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JIVT: An introduction

The Journal of Integrative Veterinary Therapies (JIVT) is a quarterly publication of CIVT. The Journal publishes material on all aspects of integrative veterinary medicine including Chinese and Western herbal medicine, natural nutrition, environmental medicine, philosophy, history, clinical cases and commentary.

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We welcome and encourage your letters and feedback. We envisage that your words will become part of a vibrant and ongoing dialogue within a growing community of integrative veterinarians and allied health professionals.

Email your letters to editor@civtedu.org.
Abstract
A male neutered Pomeranian was presented for fear aggression issues. Treatment using a single Chinese herbal formula was used based on his Traditional Chinese Veterinary Medicine (TCVM) pattern analysis. Significant improvement in his condition was achieved.

Signalment
‘Gizmo’ is an eight-year-old male neutered Pomeranian. His weight on presentation was 7 kg.

Diagnosis
Gizmo presented for annual examination and to discuss aggression issues that had been occurring over the last year. He suffers from seasonal (fall) atopic dermatitis and is currently on Eltroxin (Levothyroxine) 0.1mg twice daily for hypothyroidism. The owner had noted that his seasonal atopic signs were occurring earlier every year and the signs seemed more intense this year.

He is always very difficult to examine, requiring a muzzle for a full physical examination. The owner had mentioned that Gizmo was becoming more aggressive towards her grandchildren as well, to the point that she now segregates him into another room when they visit. She is very concerned. He will run up to them, bark and growl then runs away if they approach. He has had skin issues with seborrhoea sicca, poor hair regrowth and a thin dry dandruff with mild pruritus. Pruritus intensifies in fall. He seems to dream more when allergies flare up, according to owner.

Previous medical history includes occasional vomiting and soft stool. Owner reports separation anxiety at home. Gizmo has presented to me in the past with red inflamed ears but every time he comes in there’s no discharge, just erythema. Vaccines were up to date (DA2PP + Rabies). Previous medical history showed that Gizmo suffered from occasional gastrointestinal issues including vomiting, soft stools, borborygmus and belching. His appetite is good, however he has lost 1 kg since last examination. The owner reports a slightly increased amount of drinking recently as well.

His Chinese medical examination revealed that on presentation Gizmo was very anxious in the exam room, even after being muzzled. He had seborrhoea sicca with small white powdery dander, not overtly itchy but the owner says he will scratch a lot at home. His eyes were red and intense from anxiety, somewhat bulging (intraocular pressures were within normal limits). The owner mentioned he would rub at his face, primarily along the side of the muzzle. This was evident during the examination where Gizmo would rub the sides of his face against the owner’s hands. Gizmo
resented being picked up to be put on the table for exam, and would turn trying to bite. There were mild dry colarettes present on his ventral abdomen and inner thigh regions. His pulse was rapid, thin and wiry. His tongue was pale, slightly lavender, thin and dry.

A Traditional Chinese Medicine (TCM) diagnosis was made based on clinical findings and pattern differentiation. Gizmo had Liver Blood and Yin deficiency, Liver Qi Stagnation and Liver Overacting on Stomach. A western diagnosis of Fear Aggression, Seasonal Atopic Dermatitis (SAD), Seborrhoea Sicca and Hypothyroidism were made based on present and previous medical history.

Treatment
Yi Guan Jian (YGJ) also referred in the literature as ‘One Linking Decoction’, or ‘Glehnia and Rehmannia Combination’, was the herbal formula chosen to address Gizmo’s TCVM pattern. The dose rate prescribed was 1/8th heaped teaspoon of powdered granules (www.nphc.ca) orally twice daily given mixed in food for three weeks. Clinical reassessment and TCVM pattern differentiation would determine the length of the treatment regime.

The main effects of YGJ are to Tonify Blood/ Yin and secondarily soothe Liver Qi. YGJ is designed to address Liver Blood deficiency leading to gastro-intestinal problems. It also treats Yin deficiencies, allowing it to yield excellent results in various behavioral disorders. In Gizmo’s case there were clear Blood Deficiency signs such as pale lavender tongue, wiry pulse and skin symptoms. There was also evidence of Yin deficiency (red eyes, empty heat), weight loss with good appetite as well as increased thirst.

The Rehmannia (Sheng Di Huang - pictured), Glehnia (Bei Sha Shen) and Ophiopogon (Mai Men Dong) act to tonify the Yin in all three burners. The Lycium (Gou Qi Zi) tonifies the Liver Yin as well. With the Liver Blood deficiency comes stagnation (resents being picked up, Gi signs) which influences the stomach, Wood Over controlling Earth from a five-phase theory perspective, leading to some of the stagnant/rebellious Qi signs (vomiting, belching, borborygmus). The Melia (Chuan Lian Zi) helps as the Qi mover in this formula. There were not any overt damp signs in this case, which would be contraindicated for YGJ.

Results
Gizmo returned three weeks after his initial presentation for reassessment. He seemed brighter and less anxious in the examination room. He did not appear to have the distressed look in his eyes previously noted during exams. The owner had remarked that his attitude was
improved towards other people, however her grandchildren had not visited since the last exam. Appetite and bowels were normal during the herbal therapy. The owner had noted reduced belching at home. Pruritus was still present, but no worse. He enjoyed going for his walk and did not seem to be shying away from people. He would growl occasionally when people approached but, according to the owner, the episodes would not be as intense as before.

On physical examination Gizmo was bright and alert, much more relaxed and appeared less stressed. His appetite had improved and he had gained 550g. I was able to give him a complete physical examination without necessitating a muzzle. The anxious look in his eyes was absent. His dander had improved. Pulse was no longer rapid but was still wiry. Tongue was pale on the sides and slightly lavender in the center. Although the pattern had improved, it had not significantly changed and it was elected to continue the current therapy for another four weeks until the next reassessment.

The owner was very happy with the clinical improvement to date, especially where aggression was concerned. Her grandchildren were expected to visit in another 10 days. She would update me after that.

Two weeks later the owner called to advise that the visit with her grandchildren went better than anticipated. Gizmo was secluded in his room until the children were settled in and then let out. Gizmo greeted the children with a wagging tail and only slight reservation. There was no barking or growling. By the end of their visit, Gizmo was playing with the grandchildren – something that had not occurred for the last two years. The owner was ecstatic. Gizmo is due for his next reassessment in three weeks.

Discussion

Fears can develop for many reasons including, but not limited to, genetics, traumatic early experiences, inadequate early exposure, repeated exposure to fearful stimuli or owner fostering. Fearful behavior is often maintained by genetic factors, ongoing exposure to the stimulus and owner responses. Fear aggression and behavioral issues are very common complaints from owners in small animal practice. They represent a major decision factor in euthanasia decisions as well. Usually by the time they are addressed, they have been occurring for a protracted period of time. There is much frustration as well as urgency imposed on the small animal practitioner to address and correct these problems. Many behavior problems in dogs are a result of underlying fears or anxieties.

Fearful and anxious dogs present a challenge to practitioners and owners alike. Their presentation can be variable, from hiding, shaking, panting and pacing, to aggression. Dogs with fearful or phobic behaviors can pose risks to people, property, themselves and other dogs. Western treatment protocols can include habituation, desensitization and counter conditioning. For some dogs with extreme fears, drug therapy may be indicated. Through the use of behavioral modification and TCVM modalities, we are now able to approach these issues with an alternative modality to help re-establish the natural internal balance within our patients. This internal harmony will allow a better interaction with their...
external environments (Marsden 2003). In TCVM there is an inseparable interplay between mental activity and organic internal function, such that internal body disharmonies can manifest as mental disorders (Marsden, pers comm) (Weber 1997).

Gizmo’s first TCVM diagnosis was Blood Deficiency. Blood is one of the principal substances of the body. It functions to nourish and support the internal organs and maintains the functions and structures of the body, including the brain (Marsden 2003) (Xie 2007) (Yang 2010). The Heart, Liver, Kidneys and Spleen directly influence the generation of Blood. The Heart governs the Blood and promotes its circulation; the Liver Stores the Blood, the Kidneys Store Essence which can be transformed into Blood and the Spleen is able to transform food into Qi and Blood and is considered the main source of Liver Blood (Xie 2007). The causes of Blood Deficiency are linked directly with deficiency of any one or combination of these four organs. It is often seen in chronic disease states as well as with improper diet (Yang 2010). Sufficient Blood is the basis of free and smooth flow of Liver Qi. The Blood Deficiency in Gizmo’s case was more than likely the underlying cause of stagnant Qi flow through the Liver. This expressed itself as the epigastric discomfort expressed during the physical examination. Finally, when Liver Qi Stagnates, the ability of the Spleen Qi to naturally flow upwards becomes disrupted. These will exhibit itself with continued epigastric discomfort, altered appetite and soft stool.

The use of Yi Guan Jian significantly improved the outcome of this case. The formula’s main effect is to tonify Blood and Yin (Xie 2010). This accounted for the majority of Gizmo’s TCVM pattern differentiation. Over the course of treatment, there was significant improvement in not only the behavioral component of his condition but also the secondary dermatologic and body condition. Yi Guan Jian (One Linking Decoction) contains the following herbs: fresh Rehmannia (Sheng Di Huang), Glehnia (Bei Sha Shen), Ophiopogon (Mai Men Dong), Angelica sinensis (Dang Gui), Lycium (Gou Qi Zi) and Melia (Chuan Lian Zi). Research into the individual components of this herbal formula could clarify the beneficial effects of this formula, especially for behavioral issues.

Rehmannia is used as the king herb to nourish the Yin and Blood so as to invigorate the Liver and Kidney. Its Chinese therapeutic actions are to nourish Blood, Tonify Liver and Kidney Yin, Replenish Essence and Fill the Marrow. It also helps to arrest coughing and wheezing associated with Kidney Deficiency and the inability to pull Qi downward. Through its chemical composition, which includes catalpols, rehmanniosides, rehnmannans and mannitol, it has been shown in clinical studies and research to be helpful in hypertension, cardiovascular disease as well as ocular disease. It nourishes the Yin and generates body fluids to treat Yin and Blood Deficiencies. The dried, unprocessed form found in YGJ is mostly used to address heat in the Blood that injures the Fluids, Essence or Blood (Chen 2001). Rehmannia contains catalpols which have been shown to have a protective role in cerebral conditions and memory (Zhang 2009) (Zhu 2009). Its use in chronic renal disease as a tonic is widespread (Zhang 2008) explaining the supportive role it undertakes with the kidneys.
Glehnia, Ophiopogon, Angelica and Lycium act as minister herbs to help reinforce the king herb. The hematopoietic effects of Glehnia can help to explain the formula’s use in cerebral disease, including behavioral issues (Zhao 2007), in addition to its antioxidant effects (Yuan 2002). It acts to Tonify the Liver and Kidney Yin in deficiency patterns. It Nourishes the Yin and clears the Lung.

Angelica (Dang Gui - pictured) is a sweet, acrid warm herb whose actions as a Blood Tonic are well researched. It is found in many herbal formulas used to treat Heart and Liver Blood Deficiencies. Its actions as a Blood mover are used to invigorate blood circulation as a form of pain relief, especially in Bi Zheng (painful obstruction) syndromes. It acts to moisten and unblock the bowels secondary to Blood Deficiency, as well as stopping coughs and dyspnoea through its content of essential oils and scopletin (Xian 1997). Angelica has been shown to treat acetaminophen-induced hepatopathy due to promotion of hepatocyte generation (Zhong 1992).

Angelica sinensis has been shown to provide hematopoietic support in mice through protection of myelosuppression (Queiroz 2010) as well as its polysaccharide and antioxidant activity (Zhang 2010). Ophiopogon, through its composition of ophiopogonins, b-sitosterols and glucoside content, has been shown to be of benefit in coronary artery disease as well as overall health support for elderly patients (Chen 2001). The cytoprotective and antioxidant effects of Lycium extract support proper organ function, especially in the liver (Zhang 2010).

Conclusion
Behavioral problems are commonplace in small animal veterinary practice. They account for a significant proportion of euthanasias as well. In this case report, a dog was presented for fear aggression issues and was successfully treated with Chinese herbs when diagnosed from a TCVM pattern differentiation perspective.

References
3. Marsden S, personal communication
5. Queiroz ML, Torello CO, Constantino AT, Ramos AL, de Souza Queiroz J


“I LOVE the course. It is amazing. I’ve studied TCVM for 15 years – including four years of human acupuncture college – and I think that I am learning more in the CIVT course than I learned in all those years…”

CIVT student
Marguerite Hernandez, VMD
Successful Treatment of Hyperadrenocorticism in a 12-year-old Miniature Dachshund with Si Miao San & Trilostane

Shana Buchanan DVM MBA

Abstract

A 12-year-old, male-neutered (MN) Miniature Dachshund was treated successfully with a dual combination of trilostane and Si Miao San (SMS). The patient presented with clinical signs consistent with hyperadrenocorticism (HAC). The signs began in October 2009 with polyuria (PU), polydipsia (PD) and slightly elevated serum Alkaline Phosphatase (ALKP) values. A presumptive diagnosis of hepatitis was made. Seven months later, the pet presented for continual worsening of the PU, PD, occasional vomiting, and weight gain. At that time pre and post serum ACTH stimulation cortisol levels were obtained and a diagnosis of HAC was made. The pet was started on Vetoryl (trilostane) therapy. Pre and post serum ACTH stimulation cortisol values following trilostane therapy remained normal. The ALKP values continued to increase after trilostane was started and the pet continued to show worsening of clinical signs of PU, PD and vomiting. An exploratory celiotomy was performed to rule out an obstructive mass or cancer as a cause of the vomiting. No obvious explanation of the vomiting was found and a small adrenal mass was observed. After recovery from surgery, the owner elected to add the herbal medication, SMS. The pet was also switched to a high protein and low carbohydrate diet. After the addition of SMS and the food change, the pet has remained clinically normal. The owner elected to stop SMS, but the clinical signs returned within two weeks. After restarting SMS, the pet has been symptom free of HAC.

Introduction

Hyperadrenocorticism (HAC) occurs when the pituitary gland releases too much adrenocorticotropic hormone (ACTH) that in turn stimulates the adrenal gland to produce excess cortisol, or with an adrenal tumor. As a result, clinical signs such as increased thirst and water consumption, increased urination, weight gain, weak muscles resulting in a pot-bellied appearance and behavioral changes occur (Vetoryl, 2008). Ninety-five percent of cases of canine HAC are a result of pituitary gland over-stimulation of the adrenal glands.

To diagnose the disease, a practitioner evaluates all pertinent information that includes serum chemistry profile, pre and post serum ACTH cortisol stimulation tests, clinical signs and a recent history. When HAC is diagnosed, the only approved drug therapy in the United States is Vetoryl™, or trilostane (Dechra Veterinary Products, 2008). Trilostane is an enzyme blocker that prevents the synthesis of cortisol and does not damage cells like Lysodren™ therapy (Hoskins, 2007). The goal of trilostane therapy is to reduce the cortisol production and eliminate the steroid side-effects.
physically and internally by suppressing the adrenocortical production (Vetoryl, 2008).

Other drugs are used to treat HAC, one is ketoconazole. This anti-fungal drug suppresses adrenal steroid synthesis; however, the vomiting, diarrhea, anorexia, thrombocytopenia, hepatic toxic side-effects, and transient beneficial results limit the drug’s usefulness in treating HAC. A second common drug is selegiline. This drug inhibits the release of ACTH from the pituitary. Unfortunately, selegiline’s success has been less than optimal and is not often used. A third drug is mitotane, or Lysodren™. Mitotane is an adrenal toxic drug that kills the hyperplastic adrenal gland. The hyperplastic adrenal gland is typically a result of an over-active pituitary gland. Because normal tissue is targeted, the potential for severe side effects is problematic. The most severe problem noted with mitotane administration is a permanent hypoadrenocorticism (HOC) state. If this occurs, the animal will need lifelong treatment for HOC. Other mitotane side effects include lethargy, ataxia, weakness, anorexia, vomiting and diarrhea. Because of the problems encountered and the need to monitor closely for side effects, mitotane is cautiously prescribed. Trilostane is the treatment of choice and it has several less severe side effects. The side effects of vomiting, diarrhea and slight lethargy, coupled with a high success rate of HAC treatment and the only approved HAC treatment in the United States, makes this drug the treatment of choice.

Treatment of HAC can be complicated and occasionally unsuccessful in alleviating clinical signs or eliminating blood value abnormalities. Non-traditional treatment using Chinese herbs for HAC, in conjunction with traditional treatment, was successful in this case report. Classification of HAC according to Traditional Chinese Medicine (TCM) is an overabundance of Yang energy arising in Damp Heat (Marsden, CIVT Lecture Notes, 2008, pp.137-138). As a result of the excessive energy, the patient will exhibit heat intolerance, restlessness, increased appetite and increase thirst and urine production. Additionally, Damp Heat is worsened by a diet high in carbohydrates such as a processed kibble (Marsden 2008). One of the main formulas in addressing Damp Heat is Si Miao San (SMS), or Four Marvels Powder. The individual herbal ingredients that make up this formula can be found in the appendix section. Other signs of Damp Heat include skin hot to the touch, greasy coat, lichenification and thickening of the skin, slimy vomitus, snoring, copious exudates, weight gain and loose or mucoid stools (Marsden & Wynn 2003).

History
In October 2009, a 12-year-old, MN, Miniature Dachshund was presented for PU and PD. At that time, blood-work was performed to rule out metabolic and endocrine problems. A slight elevation was noted in the serum ALKP value. The patient’s blood-work was rechecked in a month and indicated a higher serum ALKP value than the previous month (see appendix A). No treatment was given at that time. In June 2010, the pet presented for worsening of clinical signs of PU and PD and weight gain (see appendix C). An ACTH pre and post serum cortisol level was performed and indicated HAC (see appendix B) due to an elevated response. Once daily trilostane was started and the ACTH stimulation test was re-evaluated two weeks from the start date.
All subsequent pre and post-ACTH serum stimulation cortisol levels have remained normal after beginning the trilostane medication in June 2010 (See appendix B). Despite a normal ACTH stimulation response, the pet continued to have clinical signs consistent with uncontrolled HAC.

In August 2010, the pet presented for a bloated, pot-bellied abdomen consistent with HAC and no resolution of PU and PD. Repeated blood work revealed an increase in serum ALKP (See appendix A). A week later in September 2010, an ACTH stimulation test was performed and was normal. One month later in October 2010, the patient presented for worsening of PU and PD, abdominal bloating and vomiting. Serum ALKP values were higher than the previous values and an abdominal radiograph indicated a possible mid-abdominal mass present, or falciform fat enlargement. An abdominal exploratory was scheduled for the next day. During surgery, a small adrenal mass was observed but no abdominal mass was present to explain the vomiting. A biopsy of the liver revealed vacuolar hepatopathy consistent with hydropic degeneration seen with HAC. A biopsy of the adrenal tumor was not performed to reduce the risk of an anesthetic crisis from excessive cortisol release.

In November 2010, the pet re-presented for vomiting, PU, and PD. Blood work was repeated and revealed a high serum ALKP value and a normal pre and post ACTH serum stimulation cortisol (see appendixes A and B). At this time, the owner was interested in any other treatment options available for the patient. An Eastern examination was performed and revealed oily skin, active acupuncture (AP) points at SP 9 and BL 21, thin skin, a red and damp tongue and a superficial and slippery pulse, all consistent with Damp Heat (DH). The patient was diagnosed with Dampness and Phlegm obstructing the middle burner and an associated accumulation of DH as a result of persistent PU, PD, vomiting, elevated ALKP values, skin abnormalities, active AP points, plus tongue and pulse findings. In November 2010, the patient was prescribed SMS and a high protein and low carbohydrate diet. Liquid SMS from Kan Essential for Animals pet line was started at 0.4cc by mouth, or mixed with food, every 12 hours.

SMS was chosen for the unique properties of each individual herb within the formula. Recent research explains the various benefits noted from SMS. For example, the berberine (Ji et al 2009) within the Phellodendron bark, exhibits hepatoprotective properties to reduce the elevation of liver enzymes (Antelava et al 2011). Coix seeds (pictured below) have...
anti-tumor properties found in the fatty acids of the seeds (Cui Tang & Yu 2008). These fatty acids include palmitic, stearic, oleic and linoleic (Moribayashi et al 1994). These particular oils will limit the growth of the adrenal tumor noted on exploratory celiotomy. The third herb, Atractylodes, also possess hepatic protective properties (Chen et al 2010). Additionally, Atractylodes has gastroprotective benefits (Chang et al 2010). Both hepatic problems and gastrointestinal problems are common side effects noted in a dog with HAC. TCM benefits from the individual herbal ingredients and the actions of each herb can be found in Appendix D.

Two weeks from the start of the herbal medication, the patient became asymptomatic. Two months after starting SMS, the owner discontinued the medications for two weeks. The pet’s symptoms of PU and PD returned. Once the owner restarted SMS, the patient returned to normal. Blood work in February 2011 still reveals an elevated serum ALKP that continues to increase despite the pet’s normal pre and post ACTH serum cortisol levels, once daily trilostane administration, SMS and a high protein diet. A summary of the physical examination and laboratory abnormal findings can be found in Appendix E.

Discussion

TCM is based on a concept of balanced Qi, or vital energy, which is believed to flow throughout the body. Qi is proposed to regulate a person’s spiritual, emotional, mental, and physical balance and to be influenced by the opposing forces of Yin (negative energy) and Yang (positive energy). Disease is proposed to result from the flow of Qi being disrupted and Yin and Yang becoming imbalanced. Pathogenic factors (PFs) that can cause a disruption in the normal energy flow are: Wind, Cold, Heat, Damp, Dryness and Fire. Any of these pathogens, separate or together, can cause an imbalance to the patient. Treating diseases according to TCM is to eliminate the PFs, regardless of the underlying Western disease classification.

If the PFs are eliminated, the patient will return to a normal state of health. TCM does not focus solely on the disease defined by specific pathological changes, but instead concentrates generally on the functional state of the patient (Cai 2011). In this case report, the TCM treatments used to treat HAC in a canine only include herbal medicine and food therapy, in conjunction with once daily oral trilostane administration.

A diagnosis of DH was made based on the history and clinical signs observed in this patient. Dampness includes any overly wet or moist condition in the body. It can come from the environment or it can be due to poor diet or internal organ weakness (Pitchford 2002). Dampness can invade any part of the body and when Dampness affects the intestines and digestion in general, a bloated abdomen and vomiting occur as was seen in this patient (Pitchford 2002). Additionally, Dampness affects water movement throughout the body and can affect urination tendencies that can manifest as PU (Schwartz 1998). Any tumor and excess mucus resulting in vomiting is classified as Dampness (Pitchford 2002).

As this pet has an adrenal tumor and has had several episodes of unexplained
vomiting, this is another indication that the pet can be classified as a Damp patient. DH interferes with the normal Qi and Blood flow, generating Heat as a result of a sort of friction, resulting in abnormal elevated laboratory values, especially ALKP and cholesterol (Marsden & Wynn 2003). Typically, elevations in these values indicate a Middle Jiao Obstruction, as is seen with this pet.

Additional DH signs include an elevated thirst or appetite, but not both, as was evident in this pet (Marsden & Wynn 2003). The tongue and pulse help the practitioner classify a condition according the TCM. With DH signs, the tongue tends to be wet, swollen and red, plus the pulse is slippery (Boudreaux 2007). As a result of the clinical signs present in this pet, the dog can be classified as possessing Damp and Heat causing the clinical signs of PU, PD, vomiting, an adrenal tumor, a bloated abdomen, oily and thin skin, certain active AP points and elevated serum ALKP values, regardless of the Western diagnosis of HAC. In TCM, the pet is classified according to the clinical signs and treated appropriately. This is a reason that one disease classification in Western medicine can have several Eastern treatment options, depending on the classification of the clinical signs present in TCM terms.

The diet can contribute to the Damp signs. Damp contributing foods include refined or highly processed diets as seen in commercial dog kibble (Pitchford 2002). This pet was eating a common commercial over-the-counter dog food, resulting in worsening of Damp clinical signs. Once the owner started to feed a diet higher in protein and lower in carbohydrates, the pet’s clinical signs of Dampness began to abate, but not completely. The most notable change was weight loss. The diet can influence the outcome of Dampness in the body. The diet alone was not adequate enough to prevent all clinical signs. A home-cooked or raw diet should prevent sustained elevated insulin levels and cortisol stimulation. Additional treatment was needed to keep the pet asymptomatic.

SMS was prescribed because the herbal formula is used to correct DH signs in patients regardless of the Western diagnosis. The individual herbal ingredients in SMS can be found in Appendix D with a detailed description of each herb and the benefits noted. In summary, Atractylodes dispels Dampness, Phellodendron clears Heat and drains Damp, Coix drains Damp, and Achyranthes relieves hot conditions. This pet benefited from SMS because the formula addressed the main problems the pet was experiencing with HAC.

SMS plus a high protein and low carbohydrate diet was prescribed for this pet. When the pet is on oral trilostane, SMS, and a high protein diet, the pet is asymptomatic. The elevation of the ALKP values and clinical signs consistent with HAC are explained by trilostane's short duration of action of 13 hours or less in some pets. This was demonstrated with the failure of eight of nine dogs in one clinical trial. The pre and post ACTH cortisol stimulation results 12 hours after the once daily administration did not reveal the same normal results as the two hour stimulation test (Bell et al 2006).

This patient was diagnosed with HAC controlled with trilostane medication according to the pre and post ACTH
serum cortisol stimulation tests, but not according to the clinical signs and the continued elevated ALKP values. Once other treatments were added, such as a change in diet and SMS, the clinical signs of PU, PD and vomiting were eliminated. Unfortunately, the ALKP values continue to increase as a result of a proposed failure of the short acting once daily trilostane medication.

Even though the pet is clinically normal, the elevated liver enzyme is concerning and possibly an increase to twice daily, off-label, administration of trilostane will make this patient clinically normal in both observed, subjective clinical signs and objective, diagnostic tests.

\textit{Appendix A}

Pre-trilostane ALKP Values

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\textit{Appendix B}

Serum ACTH Stimulation Tests

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\textit{Appendix C}

Weight

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<tr>
<td>6/24/10</td>
<td>13.6</td>
</tr>
<tr>
<td>11/19/10</td>
<td>13.4</td>
</tr>
</tbody>
</table>
Appendix D

Si Miao San (Four Marvels Powder) Herbal Content (CIVT 2008)

<table>
<thead>
<tr>
<th>Herb</th>
<th>Common Name</th>
<th>Action</th>
</tr>
</thead>
<tbody>
<tr>
<td>Huang Bai</td>
<td>Phellodendron Bark</td>
<td>Drain Damp and clears Heat from the Lower Burner</td>
</tr>
<tr>
<td>Yi Yi Ren</td>
<td>Coix Seeds</td>
<td>Leaches Dampness, clears Heat and supports the Spleen, Insulin Sensitizing Effects</td>
</tr>
<tr>
<td>Cang Zhu</td>
<td>Atractylodes Rhizome</td>
<td>Warms and dries the Spleen and disperses Dampness</td>
</tr>
<tr>
<td>Huai Niu Xi</td>
<td>Achyranthes Root</td>
<td>Relaxes the sinews of the low back and moves Blood</td>
</tr>
</tbody>
</table>

References


### Appendix E

**Physical Examination and Laboratory Abnormal Findings**

<table>
<thead>
<tr>
<th>Date</th>
<th>Western Evaluation</th>
<th>Eastern Evaluation</th>
</tr>
</thead>
<tbody>
<tr>
<td>10/09</td>
<td>ALKP 913 (N=23-212)</td>
<td>Middle Jiao Obstruction</td>
</tr>
<tr>
<td></td>
<td>PU</td>
<td>Damp Heat</td>
</tr>
<tr>
<td></td>
<td>PD</td>
<td>Damp Heat</td>
</tr>
<tr>
<td>11/09</td>
<td>ALKP 1,000 (N=23-212)</td>
<td>Middle Jiao Obstruction</td>
</tr>
<tr>
<td>6/10</td>
<td>Weight Gain</td>
<td>Damp</td>
</tr>
<tr>
<td></td>
<td>PU</td>
<td>Damp Heat</td>
</tr>
<tr>
<td></td>
<td>PD</td>
<td>Damp Heat</td>
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<tr>
<td></td>
<td>ALKP 1,057 (N=23-212)</td>
<td>Middle Jiao Obstruction</td>
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<tr>
<td>8/10</td>
<td>ALKP 1,838 (N=23-212)</td>
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<td></td>
<td>PU</td>
<td>Damp Heat</td>
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<tr>
<td></td>
<td>PD</td>
<td>Damp Heat</td>
</tr>
<tr>
<td></td>
<td>Pot bellied</td>
<td>Damp</td>
</tr>
<tr>
<td>10/10</td>
<td>PU</td>
<td>Damp Heat</td>
</tr>
<tr>
<td></td>
<td>PD</td>
<td>Damp Heat</td>
</tr>
<tr>
<td></td>
<td>Vomiting</td>
<td>Damp</td>
</tr>
<tr>
<td></td>
<td>Pot bellied</td>
<td>Damp</td>
</tr>
<tr>
<td></td>
<td>ALKP 2,000 (N=23-212)</td>
<td>Middle Jiao Obstruction</td>
</tr>
<tr>
<td></td>
<td>Adrenal Mass</td>
<td>Damp</td>
</tr>
<tr>
<td>11/10</td>
<td>ALKP 1,843 (N=23-212)</td>
<td>Middle Jiao Obstruction</td>
</tr>
<tr>
<td></td>
<td>Tongue: red and damp</td>
<td>Damp Heat</td>
</tr>
<tr>
<td></td>
<td>Pulse: Superficial and slippery</td>
<td>Damp Heat</td>
</tr>
<tr>
<td></td>
<td>Oily skin</td>
<td>Damp</td>
</tr>
<tr>
<td></td>
<td>SP 9 active point</td>
<td>Damp</td>
</tr>
<tr>
<td></td>
<td>BL 21 active point</td>
<td>Damp secondary to inappropriate diet</td>
</tr>
<tr>
<td></td>
<td>Thin skin</td>
<td>Deficiency</td>
</tr>
<tr>
<td>2/11</td>
<td>ALKP 2,310 (N=23-212)</td>
<td>Middle Jiao Obstruction</td>
</tr>
</tbody>
</table>
Hyperadrenocorticism: Si Miao San. Veterinary Chinese Herbal Medicine IVAS Course, 196.


Dechra Veterinary Products 2008. *Vetoryl™ (Trilostane)*. Overland Park, KS.


Traditional Chinese Herbal Therapy for Chronic Rhinitis in a Cat

Bethany S Innis DVM CVA CCRT

Abstract
A six-year-old Domestic Short Hair castrated male presented for herbal treatment of chronic rhinitis. His condition had been lifelong. Previous nasal biopsy determined chronic active plasmacytic and neutrophilic rhinitis and periodic cultures revealed many resistant infections. Periodic treatments with enrofloxacin yielded the only positive results, but were associated with significant risk. Acupuncture was effective but implausible. Traditional Chinese Medicine was employed and Spleen Qi Deficiency with resultant Damp Heat was diagnosed. San Ren Tang, or Three Seeds Decoction, was prescribed and yielded dramatic improvement within one month.

The improvement has sustained to date. This case report demonstrates the positive effects of Chinese Herbal Medicines in a condition where there are few effective Western treatment options available.

History
A six-year-old neutered male Domestic Short Hair presented to an integrative private practice with a lifelong history of chronic rhinitis. He was adopted as a kitten from a shelter and had bilateral purulent nasal and ocular discharge when taken home. Physical examination was normal otherwise. The primary care veterinarian had originally prescribed amoxicillin with clavulanic acid and antibiotic ocular ointment for 14 days. Minor improvements were noted in the amount of discharges. The cat’s energy level and quality of life otherwise continued to be normal. Blood work, skull and chest radiographs were normal. Castration was performed without event. Conjunctival herpes and Chlamydia cultures were negative. A nasal culture was not done at that time due to lack of equipment. Empiric courses of orbifloxacin, clindamycin and enrofloxacin yielded mild, none and marked improvements, respectively. Month-long courses of enrofloxacin every few months were implemented when the purulence showed evidence of epistaxis. Nasal administration of triple antibiotic drops with dexamethasone did not improve clinical signs.

One year later, physical examination was the same. The cat was of normal stature, energetic and within normal limits other than the nasal discharge, ocular discharge and respiratory noise. An endoscopic examination, flush and culture were performed of his nasal passages. These
showed inflammation, mucopurulent discharge and a culture resistant to all oral antibiotics available at the practice, except for enrofloxacin. Consultation with a human otolaryngologist led to an attempt at a nasal steroid spray. This yielded only epistaxis and much agitation. Trial of oral prednisone resulted in epistaxis and severe drying of the nose.

Acupuncture required sedation due to the cat’s fractious attitude but did yield several days’ reduction in upper respiratory noise and mucopurulent nasal and ocular discharge. Due to the sedation, however, it was impractical to do acupuncture frequently. Acupuncture points used included GV20, GV14, BaiHui, LU1 and BL13. See Table 1 for special qualities and indications detailed for each point. (Note: having looked at this case again, I would have used points directed more at tonifying the Spleen and draining Damp. These points would have included BL20, ST40, SP6 and are included in Table 1. Further discussion on Spleen tonification and Damp draining follows.)

Two years later, another endoscopy with nasal flush was performed, again yielding resistant culture results. A biopsy showed neutrophilic and plasmacytic rhinitis. The condition was likely an allergy plus chronic infection. Since his quality of life was never affected, antibiotics were to be used as necessary. Over the years, the cat had two episodes of sterile cystitis that resolved without treatment and, very occasionally, soft stool. His diet was always Natural Choice Weight Control that was measured carefully as he had a tendency towards weight gain.

Chronic rhinitis in cats is prevalent yet has few effective treatment options. In an investigation of nasal disease in the cat at the University of Bristol in 2004, a retrospective study was undertaken of 77 cats presenting for nasal disease. Chronic rhinitis accounted for 27, or 35%, of cases. With these, clinical signs included nasal discharge, sneezing, upper respiratory tract noise, ocular discharge, weight loss, lymphadenopathy, cough, respiratory tract dyspnea, facial distortion and lethargy. Diagnostic procedures included nasal radiography, endoscopy, nasal flush with culture and cytology. The only mode of treatment was antibiotic therapy, used in 22 (81%) of the cases. Amoxicillin and clavulanic acid was used for 16 of the cats. Of those available for follow up, 11 cats still had clinical signs (five of which were treated periodically) and only three had resolution of clinical signs (Henderson et al 2004). This illustrates the few options and remarkably poor treatment success for this relatively common feline predicament.

Chinese Herbal Medicine has been studied regarding chronic respiratory disease in humans. A 2003 randomized, placebo-controlled study was conducted to assess whether the common treatment of Chinese herbal therapy for seasonal allergic rhinitis in humans was truly effective. A Traditional Chinese herb was used and it, consisted of 18 single herbs. The herb was evaluated based on a Five Point Scale as well as a Quality of Life Questionnaire. After eight weeks, the severity of nasal and non-nasal symptoms was significantly less in the active treatment group compared to the control group. Marked improvement rates were 60.7% and 29.6% for active and placebo respectively (Xue et al 2003). This is one study in many reflecting firstly, that herbal treatments are commonplace for human
rhinitis and secondly, that the treatments are often very effective.

**Physical Exam**

Three years later, the cat was evaluated again from a Chinese Medicine perspective. His personality was vocal and social. He got on well with the other dogs and cats in the home. He was always hungry, his thirst was normal. Bowel movements were regular, with an occasional soft stool. Urination, other than two incidents of stranguria and hematuria, was normal. He had a tendency to urinate inappropriately (in close proximity to the litterbox) if the litterbox was not cleaned daily. He had no stiffness or trouble sleeping. He sought warm areas to sleep in and preferred cushioned beds, except when it was very hot. He sneezed often and a brown- or red-tinged mucoid discharge would be evacuated.

On physical exam, his body condition score was 4/5. His coat was silky and smooth; he was energetic and very vocal. He had yellow-brown crust over both nares and very loud upper respiratory noise on inspiration. His eyes displayed yellow-brown tinged epiphora bilaterally. His inner pinnae had moist, brown discharge bilaterally. Everything else was within normal limits. His tongue was thick, bright pink, scalloped and wet. His pulse was quick and slippery. Active points were BL20 and BL23. My Chinese diagnosis at that point was Spleen Qi Deficiency with resultant Damp Heat accumulation. Table 2 illustrates clinical signs correlated with Traditional Chinese Medical diagnosis.

**Treatment**

The herbal formula chosen for treatment was San Ren Tang, Three Nut or Three Seeds Decoction. It has been described as one of the quintessential cat formulas of veterinary herbal medicine, as well as a main formula to address the ubiquitous problem of Damp Heat in small animals. San Ren Tang was developed to treat Damp Heat due to poor Spleen function. The formula is designed for patients who show signs of Damp but are not yet showing pronounced Heat signs. Heat signs include pruritus, agitation, hematuria and mild fever or heat intolerance. Damp signs include greasy coat, cough (moist or productive), snoring/reverse sneezing, profuse eye discharge, chronic vomiting, dysuria, crystalluria, chronic conjunctivitis and heat intolerance. Diseases treated in veterinary medicine include the following: asthma, nasal congestion, wheezing, snoring, canine reverse sneezing, constipation, recurrent cystitis, inappropriate urination, urolithiasis, cystitis, weight gains, chronic vomiting, inflammatory bowel disease, gastritis, seborrhea oleosa, allergic dermatitis and fungal otitis externa (Marsden 2006).

Biomedical aspects of the individual herbs comprising Three Seeds Decoction has been studied in detail. Apricot Seed, or Xing Ren (pictured below), has been shown to be an antihypertensive, antitussive and antiasthmatic, as well as antineoplastic herb. Coix Seed, or Yi Yi Ren, has proven
effects on muscles (inhibitory on skeletal, stimulating on smooth muscle of uterus, varied on intestines) with a sedative, analgesic, antipyretic and possibly antineoplastic action. Talcum, or Hua Shi, when applied externally, absorbs large amounts of chemicals and toxins to protect against skin irritation. When ingested, it protects the stomach lining from gastritis, suppresses nausea and vomiting, and reduces absorption of toxins through the intestinal tract.

Pinellia, or Fa Ban Xia, has antitussive, antiemetic and antineoplastic properties. Cardamom, or Bai Dou Kou, has the benefits of increased secretion of gastric acid, increased intestinal peristalsis and

<table>
<thead>
<tr>
<th>Acupuncture Point</th>
<th>Special Qualities</th>
<th>Indications</th>
</tr>
</thead>
<tbody>
<tr>
<td>GV20</td>
<td>Clears mind, tonifies Spleen, good for Liver Fire, Liver Yang Rising and Liver Stagnation, Yang Deficiency &amp; Collapse, Blood Exhaustion, Dispels Wind</td>
<td></td>
</tr>
<tr>
<td>GV14</td>
<td>Dispels Wind and Heat, Tonifies Wei Qi, Opens all the Yang Channels, Tonifies or Drains Yang</td>
<td></td>
</tr>
<tr>
<td>Lumbosacral point/Yao BaiHui</td>
<td>Sciatica, Pelvic Limb Disorders</td>
<td></td>
</tr>
<tr>
<td>LU1</td>
<td>Lung Alarm Point</td>
<td>Diagnostic, Respiratory, Cough, Bronchitis, Asthma</td>
</tr>
<tr>
<td>BL13</td>
<td>Lung Association Point</td>
<td>Dispels Wind, Wind Cold, Helpful in Lung Disorders and Dry Skin</td>
</tr>
<tr>
<td>BL20</td>
<td>Spleen Association Point</td>
<td>Drains Damp, Tonifies Qi and Blood</td>
</tr>
<tr>
<td>ST40</td>
<td>Luo Point, Influential Point for Phlegm</td>
<td>Transforms and Disperses Phlegm</td>
</tr>
<tr>
<td>SP6</td>
<td>Master Point for the caudal abdomen and pelvic disorders</td>
<td>Disperses Damp, Damp Heat, Tonifies Qi, Blood and Yin, tonifies Spleen, Useful for Poor Shen</td>
</tr>
</tbody>
</table>

(Marsden and Wynn 2003)
decreased vomiting. Lopatherum, Dan Zhu Ye, is both antipyretic and diuretic in this combination. Magnolia Bark, or Huo Po, has been shown to cause decreased secretion of gastric acid and to reduce contractions of duodenum, it is a mild anticoagulant, CNS suppressant, and an antihypertensive. It has a stimulating effect on respiration at low dose, inhibiting at high dose and is an antibiotic (Streptococcus matuans, Staphylococcus aureus, Bacillus subtilis, Diplococcus pneumonia, Bacillus dysterae) (Chen 2004).

The biomedical aspects of the individual herbs show why they would be useful in chronic respiratory and gastrointestinal diseases, in particular.

The formula was obtained as a tincture from Kan Herb Company. The dose was 0.2ml / 5 lbs twice daily. The herb was mixed with his food and he took the full dose daily.

Several months into the treatment, the cat’s diet changed from Natural Choice Weight Control to a blend of Wellness Grain Free and Natural Balance Limited Ingredient Grain Free kibble. The protein bases were Salmon and Duck. These are cooling and neutral in nature and are indicated for Heat conditions. The low carbohydrate food also promotes Spleen function and reduces the generation of Damp from a faulty Spleen. The herbal treatment and the diet change were staggered to better assess which treatment was affecting which clinical sign.

Results
The patient was assessed on a daily basis for epiphora, nasal discharge and upper respiratory sounds. Within two weeks, the patient had subjectively less ocular and nasal discharge, though it was still present. Within one month, minimal or no respiratory noise was audible, the crust over his nares was gone as was his eye discharge. His energy level was dramatically increased. The cat still sneezed and mucoid discharge would be present. He did not have any episodes of soft stool or cystitis after starting the herbs.

Every month or two, the cat would not be medicated for 1-2 days due to owner non-compliance. At these times, several days’ later, a brown crust would reappear over his nares and the loud respiratory noise and epiphora would return. As long as the herb was resumed as soon as possible, the cat’s signs again would disappear. After several months, the lag time it took for the signs to resolve lessened from one to two weeks, to two to three days. No repeat biopsy or other diagnostics were performed due to clinical improvement and anaesthetic requirement for attaining them, although having the diagnostics would have been ideal.

Discussion
This case represents a common scenario in veterinary medicine. Western medical options are exhausted, leaving few other options for treatment. Eastern medical treatment is considered and is a good option due to its different overall approach. Focusing on an underlying cause for this cat’s lifelong respiratory issues is the crux of the solution.

Cats are prone to Spleen Qi Deficiency. Spleen Qi Deficiency can be caused by overwork, complete fasting, inappropriate diet and over-consumption of food (particularly carbohydrates). In small animals, diet seems to be the primary
cause. Cats evolved as carnivores and the current commercial mainstream diets are very high in carbohydrates and may aggravate imbalances. Carbohydrates theoretically drain the Qi of the Middle Jiao (where the Spleen and Stomach exist). Without proper Spleen function, the organ is unable to transform fluids correctly, hence Damp accumulates. This Damp tends to accumulate were normal fluid would. Damp, in time, can become Damp Heat. In this cat’s case, Damp Heat accumulated in his Upper Jiao, within his nasal passages and his eyes. It occasionally took hold as Damp Heat in his Lower Jiao within the bladder wall and his colon, resulting in episodes of stranguria and hematuria. His body fat was from phlegm, a result of Damp accumulation (Marsden 2009).

San Ren Tang, or Three Seends Decoction, is designed to promote the descent of Lung Qi, transform and dry Damp in the Middle Jiao and drain Damp down to and out of the Lower Jiao (Marsden 2006). As the name indicates, it contains three seeds. Apricot seed is used in the Upper Jiao as an antitussive. Cardamom seed has gastric anti-inflammatory effects and stops vomiting in the Middle Jiao. Coix seed resolves colitis by inhibiting nitric oxide synthesis and this effect extends to the urinary tract. The other herbs support these actions and promote normal peristalsis, mobilize small amounts of swelling and reduce mucous production (Marsden and Fougere 2009). See Table 3 for more detailed information on individual herb qualities.

The formula was developed originally to treat human geriatric patients retaining phlegm and exhibiting Qi stagnation. These geriatric patients exhibit Qi Deficiency, which when coupled with overeating or over-consumption of cold or raw food, leads to stagnation of food and Qi. The overall purpose of the formula is to: 1. redirect Lung Qi and soothe the diaphragm and 2. to dissolve phlegm and promote food digestion. In humans, a white greasy tongue coating and slippery pulse suggest

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**Table 2**

<table>
<thead>
<tr>
<th>Clinical Sign</th>
<th>Traditional Chinese Medical Pattern</th>
</tr>
</thead>
<tbody>
<tr>
<td>Tongue: thick, pink, scalloped, wet</td>
<td>Damp Heat</td>
</tr>
<tr>
<td>Pulse: quick, slippery</td>
<td>Damp Heat</td>
</tr>
<tr>
<td>Brown Discharge in Pinnae</td>
<td>Damp Heat</td>
</tr>
<tr>
<td>Increased Hunger, but not Thirst</td>
<td>Damp Heat</td>
</tr>
<tr>
<td>Yellow Nasal Discharge</td>
<td>Damp Heat</td>
</tr>
<tr>
<td>Epiphora</td>
<td>Damp</td>
</tr>
<tr>
<td>Stranguria</td>
<td>Damp</td>
</tr>
<tr>
<td>Hematuria</td>
<td>Heat</td>
</tr>
<tr>
<td>Excess Body Fat</td>
<td>Phlegm</td>
</tr>
</tbody>
</table>

(Marsden 2006)
Qi Deficiency and Phlegm Retention. It is interesting to note that the human indications focus most on respiratory symptoms and gastrointestinal upset. These conditions of asthma and rhinitis are very common in our feline patients, in addition to inflammatory bowel disease and constipation (Chen and Chen 2009).

Although this cat’s exudates were yellow-brown in color (which reflects heat) and his tongue and pulse reflected Damp Heat, he did not seem so affected by Heat that he was restless and cool seeking, with malodorous secretions or halitosis. It was for these reasons, coupled with the fact that it is much more common to use San Ren Tang for these conditions, that I prescribed it.

<table>
<thead>
<tr>
<th>Pin Yin Name</th>
<th>English Name</th>
<th>TCM Action</th>
<th>Biomedical Action</th>
</tr>
</thead>
<tbody>
<tr>
<td>Xing Ren</td>
<td>Apricot Seed</td>
<td>Ventilates and regulates Lung Qi and relieves chest oppression</td>
<td>Antihypertensive, Antitussive and antiasthmatic, Antineoplastic</td>
</tr>
<tr>
<td>Yi YiRen</td>
<td>Job’s Tears Seed/Coix Seed</td>
<td>Dispels damp and strengthens Spleen</td>
<td>Effects on muscles (inhibitory on skeletal, stimulating on smooth muscle of uterus, varied on intestines), Sedative, Analgesic, Antipyretic, Possibly Antineoplastic</td>
</tr>
<tr>
<td>Hua Shi</td>
<td>Talcum</td>
<td>Clears Heat, Dispels Damp, Promotes Urination</td>
<td>Applied Externally: absorbs large amounts of chemicals and toxins to protect from skin irritation. Applied Internally: protects stomach lining from gastritis, suppresses nausea and vomiting, reduces absorption of toxins through the intestinal tract.</td>
</tr>
<tr>
<td>Fa Ban Xia</td>
<td>Treated Pinellia Rhizome</td>
<td>Activate Qi Circulation, Dispel Dampness, Relieve Distension</td>
<td>Antitussive, antiemetic, Antineoplastic</td>
</tr>
<tr>
<td>Bai Dou Kou</td>
<td>Chinese Cardamon Fruit</td>
<td>Dries Damp, activates Qi Flow</td>
<td>Increased secretion of gastric acid, increased intestinal peristalsis and decreased vomiting.</td>
</tr>
<tr>
<td>Dan Zhu Ye</td>
<td>Lophatherum Leaf &amp; Stem</td>
<td>Clears Heat, Dispels Damp, Cools Heart, Promotes Urination</td>
<td>Antipyretic, Diuretic</td>
</tr>
<tr>
<td>Hou Po</td>
<td>Magnolia Bark</td>
<td>Activate Qi Circulation, Dispel Dampness, Relieve Distension</td>
<td>Decreased secretion gastric acid/reduced contractions of duodenum, mild anticoagulant, CNS suppressant, Antihypertensive, Simulating effect on respiration at low dose, inhibiting at high dose, Antibiotic (Streptococcus mutans, Staphylococcus aureus, Bacillus subtilis, Diplococcus pneumonia, Bacillus dysteneriae)</td>
</tr>
<tr>
<td>Tong Cao</td>
<td>Tetrapanax Pith</td>
<td>Clears Heat, Dispels Damp, Promote Urination</td>
<td></td>
</tr>
</tbody>
</table>

(Chen and Chen 2004)
Ren Tang for a cat as a first approach, that I chose San Ren Tang over Si Miao San. Si Miao San would have been indicated if Heat Signs were more pronounced. Wei Ling Tang also addresses Damp, however the cat would need to be cooler overall.

A limitation of this case is the less than ideal use of antibiotics. It would have been more appropriate to initially flush and culture the cat’s nares and pharynx and use the sensitivity results to guide antibiotic use. Potentially, it could have reduced resistance in this cat. Enrofloxacin is a risky choice (of which the client was well aware). It is contraindicated in young, growing animals, due to the potential for cartilage abnormalities. Rarely, cats have have been reported to have ocular toxicity, mydriasis, retinal degeneration and blindness (Plumb 2005). It was unfortunate that this cat was uncooperative for acupuncture treatment. Had a laser unit been available, this would have been the perfect modality to use.

Conclusion
This case study demonstrates that Chinese Herbal Medicine can positively affect chronic rhinitis in cats, even after Western Medicine has not been effective.

References


Adaptogens are an underrated, underutilized tool in veterinary practice. We review several of the most useful adaptogens, how they work, how they are different from tonics and how they can make a significant difference to your cases.

Stress as a Major Cause of Disease
Stress is a normal physiological response to the demands of a stressor placed upon the body. Stress involves the co-ordinated activation of the neuroendocrine and the immune systems via the hypothalamic–pituitary–adrenal axis (HPA). The HPA axis is the feedback loop through which the brain signals release of stress hormones. These include corticotrophin-releasing hormone (CRH), adrenocorticotropin hormone (ACTH) and cortisol, as well as other compounds.

Normally, the hormones and neurotransmitters released by this response enhance metabolic and cardiovascular activity in order to manage the stressor. This response is meant to be acute and time limited. However, if the stressor is continuously applied or chronically intermittently applied, the body can become compromised. This is through the sustained physiological effects of various hormones and neurotransmitters involved in the stress response.

Much of the research into the effects of stress was carried out by Hans Selye, who developed a theory called the General Adaptation Syndrome (GAS). This syndrome has four general stages: alarm stage, resistance stage, exhaustion stage and resting stage. According to Selye, the non-specific response or ‘adaptation energy’ which allows an organism to respond to or resist stress will decline with increasing or continuous exposure to stress. He hypothesized that stress can be both a result of chronic illness as well as a contributor to the development of long-term health problems. Further, that the body’s ability to cope with stress is an exhaustible resource (Porth 2002).

For example, cortisol assists in adaptation to normal everyday stress. Cortisol normally rises and falls with daily rhythms, however prolonged or severe stress disrupts this cycle. Chronically stressed individuals may have higher base-line cortisol levels and produce too much, or too little, of it at the wrong times.

When manufactured in large amounts or elevated as a result of chronic stress, cortisol can play a major role in the development of disease. Its normal role...
is to maintain blood glucose levels (to support the fight or flight response), by antagonizing the effects of insulin. At the same time, cortisol enhances the effect of catecholamines (such as adrenalin) on the cardiovascular system.

Cortisol also:

- Suppresses osteoblast activity, haematopoiesis, protein and collagen synthesis
- Suppresses immune responses
- Suppresses renal function.

Sustained, elevated levels of cortisol can therefore affect all these activities and systems, as well as suppressing growth hormone (with prolonged presence of cortisol), decreasing levels of thyroid stimulating hormone and inhibiting reproductive hormones. It therefore has a far-reaching role to play in the development of disease through the suppression or interference of normal physiological functioning at these many levels (Porth 2002).

There is also the possibility of adrenal depletion or under activity due to exhaustion of the adrenal glands. In this situation, the beneficial physiological effects of cortisol in normal functioning are compromised. For example, posttraumatic stress disorder in people is characterized by decreased levels of cortisol. Systems that are normally ‘contained’ by cortisol become hyperactive. In the immune system, inflammatory agents (cytokines) and self-generated responses (autoimmune) are no longer contained by circulating cortisol. As a result, disorders, such as arthritis, and autoimmune diseases, such as lupus, may occur.

Stress is characterized by high activity of the HPA axis and of the sympathetic nervous system (sympathoadrenal system, or SAS). Secretion of adrenalin and noradrenaline is stimulated by acetylcholine release from preganglionic sympathetic fibers innervating the medulla. Many types of stressors stimulate such secretion. Some major effects mediated by epinephrine and norepinephrine include:

- Increased rate and force of contraction of the heart muscle
- Constriction of blood vessels
- Norepinephrine, in particular, causes widespread vasoconstriction, resulting in increased resistance and hence arterial blood pressure
- Increased metabolic rate
- Oxygen consumption and heat production increase throughout the body in response to epinephrine
- Inhibition of certain non-essential processes, for example inhibition of gastrointestinal secretion and motor activity.

Defining Adaptogens

The term adaptogen was first defined in 1947 by Lazarev, a Russian pharmacologist. He defined adaptogens as agents that help an organism to counteract the effects of any adverse stressor (physical, chemical or biological) by generating nonspecific resistance (Panossian 1999).

In 1969, Breckman and Dardymov further defined the term adaptogen as having three basic properties (Wagner 1995). An adaptogen must:
• Have a normalizing or regulating effect on organ and system function by counteracting the changes produced by stress.

• Produce a nonspecific response by increasing resistance to a broad spectrum of harmful stressors (probably acting on GAS).

• Be innocuous (nontoxic) in having a broad range of therapeutic effects without altering the normal functioning of the body.

A more recent definition of plant adaptogens is ‘smooth pro-stressors which reduce reactivity of host defense systems and decrease damaging effects of various stressors due to increased basal level of mediators involved in the stress response’ (Panossian 1999).

Adaptogens are frequently tonics. The essence of adaptogens is to conserve adaptogenic activity and tonics increase adaptation energy.

**How Do Adaptogens Work?**

The exact mode of action of adaptogens is unknown, but many possibilities have been postulated. One theory proposed by Dardymov and Kirkorian argues that adaptogens work primarily via their antioxidant and free radical scavenging effects (Panossian 2003) however, most plants have antioxidant activity but are not adaptogens.

More recent studies postulate that adaptogens work by affecting the HPA axis and SAS (Panossian 2003). The mode of action of adaptogens is basically associated with the stress system (neuroendocrine-immune complex) and can be directed on the various targets of the system involved in regulation (activation and inhibition) of stimulus-response coupling. It seems that adaptogens have the ability to switch systems on and off (Panossian 1999).

This regulation of a highly stressed system is achieved via both:

• Activating catecholamines, LT-s, cytokines, NO, etc – the ‘switch on’ system – which activates energetic and other resources of the organism.

• Deactivating stress-messengers: corticosteroids and PGE2-endogenous mediators of cellular communications, which protect cells and the whole organism from overreacting to the activating messengers – the ‘switch off’ system.

The balance between the activities of the switch on and switch off systems reflects the well being of the organism (Panossian 1999).

In the process of adaptation to the effects of stressors, the basal level mediators of switch on (eg NO) and switch off (eg cortisol) systems increase, but their balance (the ratio) does not change. In other words, adaptogens increase the capacity of the stress system to respond to external signals at the higher level of the equilibrium of activating and deactivating mediators of stress response (Panossian 1999).

An example of adaptogenic activity is Siberian ginseng. This has a sparing effect on the adrenal cortex allowing the organism to better withstand prolonged stress. Siberian ginseng may act by enhancing hypothalamic function by preventing stress-induced reduction of...
noradrenalin and dopamine through inhibiting their degradation.

Panax is another example of adaptogenic activity and it too has an adrenal sparing effect. This is mediated through the anterior pituitary and ACTH release. Panax may act by interfering with pituitary and hypothalamic feedback control of glucocorticoid levels in the body. This is by increasing the sensitivity of glucocorticoid receptors in the hypothalamus and thus fine tuning the nonspecific response to stress.

In many studies, adaptogens have been shown to:

- Increase physical and mental stamina
- Improve immunity and reduce the incidence of infection
- Protect against the effects of radiation and chemotherapy
- Increase resistance to chemical carcinogens.

Herbs with well-established adaptogenic activity are:

**Panax Ginseng**

Panax is adaptogenic, stimulant, tonic, thymoleptic, hypoglycaemic, immunostimulant, hepatoprotective, cardioprotective, antiarrhythmic and increases ACTH. Energetically it is neutral and dry. It is a useful herb to aid with short-term stress, recovery from disease or surgery, to minimize side effects of chemotherapy, cardiac arrythmias, improve resistance to infection, low sperm count, chronic inflammation, long-term use for geriatrics, diabetes, asthma, cancer, depression and for mental disorders.

Veterinary use includes: improving immune function, congestive heart failure, as an adjuvant for vaccination, mastitis treatment in cattle, liver disease in dogs, tonic for convalescing animals, tonic for performance animals and for fertility improvement in male animals.

**Eleutherococcus senticosus**

Siberian ginseng is immune modulating, antioxidant, anti-inflammatory, nervine and adaptogenic and is energetically warm. Its uses include: stress, chemotherapy protection, fatigue, hypertension, ischemic heart disease, immune compromise, infertility, menopause, recuperation from disease or surgery, radiation protection and tonic for geriatric patients. It is possibly useful in cancer, diabetes, depression, alcoholism and mental disorders. Siberian ginseng is considered to be less stimulating than Panax ginseng.

Potential veterinary indications include: aiding recovery from acute and chronic disease, for pound animals under undue stress, to improve performance of athletic animals, prophylaxis against stress, improving productivity in food animals, allergic skin disease, head and brain injuries, adjunct to radiation therapy, adjunct therapy for cancer to decrease side
effects of conventional therapy, thrombosis in cats, increasing fertility in bulls and for non-insulin dependent diabetes.

**Withania somnifera**

Ashwagandha is a tonic, adaptogen, nerve, sedative, anti-tumor in high doses, anti-inflammatory, anodyne with warm, sharp pungent and sweet properties. Its uses include general debility, malnourishment, senile debility, arthritic conditions, nervous exhaustion, fatigue, senile dementia, muscular weakness, insomnia, general nerve tonic and skin diseases.

Potential veterinary uses include: aspergillosis, laboratory animal stress, osteoarthritis, cognitive dysfunction, adjunct to cyclophosphamide chemotherapy or long-term prednisolone therapy, anaemia, convalescence, hypothyroid disease and hypertension. Plus, emaciation and chronic diseases, especially if inflammatory in nature. Ashwagandha may have some preventative role in cancer.

**Astragalus membranaceus**

Astragalus is an immune enhancing, tonic, cardiotonic, diuretic and hypotensive herb with sweet and slightly warm properties. Uses include: chronic infections, immune deficiency, cancer, chronic wounds and lesions, chronic hepatitis, hypertension, congestive heart disease, chronic debility and aging.

Veterinary uses include geriatric support, congestive heart failure, early heart failure, chronic infections, immune deficiency and cancer.

Others with less well established adaptogenic activity include:

- *Schisandra chinensis*
- *Bupleurum falcatum*
- *Codonopsis pilosa*
- *Panax quinquefolius*
- *Glycyrrhiza glabra*
- *Cordyceps sinensis*.

**Clinical Role of Adaptogens in Veterinary Practice**

Because of their effects on the body’s ability to withstand stress, and combined with tonic activity, these herbs can be used for a wide range of conditions and just about any form of chronic disease. Adaptogenic herbs can be used for the following conditions:

- Any chronic illness
- Convalescence
- Post surgery
- Stress
- Boarding/ kennels
- Pound/ rescue animals
- Travel stress
- Intensive training
- Chemotherapy
• Radiation therapy
• Debility
• To improve performance.

The particular adaptogen selected for use in a formula will depend on the other actions attributed to the herb, as well as its energetics.

Considering the four major adaptogens more closely:

Panax, Astragalus and Withania contain saponins as the major active constituents. Siberian ginseng contains eleutherosides (phenolic glycosides) quite different from the ginsenosides in Panax. However, two triterpenoid saponins have also been found in Siberian ginseng that might play a role in its biological activity.

In humans, Panax has a fast speed of action and is generally used for short periods in low doses (0.5-1g/day), compared to Siberian ginseng and Astragalus which are slower to work and are given over longer periods at higher doses (2-4g/day). Withania needs to be used in relatively high doses to be effective (3-6g/day).

Panax is above all a tonic herb having a wide range of pharmacological effects which can revitalise the functioning of the organism as a whole and as an adaptogen. Panax increases resistance to a wide variety of physical, chemical and biological stressors. Siberian ginseng is less of a tonic, however it is safer and cheaper than Panax. Siberian ginseng rarely causes excitation or a stress-like syndrome in patients and it has a more general effect on immunity. As well, Siberian ginseng causes a more profound increase in stamina than Panax. Panax has a higher likelihood of adverse reactions including the potential for Ginseng Abuse syndrome due to over stimulation, (it should not be used in Yang-type patients) and is best suited to older patients.

Withania, like Panax, has adaptogenic and tonic properties. However, it is more like Siberian ginseng in that it lacks the stimulating effects of Panax. In fact, Withania has more of a sedating effect and is ideally suited for patients who are debilitated but overactive (especially younger animals) where Panax might aggravate over stimulation. Withania is also very useful in osteoarthritis. Like Siberian ginseng, Withania is a very safe herb. Astragalus is both tonic and adaptogenic and has a special affinity for the cardiovascular system, liver and kidneys. It is ideally suited for aged patients with chronic disease.

Siberian ginseng can help prevent infections if given prior to exposure, but can worsen infections if given simultaneously. However, when given long term, it reduces the incidence of acute infections. Similarly, Panax and Astragalus should not be used in acute infections, but they increase overall resistance to infection. Withania has a favorable effect on immune function when it is impaired by chemical or biological stressors and is not contraindicated in acute infections. Withania has strong anti-inflammatory activity which confirms its traditional use in arthritis and may reflect its steroidal components.

All four herbs can be used for cancer treatment. Siberian ginseng has a protective effect against radiation and inhibits spontaneous malignant tumors and tumors induced by carcinogens. Panax inhibits the growth of various
tumors and induces cell differentiation, it protects from carcinogens and it might also inhibit metastasis. Withania has anti-tumor activity and appears to increase the sensitivity of tumor cells to radiotherapy. It also helps maintain body weight in cancer patients and has a tumor-inhibitory effect. Astragalus has an anti-neoplastic effect and inhibits solid tumors.

All four herbs reportedly improve mental performance. Siberian ginseng has improved mental and physical performance and stamina of various groups of workers, although it has been noted to increase levels of noradrenalin and serotonin and possibly aggression in mice. Panax has had mixed results for mental performance, generally favorable. It is best noted as a tonic for the elderly in Chinese, improving wellbeing and mental alertness. Withania has a paradoxical effect, both improving mental performance as a cognitive enhancer, but also demonstrating sedative and anti-epilepsy activity. Astragalus has delayed senility in mice and improved brain function.

By choosing the most indicated adaptogens and adopting them in each case, we can reduce the detrimental effects of stress on patients, giving an increase in wellness and energy as well as alleviating many symptoms. They combine well with nervine herbs in stressful situations, as well as adrenal tonics like Rehmannia and Licorice.

Often clients will report an improvement in their animals’ wellbeing within two weeks, even if some of the key symptoms remain unchanged. From a traditional perspective, this may represent an improvement in the vital force of the patient, which is possibly the most critical resource to engage in reversing the health continuum from chronic disease towards wellness.

References

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Literature Review: Risks and Pitfalls of Herbs in Sporting Horses
Kim Chase

History
To find the origin of horses in a sporting environment we turn to Ancient Greece, around 800 BC. As part of the culture, horseracing developed into a competitive sport and chariot racing became prominent in early Olympic Games. The Ancient Romans fed supplements to their horses to increase endurance and through the centuries, war horses and medieval steeds were given ‘remedies’ to boost strength and stamina (Higgins 2009).

According to Higgins (2009): “In the 16th century, stimulants were known to have been given to racing horses to help them win, and the first rules prohibiting the use of ‘exciting substances’ in horse races are thought to have been introduced in England in 1666.”

Physical Effects of Training
In many ways, the job asked of a modern competitive horse is contrary to its nature. It is the impressive adaptability of this species that allows equine athletes to accommodate the demands of strenuous training and to cope with the physical and psychological stresses of competitive showing. Many horses, however, never completely adjust to the pressures and remain in a state of chronic stress (CS) throughout the show season. These horses demonstrate such subtle signs of long-term stress that the related problems are overlooked or misinterpreted as behavioral issues (King 2006).

According to King (2006): One of the key events in the stress response is the release of cortisol by the adrenal glands. Cortisol is a hormone with wide-ranging effects on tissues throughout the body. The effects have important implications in athletic horses: cortisol decreases the movement of glucose from the bloodstream into muscle cells. This is meant to be a protective response, in that it conserves blood glucose for essential functions, such as brain activity. However, in an exercising horse it decreases the availability of this energy source to the working muscles. As a result, athletic performance is lower than expected for the stage of training.

Another common effect is gastric ulceration (stomach ulcers.) In one study of show horses in active training, gastric ulcers were detected on endoscopic exam of the stomach in 58% of horses that had been transported to at least 1 event in the 30 days prior to endoscopy (McClure, Glickman and Glickman 1999). In a study of endurance horses, the prevalence of squamous gastric ulcers
was 93% during the competition season (Tamzali et al 2011).

Chronic cortisol release also suppresses immune function, impairs tissue healing and causes a loss of muscle mass as amino acids from muscle proteins are used to produce glucose. Horses experiencing CS are more susceptible to infections and are slower to recover from illness and injury, as chronic cortisol release suppresses immune function and impairs tissue healing (King 2006).

Growing Interest in Herbs
There is increasing interest to find new and natural substances, mainly herbal derivates, that improve biological function and increase health. Evidence is accumulating for the benefit that can be gained by inclusion of medicinal herbs into managing equine health. Claimed ergogenic effects of equine herbal products include: boosting the immune system; improving antioxidant status; improving general stress–coping abilities and concentration; and augmenting performance (Bergero 2006). Research on horses has demonstrated the benefit of herbs in several equine disorders, including recurrent obstructive pulmonary disease, allergic dermatitis and joint inflammation, in addition to modulating immune responses in healthy horses (Pearson 2008).

Herbal Properties That May Have Relevance for Performance Horses
Herbal supplements that affect the immune system can be classified as adaptogens, immunostimulants, or both. Adaptogens increase resistance to stressors (physical, chemical or biological) whereas immunostimulants activate the nonspecific, or innate, defense mechanisms against viral, bacterial or cellular infections. Adaptogenic herbs contain substances that improve the body’s ability to handle stress and resist disease (King 2006). The beneficial stress-protective effect of adaptogens is related to regulation of homeostasis via several mechanisms of action associated with the hypothalamus-pituitary-adrenal (HPA) axis (Panossian and Wikman 2009).

Several different plants have been found to be potent adaptogens, including: Ginseng (*Panax ginseng*); Siberian Ginseng (*Eleutherococcus senticosus*); Golden Root (*Rhodiola rosea*); Magnolia Vine (*Schisandra chinensis*); Asian Devil’s Club (*Oplopanax horridum*); Manchurian Aralia (*Aralia continentalis*); Licorice (*Glycyrrhiza glabra*); Ashwaghandha (*Withania somnifera*); and Astralagus (*Astralagus membranaceus*). In addition, Aralia extract (*Aralia mandchurica*) was as effective as Tagamet (cimetidine) in resolving gastric ulceration in a study using rats (King 2006).

A common problem for performance horses is ‘sport horse anemia’. This reduces oxygen delivery to the muscle cells during effort, thus decreasing the anaerobic threshold with the ultimate result being loss of performance. Ginkgo (*Ginkgo biloba*) is used in this case with good result (Bergero 2006).

A number of herbs demonstrate anti-inflammatory activity. Ginseng (*Panax ginseng*) has been found to exert an inhibitory effect on pro-inflammatory cytokines and COX-2 expression (Williams and Lamprecht 2007). On the equine supplement market, Ginseng (*Panax sp.*) is marketed and sold for use in stimulating the immune system, decreasing stress and increasing optimal performance. The main components include glycosidal saponins,
called ginsenosides. Equine studies have also tested the anti-inflammatory effects of a single dose of ginger (*Zingiber officinale*) and results suggest that ginger reduces post-exercise cardiovascular recovery time in horses (Nettie 2004). Since ginger is also an antiulcerogenic, many ulcer-relief herbal supplements for horses contain ginger as a major ingredient.

Yucca (*Yucca schidigera*) contains steroid-like saponins that produce anti-inflammatory, antioxidant and anti-spasmodic effects to reduce pain associated with arthritis (Cheeke et al 2006). Devil’s claw (*Harpagophytum procumbens*) is established as one of the highest selling herbs for horses and is often called ‘herbal bute’ (Hart nd) and is primarily sold for its pain reducing properties (Williams and Lamprecht 2007). The active ingredients are various iridoid glycosides, acetylated phenolic glycosides and terpenoids. Most of the human clinical studies reported a decrease in pain intensity and an increase in flexibility after being supplemented with devil’s claw extract. These results could potentially be transferred to equine medicine when dealing with flexibility or potential clinical efficacy (ie flexion tests). However, the authors are unaware of any exclusive devil’s claw studies performed on horses (Williams and Lamprecht 2007).

A study in horses with naturally occurring osteoarthritis looked at the effect(s) of ‘Mobility,’ a proprietary polyherbal composite joint supplement containing devil’s claw. An anti-inflammatory effect was observed in the horses due to a reduction in prostaglandin e2 synovial fluid content (Pearson 2008). Devil’s claw was combined with Black currant (*Ribes nigrum*), Horsetail (*Equisetum arvense*) and White willow (*Salix alba*) in a study on horses with bone spavin by Montavon (1994). Twenty horses participated in the study; 10 received the herbal blend and ten horses received phenylbutazone. After 120 days, the horses that received the herbal blend had an average lameness score of 6 (on a scale ranging from 0-12) and the horses that received phenylbutazone had an average lameness score of 8.6 (Fors 2009).

The equine industry typically uses Echinacea (*Echinacea purpurea*) as an immune booster to complement a healthy immune system. The common active components of the echinacea species include polysaccharides, glycoproteins, alkamides and cichoric acid. Further, Garlic (*Allium sativum*) has a broad anti-microbial spectrum and anti-parasitic properties. It is typically included in equine supplements for its expectorant action to help break up mucous (Williams and Lamprecht 2007). However, this action is secondary to the primary use of garlic in the horse industry as an insect repellant (Williams and Lamprecht 2007). One equine study found that garlic fed at > 0.2 g per kg per day developed Heinz body anemia (Williams and Lamprecht 2007).
According to King (2006), studies into the effects of adaptogens on exercise capacity in other species have produced conflicting results. Some studies showed a positive effect on exercise capacity, while others showed no effect. An effect is most likely in untrained (i.e., unfit) subjects and is most consistently seen as an increase in endurance (i.e., a delay in the onset of fatigue). Most studies in ‘fit’ human athletes show no effect on performance. So far, practical use in performance horses supports a similar conclusion: that adaptogenic herbs should not be considered performance enhancing substances, but rather substances which simply support optimal health and function.

**Drawbacks in the Use of Herbs in Horses**
Most herbs have not been clinically tested and this is especially true for the horse. The type and amount of active substances in different herbs is not always analyzed before use and not all studies report tests of the active ingredients. Adulteration is a common cause for toxic or adverse reaction to herbs. Adulteration includes substitution of herbs and intentional or unintentional contamination with active components, drugs, pollutants or pathogens (Fors 2009 cited in Mills and Bone 2005). Research is lacking as there is a great selection of studies on specific herbs but, of those, very few are performed on horses.

**Herbs Treated as Drugs**
Herbal medicines have unique characteristics discriminating them from non-herbal nutraceuticals. This arises primarily from the occurrence of secondary metabolites that protect the plants against herbivores, microorganisms and other hostile environmental factors (Pearson 2008). There is a common misconception that such ‘natural’ herbal products are not prohibited substances. These products contain ingredients able to affect body systems and thus are, by definition, prohibited substances. An excerpt from one research study illustrates how drugs and herbs in equine competition are sometimes perceived as one and the same: “The future of equine drug metabolism in the area of doping research will be influenced by several factors including the increasing threat of ‘designer’ and herbal-based products” (Scarth, Teale and Kuurane 2010).

The 2008 Beijing Olympics are a striking example of how confusing, and potentially dire, circumstances are with the use of herbs in equine competition. Several riders were disqualified from competition for testing positive for the same banned substance: Capsaicin (*Capsicum frutescens*). Capsaicin is banned by the Federation Equestre Internationale (FEI) as it stimulates P substance and has pain-relieving properties. The theory is that after the initial burning sensation, which is associated with heightened sensitivity, follows a period of reduced sensitivity. If rubbed onto a horse’s shins just before competing, a rider can time the period of heightened sensitivity associated with the burning to encourage the horse to pick up its legs over the jumps to avoid hurting itself, thereby potentially improving its performance (Birch 2011). However, capsaicin does not appear on the FEI Medication Class A list of banned substances with other herbs such as valerian. Paul Farrington, an FEI vet (2008), commented that capsaicin had always been banned but only recently had a test been developed to detect it. Farrington posed the question: “If this was the case, wouldn’t
it have been fair to alert competitors to this fact?” One could speculate that overlooking adding capsaicin to the prohibited list in a timely manner was an attempt of the Olympic committee to stay one step ahead of perceived drug abuse, but it may simply have been a symptom of the inconsistent application of regulations to the sport. It was reported at the time that one competitor’s positive came from capsaicin in an anti-chewing product he had put on his horse’s bandages and stall (Hart nd)

**Rules and Standards of Equestrian Sport**

FEI is the world governing body for equestrian sports. FEI distinguishes between medication (ie veterinary treatment provided to safeguard the animal’s health and welfare) and doping (ie the deliberate intent to affect the performance of a horse or to mask an underlying health problem). There are presently three classes of offence: Doping, Medication Class A and Medication Class B. Medication Class A (therapeutic agents that could influence performance, e.g., relieving pain, sedating, stimulating or producing/modifying physiological or behavioral effects) is the category that herbs are mostly classed within (Higgins 2009). FEI (2010) sanctions for violating anti-doping regulations for Medication Class A substances can lead to a one-year ban from competition.

Most disciplines that compete under United States Equestrian Federation (USEF 2010) rules are subject to the ‘Therapeutic Substance Provisions.’ It states in part: ‘Trainers, owners, exhibitors are cautioned against the use of medicinal preparations, tonics, pastes, powders, and products of any kind, including those used topically the ingredients and quantitative analysis of which are not specifically known, as they might contain a forbidden substance. This is especially true of those containing plant ingredients. The plant origin of any ingredient does not preclude its containing a pharmacologically potent and readily detectable forbidden substance.’

A further caution (USEF 2010) states: ‘Persons administering a so-called herbal or natural product to a horse or pony to affect its performance, having been comforted by claims that the plant origin of its ingredients cause it to be permitted by the rules as well as undetectable by drug tests, might have been misled. Trainers should be most skeptical about any claims by manufacturers or others that their preparation is ‘legal’ or permissible for use at competitions. It is the longstanding policy of USEF that it does not approve, endorse or sanction herbal, natural or medicinal products of any kind.’

Forbidden herbal substances listed in the USEF’s ‘Drugs and Medications Guidelines’ handbook include: belladonna, camphor, capsaicin, chamomile, comfrey, devil’s claw, hops, kava kava, lavender, lemon balm, leopard’s bane, night shade, passion flower, rauwolfia, red poppy, skullcap, valerian and vervain. Under the Rules of Racing in the United Kingdom (UK), the British Horseracing Authority (2010) policy states that medications, including herbal products, may be used during training but that they must be withdrawn so that their ingredients are not present on race days, and must not be administered on race days.

**Detection**

Prohibited substances are often considered to be synonymous with drugs (pharmaceutical medication), however this
is not the entire picture. There are a variety of substances of differing origins that will be regarded as prohibited including, but not restricted to, approved equine veterinary drugs, dietary supplements, endogenous substances, human drugs and herbal products (Dunnett 2009). The word doping traditionally describes the illegitimate use of drugs and the objective of analytical screening is to detect any trace of drug exposure (parent drug or metabolites) using the most powerful analytical methods, generally chromatographic/mass spectrometric techniques (Toutain 2010). The so-called ‘zero-tolerance rule’ adhered to by FEI is not suitable for medication control however, because the high level of sensitivity of current screening methods allows the detection of totally irrelevant plasma or urine concentrations of legitimate drugs for long periods after their administration. For this reason, new approaches for the legitimate compounds based upon pharmacokinetic/pharmacodynamic (PK/PD) principles are being developed (Scarth, Teale and Kuuranne 2010).

The detection time (DT) is the approximate period of time for which a drug (or its metabolite) remains in a horse’s system such that it can be detected by laboratory analysis. The withdrawal time (WT) for a drug must be decided upon by the treating veterinarian and is likely to be based on the DT plus a safety margin, chosen with professional judgment and discretion to allow for individual differences between horses such as size, metabolism, degree of fitness, etc.

FEI (2010) states that veterinarians have to advise owners or trainers on appropriate WTs to guarantee that their horses may safely compete after drug administration. DTs typically range between three and 10 days.

Although the list includes many specific pharmaceutical medications, there is no mention of WTs for herbs or herbal extracts. One of the possible limits to published DTs is the fact that they are determined from classic pharmacokinetic studies performed at rest under laboratory conditions. In field conditions, training and exercise programs may have an influence on drug elimination (Authie and Garcia 2010). Another limiting factor in drug detection is that the rate of drug metabolism can vary between breeds of horses, ie standardbreds vs thoroughbreds (Scarth 2011). A pilot study in the UK of tail-hair analysis suggests that this method could be used as a diagnostic tool in the investigation of drug abuse. Hair analysis is complementary to urine/blood testing and is noninvasive, impersonal and can facilitate retesting. The data presented suggest that hair analysis may become a usable technique for the retrospective detection of drug administration in horses (Dunnett and Lees 2004).

Inconsistencies in Banned Substances
There are many discrepancies between the lists of the various equestrian organizations.
The USEF banned substance list contains herbs by their common names and is more extensive than either those of FEI or the Jockey Club UK. In contrast, FEI does not list the herb by name, rather it identifies prohibited substances according to their active constituents and the physiological systems upon which they act. Lobeline, an alkaloid of the Lobelia plant found in Indian tobacco (Lobelia inflata), Cardinal Flower (Lobelia cardinalis) and Star of Bethlehem (Hippobroma longiflora), is listed as a respiratory stimulant. Valerenic acid, a sesquiterpenoid constituent of the valerian plant is listed as a tranquilizer. As FEI is an international governing body, trade names of the various drugs (or names of herbs) may not be consistent in different countries, so the challenge is to standardize the list as much as possible, but this just seems to add to the confusion.

FEI states that it reserves the right to alter the list at any time without prior notice, and USEF makes clear that its current list of banned substances is only partial, perhaps in a concerted effort to stay ahead of potential abusers. Equistro (2009) reported that one of the authorized FEI analytical laboratories announced that it had the possibility to test for ‘harpagosides’, the presumed active ingredient found in devil’s claw. This may be true, but the process whereby a herb officially becomes an illegal substance is vague and as a result keeps all competitors guessing. It has been suggested that devil’s claw and chamomile are likely to be the next herbs added to FEI’s prohibited list.

Consistent regulations regarding herbs may be far off, since the governing bodies for equestrian sports have not come to an agreement on which drugs should be permitted in competition. Phenylbutazone, along with Regumate, Gastroguard and antibiotics are now allowed in FEI competitions, yet continue to be banned by the German Equestrian Federation. These medications are now included on the FEI ‘Progressive List’ as they are no longer considered performance enhancing. Following this logic, it stands to reason that adaptogenic herbs, having been found not to be performance enhancing substances in fit subjects, should also be permitted.

**Herb/Drug Interaction**

There are inherent risks to the use of herbal medicine in horses, in particular with respect to potential interactions with conventional drugs. High intensity exercise typical of athletic horses increases the susceptibility of these horses to disease and results in increased use of medication compared with sedentary horses. Thus, concurrent use of herbal medications in racehorses poses a potential risk of herb/drug interactions that are likely not recognized by the owner or attending veterinarian. Current data from the Ontario Horse Racing Industry Association concludes that concurrent use of herbs and conventional veterinary medicine is common and may represent a significant risk for herb-drug interactions. Unlike conventional veterinary medicines, which are well characterized with respect to bioactivity, toxicity and contraindications, medicinal herbs are largely uncharacterized with relatively unspecified and variable bioactivities (Pearson 2008).

The most common medications used in on-track horses are furosemide, anti-inflammatory, bronchodilators, herbal medicines, antibiotics and others (including hormone therapies, antiparasitics for
equine protozoal myeloencephalitis – or EPM – and anthelmintics). Interactions known to be related to the first three drug categories have been reported. A number of herbs have been associated with adverse reactions with bronchodilators such as theophylline, including St John’s Wort (Hypericum perforatum), Ginkgo (Ginkgo biloba) and Cardospermum (Cardospermum halicacabum). It has been suggested that these herbs should be avoided in horses being medicated with bronchodilators (Pearson 2008). Echinacea constituents can either inhibit or activate cytochrome P450 enzymes and drug transporters. Consequently, when a horse is receiving other medications, echinacea may (although it has not been proven) modulate the absorption and disposition of co-administered drugs (Robinson 2006). Based on human studies, ginseng (species) is associated with reduced efficacy of furosemide, therefore a similar interaction in horses might be expected.

One should be careful when using ginseng in horses that are under long-term medication with nonsteroidal anti-inflammatory drugs (NSAIDs) as these have the potential to interact with each other (Williams and Lamprecht 2008 cited in Miller 1998 and Poppenga 2001). There are many more herbs with potential to interact with NSAIDs. It is advised that any herbs containing salicin such as White willow (Salix alba) or Meadowsweet (Filipendula ulmaria), be avoided as they can lower the dose of NSAIDs, resulting in adverse effects. Using these herbs and reducing the dose of NSAIDs required actually may have a protective effect against NSAID-induced ulceration. NSAIDs have the theoretical potential to interact with herbal supplements that are known to possess antiplatelet activity (gingko, garlic, ginger, bilberry, dong quai, feverfew, ginseng, turmeric, meadowsweet and willow) and with those containing coumarin (chamomile, motherwort, horse chestnut, fenugreek and red clover) (Abebe 2002).

**Herbal Substitutes for Drugs**

Every discipline of equine competition has its own group of standard medications. Racehorses are routinely administered furosemide and theophylline, and there are several common medications for hunter and jumper horses including the NSAIDs ketoprofen (Ketofen) phenylbutazone (Bute) and flunixin meglumine (Banamine) which are all extremely useful medications for treating minor pain (USEF 2011).

Several different herbs or plant derivatives have anti-inflammatory and/or analgesic properties and are most useful in the management of acute inflammation in horses. These include devil’s claw, white willow, meadowsweet and capsaicin (King 2006).

Many equine-product companies advertise their own blends of proprietary polyherbal supplements for performance horses, including calming formulas of Zizyphus (Zizyphus jujuba var spinosa) and Wild lettuce (Lactuca virosa). It is of interest to note that one particular formula has replaced Valerian and it is now advertised as a product that does not elicit a positive result in drug-testing.

There is also a ‘detox’ blend that supports elimination. It contains Burdock (Artium lappa), Calendula (Calendula officinalis), Cynara (Cynara scolymus) and Sarsparilla (Smilax ornata), as well as a formula to
support tissues of the respiratory system consisting of Aniseed (*Pimpinella anisum*), Licorice (*Glycyrrhiza glabra*), White horehound (*Marrubium vulgare*), Thyme (*Thymus vulgaris*) and Elecampane (*Inula helenium*).

**Summary**

Under the current rules of the numerous official national and international equestrian committees, the use of herbs and herbal extracts in competition remains an under-researched and controversial topic in the health management of the elite competitive horse. Perhaps in the near future, herbal medicine can become a useful adjunct to drug therapy or an alternative for the sport horse, for example, in using adaptogens to reduce the stress associated with elite competition. At present, the subject seems to raise more questions than it answers. Greater understanding and knowledge of herbal medicine within the equine industry will hopefully dispel some concerns and lead to more appropriate use to help improve equine health and wellbeing.

**References**


King C (2006). *Stress, Performance, and Adaptogenic Herbs*. The Healthy Horse, Horses Inc.


**Monograph: Radix Codonopsis**
Gina McLachlan

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### Codonopsis pilosula

**Other Common Names:** Codonopsis, pilose Asia bell root

**Family:** Campanulaceae

**Pin Yin Name:** Dang Shen

**Parts Used:** root

**Distribution:** watery regions of Northeast Asia

**Selected Constituents:** major chemical constituents are alkaloids, glycosides, flavinoids, triterpenoids and water soluble polysaccharides (Chen 2004).

**Clinical Actions:** adaptogenic, gastrointestinal, immunostimulant, haematological, cardiovascular

**Energetics:** Sweet, neutral

**History and Traditional Usage**

Used traditionally as a substitute for ginseng, Codonopsis root was used in food therapy recipes as a Qi tonic. Due to the difficulty in sometimes acquiring ginseng, and its expense, Codonopsis was often used as an effective substitute at higher dosages. It was used in most cases of Qi Deficiency, especially chronic cases, and was effective in treating cases of Spleen and Lung Qi Deficiency. It was also used to Replenish Energy Deficiency, Strengthen the Immune System, lowering blood pressure, and improving appetite (Li CY 2009).

**Published Research References**

**Hematologic effects:** administration of water and alcohol extracts of Dang Shen is associated with an increase in red blood cells and haemoglobin, but a decrease in white blood cells and lymphocytes (Chen 2004).

One of the effects of the *Codonopsis pilosula* oral liquor in influencing blood coagulation in patients with coronary heart disease was its inhibition on platelet aggregation, but not through the elevating of fibrinolytic activity (Xu X 1995).

When analyzing the anti-oxidant effects of *Codonopsis pilosula*, the aqueous extract was found to inhibit erythrocyte haemolysis (NG TB 2004).

**Gastrointestinal:** administration of *Codonopsis pilosula* has shown to have preventative and treatment effects of peptic ulcers (text). Dosages from 50-250mg/kg increases gastric emptying time, decreases severity of ulceration and increase the amount of prostaglandins in the stomach. It has also shown to be
of benefit in ulcers produced by over consumption of non-steroidal anti-inflammatory

*Codonopsis pilosula* showed exciting action on isolated gastric muscle strips in rats. The exciting action of C. pilosula was partially mediated via cholinergic M + N receptors (Zheng TZ 1998).

**Adaptogenic:** *Codonopsis pilosula* has both stimulating and inhibiting effects on the central nervous system to help animals adapt to various stressful environments. Studies have shown intraperitoneal injection of the herb greatly enhances resistance to hypoxia in mice (Chen 2004).

In combination with selenium-Banciao, it had effects on promoting intelligence development and preventing hypoxia/reoxygenation injury (Xiao B 2005).

In combination with Ginkgo biloba, *Codonopsis pilosula* helped improve cognitive function and overall health better then Ginkgo biloba alone (Singh B 2004).

**Immunostimulant:** an increase in the number and activities of macrophages is associated with administration of *Codonopsis pilosula* in mice via intraperitoneal, intramuscular or intravenous injections (Chen 2004).

**Veterinary Trials**

**Cardiovascular:** intravenous injections of *Codonopsis pilosula* had a temporary effect to lower blood pressure in anaesthetized dogs and rabbits. In anesthetised cats, intravenous injection of the herb increases cardiac output and blood perfusion to the brain, lower extremities, and internal organs (Chen 2004).

**Gastrointestinal:** *Codonopsis pilosula* extract in animal models on gastric ulcers was evaluated. It was found that the extract had higher efficacy on ulcers induced by stress than other factors. The *Codonopsis pilosula* extract was also capable of reducing gastric acid secretion (Wang ZT 1997).

**Indications:** commonly used to treat Qi Deficiencies characterized by fatigue, lack of appetite, weak extremities and diarrhea.

Tonifies the Lung to treat coughing, wheezing, shortness of breath, and low voice from Lung Deficiency.

Excellent effect to tonify Qi, that in turn enhances the production of blood and body
fluids. Commonly used to treat cases of chronic illness characterized by Qi and Yin Deficiencies, or Qi and Blood Deficiencies.

Used for exterior conditions or interior excesses, such as common colds and constipation (with other herbs).

**Potential Veterinary Indications:** Constipation, lack of appetite, organ prolapse, uterine bleeding, cough, wheeze, peptic ulcers, immune stimulant, anemia, vaccine adjuvant (Sun YX 2009).

**Contraindications:** *Codonopsis pilosula* is a herb that may generate heat, therefore is should be used with caution in cases of excess fire or heat.

**Potential interactions:** *Codonopsis pilosula* is incompatible with *Li Lu* (Radix Rhizoma Veratri).

**Toxicology and Adverse Effects:** It has been reported that dosages of *Codonopsis pilosula* above 63 grams may cause arrhythmia or discomfort in the left pectoral area. Side effects are temporary if herb is discontinued (Chen 2004).

**Preparation Notes:** Human – 6-10 grams to a maximum of 30 grams

Commonly used in both herbal decoction and pill form

Dry-fried, it more effectively strengthens the spleen and stops diarrhea

Honey-baked, it more strongly tonifies the middle Jiao and benefits the gastrointestinal tract.

**References**


Bone ingestion and Potential Obstruction

Against contraindications for flax seed in the human literature, I’ve used this method on at least 6 cases where dogs have ingested bones and beginning to show signs of intestinal obstruction—abdominal discomfort, inappetance, but not yet vomiting. If the animal is not yet in a dire situation and you have some time, then give 1/2 teaspoon to 1 tablespoon of whole flax seeds (depending on size of the patient) that have been soaking in a small amount of water for 10-20 minutes. The water and seed turns mucousy, this is the mucilage forming. This seedy mixture can be given by mouth (spooning in is fine), it will then form a slippery coating around the offending material, and move it along. The animal passes the bone with the coating of mucilage around it. With careful monitoring, this has worked very well and averted surgery.

Flax seed is *Linum usitatissimum* also called linseed. The whole or bruised seed with water are a bulk forming laxative. They should be soaked in water before ingesting. And they will reduce absorption of medications so should be given 2 hours before or after any other oral medications. Start with a very low quantity (1/8th teaspoon daily in cats) and work up depending on response.

In veterinary medicine Flax seed has a long history of use, crushed flax seeds were added to food to improve coat condition and gloss. The meal (after the oil has been extracted) was used for treating urinary, gastrointestinal and respiratory inflammation—no doubt in part because of the mucilage effects. The oil was used for conditioning animals.

Anorectic patients

If you have an anorectic patient, who is otherwise essentially ‘normal’, that is no obvious metabolic reason why the patient is not eating, then you can apply the principle of ‘bitters’ to get the patient’s digestive system active. One to two drops of gentian, a very traditional bitter herb, applied to the gums with a dropper or finger, will cause some salivation. This in turn stimulates digestive ‘juices’ further down and in 1-2 days with 2-to-4 applications, will increase appetite and get the patient going again.

The herb is *Gentiana lutea*

Gentian is stated to possess bitter, gastric stimulant, sialogogue and cholagogue properties. Traditionally, it has been used for anorexia, atonic dyspepsia, gastrointestinal atony, and specifically for dyspepsia with anorexia in humans. The German Commission E approved use for digestive disorders such as loss of appetite, fullness and flatulence. Gentian can be combined with angelica root and fennel or with ginger for loss of appetite and peptic discomfort.
Research Updates

Meta-analysis of the Effect of Herbal Supplement on Glycaemic Control in Type 2 Diabetes
Suksomboon N, Poolsup N, Boonkaew S, Suthisisang CC.

Although many herbs have been used in traditional medicine for the treatment of diabetes, evidence is limited regarding the efficacy of individual herbs for glycaemic control. A systematic review and meta-analysis was conducted to assess the effect of herbs on glycaemic control in type 2 diabetes.

Nine randomized, placebo-controlled trials (n=487 patients) were identified. Ipomoea batatas, Silybum marianum and Trigonella foenum-graecum significantly improved glycaemic control, however, Cinnamomum cassia did not. The current evidence suggests that supplementation with Ipomoea batatas, Silybum marianum, and Trigonella foenum-graecum may improve glycaemic control in type 2 diabetes.

Given the limitations of the available studies and high heterogeneity of the study results for milk thistle and fenugreek, further high quality and large controlled trials using standardized preparation are warranted.

For Better or Worse: Reduced Adult Lifespan Following Early-life Stress is Transmitted to Breeding Partners
Monaghan P, Heidinger BJ, D’Alba L, Evans NP, Spencer KA.
Source: College of Medical, Veterinary and Life Sciences, University of Glasgow.

Abstract: Stressful conditions early in life may give rise to exaggerated stress responses which, although beneficial in the short term, chronically increase lifetime exposure to stress hormones and elevate disease risk in later life. Using zebra finches Taeniopygia guttata, we demonstrate that individuals whose glucocorticoid stress hormones were experimentally increased for only a brief period in early post-natal life, inducing increased stress sensitivity, had reduced adult lifespans.

Remarkably, the breeding partners of such exposed individuals also died at a younger age. This negative effect on partner longevity was the same for both genders and occurred irrespective of the partner’s own early stress exposure and was in idiopathic epilepsy were evaluated for temporal significance in relation to the lunar cycle. Seizure counts were compared among each of the eight individual lunar phases, among each of eight exact lunar phase dates and by percent of lunar illumination using generalized estimating equations. No statistical significance was discovered in any of these comparisons, excluding a relationship between the onset of epileptic seizures and the phases of the moon. Alteration in anticonvulsant treatment or monitoring of canine and feline patients with idiopathic epilepsy at large was not warranted based on the lunar cycle.

J Am Browand-Stainback L, Levesque D, McBee M.

Abstract: Epileptic seizures in 211 canine and feline patients diagnosed with idiopathic epilepsy were evaluated for temporal significance in relation to the lunar cycle. Seizure counts were compared among each of the eight individual lunar phases, among each of eight exact lunar phase dates and by percent of lunar illumination using generalized estimating equations. No statistical significance was discovered in any of these comparisons, excluding a relationship between the onset of epileptic seizures and the phases of the moon. Alteration in anticonvulsant treatment or monitoring of canine and feline patients with idiopathic epilepsy at large was not warranted based on the lunar cycle.
addition to any longevity reduction arising from this. This partner effect continued even after the breeding partnership was terminated. Only 5% of control birds with control partners had died after 3 years, compared with over 40% in early stress-early stress pairs. In contrast, reproductive capability appeared unaffected by the early stress treatment, even when breeding in stressful environmental circumstances.

Our results clearly show that increased exposure to glucocorticoids early in life can markedly reduce adult life expectancy and that pairing with such exposed partners carries an additional and substantial lifespan penalty.

Analysis of the Capability of Ultra-highly Diluted Glucose to Increase Glucose Uptake in Arsenite-stressed Bacteria Escherichia coli
Khuda-Bukhsh AR, De A, Das D, Dutta S, Boujedaini N.

Source: Cytogenetics and Molecular Biology Laboratory, Department of Zoology, University of Kalyani, Kalyani.

Abstract: Objective: Whether ultra-highly diluted homeopathic remedies can affect living systems is questionable, therefore, this study sees value in analysing whether homeopathically diluted glucose 30C has any effect on Escherichia coli exposed to arsenite stress.

Methods: E. coli were cultured to their log phase in standard Luria-Bertani medium and then treated with either 1 mmol/L or 2 mmol/L sodium arsenite, with or without supplementation of either 1% or 3% glucose, an ultra-highly diluted and agitated ethanolic solution (70%) of glucose (diluted 10(60) times), glucose 30C or 70% ethanol (placebo) in the medium.

Glucose uptake, specific activities of hexokinase and glucokinase, membrane potential, intracellular adenosine triphosphate (ATP) and expression of glucose permease in E. coli were analyzed at two different time intervals. Arsenic content in E. coli (intracellular) and in the spent medium (extracellular) was also determined.

Results: In arsenite-exposed E. coli, the glucose uptake increased along with decreases in the specific activities of hexokinase and glucokinase, intracellular ATP and membrane potential and an increase in the gene expression level of glucose permease. Glucose uptake increased further by addition of 1%, 3% or ultra-highly diluted glucose in the medium, but not by the placebo.

Conclusion: The results demonstrated the efficacy of the ultra-highly diluted and agitated glucose in mimicking the action of actual glucose supplementation and its ability to modulate expressions of hexokinase and glucokinase enzymes and glucose permease genes. This, therefore, validates the efficacy of ultra-high dilutions used in homeopathy.
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The Journal of Integrative Veterinary Therapies (JIVT) is the first international veterinary publication addressing evidence based natural medicine for animals.

This is a modern, clinically relevant and peer reviewed journal. JIVT is issued quarterly. JIVT publishes material on all aspects of integrative veterinary therapies including case reports, research articles, research updates, book reviews, commentary and other relevant information. The Journal of Integrative Veterinary Therapies welcomes contributions.

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- Articles must have an evidence base in natural medicine
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- Contributions will be subject to peer review and editing
- Contributions must not be submitted elsewhere
- Contributions may be rejected without supplying a reason

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- Feature articles will be reviewed by two peers
Contribution Requirements

- Articles should be less than 5000 words including references and any tables. The number of references should be limited to no more than 30.
- An abstract of the article, of no more than 200 words should be included.
- A brief author’s profile should be included.
- Files must be saved as a word document and emailed to the college office. The email address can be found on the instructions to contributors’ download.
- All graphs, tables and pictures not in Word form must be included as .tif or .jpeg quality files.
- All statements must be referenced according to the instructions for contributors and a reference list must be included. If the statement is the author’s opinion or observation this should be made clear.
- All statements should be of a professional nature and exclude any inflammatory, derogatory, racist or other inappropriate styles of writing.