glucosamine, Chondroitin sulfate, essential fatty acids, calcium, phosphorus, magnesium, copper, zinc, selenium, growth hormones and growth factors are all vital for the growth and maintenance of joints, tissues and synovial fluids. In addition compliance has been met with the U.S. Food and Drug Administration (FDA) to allow a claim to be made about velvet antler products. The claim is substantiated by scientific evidence, states that velvet antler provides nutritional support for joint structure and function.

In velvet antler it has been clinically proven to contain GAG,s and omega 3 & 6 fatty acids, which have been shown to contribute to health of joints and decrease inflammation. Velvet antler also contains a fatty acid prostaglandin, which has a profound anti-inflammatory effect on the body and joints. In 2001 at the University of Alberta in Canada, human clinical trials were conducted on the use of velvet antler in controlling symptoms in persons with RA. They were able to prove that there were no counter interactions with RA medications.

IGF-1 also helps with the absorption of glucosamine and Chondroitin sulfate. University of Alberta has also discovered that velvet antler has a potent growth promoting effect. A study was conducted to velvet antler and in particular GAGRA or glycosaminoglycans. Velvet antler was fed to growing mice, and bone development was stimulated. At the completion of the study there was an increase in length, thickness and mineral content of the upper leg bone, (which is their largest bone)

Anti Aging Effect of Velvet Antler

As we age a number of change continually occur in the body that are part of the normal aging process. Skin, ligaments and tendons begin to loose elasticity. Even larger arteries lose elasticity causing increased blood pressure; decreased heart rate and decreased blood flow through the heart. (This is very bad) The body may also become less able to adapt to environmental changes, such as the weather and seasons. The immune system weakens with age, leaving the body less able to heal and repair itself. Some people experience neurological issues like memory loss and decreased cognitive ability. As one grows older, a decrease in the body's ability to digest food properly often leads to nutritional deficiencies and diseases related to those deficiencies. The growth factors, growth hormones, and other constituents of velvet antler can combat all these issues.

The one master growth factor that is found in velvet antler is IGF-1. A study conducted at Oxford University in England led researchers to claim that the IGF-1 in velvet antler has medicinal value for humans. IGF-1 was shown to promote muscular development, prevent muscular atrophy (breakdown), and slow deteriorating effects of aging.


Digestive and Gastric Acid and Velvet Antler

Work has been completed in Russia, measuring the therapeutic effects of alcohol extract of velvet antler and its aptagenic effects on persons suffering from gastric and duodenal ulcers. The aptagenic effect means that it stimulates or activates anti stress mechanisms. Also the polysaccharides in velvet antler may play a role in anti ulcer effects. (Wang et al. 1985) Velvet antler extract administered before gastrointestinal surgery aided in recovery. (Kim and Lim, 1977) Velvet antler extracts also protected the liver from carbon tetrachloride toxicity (Church 1999)

Velvet Antler and Anti Cancer Effects

Research has shown that velvet antler improved cell growth and demonstrated antitumor and antiviral properties. Researcher at Kyung Hee University and the Korean Food and Drug Administration examined the use of velvet antler as a complement to anti cancer drugs. The study revealed that the mice that received the extract suffered considerably less weight loss and regained weight much more quickly. Survival time improved on the mice that were given velvet antler seven days prior to cancer treatments on tumors. The groups treated with velvet antler also recorded lower levels of kidney damage than the control group.


Another study on this same topic was done in New Zealand at Invermay research in Otago, New Zealand conducted by Dr Peter Fennessy and Dr James Suttie. The Intervermay scientist found that velvet antler improve cell growth and also have an anti cancer anti viral and anti inflammatory properties.
Diabetes and Velvet Antler

Research performed on rats showed oral administration of velvet antler reduces blood glucose levels in diabetic rats. The study also showed velvet antler normalizes metabolic processes of gangliosides in the brain. Gangliosides are important fatty substances found in the brain and other nervous system tissues. Gangliosides metabolism is altered in people with diabetes, having adverse effects that can lead to several human genetic diseases.


Cholesterol and Velvet Antler

Studies conducted in Korea evaluated the effects of velvet antler on blood cholesterol levels in rats. It was discovered that cholesterol levels were significantly reduced in the rats supplemented with a diet of velvet antler.


Blood Pressure and Velvet Antler

In a Japanese study in which 8 out of 10 patients resulted in significant reductions in arterial blood pressure. The systolic reading was lowered by the amount of 20 to 70 points in arterial blood pressure and the diastolic was lowered by as much as 10 to 20 mmHg, showing an 80% success rate amongst participants. Another study showed and average of 20-23mmHg. (Fisher et al. 1998) The researcher concluded that velvet antler acted directly on blood vessels and on the parasympathetic nervous system due to cholinergic effects. (Fisher et al. 1998) A later study found and average blood pressure fall of 20mgHg. (Church, 1999.) Most of the researchers agree the hypotensive effects are due to choline compounds found in velvet antler.

Velvet Antler and Sexual Functions

In traditional Chinese medicine velvet antler has been used to treat impotence in men, infertility in women and to prevent miscarriage in early pregnancy (used for all female reproductive issues) In the Journal of Chinese Medicine there is a study recorded which analyzed the therapeutic effect of velvet antler to treat sexual dysfunction. Results showed an increase in sperm count and sperm mobility.


Numerous studies have also been conducted in North America demonstrating that velvet antler increases testosterone levels in men and estrogen levels in women. It should be clarified that these studies are not saying velvet antler contains these hormones, but that velvet antler contains nutrients that are necessary
in the production, utilization, and absorption of testosterone and estrogen in the body.


Testosterone is a very important hormone as it is involved in making protein, manufacturing bone, and improving oxygen uptake throughout the body. Women also produce testosterone, but far less then men. Zit helps control blood sugar, cholesterol and maintains the immune system. Testosterone also helps mental concentration and mood, and is thought to help protect the brain from Alzheimer’s disease.

Women produce estrogen. Estrogen is responsible for maturation and maintenance of the whole reproductive system. It also helps build strong bones, maintains healthy cholesterol levels, and serves as an antioxidant. Estrogen may be given to women to help prevent, miscarriage and treat ovarian disease. Following menopause, some women may take estrogen to prevent brittle bone (osteoporosis) and relieve some of the discomforts of menopause.

**RNA and Velvet Antler**

Velvet antler protective affects on organs stems from it ability to stimulate protein synthesis. Researchers note that the activity of RNA polymerase II is accelerated in the liver when treated with velvet antler. When mice were treated with velvet antler there was a significant increase in serum protein, nuclear RNA synthesis in the liver and RNA polymerase activity in the liver. In the study serum protein increase 49% above control values, RNA synthesis increased 35% and RNA polymerase increased 84% RNA is one of the two main types of nucleic acid (the other being DNA), which functions in cellular protein synthesis in all living cells and replaces DNA as the carrier of genetic information

**Velvet Antler and Endocrine System Glands.**

Studies have also shown velvet antler ability to prevent and reduce shock and stress responses. Lab test have shown velvet antler to prevent stress-stimulated hypertrophy of the adrenal gland and the involution of the thymus.(Yundin and Dubryakov,1974)

**Side Effects of Velvet Antler**

There is overwhelmingly strong support that velvet antler is a natural dietary whole food supplement that does not produce drug related side effects. Other evidence supports the synergistic effects of velvet antler and prescription medications and the absence of side effect when taken in conjunction with these medications. The University of Alberta conducted a study to look further into ill side effects of velvet antler with RA medications and found no adverse side effects. Another 90-day study was conducted showed no toxic effect on the body. The results showed that at 25 times the dosage rate of 1000 mg, related in no toxic effects. University of Alberta also looked at velvet antler at cellular levels with viruses,
bacteria and animal cells, showed no evidence of cytotoxicity, even at mega doses. Three studies showed that using the dosage rate of 5 grams per kg of body weight of animals showed no toxicity.


And with over 2500 years of documented use there has never been a documented case or any evidence of negative effects from velvet antler use or ling term velvet antler use. As for children the only recorded use have documented in China and Korea, these where to help sick children with immune disorders and improve growth.

IGF-1

For athlete today there is a tremendous amount of focus in their training to get bigger, stronger and faster, by any means necessary. Unfortunately there is a abundance of anabolic agents that do this, but also have ill side effects. If your aging and losing strength and our youthful appearance then you may be encouraged to take growth hormone injections. However if we look at the common ground of these growth hormone injections, steroids and other anabolic agents when come to what is called a biochemical bottle neck, the funnel, through which all these substance must pass in their effect on muscle tissue, endocrine, exocrine glands and even DNA more often referred to as the blueprint of life. The funnel is IGF-1. IGF-1 or somatamedin C is far safer and 10x more effective then growth hormone itself. In fact the majority of strength increasing, muscle increasing and anti aging effects of growth hormone are because of it ability to raise IGF-1 levels in the body. HGH has a very short half-life in the body of only 20 minute versus IGF-1 That has a half-life of 20 hours, and must be administered by injection sublingually. I absorbed by various tissues and in the liver is converted into IGF-1. Growth hormone breakdown in the digestive track by bile acids and is not absorbed for that reason in the intestines. IGF-1 is also critical in preserving the nuclear DNA that is our blueprint for life and is what determines our max life span.

HGH is one of the endocrine hormone that decline as we age (such as testosterone, melatonin, estrogen, and DHEA) Not only does HGH and IGF-1 prevent biological aging the also reverse a broad range of symptoms associated with aging and even certain diseases of aging. HGH is the primary hormone of the pituitary gland and significantly decreases as we age especially after 40s. As HGH is pulsedated from the pituitary gland at mainly at night, it is quickly converted into IGF-1 in the liver, this is the metabolite form or your body's ready to use version of this hormone. The decline in HGH is directly associated with certain aging signs like wrinkling skin, graying of the hair, decreased energy and sexual function, increased body fat, heart disease, weak and brittle bones. All of these issues can be retarded and reversed with IGF-1.

IGF-1 Versus HGH - Muscle Mass

In a study scientist gave muscle tissue IGF-1 alone and HGH alone. The muscle tissue was given IGF-1 on its own increased in size, where as the HGH alone had no effect on muscle size. The reason is that HGH must be converting to IGF-1 before it able to be metabolized by the body. So how does IGF-1 do this?
IGF-1 builds muscle by:

- IGF-1 has been shown to increase the transport of the building blocks of proteins called amino acid into cells throughout the body. These amino acids, having reached the muscle cells, will regenerate muscle tissue following exercise. Thus, the first job of IGF-1 is to assure proper absorption of the building blocks of the muscle itself so that muscle protein synthesis can occur.
- IGF-1 is like insulin in that it increases the uptake of blood sugar known as glucose; the University of East Carolina has reconfirmed this. Doctors established that IGF-1 stimulates glucose transport in human muscle tissue.
- IGF-1 along with insulin has the ability to slow the rate of protein breakdown. This is known as catabolism inhibition. Therefore its anti catabolic
- IGF-1 like HGH but unlike insulin, shifts fuel utilization from carbohydrates to ft within the muscle cells themselves. Thus your body will burn fat including fat made from carbohydrates in your diet and other dietary fats.
- IGF helps establish lean muscle mass without a corresponding rise in fat tissue.

IGF-1 also has other powerful positive influences on the human metabolism:

- Improved white blood cell production
- Restores the immune-promoting lymphoid tissue
- Stimulates proliferation of both the B and T lymphocytes (kill viruses)
- Increases the uptake and degradation of dangerous LDL cholesterol by macrophages
- Improves nitrogen retention (muscle preservation) and increases sodium excretion
- Improves parathyroid function vitamin D interaction to produce dense bone matrix
- Reduces the urinary hydroxyl proline excretion

Some of the characteristics of someone with IGF-1 deficiency:

- Reduced skeletal muscle strength and size
- Reduced exercise performance
- Increased body fat percentage
- Increased abdominal and visceral fat
- Elevated LDL
- Decreased HDL cholesterol
- Insulin resistance, which can lead to type II diabetes
- Reduced thyroid function
- Thin skin
- Lack of connective tissue
- Decreased hair and nail growth reduced sweating reduced heart output
• Emotional instability
• Poor memory
• Depression
• Reduced sex drive and functions

How can a body builder benefit from all natural IGF-1?

• An increase in the proliferation and growth of muscle cells
• An increase uptake of amino acids into the muscle cells
• An increase in the uptake of blood sugar (glucose) into muscle cells
• Improved utilization of fat for energy with a decrease utilization of carbohydrates
• Reduces of catabolism (muscle break down) post training and workouts

According to studies at the International Anti-Aging System in London, England, they have found that IGF-1 alone has an anabolic effect, which is the contradictory to HGH administered alone, which had no effect. Phil Micans of this institute has purported that IGF-1 is 10x more potent than growth hormone alone as an anabolic agent. It is important to take IGF sublingually because only a small portion of it is ingested as it goes through the GI tract. The studies came to a conclusion that 2500 nano grams a dose is a therapeutic amount to maintain IGF-1 levels.

IGF-1 and Anti Aging Benefits

Research has shown IGF to increase lean muscle mass, reduce body fat, build bones and bone density, muscle and nerves. By taking it directly you bypass the pituitary gland that may be burnt out from the aging process. As mention some research has shown that IGF-1 is 10x more potent than HGH in terms of it direct effects. Keith Kelly Ph.D. showed that IGF-1 reversed the shrinking of the thymus, this is one of the most important immune modulation organs in the body. These benefits show exciting benefits for those looking to halt and reverse the aging process.

IGF-1 and Blood Sugar Utilization

IGF-1 has similar properties to insulin in that it improves blood sugar profiles in type II diabetics. HGH can actually y cause insulin resistance and cause the conditions to get worse. On the other hand IGF-1 actually normalizes insulin resistant individuals. Studies were conducted on 3 groups with insulin resistance and wasting disease. What researchers Nelly Mauras and Bernard Beaufrere of Nemours Children's Clinic in Jacksonville Florida found was that the patients in these condition treated with IGF-1 prevent muscle loss, improved outcome from surgery and normalized blood sugar levels even when it was administered with pharmaceuticals know to cause insulin resistance in patients.

IGF-1 and Nerve Regeneration

Another use for IGF-1 is the repair of nerve damage that occurs in injury or illness. When a nerve is
damaged in an extremity the connection to the muscle tissue is dramatically impaired. As a result there is an increase loss of movement and the muscle begin to deteriorate and atrophy. Some times this damage can be permanent. IGF-1 has been shown to repair and reconnect severed nerve ending up to a distance of 6 mm. In studies nerve cells have been placed in test tubes. IGF-1 has been shown to have a remarkable growth effect on spinal cord motor neuron. It increases neuron activity in the spinal culture by 150 to 270%. In addition to this it has also been shown to significantly decrease he preprogrammed cell death in embryos. In other studies it has been shown to have a direct stimulating effect in nerve axons of spinal cord motor neurons to regenerate. It also increased intramuscular nerve sprouting 10 fold in lab mice. According to Swedish scientist at the institute of Neuro Biology at University of Gotenborg, IGF-1 by itself or in a combination with other growth factors can stimulate nerve regeneration.

This is tremendous for people with ALS or amyotrophic lateral sclerosis. This disease causes loss of cortical motor neurons and result in complete paralysis and death. It is also useful for in much other disease that affects the peripheral nerves. Keep in mind that only velvet antler has high level of natural IGF-1, neurotrophin (the nerve growth factor), and fibroblast growth factors.

**IGF-1 and Heart Issues**

IGF-1 has been studied in patients with congestive heart failure. In random double blind study it was shown to improve heart function in cardiac functions. In the study IGF-1 was associated with a 27% rise in the cardiac index had 21% boost in stroke volume index. In layman terms the heart improved in strength and with each beat pumped more blood. This was also accompanied by a reduction in systemic vascular resistance and a 25% decline in pulmonary artery pressure. There was also a 33% drop in right arterial pressure, all compared to the placebo.

(Randomized double blind study conducted by Dr Donath at the University Hospital of Zurich.)

**IGF-1 and Fibromyalgia**

Patient with fibromyalgia have been shown to be one of the largest populations whom are growth hormone and IGF-1 deficient. When observing fibromyalgia patients they were observed to all share issue including muscle weakness, reduced exercise capacity, and chronic fatigue syndrome. The study found that 40% of fibromyalgia patients had low IGF-1 levels compared to normally health adults in their age and gender group. The study then looked at 50 of these fibromyalgia patients with low IGF-1 levels and found that over 82% of them lacked the ability to properly secrete growth hormone. Fibromyalgia is the number 2 reason for Dr visits to rheumatologists, second to only rheumatoid arthritis. Since IGF-1 is the end result or metabolite of growth hormone, and can also improve muscular endurance/strength and improve immune response at the same time, it could be considered to be and ideal natural alternative medicine for these patients.
IGF-1 and MS Patients

Studies and experiments have shown and demonstrated that IGF-1 can stimulate the protective covering around nerves known as the myelin sheath. In degenerative disease like MS Multiple sclerosis and ALS or Lou Gehrig’s disease, damage around the sheath stops signals from being transmitted between the brain and nerves.

IGF-1 has been found to re-grow these sheaths according to scientist at the University of Michigan. IGF-1 and other growth factors have been shown to re-grow the protective sheath and preventing neuronal cell being according to the chief researchers at Michigan. (Hsin-Lin Cheng). It was discovered that IGF-1 was the most effective of the growth factors in inducing the growth of the myelin sheath and neuron cell. These researchers also found that IGF-1 also helped the nerves remain normal and re-grow even when diabetic conditions were present.

IGF-1 and Fat Loss

One of the major issues with losing weight and calorie restriction is a significant loss in muscle mass that is directly attributed to it. Lean muscle mass has been directly proven to stimulate increased metabolism and fat loss. Also improving preserving lean muscle mass when fat loss is experienced, would improve the health of the patient during weight loss procedures. Patients who were given growth hormone in studies have been shown to lose 12% of their body fat every six months. The reason is that HGH increases the fat burning mechanism that is IGF-1. IGF-1 not only preserves lean muscle mass it increase lean muscle mass. IGF-1 also improves fat burning mechanisms by reducing cortisol levels, which is a stress hormone that increase mid section fat. (Study conducted at Yale University). IGF-1 also improves and regulates hormonal levels, which can be effected by calorie-restricted diets. IGF-1 is the answer to weight loss without reducing your caloric intake.

Studies have shown that pituitary gland as we age contains the same amount of growth hormone as younger individuals. However the ability to release growth hormone is somehow blocked, as we get older. A block happens in the feedback loop between the release of IGF-1 in the liver and the hypothalamus in the brain. Ordinarily reduced levels of IGF-1 tells the brain to direct the pituitary gland to make more growth hormone, but this feed back loop breakdown as with age. This is the very reason why supplementing IGF-1 has no negative feedback loops associated with it. Since the mechanism for stimulating IGF-1 is diminished in the aging person.

IGF-1 and Immune Responses, Immune ResponEse and IGF-1

There is an interesting relationship between IGF-1 and the immune system. The activity between all major immune cell types such as T-cells and B -cells, natural killer cells and macrophages have been shown to be altered with increased IGF-1 levels. Increased IGF-1 levels have been shown to be involved in the
production of lymphocytes, and in turn these can actually produce more IGF-1. Thus not only is the liver capable of producing IGF-1. This provides basis line for cellular communication between the immune system and nuero-endocrine system.

**IGF-1, DNA and Longevity**

IGF-1 has the potential to increase the life span. Dr William Sonntag at the Bowman Gray School of Medicine at Wake Forrest University has examined animals in response to HGH and IGF-1 secretion. As the normalizing process occurs, the amount of IGF-1 decreases as well as protein synthesis. Enzymes are proteins and are necessary to carry out all of the work of cells and tissues. Without proteins cells die or metabolism slows down and become inefficient.

Looking at the blueprint of life DNA. Researchers have determined that the telomere, a very small piece of the tail end of every chromosome in the nucleus of almost every cell is culprit of cell division. It is the telomeres that tell the cells when to divide and when to stop dividing. As the telomere shortens progressively with each cell division, it reaches a point where it no longer can allow cell division to occur. When cells stop dividing we age and die.

The blueprint of life that determines our age is DNA. One of the top anti aging researchers in the country. Vincent Giampapa, M.D. and director of clinical research at the Longevity Institute International in Montclair, New Jersey has studied this issue in great depth. He feels that natural sources of IGF-1 is the next best thing “ in acting like a genie and turn old cells into new ones” IGF-1 can help keep cells healthy, produce new health cells and keep them in a healthy state for as long as possible. How does it do this? The answer lies with in DNA. The cells ability to function relies on the genetic material of DNA. This resides in the nucleus of the cell that codes for all proteins, hormones and enzymes that make the cell run. DNA that is consistently damaged by oxygen radicals and other factors such UV light. DNA has the ability to repair itself but this is dramatically reduced with the aging process. We know certain antioxidants can reduce the damage to DNA, but none have been shown to be as effective as IGF-1 in doing so.

European researcher has shown IGF-1 do what antioxidants can't. IGF-1 initiates the transportation of nucleic acids into the nucleus of the cell where DNA resides. It gives the raw material needed to repair damage to the DNA and initiate cell division. Therefore IGF-1 repairs the blueprint of life and helps retard the aging process. When DNA is repaired it can better resist carcinogens and protect us from cancer.

**Does IGF-1 promote prostate cancer?**

In the International Journal of Antiaging Medicine Dr L. Cass of the Medical College of Milwaukee Wisconsin, published research on IGF-1 levels and them not being associated with PSA levels prostate specific antigen. A study of 749 men indicated that prostate cancer incidence increase as men increase
in age, where as blood level of IGF-1 decrease significantly with age at about 14% per decade after age 30. The study also found that in over 3000 patients that no increase in prostate cancer or any other malignancy was found in long-term treatment. They also found that iGF-1 may reduce PSA readings that are greater than 4. Dr Ronald Klatz president of the American Academy of Anti Aging Medicine reported that in 800 patients treated there were no reported cases of cancer among all 800. You would think with 800 people over the age of 40, would have even a normal incidence of cancer among them. It was theorized from this that increased IGF-1 levels have a protective and stimulating effect on the immune system. Further studies have shown that alternative therapies to treating prostate cancer by direct supplementation of endocrine hormones have actually significantly reduced PSA levels above 50 to normal range of 0 to 4. This is attributed to the natural production killer immune cells that were able to destroy the cancer cells.

**MAO Inhibitor/Depression and Velvet Antler**

Velvet antler has been shown to inhibit monoaminoxidase activity. This is due to the fact that it increases availability and decreases the breakdown of neurotransmitters in the brain resulting in enhanced mood and an anti aging effect. The neurotransmitters found in velvet antler include serotonin, dopamine and nor-epinephrine. These can be instrumental in improving restful sleep, memory, mood, and sustained energy.

**Velvet antler with it unique properties may have application to the following disorders:**

- Obesity
- Type I and type II diabetes
- Osteoporosis
- Osteoarthritis
- Rheumatoid arthritis
- Immune deficiencies, increasing white blood cell, and killer cells
- Peripheral neuropathy
- Acute and chronic renal failure
- Congestive heart failure
- Growth disorders and dwarfism
- Protein wasting catabolic states associated with chronic illness
- Multiple sclerosis
- Alzheimer’s
- Parkinson’s
- ALS
- Depression and bi-polar syndrome
- Demyelinting Diseases
Further Recent References

Exploring the mechanisms regulating regeneration of deer antlers.

Deer antlers are the only mammalian appendages capable of repeated rounds of regeneration; every year they are shed and regrow from a blastema into large branched structures of cartilage and bone that are used for fighting and display. Longitudinal growth is by a process of modified endochondral ossification and in some species this can exceed 2 cm per day, representing the fastest rate of organ growth in the animal kingdom. However, despite their value as a unique model of mammalian regeneration the underlying mechanisms remain poorly understood. We review what is currently known about the local and systemic regulation of antler regeneration and some of the many unsolved questions of antler physiology are discussed.
Molecules that we have identified as having potentially important local roles in antlers include parathyroid hormone-related peptide and retinoic acid (RA). Both are present in the blastema and in the rapidly growing antler where they regulate the differentiation of chondrocytes, osteoblasts and osteoclasts in vitro. Recent studies have shown that blockade of RA signalling can alter cellular differentiation in the blastema in vivo. The trigger that regulates the expression of these local signals is likely to be changing levels of sex steroids because the process of antler regeneration is linked to the reproductive cycle. The natural assumption has been that the most important hormone is testosterone, however, at a cellular level oestrogen may be a more significant regulator. Our data suggest that exogenous oestrogen acts as a ‘brake’, inhibiting the proliferation of progenitor cells in the antler tip while stimulating their differentiation, thus inhibiting continued growth. Deciphering the mechanism(s) by which sex steroids regulate cell-cycle progression and cellular differentiation in antlers may help to address why regeneration is limited in other mammalian tissues.

Price, J; Allen, S
London, UK: Royal Society.

**Expression of PTHrP and the PTH/PTHrP receptor in growing red deer antler.**
Antler growth is highly co-ordinated, so that trabecular bone and antler skin (velvet) develop together, at a rapid rate and in a manner reminiscent of their development in the fetus. Parathyroid hormone-related peptide (PTHrP) is expressed in both bone and skin, and is therefore a candidate to effect co-ordination between these tissues. The aim of this study was to localize the expression of PTHrP and its principal receptor, the parathyroid hormone/parathyroid hormone-related peptide receptor (PTH/PTHrPR), in antler (“spiker”) of one-year-old red deer. Using immunohistochemistry and in situ hybridization, intense and overlapping expression of PTHrP and its receptor was seen in developing osseocartilaginous structures and in the underlying layers of velvet epidermis. PTHrP was located on both the cell surface and within the nuclei. Our results strongly suggest that PTHrP, acting via the PTH/PTHrPR and possibly other intracrine mechanisms, plays a central role in the co-ordinated regulation of cell division and differentiation of developing antler bone and skin.

Barling, PM; Liu-Hong; Matich, J; Mount, J; Lai KaWai [Lai, K W A]; Ma Li; Nicholson, L F B

**Velvet antler polypeptides promoted proliferation of chondrocytes and osteoblast precursors and fracture healing.**
AIM: To study the effects of velvet antler (VA) total polypeptides (VATP) and VA polypeptides, VAP-A, VAP-B, and VAP-C on proliferation of chondrocytes and osteoblast precursors. METHODS: Chondrocytes (rabbit and human fetus) and osteoblast precursors (chick embryo) were incubated in the culture medium
containing VATP or VAP-A, VAP-B, and VAP-C. [3H]TdR incorporation into DNA was measured. Fracture healing-promoting action of VATP was determined in rats. RESULTS: VATP 50-200 mg.L-1 and VAP-B 12.5, 25, and 50 mg.L-1 showed most marked proliferation-promoting activity for rabbit costed chondrocytes and increased incorporation of [3H]TdR from (73 +/- 9) Bq (control group) to (272 +/- 55), (327 +/- 38), and (415 +/- 32) Bq, respectively (P < 0.01). The activity of VAP-A was weaker than that of VAP-B, and VAP-C had no activity. VATP 10 and 20 mg.kg-1 by local injection into the cross-section fracture area accelerated healing of radial fracture. The healing rate of VATP-treated group was higher (75%) than that of control group (25%) (P < 0.05).

CONCLUSION: VATP accelerated fracture healing by stimulating proliferation of chondrocytes and osteoblast precursors.


Comparative analysis of contents of amino acid, total phospholipid, calcium and phosphorus in sika deer velvet bone slices with blood and without blood. In this study, the amino acid, total phospholipid, Ca and P contents of bones from sika deer (Cervus nippon) were determined. Total amino acid(44.47%), total phospholipid (1.048%), Ca (6.625%) and P (6.661%) contents of the bone slices with blood were not different from those (42.67, 1.027, 7.394 and 7.347, respectively) without blood (P > 0.05).

Wang YanMei; Chu LiWei; Wang YanHong; Wang ShuLi; Wang YM; Chu LW; Wang YH; Wang SL Journal of Economic Animal. 2003, 7: 2, 21-23; 8 ref.

Concentrations of insulin-like growth factor-I in adult male white-tailed deer (Odocoileus virginianus): associations with serum testosterone, morphometrics and age during and after the breeding season. Our understanding of insulin-like growth factor-I (IGF-I) in cervids has been limited mostly to its effects on antler development in red deer (Cervus elaphus), roe deer (Capreolus capreolus), fallow deer (Dama dama), and pudu (Pudu puda). Although IGF-I has been found to play a critical role in reproductive function of other mammals, its role in reproduction of deer is unknown.

The objectives of the present study were to determine if serum levels of IGF-I change during the breeding season, assess whether age influences serum IGF-I, compare levels of IGF-I measured during and following the breeding season, and determine if IGF-I is associated with body and antler characteristics in free-ranging adult, male white-tailed deer (Odocoileus virginianus). We collected serum and morphometric data from hunter-harvested and captured white-tailed deer to investigate these objectives. Mean level of serum IGF-I during the breeding season was 63.6 ng/ml and was greatest in deer between 2.5 and 5.5
Levels of serum IGF-I decreased by approximately 40% as the breeding season progressed, but levels were less in deer following the breeding season (34.6 ng/ml). Both body and antler size were associated positively with IGF-I when controlling for age. Serum testosterone was also associated positively with IGF-I. Levels of serum testosterone during the breeding season generally increased with age from 4.82 (1.5 years old) to 18.79 ng/dl (5.5 years old), but decreased thereafter. These data suggest that IGF-I may be an important hormone in breeding, male white-tailed deer.

Ditchkoff SS; Spicer LJ; Masters RE; Lochmiller RL

Effects of insulin-like growth factor 1 and testosterone on the proliferation of antlerogenic cells in vitro.
The aim of this study was to use cell culture techniques to investigate how testosterone and IGF1 affects the proliferation of antlerogenic cells from the four ossification stages of pedicle/antler in vitro. The results showed that in serum-free medium IGF1 stimulated the proliferation of antlerogenic cells from all four ossification stages (intramembraneous (IMO), transitional (OPC), pedicle endochondral (pECO) and antler endochondral (aECO)) in a dose-dependent manner. In contrast, testosterone alone did not show any mitogenic effects on these antlerogenic cells. However, in the presence of IGF1, testosterone increased proliferation of the antlerogenic cells from the IMO and the OPC stages (pedicle tissue), and reduced proliferation of the antlerogenic cells from transformation point (TP) and aECO stages (antler tissue). Therefore, the results from the present in vitro study support the in vivo findings that androgen hormones stimulate pedicle formation but inhibit antler growth. The change in the mitogenic effects of testosterone on antlerogenic cells from positive to negative occurs approximately at the change in ossification type from OPC to pECO. Therefore, these results reinforce the hypothesis that the transformation from a pedicle to an antler takes place at the time when the ossification type changes from OPC to pECO rather than at the time when the pedicle grows to its full species-specific height.

Li ChunYi; Littlejohn RP; Suttie JM; Li CY

Modification of concanavalin A-dependent proliferation by phosphatidylcholines isolated from deer antler, Cervus elaphus.
Kim KiHwan; Lee EuiJung; Kim Kilhyoun; Han SoYeop; Jhon GilJa; Kim KH; Lee EJ; Kim K; Han SY; Jhon GJ
Lysophosphatidylcholine derived from deer antler extract suppresses hyphal transition in Candida albicans through MAP kinase pathway.

Min Juyoung; Lee YounJin; Kim YoungAh; Park HyunSook; Han SoYeop; Jhon GilJa; Choi Wonja; Min J; Lee YJ; Kim YA; Park HS; Han SY; Jhon GJ; Choi W Biochimica et Biophysica Acta, Molecular and Cell Biology of Lipids. 2001, 1531: 1-2, 77-89; 35 ref.

Cells in regenerating deer antler cartilage provide a microenvironment that supports osteoclast differentiation.


Effect of water-soluble extract from antler of wapiti (Cervus elaphus) on the growth of fibroblasts.


Glycosaminoglycans from growing antlers of wapiti (Cervus elaphus).


The Effects of Deer Velvet Antler Supplementation on Body Composition, Strength, and Aerobic & Anaerobic Performance!

In the present study, we investigated the physiological and potential performance enhancing effects of New Zealand Deer Antler Velvet (NZDAV) supplementation in men.

Thirty-two males between the ages of 18 and 35 with at least 4 years of weight lifting experience were randomly assigned using a double-blinded procedure into either a placebo or NZDAV treatment group. Placebo group members received sugar pills and the NZDAV group received 1500 mg NZDAV once in the morning and immediately prior to bed-time. Random assignment was done in matched pairs (1 placebo; 1 NZDAV). Prior to and immediately following the 10-week supplementation use, each subject participated in a series of measurements. These procedures included the measurement of maximal aerobic capacity (ÝV O2max), maximal power output on a cycle ergometer, a determination of maximal strength (1-RM) for the bench-press and squat, a comprehensive blood chemistry profile, body composition analyses (DEXA), and a 3-day dietary
recall. Of the original 32 subjects recruited for this study, 56% of the subjects completed all aspects of the study properly which was evenly divided between the two treatment groups leaving the placebo group n = 9 and NZDAV group n = 9 subjects. At the start of the study, there were no significant differences between the groups in their respective body composition profile variables. In the NZDAV group, DEXA % body fat (p = 0.04), DEXA Fat Wt (p = 0.07), and Trunk-to-limb Fat Wt ratio (p = 0.02) either significantly declined or neared significance. According to the results for the placebo group, only the 1-RM values for this group’s absolute bench (Pre: 123.2 ± 24.0 kg; Post: 128.3 ± 27.5 kg, 4.1% ; p = 0.04) and squat (Pre: 150.5 ± 28.2 kg; Post: 156.6 ± 30.4 kg, 4.1%; p = 0.04) 1-RM improved after the intervention period. When normalized for kilogram of total body weight, the placebo group did not show any significant differences for the 1-RM measurement in both the bench and squat. In contrast, the NZDAV showed a significant improvement in the 1-RM values in absolute terms and relative to total body weight. In absolute terms, the 1-RM for the bench press increased 4.2% (Pre: 120.0 ± 23.6 kg; Post: 125.0 ± 25.7 kg; p = 0.02) while the squat 1-RM improved 9.9% (Pre: 159.3 ± 42.7 kg; Post: 175.0 ± 43.5 kg; p = 0.002) in NZDAV group. In contrast to the placebo group, when 1-RM values were expressed relative to total body weight, the bench press and squat also significantly improved 4.0% and 10.1%, respectively (p = 0.02) in the NZDAV. One of the most interesting findings of this study was the fact that there was also a significant improvement in aerobic capacity in the NZDAV treatment group. In liters • min-1, Ŷ V O2max increased significantly by 9.8% from the pre- to post treatment period (4.30 ± 0.45 to 4.72 ± 0.60 liter • min-1; p = 0.002). When expressed relative to total body weight in kilograms, Ŷ V O2max remained significantly elevated 9.4% (46.5 ± 8.1 to 50.0 ± 8.9 ml • kg-1 • min-1) following the training-supplement intervention. This study’s results suggest that NZDAV may have positive effects on body composition and strength/power in resistance training men!

C.E. Broeder (Benedictine University), R. Percival & T. Wills (East Tennessee State University), J. Quindry (University of Florida), L. Panton (Florida State University), K.D. Browder (University of Idaho), C. Earnest (The Cooper Institute), A. Almada (Imagine Nutrition & MetaResponse Sciences), S.R. Haines & J. M. Suttie (AgResearch - Mosgiel, New Zealand)
Additional Ingredient Glossary

Active ingredients found in Velvet Antler include: minerals and trace elements; growth hormones and growth factors; protein, collagen, and lipids; and glycosaminoglycans. Glycosaminoglycans help form cartilage proteoglycans, which regulate water retention and cell differentiation. They also help proliferate chondrocytes in cartilaginous tissue. **Velvet antler contains nearly 40 key compounds including:**

**Monoamine-oxidase inhibitors:** enhance mood.

**PC - Phosphatidylcholine:** *Also known as lecithin.* A phospholipid that is a major component of cellular membranes and functions in the transport of lipoproteins in tissues. Choline is attached to phoshatidic acid by a phosphodiester linkage. Major synthetic route is from diacyl glycerol and CDP choline. Forms monolayers at an air water interface and forms bilayer structures (liposomes) if dispersed in aqueous medium. A zwitterion over a wide pH range.

**PE – Phosphatidylethanolamine:** A major structural phospholipid in mammalian systems; any of a group of phospholipids that occur especially in blood plasma and in the white matter of the central nervous system. Also called cephalin. Tends to be more abundant than phosphatidylcholine in the internal membranes of the cell and is an abundant component of prokaryotic membranes. Ethanolamine is attached to phoshatidic acid by a phosphodiester linkage. Synthesis from diacyl glycerol and CDP-ethanolamine. The condensation product of a phosphatidic acid and ethanolamine; found in biomembranes. They (PS and PE) are widely distributed in the body, especially in the brain and spinal cord, and are used as local haemostatics and as reagents in liver function test.

**PS - Phosphatidylserine:** A phospholipid found in mammalian cells. The condensation product of phosphatidic acid and serine, found in biomembranes. It is an important minor species of phospholipid in membranes. Complete hydrolysis yields 1 mole of glycerol, phosphoric acid and serine and 2 moles of fatty acids. Synthesis is from phosphatidylethanolamine by exchange of ethanolamine for serine. Distribution is asymmetric, as the molecule is only present on the cytoplasmic side of cellular membranes. It is negatively charged at physiological pH and interacts with divalent cations, involved in calcium dependent interactions of proteins with membranes (e.g. Protein kinase C). They (PS and PE) are widely distributed in the body, especially in the brain and spinal cord, and are used as local haemostatics and as reagents in liver function test.
**SM - Sphingomyelin:** Any of a group of phospholipids that are found especially in nerve tissue especially in a high concentration in the brain and yield sphingosine, choline, a fatty acid, and phosphoric acid upon hydrolysis. A close analogue of phosphatidylcholine. In many cells the concentration of sphingomyelin and phosphatidylcholine in the plasma membrane seems to bear a reciprocal relationship.

**Glycosphingolipids:** involved in cell metabolism and growth.

**Sugars:** Arabinose, Glucose, Deoxyribose, Mannose, Fructose, Ribose, Galactose, Xylose.

**Polysaccharides:** helps regulate blood clotting activity.

**Cytokines:** Any of several regulatory proteins, such as the interleukins and lymphokines, that are released by cells of the immune system and act as intercellular mediators in the generation of an immune response.

**Lymphokine cytokines:** A special type of growth factors. Lymphokines are involved in the two major types of immune response, humoral (antibody formation) and cell mediated.

**Gamma-aminobutyric acid (GABA):** a non-essential amino acid that helps promote normal brain function by helping to block stress-related messages from reaching receptor sites in the central nervous system. GABA helps reduce feelings of anxiousness, and may be helpful for treatment of disorders linked to emotional stress, such as reduced sex drive and hypertension. This amino acid plays a key role in balancing and regulating levels of sex hormones in the body. Some studies indicate that GABA actually increases levels of human growth hormone (HGH) in the body, which can lead to an increase in muscle mass and decrease in overall body fat as well. Individuals with enlarged prostate glands may benefit from GABA supplementation.

**L-Dopa:** On its own, L-dopa is an important amino acid that is the precursor of dopamine. What dopamine does is help a lot of important brain functions like sleep, mood, learning, behavior, and regulating prolactin production from the pituitary. Dopamine is also involved in the HGH loop cycle, mainly by increasing the responsiveness of the hypothalamus towards any release of growth hormone in the bloodstream.

**Aromatic l-amino acid decarboxylase (AAAD):** involved in the synthesis of dopamine, a neurotransmitter crucial in cognitive, neurobehavioral and motor functions.
All 20 Essential and Non Essential Amino Acids (the building blocks of protein)

ESSENTIAL AMINO ACID LIST
Arginine Isoleucine Histidine Leucine Methionine Lysine Phenylalanine Tryptophan Threonine Valine

NON-ESSENTIAL AMINO ACIDS
Alanine Arginine Asparagine Aspartic Acid Cysteine Glutamic Acid Glutamine Glycine Proline Serine Tyrosine
Notes
To learn more about this revolutionary product:

visit www.SURTHRIVAL.com

Distributed by: SURTHRIVAL • Springvale, ME 04083

These statements have not been evaluated by the Food and Drug Administration. This product is not intended to diagnose, treat, cure or prevent any disease.