



Australian Government

**Rural Industries Research and
Development Corporation**

Velvet Antler

**a summary
of the literature on
health benefits**

**A report for the
Rural Industries
Research and Development
Corporation**

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Foreword

RIRDC continues to support research and development projects linked to velvet antler production and marketing as well as many other projects that influence the development of the Australian Deer industry.

The Corporation agreed to fund the development and production of an information pamphlet about deer velvet antler during 2002/03. The aim of the pamphlet is to provide objective information about the use of velvet antler for human health.

An integral part of the project to develop the pamphlet was to undertake a review of health benefits described by available literature that the Deer Industry Research and Development Advisory Committee believed should be published to maintain an up-to-date perspective on this issue.

This project is funded from industry revenue that is matched by funds provided by the Australian Government.

This report, a new addition to RIRDC's diverse range of over 1000 research publications, forms part of our Deer R&D program, which aims to foster an Australian deer industry as a profitable and efficient mainstream agricultural enterprise.

Most of our publications are available for viewing, downloading or purchasing online through our website:

- downloads at www.rirc.gov.au/reports/Index.htm
- purchases at www.rirc.gov.au/eshop

Simon Hearn
Managing Director
Rural Industries Research and Development Corporation

Contents

- Foreword iii
- Contents iv
- Executive Summary v
- 1. Introduction 1
- 2. Objectives 2
- 3. Methodology 3
- 4. Results 4
 - Health Benefits 4
 - Traditional Chinese Medicine (TCM) 4
 - TCM and Velvet Antler 5
 - Composition and Active Ingredients 5
 - Health Benefits Supported by Western Research 7
 - Health Benefits for Animals 9
 - Dose Rates and Safety 9
 - Processing Considerations 9
- 5. Discussion 12
- 6. Communications Strategy 13
- 7. References for this Summary 14
- 8. Velvet Research Reference List 15
- Appendix 1: Australian Deer Velvet Pamphlet 29

Executive Summary

Deer velvet is a universal term used to describe immature antlers of male deer. The term originates from the covering of soft velvet-like hair that persists on growing antlers until they mature.

On commercial deer farms velvet antlers (immature antlers) are removed annually to:

- Protect all deer on the farm from injury
- Ensure a safe working environment for staff
- Harvest a valuable product used in Traditional Chinese Medicine (TCM)

In Australia, antler is only removed using anaesthetic by registered veterinary surgeons or people accredited by the National Velvet Accreditation Scheme (NVAS).

Historic literature records the long association of TCM (more than 2000 years) and the significant associations of the Russian and Roman cultures with deer velvet. Summary benefits described by TCM include a broad range of therapeutic effects as well benefits in promoting health and well being.

Despite long held differences in philosophy of TCM and Western Medicine, there is a slow but increasing interest in TCM by western communities. This is particularly evident as more people look to therapies and treatments that are natural (non chemical) non prescriptive, relieve symptoms and balance body functions to allow healthy lifestyles.

Available data clearly shows the significant research on deer antler that continues to be undertaken around the world, including Australia, and provides strong support to the growing acceptance that deer antler cartilage is a substance with significant future medical application potential.

An important concept that is a common theme of many research papers is that the combination of all components of velvet antler provides a synergistic effect that is greater than the total effect that would be achieved by the separate use of each of its individual constituents. That means that if velvet is broken down into its constituents that are used separately, their combined effect is significantly less than the effect realised when the nutrients are provided in the naturally combined form of velvet antler. In summary, *the effect of the complete product is greater than the summed effect of all components.*

Literature reviews related to the use of velvet antler products considered for this summary provide persuasive, credible evidence to support the claim that compounds in velvet antler may provide effective and long-lasting relief of the symptoms of osteoarthritis.

Reviews also support suggestions of additional benefits such as relief of some conditions associated with aging, stimulation of the immune system, assistance with growth and strength training and the absence of side effects.

1. Introduction

This document is not intended as a scientific literature review, rather it is a summary of benefits described by various reviews with some comments of caution provided by researchers about results of their own and other research.

There are many references to the historic use of deer velvet in TCM and it has been included in the *Chinese medical pharmacopoeia* since 168BC. Medicinal uses for deer velvet are also contained in the book, first published in the sixteenth century, called *Ben Cao Gang Mu* that is said to have been referred to by Charles Darwin as 'The Chinese Encyclopaedia.

The uses for deer velvet and deer co products are also included in *The Great Dictionary of Traditional Chinese Medicine*.

Although the successful Chinese and Korean approach to human health has been practiced for in excess of two thousand years, only in recent times are Western people beginning to accept that there are reasonable alternatives to Western approaches to human health. Increasingly people look to therapies and treatments that are natural (non chemical) non prescriptive, relieve symptoms and balance body functions to allow healthy lifestyles.

Deer were introduced into Australia during the Nineteenth Century. The animals dispersed and established wild populations at various locations across Australia mostly depending upon their points of release into the wild, and formed the basis for the deer industry in Australia today.

Since its beginnings in the 1970's, the Deer industry in Australia has continued to expand although it is still significantly smaller (one tenth) than the New Zealand deer industry. During its short history, the Australian velvet industry has relied almost exclusively on international demand for its product and has generally targeted Korean and Chinese markets competitively supplied by the world's biggest producer of farmed velvet, New Zealand. Most velvet has been exported to Asia as frozen (unprocessed) velvet antler.

Tourism data shows a continual increase in Asian tourists to Australia who may be familiar with and interested in purchasing velvet antler products while anecdotal information suggests a growing increase in interest of these products by Asian living in Australia. There are also a growing number of people looking for alternatives to Western medicine and their potentially dangerous side effects [[14](#)].

As the Australian deer industry matures, processing of Australian velvet antler is increasingly undertaken in Australia or New Zealand and often with Asian experts contributing to business and product development. Sophisticated processing facilities prepare velvet for direct consumption in Asian and domestic markets.

As a significant number of Australian people and their pets suffer from arthritic conditions of bones and joints (osteoarthritis, joint injuries, joint inflammation, etc), commercial opportunities for development of domestic markets for velvet antler products clearly exist.

2. Objectives

1. To review and summarise information reported in available recent literature reviews related to deer velvet antler deer with particular consideration of its benefits for human and animal health.
2. To produce an educational pamphlet for public use that outlines the composition, product forms and medicinal benefits of processed deer antler. The pamphlet will also contain a list of references for those wishing to do further investigation

3. Methodology

Project methodology included:

1. A review of current information available on the Internet and in other scientific literature relating to the chemical composition, safety, product types and consumer benefits of deer antler products.
2. Production of 5000 copies of a pamphlet containing details of consumer benefits, product types (powder, slice etc) common chemical analyses, safety etc as well as a list of references for further reading

Text for the pamphlet was reviewed by leaders of the velvet antler industry in Australia and one of the world's foremost researchers with deer antler, Dr Jimmie Suttie from New Zealand.

3. Distribution of copies of the pamphlet to Industry organisations and commercial companies

4. Results

Health Benefits

Generally, deer velvet products available to people in Western societies is sourced from deer that are managed on farms according to strictly controlled quality assurance guidelines than ensure requirements for animal welfare and husbandry are maintained at acceptable standards.

Either veterinarians or people accredited by the National Velvet Accreditation Scheme (NVAS) remove velvet antler from male animals each year. The NVAS ensures consumers of deer velvet and the wider community that:

- Acceptable standards of animal welfare are maintained
- Deer Industry QA Programs product traceability requirements are supported
- Occupational Health & Safety requirements for personnel involved in velvet removal are maintained
- QA, residue and animal welfare expectations of international and domestic communities and clients are maintained
- As velvet is a health food it is handled and stored in a hygienic manner

Traditional Chinese Medicine (TCM)

Documented literature relating to Traditional Chinese Medicine (TCM), that dates to well before the birth of Christ, reports and acclaims the health promoting properties of velvet antler (immature antlers of male deer).

Some of the main concepts [10] of TCM include:

- The idea of pairs or opposites in balance expressed as Yin and Yang (Yin is the rest phase where energy or Qi is replenished while Yang is the active phase that uses up Qi)
- Qi, the vital energy or life force that flows around the body (Qi is both energy and matter)
- Although the concept (name and location) of most body organs is similar in TCM and Western medicine, in TCM they may be thought to have a different function
- Disease may be caused by external factors (wind, cold, fire, damp, summer heat and dryness) or internal factors (joy, anger, anxiety, thought, sorrow, fear and fright)

Principals of TCM involve supplementation of factors [collectively called the Yin and Yang] in nature that restores the body to a natural balance and allows the natural defence mechanisms of the body to effect healing more or less on its own.

TCM treatment is based on the restoration and maintenance of energy balances with the human body, emphasizing the organic or functional relationship between the health of each part of the body and the whole body, a holistic approach to health.

Consistent with the holistic approach of TCM, velvet has long been used to treat a variety of health problems and as a general tonic to restore balance, strengthen the body and promote overall wellness. A TCM practitioner traditionally prescribes velvet. TCM practitioners usually cut thin slices of velvet from a stick of dried velvet and combine the slices with other natural medicine products. Patients usually prepare a soup from the prescription that is consumed.

TCM and Velvet Antler

There are many studies related to velvet antler reported in the scientific literature, however many of the older papers produced in Asia were not controlled by the same standards of reporting required by Western Medicine and some of the concepts of TCM like 'well being' are difficult for Western Medicine to measure.

In recent times there have been significant additions to the scientific literature on deer velvet from researchers, particularly those in New Zealand, Korea, China, Canada, USA, Australia and Russia.

Available literature reviews generally suggest that some benefits of consumption of deer velvet have been identified although more research is needed. It is important to note that TCM does not encourage uninformed use of velvet antler (or any of its other remedies).

Health Benefits Claimed by TCM for Velvet Antler

TCM claims for the use of deer velvet are much broader than the range of effects suggested by completed western research. They include:

- Systematic exhaustion
- Depression
- Cold
- Lower back pain
- Weak pulse
- Impotence
- Spermatorrhea
- Low white cell counts
- Regulate the adrenal cortex
- Regulate energy metabolism
- Promote sexual function
- Promote growth
- Strengthen resistance

Composition and Active Ingredients

Research has reported the chemical composition of whole velvet antler sticks and sections (tip, upper, mid and base) of a stick.

Although Western research, particularly in New Zealand [13] has reported the composition of velvet antler, it is important to remain aware that antler is the only mammalian organ that regenerates and that it grows extremely rapidly. The rapid growth of antler suggests that its chemical composition will vary during its growth until it becomes naturally calcified (table 1).

It is reasonable to say that broadly, velvet antler is composed of proteins, amino acids, minerals, lipids and water. Specific key compounds that have been identified in deer antler include collagen, glucosamine sulphate, chondrin sulphate and growth factors that aid in cartilage cell development.

Most researchers suggest that although ingredients in velvet antler are generally known, it is likely that combinations of ingredients in the antler contribute significantly to the activity of velvet antler products. This means that properties of processed products are likely to vary in a direct relationship to the portion of the antler used in the product's manufacture.

Generally from the tip of the antler toward the base the ash content increases, lipid content decreases and protein content decreases. As antler matures, the ash and some mineral contents increase and moisture content decreases.

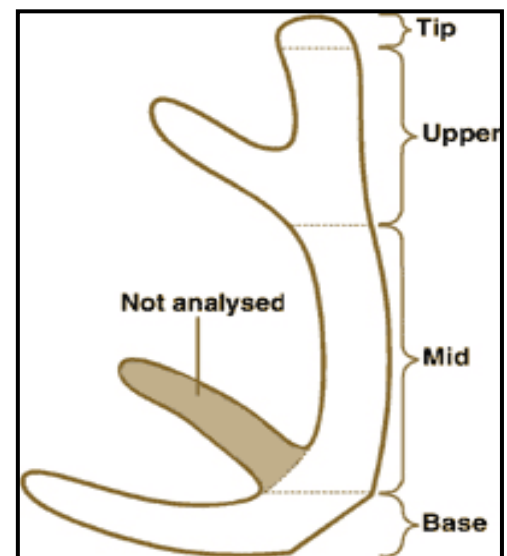
Lipid and Mineral Composition of Velvet Antler

Table 1 - Composition of Adult Red Deer Velvet Antler [13]

Composition of adult New Zealand red deer velvet. Data are mean values (n=17) with the standard deviation for the components in each of the four main sections of the antler and the combined total. The four sections analysed are shown.

Mean value	Antler Section				Complete
	Tip	Upper	Mid	Base	
% of total antler dry weight in section	2.7	35.3	29.8	32.5	100
Components (as % of dry matter ± standard deviation)					
Ash	6.6 ± 0.8	28.4 ± 2.4	37.8 ± 2.6	38.8 ± 2.3	34.0 ± 2.0
Lipid	5.6 ± 1.3	2.7 ± 0.7	2.0 ± 0.5	2.6 ± 0.7	2.5 ± 0.6
Nitrogen (N)	12.2 ± 0.6	9.1 ± 0.5	8.1 ± 0.6	7.6 ± 0.6	8.4 ± 0.5
Calcium (Ca)	0.3 ± 0.2	9.3 ± 1.0	13.5 ± 1.2	14.7 ± 1.8	12.1 ± 1.1
Phosphorus (P)	0.6 ± 0.1	5.0 ± 0.8	6.3 ± 0.5	6.5 ± 0.4	5.8 ± 0.3
Sulphur (S)	0.85 ± 0.11	0.54 ± 0.03	0.35 ± 0.03	0.34 ± 0.04	0.43 ± 0.03
Magnesium (Mg)	0.05 ± 0.01	0.21 ± 0.02	0.27 ± 0.02	0.28 ± 0.02	0.25 ± 0.02
Sodium (Na)	1.09 ± 0.15	0.90 ± 0.08	0.80 ± 0.04	0.77 ± 0.05	0.83 ± 0.04
Potassium (K)	0.91 ± 0.12	0.59 ± 0.06	0.33 ± 0.06	0.29 ± 0.04	0.42 ± 0.04
Trace mineral components (as mg per kg of dry matter ± standard deviation)					
Manganese (Mn)	2.6 ± 1.4	3.2 ± 0.8	3.4 ± 0.6	3.5 ± 0.8	3.4 ± 0.4
Zinc (Zn)	46 ± 8	72 ± 9	67 ± 10	68 ± 12	69 ± 9
Copper (Cu)	5.2 ± 1.1	5.1 ± 0.7	5.6 ± 0.8	5.3 ± 0.8	5.3 ± 0.5
Iron (Fe)	462 ± 227	472 ± 92	288 ± 100	179 ± 53	319 ± 69
Selenium (Se)	0.35 ± 0.12	0.25 ± 0.09	0.14 ± 0.06	0.13 ± 0.05	0.18 ± 0.07
Cobalt (Co)	0.05 ± 0.05	0.04 ± 0.06	0.03 ± 0.03	0.03 ± 0.03	0.04 ± 0.03

Figure 1 - Portions analysed [13]



Proteins Identified in Velvet Antler

Proteins compounds identified in velvet antler by research include:

- Collagen - a major structural protein present in bone, tendons, ligaments, other connective tissue and articular cartilage
- Amino Acids - velvet is reported to contain eight essential and fifteen non essential amino acids, the precursors for all protein production

Growth Hormones and Growth Factor Identified in Velvet Antler

Research has shown several growth factors exist in velvet antler including:

- Insulin-like Growth Factor (IGF-1)- a precursor for the production of growth hormone
- Epidermal Growth Factor (EGF) - growth factors that aid development of cartilage cells

Glycosaminoglycans (GAG's) Identified in Velvet Antler

Glycosaminoglycans are complex carbohydrates. Research has shown GAG's exist in velvet antler including:

- Chondroitin Sulphate - a carbohydrate that helps protect and rebuild degenerating cartilage and is regarded as a potent anti-inflammatory agent
- Erythropoietin - a hormone produced by specialised kidney cells to stimulate red blood cell production
- Glycosphingolipids - are compounds involved with growth and metabolism of cells and with memory and learning
- Glucosamine sulphate - is a component of Chondrin Sulphate and is a major component of cartilage and synovial fluid
- Hyaluronic acid - a substance that binds cartilage cells together and lubricates joints
- Prostaglandins - hormone like substances that produce a wide range of effects, including anti-inflammatory effects, within the body
- Phospholipids - the major structural lipid of most cell membranes

Other Compounds Identified in Velvet Antler

There are many other compounds shown by research to exist in velvet antler including

- Monoamine- oxidase inhibitors - an enzyme that inhibits the oxidation of neurotransmitters and so promotes a feeling of well being

Health Benefits Supported by Western Research

Generally researchers agree that velvet antler restores, strengthens and protects normal bodily functions but is not in itself curative. Preliminary results of modern research suggest that deer velvet may have beneficial effects related to:

- Stimulation of the body's immune system to assist protection against infection and disease
- The anti-inflammatory agents it contains that may assist in reducing the pain and inflammation of a variety of degenerative diseases
- The anabolic or growth stimulating properties it provides
- The prevention or repair of muscle damage following exercise
- Its ability to increase muscular strength and endurance
- Its ability to significantly reduce the damaging side effects of chemotherapy drugs, while at the same time increasing their effectiveness

Specific health benefits shown by western research and summarised in the literature reviews cited at the end of this document include:

Anaemia

New Zealand research has shown clear evidence that velvet antler can alleviate experimentally induced anaemia.

Anti-aging

Research on mice suggests that velvet antler supplements inhibited the activity of some enzymes associated with aging while increasing the synthesis of liver and kidney protein by promoting activity of other specific enzymes.

Reviews report that this research is strong evidence of the anti-aging influence of deer velvet.

Anti-cancer activity

Although there does not appear to be any evidence that velvet antler can cure cancers, research has demonstrated that velvet may extracts have some anti-tumor (cytotoxic) effects against some forms of cancer cells.

Anti-inflammatory effects

New Zealand research [12] reports that although the mechanism is unknown velvet antler shows strong anti-inflammatory effects.

Blood Pressure Control

Research has shown that extracts of deer velvet have a strong ability to lower blood pressure in people with normal blood pressure and to stabilise abnormal blood pressure. However Suttie et al [13] advises extreme caution of use of velvet by those with extremely high or low blood pressure.

Bone and Joint Health

It is proposed by researchers that therapies used for the treatment of human bone and joint problems should include the use of glycosaminoglycan-peptides, particularly chondroitin sulphate [1]. Several studies have shown the glycosaminoglycan (GAG) content of velvet antler and in particular the relatively high level of chondroitin sulphate.

Most research suggests that as velvet antler contains significant quantities of chondroitin sulphate, it is worthy of consideration as a treatment for joint and bone inflammation conditions.

Growth Stimulation

Research has identified various natural hormones (growth factors) in velvet antler including IGF-1 (insulin –like Growth Factor-1) and EGF (Epidermal Growth Factor).

Velvet antler may be a natural source of natural hormones for athletes and others who seek a natural aid to muscle growth and development.

Performance Enhancement

Although the mechanisms are yet to be clearly identified, research and anecdotal evidence suggests that velvet antler has a positive effect on athletic performance. Although not all reports are positive, most indicate that the effect is likely to be either prevention or rapid repair (or both) of muscle damage associated with exercise.

Stimulation of the Immune System

Research in Korea, New Zealand and China has shown that velvet antler can stimulate the immune system. Extracts of velvet antler were variously shown to increase macrophage activity, stimulate the production of lymphocytes and increase the number of red and white blood cells.

Each of these effects may directly complement the body's ability to resist or fight disease and so promote and maintain health and an associated feeling of well being.

Tonic Effects

The immune stimulation effects shown by research gives support to claims of TCM that velvet antler can have a revitalising effect, especially for people who are immuno-compromised people (those weakened by illness or other stress).

Health Benefits for Animals

Research and anecdotal reports also suggest promising health benefits from supplementation with deer velvet for animals with inflammation related health problems

Future prospects for velvet use for pet health look extremely bright as pet owners increasingly seek natural alternatives to drug treatments for health problems of their pets (eg arthritis).

Balok [2] reported positive effects of velvet on animals include:

- Relief from clinical arthritis
- General feeling of well being
- Improved hair coat
- Improved kidney function
- Increased reproductive performance
- Accelerated wound healing

Dose Rates and Safety

There appears to be no definitive information on dose rate available from research although the prolonged historic use of velvet antler by Asian communities suggests a reasonable degree of safety.

However it is generally considered that one or two 250-350 mg capsules per day is sufficient to maintain health and alleviate minor fatigue while higher doses are used for healing or performance enhancement.

Like most natural health supplements, effects of velvet antler tend to be cumulative. Typically, significant benefits are seen after 8 to 12 weeks of consistent use.

Some minor side effects (headaches and nose bleeds) have been observed at higher dose levels. General cautions often suggest that people with an enlarged prostate, those who take anticoagulant or blood pressure medications should seek advice before consuming velvet antler.

Velvet antler should only be used as part of an overall health plan. It should not replace prescription medication or proper nutrition. As is the case with all dietary supplements people should consult a suitably qualified physician before consumption of velvet antler supplements.

Processing Considerations

A range of factors influences the chemical composition of processed velvet antler products. They include:

- The portion of the antler processed
- The age of the antler when harvested
- Quality assurance practices associated with harvesting, storage and transport
- Length of time product is stored before processing
- Processing techniques

Although the actual technique employed by different factories may vary considerably, factories that process deer antler have idiosyncratic specialisations to produce velvet products that meet client and marketing requirements, the principal processing techniques and objectives are similar.

Poor processing technique, particularly inappropriate use of heat, can also influence the beneficial properties of velvet antler.

Laughlin [9] suggests that velvet antler processed in whole form appears to provide the widest selection of chemical compounds associated with the benefits claimed in the research cited.

Future Western market development for velvet antler products will require development and implementation of product standards that ensure product uniformity and encourage consumer confidence in the products.

Processing Techniques

The primary aim of all velvet antler drying is simply to remove water from velvet (New Zealand Ministry of Agriculture and Fisheries specifications for dried velvet antler indicate that dried velvet must contain 85% total solids).

Factories that process deer antler have idiosyncratic specialisations to produce products that meet client and marketing requirements, the principal processing techniques and objectives are similar, although the actual technique employed by different factories varies considerably.

Generally, vacuum drying is not considered appropriate for product intended for slicing (it crumbles as the product becomes too dry) however product produced by vacuum drying generally has lower bacterial counts than product dried in other ways.

Low bacterial counts are particularly important where the velvet is to be used in capsules as the powder is the end use product and unlike other forms of dried antler, it will not receive any further treatment that can assist bacterial control.

Broad guides to the principles of velvet antler processing are [14]:

Factory Drying

- Purchased frozen velvet arrives at the factory
- The velvet is graded, (mostly according to size and so the need for differential cooking time), the cut end of the velvet is sealed and velvet is placed in the freezer
- It is placed on temporary racks and allowed to thaw overnight
- The next morning and the velvet sticks are placed on racks for water bath cooking
- Each stick of velvet is dipped in the water cooker several times. After appropriate dipping sticks are ready for the dryer
- The velvet is placed back on oven racks and allowed to cool
- The racks are placed in the oven and the velvet is cooked
- The internal temperature of the velvet is tracked during cooking to ensure pasteurisation
- After cooking the velvet is allowed to cool
- After cooling racks are returned to the drying room where the velvet stays until it is dried
- Prior to slicing the hair is removed.

Air Drying

- Velvet is bought frozen
- Before processing it is thawed in the open air and then washed with water and detergent using a soft brush
- The cut end of the velvet is sealed (cauterised) on a hot plate.

Option A

- The whole stick of velvet is dipped in boiling water for a few minutes (if it remains in the water for too long the velvet will split)
- The velvet is cooled to room temperature

- Steps 4.1 and 4.2 are repeated a several times (until the protein is fixed).

Option B

- The velvet is then placed in a hot oven for several hours. The time in the oven is dependent on the degree of calcification of velvet sticks
- The velvet is dried at room temperature
- Steps 5 and 6 are repeated several times (four to five times) depending on the weather (drying) and size of each velvet stick.

Vacuum drying

- Frozen velvet is removed from the freezer
- Velvet is placed (tied) on racks with the cut end up to minimise blood loss during cooking and thawed overnight
- After thawing racks holding the velvet are placed in drying rooms where the cooling system is reversed and set to heat to thaw it
- Then the temperature is reduced and the velvet is held it in the drying room until it is semi dried
- After an appropriate time the velvet is placed in a vacuum dryer until it completely dry.

5. Discussion

Although Chinese literature reports the successful use of deer velvet products as a medicinal product for more than 2000 years, Western medicine has been reluctant to accept many of the products and practices used in TCM.

One of the main differences in the philosophy of medicine is that TCM is concerned with restoring and maintaining the natural balance of all factors that contribute to a person's health and well being while Western medicine is generally concerned with overcoming specific infectious, physical or psychological causes of ill health.

Differences in philosophy have resulted in a general lack of acceptance of the others practices by each group. For example the Western medicine approach often has difficulty in understanding and measuring concepts like 'well being' that are used in TCM and in accepting the often broad indications given for a particular medicine.

Jette [6] summarises the significant difference as described by:

- Kaptchuk (1983) 'Chinese diagnostic does not come up with a specific disease entity or a precise cause, but gives a description of a specific "pattern of disharmony" in the whole person. The question of cause and effect is always secondary to this pattern'
- Porkert (1988) 'Western studies on the claims of deer antler are biased because they are based on the premises that "science" is necessarily synonymous with "causal-analytic science" (as if no other variety existed), along with its corollary, that inductive-synthetic medical science is strictly "empirical" and at best a "prescientific" form of thought'

However, Western science research of deer antler continues and although the work is ongoing, there is increasing evidence of the health benefits of velvet antler and of the safety of this natural product.

Research evidence supports claims that velvet antler use can enhance joint structure and function, and may provide additional benefits however, benefits appear dependent upon the quality of antler used as well as methods employed during processing of velvet antler products

6. Communications Strategy

Pamphlets produced by this project have been provided to all branches of the DIAA, all those who receive the RIRDC deer newsletter and major Australian deer velvet processors.

The completion of the project has been reported in the RIRDC Deer Industry Newsletter and in the Australian Deer Farming Magazine.

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Appendix 1: Australian Deer Velvet Pamphlet

Australian Deer Velvet

A modern, natural health supplement supported by more than 2000 years of traditional oriental medicine use and modern western research

© Deer Industry Company
PO Box 37, Uismore Victoria 3324, Australia

Dose Rates

Research reports that although there is no information on dose rate research available, it is generally considered that one or two 250-350 mg capsules per day is sufficient to maintain health and alleviate minor fatigue while higher doses are used for healing or performance enhancement.

Like most natural health supplements, effects of velvet antler tend to be cumulative. Typically, significant benefits are seen after 8 to 12 weeks of consistent use.

Some minor side effects (headaches and nose bleeds) have been observed at higher dose levels.

Velvet antler should only be used as part of an overall health plan. It should not replace prescription medication or proper nutrition. As is the case with all dietary supplements people should consult a suitably qualified physician before consumption of velvet antler supplements.

Velvet Antler Powder

Velvet Antler Slices

Velvet Antler Capsules

Quality Assurance

Velvet is handled and stored in a hygienic manner and as required by the National Velvet Accreditation Scheme (NVAS). The NVAS ensures consumers of deer velvet and the wider community that:

- Acceptable standards of animal welfare are maintained
- Deer Industry QA Programs product traceability requirements are supported
- Occupational Health & Safety requirements for personnel involved in velvet removal are maintained.
- QA, residue and animal welfare expectations of international and domestic communities and clients are maintained

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澳大利亚 养鹿业

Traditional Chinese Medicine (TCM) and Velvet Antler

Documented literature relating to Traditional Chinese Medicine (TCM) that dates to well before the birth of Christ, reports and accedes the health promoting properties of velvet antler.

Principals of TCM involve supplementation of factors (collectively called the Yang) in nature that restores the body to a natural balance and allows the natural defence mechanisms of the body to effect healing more or less on its own. It emphasizes the organic or functional relationships between the health of each part of the body and the whole body, a holistic approach to health.

Consistent with the holistic approach of TCM, velvet has long been used to treat a variety of health problems and as a general tonic to restore balance, strengthen the body and promote overall wellness. A TCM practitioner who cuts thin slices of velvet from a stock of deer velvet and combines the slices with other natural medicine products traditionally prescribe velvet. Patients usually prepare a soup from the prescription that is consumed.

There are many studies related to velvet antler reported in the scientific literature. However many of the older papers produced in Asia were not controlled by the same standards of reporting required by Western Medicine. Some of the concepts of TCM like 'well being' are difficult for Western Medicine to measure.

In recent times there have been significant additions to the scientific literature on deer velvet from researchers, particularly those in New Zealand, Korea, China, Canada, USA, Australia and Russia. Available literature reviews generally suggest that some benefits of consumption of deer velvet have been identified although more research is needed. It is important to note that TCM does not encourage uniform use of velvet antler (or any of its other remedies).

Health Benefits Claimed by TCM

TCM claims for the use of deer velvet are much broader than the range of effects suggested by western research. They include:

- Systematic exhaustion
- Depression
- Cold
- Lower back pain
- Weak pulse
- Impotence
- Spermatocoeha
- Low white cell counts
- Regulate the adrenal cortex
- Regulate energy metabolism
- Promote sexual function
- Promote growth
- Strengthen resistance



Health Benefits Supported by Western Research

Generally researchers agree that velvet antler returns, strengthens and protects normal bodily functions but is not in itself curative. Preliminary results of modern research suggest that deer velvet may have beneficial effects related to:

- Stimulation of the body's immune system to assist protection against infection and disease
- The anti-inflammatory agents it contains that may assist in reducing the pain and inflammation of a variety of degenerative diseases
- The anabolic or growth stimulating properties it provides following exercise
- The prevention or repair of muscle damage



Its ability to increase muscular strength and endurance
Its ability to significantly reduce the damaging side effects of chemotherapy drugs, while at the same time increasing their effectiveness

Health Benefits for Animals

Research and anecdotal reports also suggest promising health benefits from supplementation with deer velvet for animals with inflammation related health problems.

Black reported that positive effects of velvet on animals include:

- Relief from clinical arthritis
- Improved kidney function
- General feeling of well being
- Increased reproductive performance
- Improved hair coat
- Accelerated wound healing



Composition and Active Ingredients

Research has reported the chemical composition of whole velvet antler sticks and sections (tip, upper, mid and base) of a stick.

Broadly, velvet antler is composed of proteins, free amino acids, minerals, lipids and water. Specific key compounds that have been identified in deer antler include collagen, glucosamine sulphate, chondroitin sulphate and growth factors.

Most researchers suggest that although ingredients in velvet antler are generally known, it is likely that combinations of ingredients in the antler contribute significantly to the activity of velvet antler products.

