

# Education News



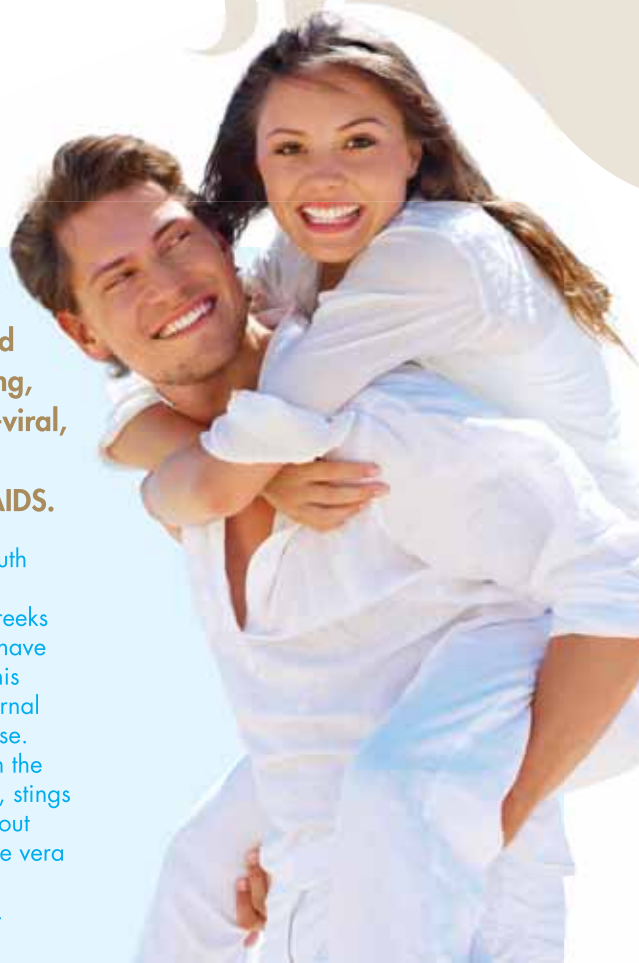
ISSUE 9 | FROM THE NUTRIGOLD NUTRITIONAL UPDATE SERVICE

## ALOE VERA

### A REFRESHING APPROACH TO NATURAL HEALTHCARE

**Aloe vera provides us with a cooling gel that soothes irritation and inflammation, and so is commonly used for stomach ulcers and digestive problems, as well as insect stings, sunburn, wound healing, eczema and psoriasis. In addition, its leaves contain a host of anti-viral, anti-inflammatory and anti-microbial nutrients that have shown effectiveness against heart disease, cancer, herpes, diabetes and AIDS.**

The aloe vera plant has been depicted in cave paintings both in Egypt and in South Africa, and has a rich pedigree. The Ancient Egyptians called it the "Plant of Immortality" and buried it as gifts with their dead pharaohs, while the Ancient Greeks termed it the "universal panacea". Alexander the Great meanwhile, was said to have captured an island off the coast of Somalia because of its bounteous harvest of this succulent plant. And aloe is still popular today in whole leaf extracts for both internal and external use, as well as gels, toothpastes and balms specifically for topical use. A relation of the cactus family, aloe vera likes hot, dry climates, but many of us in the west know aloe as an attractive houseplant handy to have around in case of cuts, stings and burns. A simple slice of one of its juicy leaves, and the gel it contains oozes out ready to be of service. Just as it quickly seals and heals itself after such a cut, aloe vera gel can speed up the healing of wounds to our own skin. It does this by reducing inflammation, combatting infection and stimulating new tissue growth in the area.



## STIMULATING NEW TISSUE GROWTH

When wounds start to heal, they need more collagen in order to make new connective tissue such as skin and blood. An Indian study noted the ability of aloe vera to increase the amounts of collagen in healing tissue, and also to increase the amount of cross links that help to make the tissue stronger.<sup>1</sup> This happened when aloe was used both topically and orally.

A further study looked in more detail at how wounds are healed, and noted how both topical and orally taken aloe vera sped up this process. In the early stages of wound healing, a provisional matrix (ground substance) is laid down first, and then the collagen and other substances needed for new tissue are formed. This ground substance is made of water plus compounds called GAGs (glycosaminoglycans) and proteoglycans (essentially GAGs bound to protein). Wounds treated with aloe vera were shown to have higher levels of GAGs, especially hyaluronic acid and dermatan sulphate, and were therefore able to produce greater levels of ground substance, starting off the process of making new tissue.<sup>2</sup>



## REDUCING THE RISK OF INFECTION

Aloe vera is often described as having antiseptic and antimicrobial properties. That in itself would make it an attractive salve to put on an open wound. An Australian study tested its effectiveness against a range of bacteria and found it to be particularly protective against gram B bacteria strains such as e. coli.<sup>3</sup>

A group of Spanish researchers discovered that they could prolong the shelf life of grapes by spraying them with a thin film of aloe vera extract. After 35 days, the grapes were still tasty and in good condition. The aloe polysaccharides prevented the fruit from oxidising and deteriorating by protecting the grapes from

oxygen and moisture. In addition, the researchers believed the aloe helped to combat bacterial and fungal activity to keep the grapes fresher and safely edible for longer.<sup>4</sup>

## SOOTHING REDNESS AND INFLAMMATION

Several studies have shown aloe vera to be highly effective in reducing inflammation. Inflammation is a key feature of many conditions and diseases, from asthma to arthritis, as well as being a primary response to injury and allergies. German research showed aloe to be more effective than hydrocortisone cream in reducing redness and rashes<sup>5</sup>, and scientists continue to discover new anti-inflammatory agents in aloe leaf. One such compound is a polysaccharide called mannose-6-phosphate. Scientists exploring its wound healing activity remarked on mannose-6-phosphate's ability to reduce inflammation.<sup>6</sup> The polysaccharides in aloe have a range of benefits which will be discussed later in this newsletter. Aloe is rich in the polyphenols aloin and aloe-emodin, which are thought to suppress the inflammatory responses by blocking the expression of certain enzymes called iNOS and

COX-2 mRNA.<sup>7</sup> These are important enzymes that regulate inflammation in the body, and an over-expression of them has been linked to certain cancers and other inflammatory diseases.<sup>8</sup>

Aloe also contains the anti-inflammation agent C-glycosyl chromone, discovered to be as effective as hydrocortisone<sup>9</sup>, in addition to an enzyme called bradykininase, which reduces inflammation by breaking down bradykinin, a peptide that helps set off the processes of inflammation by making blood vessels more permeable.<sup>10</sup>



## SORTING OUT PSORIASIS

Psoriasis is characterised by uncomfortable, itchy patches of inflamed, scaly skin, and is a chronic condition that many sufferers experience throughout their lives. A recent study compared topical use of aloe vera on psoriasis with a topical steroid cream, and the aloe treatment came out on top.<sup>11</sup> A previous Swedish study had also shown a significant improvement in 83.3% of the 60 patients studied using aloe to treat their psoriasis, compared to only 6.6% in the placebo group.<sup>12</sup>

An holistic approach to psoriasis would seek to calm down inflammation and irritation in the whole body, particularly focussing on the gut.<sup>13</sup> Aloe's demonstrated ability to soothe inflammation and irritation in the digestive tract (see below) may therefore contribute to resolving conditions such as eczema and psoriasis from the inside out. So it can be used both topically to soothe and clear the skin, and orally to improve the internal and underlying conditions of the disease.

## RESOLVING THE SYMPTOMS OF COLITIS

Debilitating bowel problems such as IBS, colitis and Crohn's can be characterised by chronic inflammation in the gut, in more severe cases accompanied by ulcers and/or adhesions. The anti-inflammatory agents described above, such as bradykininase, aloin and aloe-emodin may well be at the heart of aloe vera's success in dealing with such conditions.

In 2004 a double-blind placebo-controlled test was carried out by scientists in London to gauge aloe vera's effectiveness against active ulcerative colitis. Clinical symptoms were measured, in addition to sigmoidoscopes looking at the smoothness of the mucosa, and examination of the tissue cells under microscope. 27-30% of those taking aloe vera were shown to be in remission

by the end of week 4, compared to only 1-4% of the placebo group, and 37% of the patients taking aloe vera showed improvement in their score of clinical symptoms, as opposed to 1% in the placebo group. These results would suggest that many colitis sufferers would experience substantial benefits from taking aloe vera extract on a regular basis.

## IMPROVING THE 5 SIGNS OF HEALTHY DIGESTION

We often focus on aloe's ability to soothe inflammation in the bowel, but benefits throughout the digestive tract have been measured in a comprehensive study.<sup>14</sup> After just 7 days of oral supplementation with unconcentrated aloe (2oz taken 3 times a day), measurements were taken that implied a cascade of improvements throughout the digestive system, from protein digestion to bowel flora composition.

## IMPROVED BOWEL MOVEMENTS

As part of the study, Bland measured stool density, which demonstrated a better water-holding capacity, and bowel transit time, which showed faster pace without signs of diarrhoea or loose stools. The result may therefore be attributable to improved muscle tone in the bowel, rather than any laxative effect.

## BALANCED BOWEL FLORA

The primary measurement, however, was a stool culture test, which looked at the balance of bowel flora in the stools. The bowel flora has an integral role in our immune response, and stands at the gates between our external environment and our internal environment. It is also crucial that we have a good balance of bacteria in the gut to help us absorb and produce important nutrients, as well as avoid stagnation and fermentation in the gut. Lack of oxygen in the gut is one of the conditions that can cause candida albicans to become fungal/ yeast-like and start spreading through the body (candidiasis).

The stool culture test showed an improved bacterial balance, plus a reduction in yeast. There is no live bacteria in aloe, so it can't have been just repopulating the gut with "good" bacteria, the way that probiotics do. The researchers concluded that there must have been an improvement in the underlying conditions which affect the bacterial balance, such as pH levels. The improved bowel transit time may also help to reduce stagnation in the gut.

## PROTEIN DIGESTION

The next step was to record indican levels in the urine. This indicates the levels of toxic amines produced by the bowel flora, and had reduced by an impressive 40%. This outcome has a number of implications, including that the aloe had reduced putrefactive activity in the bowel, and also increased the digestion and absorption of dietary proteins in the stomach and small intestine.

Dietary proteins are first broken down in the stomach by pepsin, an enzyme activated by appropriate stomach acid levels. Digestion is continued in the small intestine by further enzymes released by the pancreas, which are also stimulated by stomach activity. Lower levels of indican in the urine suggests that proteins are being broken down more thoroughly, so aloe may well have a positive effect in the pancreatic enzyme production and stomach pH necessary for protein digestion.

Effective protein digestion also stimulates the release of enzymes that continue the process of breaking carbohydrates down into simple sugars. If these enzymes are lacking, then the middle-stage polysaccharides and disaccharides are unable to be absorbed, and instead get sent through to the large intestine where they can contribute to an imbalance in bowel flora, feeding bacterial imbalances and yeast. This can be nipped in the bud with efficient protein digestion, and this may be how aloe is able to reduce putrefactive activity in the bowel.

## COOLING A FIERY STOMACH

Researcher Jeffrey Bland also tested the gastric pH, and found it to have dropped significantly, but only in those whose stomach acidity was too high in the first place.

Aloe is described in traditional Eastern medicine as having cooling properties, and many of us have experienced its cooling effect on sunburn. This same property has traditional applications for cooling internal heat too, such as inflammation, peptic ulcers and hyperacidity in the stomach. Note that where digestion is weak or cold, however, traditional Eastern medicine often advises using an approach which avoids the use of cooling foods and treatments, so an alternative approach may be necessary.

In general, however, aloe vera may be useful to help soothe and rebalance problems throughout the digestive tract, which is often at the root of problems elsewhere. If we can improve conditions in the gut, then the whole body will have a chance to benefit from the increased levels of nutrients, improved ability to eliminate toxins, and lower levels of irritation to the central nervous system.





## ALOE AGAINST ARTHRITIS

Aloe is often recommended for relief from joint pains, especially in rheumatoid arthritis and osteoarthritis. In the 1970s, scientist Robert H Davis presented his research into the anti-inflammatory properties of three plant sterols that he had discovered in aloe vera: lupeol, campesterol and beta-sitosterol. These substances showed an impressive ability to reduce inflammation in arthritis joints, in one case reducing swelling by 79.7%.<sup>15</sup> Marathon runners sometimes use beta-sitosterol after a run to reduce pain and swelling, and some men use it to help reduce inflamed prostate glands.

## USING ALOE VERA FOR SPORTS INJURIES

So far we have focussed mainly on the inflammation involved in chronic conditions such as psoriasis, stomach ulcers, colitis and arthritis. Aloe vera taken orally and applied topically can be used for a wide range of acute conditions too, and is widely used for sports injuries due to its cooling, anti-inflammatory and healing properties.

Aloe is primarily useful here because of its anti-inflammatory enzymes and plant sterols, plus the recently discovered compound C-glucosyl chromine, which has been shown to be as effective as hydrocortisone in reducing inflammation, but without affecting the thymus.<sup>16</sup> Aloe is therefore the first port of call for many when injury strikes, be it sprains, strains, bruises, swelling, tendonitis, bursitis, muscle soreness or cramps. For immediate relief of symptoms, aloe gel



can be applied topically by saturating some gauze in whole leaf aloe vera concentrate and wrapping the area thoroughly for 30-60 minutes. Refresh the gauze if it starts to dry out.<sup>17</sup>

For sports injuries where an ice pack is indicated, the towel used for the pack can be soaked in whole leaf aloe vera concentrate.<sup>18</sup> Over the next few days or weeks, aloe gel (1-2 parts glycerine to 9 parts aloe) can be applied as a rub, and also taken orally to help reduce inflammation and repair damaged tissue. Just as we have seen with wound healing, the polysaccharides in aloe help to increase collagen III production and collagen cross-linking, as well as the syntheses of hyaluronic acid and dermatan sulphate, all of which are crucial for successful tissue repair.<sup>19</sup>

## ANTI-VIRAL ALOE

Aloe vera contains powerful anti-viral compounds that have been shown to rupture the structure of several viruses, including herpes simplex (cold sores and genital herpes), and viruses associated with shingles, chicken pox and flu.

Scientists studying the anti-viral effect of aloe vera gel have attributed this property to a group of compounds called anthraquinones, including aloin and aloe-emodin, the anti-inflammatory polyphenols we have already seen to be useful in wound healing. Having witnessed the ability of aloe gel to break down the HSV-1 virus, which is present in cold sores and genital herpes, the researchers isolated one of aloe's anthraquinones, aloe-emodin, and tested it with further viruses. Aloe-emodin was shown to be active against both forms of herpes simplex, HSV-1 and HSV-2, as well as varicella zoster (shingles and chicken pox) and influenza.

They could even see how this special substance had stopped the viruses in their tracks: 95% of the virus particles treated with aloe-emodin showed damage to the envelope surrounding the virus.<sup>20</sup>

Aloe vera also contains a type of sugar compound called acemannan that has also demonstrated anti-viral properties. One group of scientists showed that acemannan stopped the development and replication of not only the herpes simplex virus, but also HIV-1. Two further studies gave acemannan to HIV positive patients and recorded improvements in both T cell counts and antigen levels.<sup>21</sup>

## IMMUNE ENHANCING POLYSACCHARIDES

Acemannan is part of a group of polysaccharides, or complex sugars, that have been attracting increasing interest of late because of their ability to assist our immune system in a variety of ways. A number of supplements have appeared as a result, and have become popular for cancer prevention and for general immune system support. It's useful to know, however, that whole leaf aloe vera is already rich in such mannans, and may be a much cheaper source of these "glyconutrients".

Acemannan has been shown to enhance our T-cell response through stimulating the monocyte cells that are an important part of our immune system. Researchers have suggested that this may partly explain why acemannan appears to act as an anti-viral in both humans and animals.<sup>22</sup> Only whole leaf aloe preparations that have been carefully processed will contain acemannans, so you need to ensure a good quality source of aloe vera.



## ANTI-CANCER ALOE

A further study looked at the ability of mannans from the aloe plant to stop tumour cells multiplying, by inhibiting the T lymphocyte proliferative response. The scientists concluded from their research that "mannan has a dual beneficial effect when applied to normal and tumoral cells at the same time by inhibiting the activation of cancer cells and improving that of normal one."<sup>23</sup> This essentially means that aloe vera naturally targets cancer cells and, rather than having a destructive force in the body, simply deactivates them, while strengthening the non-cancerous cells around them.

## REGULATING BLOOD SUGAR IN DIABETICS

Aloe vera is a traditional remedy for diabetes in the Arabian peninsula, and studies now show why. Mahidal University in Bangkok ran two studies where fasting blood sugar levels were halved in diabetics taking daily aloe vera juice orally.

In the first study, where 36 people with type 2 diabetes took 2 tablespoons of 80% aloe vera juice daily, blood glucose levels dropped by 17% in the first 2 weeks, and by 57% at the end of 6 weeks. Not only that, but their blood triglyceride levels also dropped by more than half to 45%.<sup>24</sup> The second study resulted in a 49% drop in fasting blood glucose levels, and a 52% reduction in blood triglycerides.<sup>25</sup>

In a previous study of over 3000 diabetics who took aloe vera and psyllium husk daily for 2 months, fasting blood sugar levels returned to normal in 94% of participants.<sup>26</sup>

## ALOE VERA AND HEART DISEASE

This last study was primarily interested in angina pectoris, and so the researchers were also measuring markers for this heart condition, which all the participants had been diagnosed

with. They noted significant reductions in total blood cholesterol and triglycerides, as they had in the first study. What really stood out, though, is that there was such a reduction in the incidents of angina attacks that their heart medication was able to be gradually reduced.

## HOW TO TAKE ALOE VERA

When taking aloe vera both orally and topically it is important to use a good quality whole leaf product. Beware gels advertising to be "made with" 99% or 100% pure aloe: the aloe they have used may be 99% or 100% pure, but they may only have used a small amount of it in the gel itself, mixed with other, less useful substances.

Aloe vera for use as a food supplement comes in a variety of strengths, usually between double strength and a strength of ten times or more. The stronger concentrations may be tempting, but some of its activity is likely to be lost in the processing, and not necessary to gain significant benefits. Aloe vera is also available in powdered form, but again, to retain its nutrients, the processing needs to be carried out very carefully.

Due to the variation in strengths, it would be advisable to follow the label instructions, which typically recommend an oral dose of 25-50ml

daily, or sometimes more depending on requirements. If possible, this should be taken away from food and split into 2 doses, perhaps one mid-morning and one mid-afternoon.

**Aloe vera can be swallowed neat from a spoon, diluted with water or added to juice. Try adding to your own freshly pressed vegetable juice drinks, such as:**

- Carrot, beetroot, ginger and aloe
- Cucumber, celery, wheatgrass and aloe
- Apple, fennel, aloe and mint

Aloe vera can slot into to your daily routine very easily to promote overall health and help with an array of chronic conditions, which means that it will always be in your fridge for those little emergencies too, such as sunburn, cuts, stings and sprains.



**Should you need a more detailed approach, or should you have any questions or concerns that are not addressed in this article, you are always welcome to contact our nutritional advice team on 01395 227850 (9.00am – 5.00pm Monday – Friday).**

Alternatively if you would like a more personalised approach, addressing dietary recommendations, lifestyle changes etc., we would suggest you consider consulting a qualified nutrition adviser or therapist, which you can do by either asking us for details of your local

practitioners, or contacting The Federation of Nutritional Therapists on **0870 312 0042** or by emailing them at **admin@fntp.org.uk**

For more information visit the website at: **www.fntp.org.uk**

**Kirsten Chick is a qualified and practising Natural Nutritionist and member of the Federation of Nutritional Therapists. To find out more please visit [www.connectwithnutrition.co.uk](http://www.connectwithnutrition.co.uk).**

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