

# The Hypoglycemic Health Association

# NEWSLETTER

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The NEWSLETTER of the Hypoglycemic Health Association is distributed to members of the Association and to Health Professionals with an interest in nutritional medicine and clinical ecology.

This Association aims at providing information to members and professionals with an interest in complementary medicine so as to form a basis for effective communication between patients and their health practitioner. A knowledge of natural medicine by a patient will considerably shorten consultation time with his doctor or health practitioner. Modern medicine is moving towards a practice consisting of a team of specialists working within one centre with access to not only orthodox medicine, but also the various branches in "alternative medicine" which have been gaining scientific respectability over the last few decades. The name of the game is "complementary medicine". It has been estimated that 40% of patients also consult health practitioners outside mainstream medicine. This reflects a growing demand for more cost effective services from health providers. Patients are better educated, and are ready and willing to take greater personal responsibility in their own treatment, rather than leave it all up to their doctor. Medical consumers want their doctors to look for underlying causes of illness - especially degenerative disease - rather than reaching out for their prescription pad. They want to have access to "alternative" remedies on the same basis as is available for pharmaceuticals. Members' financial contributions are essential for the survival of this Association and for what it stands. You can help by paying your annual fees (\$15 per family or \$10 for students and pensioners) on time and by encouraging your friends and acquaintances to join the Association as per form on page 12 of this Newsletter.

Our Next Public Meeting will be at 2 PM  
on Saturday, the 6 September, 1997  
at the YWCA,  
2 Wentworth Ave, Sydney and  
our guest speaker is

**Blair Stone Ph.D, ADN**

who will be speaking

on the subject of

***"The Journey to Wellness"***

**Blair Stone** is a natural therapist in private practice in Sydney. He works in the city in his Macquarie Street clinic and from his home in Hornsby. Blair and his family moved to Australia from Amherst, Massachusetts in 1974 after he completed his dissertation on the communication theorist Marshall McLuhan. Following a sufficient experience of Australian University life, he switched over to a career in natural medicine, which had been his passion for many years. His preparation for this was the study of complementary medicine at the Australian government accredited College of Somatic Studies followed by an internship. Anatomy and physiology, biochemistry, nutrition and disease, nutritional therapy and eye diagnosis (modern German diagnostic iridology using a powerful binocular microscope) were the core courses of his complementary medicine studies.

He sees diagnostic Iridology and the taking of thorough patient histories as the two most important tools for gathering the information necessary for diagnosis and for prescribing. In his talk he discusses the nature of healing body, mind, spirit in a stressful, toxin-burdened civilisation. His contact tel/fax number is 9487-2512.

## Previous Copies of the Hypoglycemic Newsletter

Back issues of the Hypoglycemic Newsletters are available at the NSW State Library, Macquarie Street, Sydney. They are filed under NQ616.466006/1 in the General Reference Library.

Other libraries holding copies are: Stanton Library, North Sydney; Leichhardt Municipal Library; The Tasmanian State Library; The Sydney University; The University of NSW, Newcastle University. The Association will provide free copies to any library upon request.

**ADVERTISING MATERIALS** appearing in or with this Newsletter does not necessarily imply any recommendation by the Hypoglycemic Health Association.

### Books for sale at the meeting

Jurriaan Plesman: **GETTING OFF THE HOOK**

This book is also available in most public libraries (state and university)

Sue Litchfield: **SUE'S COOKBOOK**

Dr George Samra's book

**The Hypoglycemic Connection**

(now out of print) is also available in public libraries.

**Contributions of articles** by members and practitioners are very welcome. The Editor is interested in meeting any person aspiring to research natural medicine and contribute articles as a sub-editor to this Newsletter.

**The Newcastle branch of the Association** are still meeting with the assistance of Bev Cook. They meet on the last Saturday of each month beginning 1.30 pm to 3.30 pm at the Hillsborough Primary School. Enter the school from the Waratah Avenue. For further information ring Mrs. Bev Cook at 049-59-4369.

### Entrance fee at meetings

Because of increase in costs the Committee has decided to charge an entrance fee of \$2 per person or \$3 per family at our public meetings.

### Donations for raffle

One way of increasing our income is by way of raffles. If any member has anything to donate towards the raffle, please contact Dr George Samra's surgery at 19 Princes Highway, Kogarah, Phone 9553-0084.

**Gesina Den Dulk** won the lucky door prize and **Mary Page** won the raffle at our last public meeting on the 7 June 1997.

### Committee members

The Association is in need of your support and ask members to help out with sending the Newsletter to our members. We also need committee members and if you are interested please contact Dr George Samra's surgery at **9553-0084**.

### The CWASQ Allergy Test

As some members missed out on completing Dr Samra's CWASQ Allergy test we are again including the test on the back of the "recipes sheet". Members can complete the test and send it to Dr George Samra as per address given. The usual charge is \$50, however, members will only be charged \$15 and Dr George Samra will donate \$5 to the Association to cover incidental expenses.

### Welcome aboard Dr Katrina Watson!

Dr Katrina Watson, colleague of Dr George Samra, has taken up the position of Secretary of the Association. Dr Watson's interests lie not only in traditional Western medicine, but also specialises in acupuncture, clinical nutrition, homeopathy and herbalism.

Her skills and enthusiasm for complementary medicine will be a valuable asset to the Association.

**Any opinion expressed in this Newsletter does not necessarily reflect the views of the Association.**

# What's new in natural medicine?

By Daniel Baden ND

AS A NATUROPATH with a practice in Bondi Junction, which also includes a wholesale manufacturing business in vitamins and minerals, I am always interested in new products in the natural health area.

Recently, patients and colleagues in my profession have enquired about new therapeutic agents which seem to have excited a lot of people. Perhaps we might discuss these today. The products concerned are: *melatonin*, *DHEA* and *Wild Yam Cream*.

Patients who are sick, those who do not want to get sick and their health practitioners are naturally very interested in these new remedies, which by the way are not even available in Australia. These natural type medicines do offer a lot of hope to many people.

But the emergence of these products do raise questions. It is a little alien to watch, what hitherto had been considered "natural

medicine" to depart from the important principle that natural medicine aims at putting things into balance. For example, the suggested hormones are claimed to put things into balance, but we don't have any long-term studies to show what might happen in the next ten to twenty years. Looking at the information available thus far, we should always keep a critical eye on the possible long-term consequences of these new products. In a recent conversation with the administration officials of the Therapeutic Goods Act (TGA) in Canberra I gained the impression that officials have an open mind to natural therapy. No doubt they realize that the cost of Medicare is gradually sending the Government broke and if people spend their own money on natural therapy it would be better off in the end.

### Melatonin

The word melatonin should not be confused with *melanin* which is the pigment found in the hair, skin and choroid of the eye. It was

released on to market as a supplement in America in 1993 where you can buy it in health food stores or in the super-market. Melatonin can be imported for your own use, but you can't prescribe it as a practitioner.

Melatonin is sometimes called the "hormone of darkness", because it is produced during the night. It is a natural hormone-like substance. A hormone is a molecule that gives you an action. It is produced primarily by the pineal gland lodged deep inside the brain. It is also produced in the digestive tract and some other parts of the body. Melatonin can be found in many other life forms. All animals produce melatonin and also is present in many plants and foods. Human breast milk is a rich source. Cucumbers, tomatoes and bananas also contain melatonin.

### How melatonin is produced in the body

Your body produces melatonin from the amino-acid called *tryptophan* and unfortunately, this is also difficult to obtain as a

supplement. It is available on prescription in small amounts of 25 mg. A tablet containing 200 mg is a prescription item. Tryptophan is converted to *serotonin* which in turn is the precursor to *melatonin*. Once serotonin becomes melatonin it becomes fat-soluble and therefore can cross many different membranes. There are no specific melatonin receptors. There are quite a few drugs that depress the action of melatonin and the classic ones are beta-blockers used in the control of hypertension, such as propranolol and atenolol. The overall consequences of beta-blockers are that many patients may suffer from sleep disturbances, nightmares, dizziness, itchy skin, mood swings and depression. These can be overcome by either getting off the beta-blockers or by supplementing with DHEA and melatonin, which appear to have been blocked by beta-blockers. Melatonin improves the quality of sleep, dreaming capacity or what is called Rapid Eye Movement (REM) sleep.

The **main function** of melatonin is to set and maintain the '*body clock*'. There are many influences in modern life that upset the body clock; for example, electromagnetic forces from our mobile phones, from computers, artificial lighting and certain pollutants. By supplementing with melatonin we can redress the imbalance of the body clock.

Melatonin has been used as a natural sleeping pill, which has been very effective. But it should only be used in the short term, for perhaps one, two to seven nights. It is not indicated for long-term use. Studies found that in 10 percent of people taking melatonin over a long period of time they build up a tolerance and they need more and more of melatonin. Its most popular use is for overcoming *jet lag* which helps to restore the circadian rhythm among shift workers and international airline pilots and their passengers. Some people seem never to see the sun of day, because of their life-style. They may get up early in the morning - in the dark - take a train and go to work, perhaps in artificial light, and then come home at night. Also this may be related to osteoporosis - a bone thinning disease - because of lack of vitamin D that the skin can produce from sunlight and which is essential for the growth of bones.

However, it is important for these people to take melatonin at the right time of the day. If you take melatonin in the morning it can ruin your day. In cancer patients, who take melatonin in the morning, it was found that the tumours got worse, whereas if taken in the evening they got better. Daylight would be fighting the effects of melatonin during the day.

### **Immunity, Cancer and aging**

Some of the reasons people take melatonin is to bolster the immune system, to fight cancer and to retard the aging process. Melatonin works synergistically with vitamin B6 and zinc. Many studies have shown that melatonin may improve neuro-psychiatric disorders as well as metabolic, endocrine dysfunction, such as Alzheimer's disease. Presum-

ably, because melatonin helps to restore the circadian sleep cycles of the day.

Melatonin also reduces some of the harmful side-effects of adrenal steroid hormones, corticosteroids and some of the drugs that cause symptoms of steroid medications. One girl in my practice was taking prednisolone and who had asthma. She develops Cushings syndrome<sup>1</sup> as a result of the drug and when she was put on melatonin she showed remarkable improvement. However, such treatment could only be given in the short term and another approach to her asthma needed to be looked at.

Other side-effects have been reported such as the shrinkage of the thymus gland and adrenal suppression. It was found that if the pineal gland was removed surgically the adrenal glands started to shrink. But when they were given melatonin this would not happen.

Studies showed that melatonin had positive effects on breast cancer and lung cancer. It appeared to inhibit the growth of tumour cells and it seems to be effective with hormonally related cancers. Most cancers have a hormonal aspect. There has been a hypothesis for at least twenty years that breast cancer could be associated with disorganisation of the circadian cycle. By regulating that rhythm melatonin seems to be useful. This would apply similarly to prostate cancer and colorectal cancer. It is suggested that breast cancer and prostate cancer are both partially inherited. In the case of a male, if there is a history of his mother having breast cancer, then he would be vulnerable to cancer of the prostate.

Melatonin has actions similar to antioxidants and research showed that melatonin is as potent as vitamin E and 5 times more potent than glutathione.

### **Women's health - osteoporosis**

Melatonin has been found to improve osteoporosis and pre-menstrual syndrome. Interestingly, around ovulation time, melatonin levels drop. More interestingly, in many cases of infertility an extreme low level of melatonin were observed in these females. Hence, theoretically, it would be possible to improve their fertility by giving them melatonin, but no studies have been done so far. Around the time of menstruation melatonin levels increase and seem to modulate calcitonin and parathyroid<sup>2</sup> hormone, together with a decrease in cortisone. According to the researchers taking melatonin will bring these two hormones back into balance and thereby prevent the development of osteoporosis. It is argued that in Hormone Replacement Therapy (HRT) the estrogen increases melatonin levels and this is seen as the connection between HRT and osteoporosis.

### **Infertility**

During the first two trimesters of pregnancy melatonin levels increase by a factor of 2-300%. Women who have many miscarriages seem to have lower levels of melatonin levels according to studies. Thus melatonin administration may be useful in such cases of repeated miscarriages. In the third trimester the melatonin level drops significantly. There

is some speculation that this drop in the third trimester may be responsible for post partum depression in young females.

### **Central Nervous system**

Melatonin seems to stabilise central nervous system activity. However, I found some conflict in the literature, but overall there appears to be a consensus of opinion among researchers, that low night levels of melatonin are commonly seen in people with manic-depressive disorders and panic-disorders as well. Giving melatonin experimentally to such people seem to improve their condition. One interesting study showed that young persons who lost a parent below the age of 17 had extremely low levels of melatonin. Some of the tricyclic type of antidepressants showed that they actually increased melatonin levels, which may explain how they work. Unfortunately, tricyclic antidepressants have side-effects and in these cases perhaps administration of melatonin may be a better option.

Research shows that melatonin levels are elevated in young children and this may be related to the fact that children sleep a lot. We see melatonin levels dropping off in children with significant behavioural problems. For some time now, its supplementation has been used successfully in children with Attention Deficit Disorder (ADD) together with zinc. It can be taken safely for a period of 6 weeks to three months and experience shows that there is a carry-on effect for some time. There should be a break for at least one month.

Working with "natural" hormones you are affecting the feedback mechanisms of hormones. It is speculated that if you treat a patient with a supplement and increase their levels of the hormone the body starts to work with a higher feedback loop. You can then lower the supplement and then the body should continue to work at the higher performance, provided they have adequate nutrition and appropriate lifestyle, including the right environmental and psychological factors.

Melatonin administration has also been successfully used in cases of **multiple sclerosis**.

Despite all these good omens we need to raise a big warning sign. Studies have also shown that the administration of melatonin has worsened cases of depression and anxiety! In my opinion this may be related to the timing when taking melatonin as it needs to be given at the right time of the day. Also this may be due to inappropriate dosage which stands at 3 mg, but there are studies to show that a dose as low as 0.3 mg is just as effective. My recommendation is to start any course with the lowest possible dosage. On the other hand, some people experience positive result with higher doses of 5 mg.

### **Coronary Heart Disease**

Studies show that patient with coronary heart disease have 5 times lower levels of melatonin as compared to healthy people. The experimental group had increased concentrations of epinephrine/norepinephrine which are

known to be damaging to arterial vessels.

Also it was found that some of the **psycho-tropic drugs** such as LSD, Cocaine, mushrooms and marijuana raise melatonin levels.

### **Toxicity of melatonin**

Melatonin is said to be non-toxic with minimal side-effects. On the whole in the short term no serious side-effects have been recorded. But the effects of the hormone may have long-term side-effects which have not been properly assessed. The literature recommends that the hormone should not be used constantly. Studies show that 10% of long term users lose effectiveness. Melatonin has a very short half-life meaning that it is excreted from the body fairly quickly. Although the normal dose is around the 3 mg, there is a huge variation in individuals who experience benefits.

High doses have been shown to cause drowsiness the following morning and by reducing the dose this disappears. High doses may also decrease the libido, which also seems to be dose-dependent. Mild side effects of high doses are dizziness, nausea, bowel changes and pruritus (itching skin). Then there is a record that melatonin may aggravate Lupus.

Melatonin does not cause an addiction or withdrawal symptoms.

The hormone should not be used during pregnancy, lactation, serious illness, autoimmune disease, leukaemia, diabetes or whilst on antidepressant medication. Thus it is not recommended in any condition that is under the influence of hormones, unless one is under strict supervision by a practitioner. This is because very little is known about the long-term effects of melatonin.

### **Natural ways of increasing melatonin levels**

Researchers found that people who meditate had increased levels of melatonin metabolites in their urine. Thus while they were meditating their body was producing more melatonin. This practice, then, helps to increase blood melatonin levels.

It was also found that strenuous exercise depresses melatonin levels. It is therefore not advisable to exercise at night but rather in the morning.

Lots of natural sunlight following a restful night will help regulate the circadian cycle and hence melatonin levels.

Another suggestion is to take your proteins earlier in the day and have carbohydrates at night, mainly because carbohydrates increases the uptake of tryptophan into the brain. Tryptophan is the precursor of serotonin from which melatonin is produced. The old saying that taking a glass of milk and honey before going to bed is good for sleep can be explained in scientific terms. Also one should not forget the role of co-enzymes such as vitamin B6, Zinc and vitamin B12 in the metabolic conversion of tryptophan to melatonin.

### **DHEA**

The next agent that has caught the attention of the medical world is **DHEA**, which stands for *Dehydroepiandrosterone*. It is abundant in humans and animals and scientists have known about DHEA over fifty years, however systematic research has only been conducted over the last ten years. Many authors claim that DHEA is the most effective indicators of health and disease. Thus, it seems to be a very effective screening test, because lowered DHEA status has been found in nearly every disease condition.

Again natural enhancement of DHEA is the way to go. In the USA people can buy DHEA at different strength and being not well-informed about the effects of the hormone, people tend to take the strongest dose they can get. This may have disastrous consequences.

The body synthesizes DHEA from cholesterol and phytosterols - or fatty substances in plants, which are pre-cursors of many hormones in the body. Interestingly, as we get older one's DHEA levels decrease whereas one's cholesterol levels increase. Obviously, there seems to be a problem of converting cholesterol to DHEA as we age. So perhaps we should be looking at some of the enzymes that help that conversion rate. This may also be a matter of health which could be affected by free radicals and which could poison the enzyme systems or pollution by heavy metals.

DHEA is the precursor of testosterone in men and in women it helps to synthesize oestrogen. In postmenopausal women many symptoms are caused by a decrease in progesterone. Supplementation with DHEA seems to correct this deficiency.

DHEA plays a major role in glucose metabolism and thus may become an important therapeutic agent in the treatment of diabetes and hypoglycaemia. DHEA increases receptor sensitivity to insulin.

In a normal stress situations you get increased hormone levels. DHEA and cortisol are raised in equal amounts. When you are exposed to chronic stress - that is stress over a long period of time - DHEA levels do not change and do not increase, but you get much higher levels of cortisol<sup>3</sup>. Cortisol has the effects of dumping glucose into the blood stream. If we could increase DHEA levels it would keep the cortisol in check. Excess cortisol also causes demineralization of bones, increased fat deposits, increased salt and lowered immunity. Thus chronic stress is a major cause of illness and this may be the main reason why we observe low levels of DHEA in the population. Studies have shown that a group of stressed-out young executives have lower levels of DHEA than a comparable group of relaxed young people, even though their DHEA levels had declined with age.

DHEA taken prophylactically provides protection against damage to the brain from chronic stress. Under stress the body produces adrenaline and noradrenaline and these substances when broken down (their metabolites) form the most potent type of free radicals we know of. DHEA is also depressed by many drugs; among these are propranolol - an anti-

hypertensive drug - Tegretol (carbamazepine) and anticonvulsant drug and cortisone. Lower levels of DHEA also increases the risk of cardiovascular disease. In the age group of 50 -79 years studies showed DHEA were 40% lower in females and 35% lower in men with cardiovascular disease.

There is an interesting study which shows that women who have fat bodies and thin legs and who menstruate normally were found to have high levels of DHEA and the significance of this is not very clear. The implication is that if you have fat legs you may be having low levels of DHEA!

Measuring DHEA levels have also been used to predict when HIV patients will develop full-blown AIDS. This enables doctors in America to help people before the actual event.

### **DHEA "Fountain of youth"**

DHEA has been called the "fountain of youth" and unfortunately, the people who get on to these things like melatonin, DHEA, Progesterone cream are usually the multinational marketing companies eager to sell a new product. This is why it is important that as consumers we need to know the facts as disclosed by proper scientific research. For example, it has been claimed that DHEA will reduce weight, but studies show that it will only do so in very obese people. It has little effect in moderately obese people. In this particular trial when people were put on to a high-fibre good diet, about 30% lost weight and when another group of obese people were given the same diet plus DHEA, 65.7% lost weight. Taking DHEA by itself resulted in 57% of another group losing weight. One of the reason it does work is because it helped to reduce appetite. When you lose weight one's insulin becomes more sensitive to the receptor sites on the cells. Also people with excess weight tend to have more hormonal imbalances, thus by losing weight one can restore this hormonal imbalance.

DHEA has also been shown to improve memory, improve muscle to fat ratio and has natural antidepressant qualities.

There are some marked differences in effects between women and men. In men increased levels of testosterone and DHEA has been associated with lower insulin levels, whereas in women increased levels of testosterone and DHEA are associated with increased insulin levels and insulin resistance. This is important to remember for the marketing companies will have us believe that hormonal products work for all, whereas in fact there are differential effects between women and men.

### **Increase natural DHEA**

Natural increase in one's DHEA levels may be achieved by exercise, meditation and caloric restrictions. It has been shown that progesterone cream will increase DHEA levels between 40 - 400%.

DHEA is also increased by niacin (vitamin B3), tryptophan which is the fore-runner of serotonin which is also associated with in-

creased DHEA levels.

It is often claimed that herbs will increase DHEA but there seems to be no direct evidence for this. Herbs can be used to reduce stress and improve the blood circulation and the functions of the organs.

Some of the amino acids are known to produce DHEA in the body such as tyrosine, phenylalanine as does ornithine. One study showed that DHEA was used for treating a parasite - called cryptosporidium - found in life threatening conditions when a person is severely immuno-compromised.

#### **Progesterone cream**

If one takes the herb Wild Yam into a laboratory and break it down you can make natural progesterone. However, it is difficult to see how the body can produce that progesterone from Wild Yam. Wild Yam cream is not equivalent to progesterone cream. Progesterone cream is applied to the skin under the arm or on the inside legs, in other words where the skin is thin, so that progesterone is then absorbed directly into the blood stream.

It is claimed progesterone cream helps in the following list of ailments: fibrocystic breast disease, as a diuretic, fat metabolism, antidepressant, regulates thyroid hormones, reduces blood clots, improves libido, stabilises blood

sugar levels, prevents osteoporosis and produces DHEA. It is used primarily for premenstrual conditions such as hot flushes. Many of the post-menopausal symptoms are associated with progesterone deficiency, and hence progesterone cream is particularly helpful in this respect.

Although we have no evidence as to how Wild Yam Cream, sold as a natural progesterone cream, can be converted to DHEA, it nevertheless seems to clear up many of the above symptoms, as reported by many of my patients. Evidently, further research is needed to clear up the confusion.

In conclusion we may say that the arrival of natural hormones is going to play an important role in the treatment of modern diseases, but also that without proper evaluation these 'miracle drugs' may lead to indiscriminate use and abuse.

#### **Footnotes**

- 1) Cushing's syndrome is a disorder clinically similar to Cushing's disease, but more common, in which excessive hormonal activity of the adrenal cortex is due to intrinsic hyperplasia (excessive formation of cells) or tumour of the adrenal cortex. In Cushing's disease, which is a rare disease mainly among females, symptoms are virilism, obesity, hyperglycaemia, glycosuria (sugar in urine) and hypertension.

- 2) **Calcitonin** (secreted from the thyroid gland) and **parathyroid hormone** (secreted from the four parathyroid glands behind the thyroid gland) are involved in the maintenance of proper blood calcium levels. This is important not only in the maintenance of bones in the body, but also in the contraction of muscle tissues, second messenger in the action of some hormones and proper membrane permeability. In a state of low blood calcium, the parathyroid hormone will cause bone to be resorbed (dissolved) thus increasing blood calcium levels, and when calcium levels are high, calcitonin will inhibit osteoclasts (bone-thinning cells) and stimulate the osteoblasts (bone-forming cells) to form new bones. It is thought that lowered estrogen production during menopause interferes with these hormones, resulting in osteoporosis.
- 3) **Cortisol** or **hydrocortisone** is an hormone secreted by the cortex of the adrenal gland with effects similar to cortisone. Its function is to combat stress. It causes shrinkage of the lymph nodes and lowers the white blood cell count, reduces inflammation, promotes healing and stimulate gluconeogenesis (a process by which pyruvate is converted to glucose). Its secretion is controlled by **adrenocorticotrophic hormone (ACTH)** from the anterior lobe of the pituitary gland, which is partially under the control of the **hypothalamus**. The latter is a specialised portion of the brain, which is the coordination centre of the endocrine system. It receives and integrates messages from the central nervous system and responds by sending *hypothalamic regulatory hormones* to the pituitary gland.

# SKIN CANCERS

By Jurriaan Plesman, BA(Psych),  
Post Grad Dip Clin Nutr

THE SKIN is a strong elastic covering, the largest organ of the body, that encloses and protects it against injury and infection. The total area of the skin in an average man may well be 1.75 sq. m and weigh 4 kg. The skin is made of 1) an outer layer of cells (epidermis) consisting of cornified layers of dead cells; 2) an underlying part (dermis) containing blood vessels, sebaceous glands, sweat glands, nerve endings, hair follicles and 3) the subcutaneous layer which include the adipose fatty tissues. (See Figure 1 next page)

Hair grows from the hair follicles at the rate of about 1 mm every three days and it might be of interest to know that "hair plucking" does not stop hair growth.

The colour of the skin varies according to the amount of *melanin* in the epidermis. The ultraviolet rays of the sun stimulate the production of melanin, which absorbs the rays and simultaneously darkens the skin. Genetic differences determine the amount of melanin. The cells responsible for this action are the melanocytes distributed throughout the basal cell layer of the skin. They form melanin pigment from tyrosine, an amino acid.<sup>1</sup> Melanocyte-stimulating hormone from the pituitary controls the amount of melanin pro-

duced.

The skin is involved with many bodily functions such as temperature control, excretion, detoxification, mechanical and chemical protection of the body against injury and infections.

The skin is subject to many disorders but from a preventative point of view the following should be noted:

#### **High-risk groups in skin cancer**

- People with fair skin and hair - especially red-heads - are sensitive to sunlight
- Blood relatives of people suffering from allergies are themselves prone to similar problems
- People exposed to chemicals, including housewives using detergents, and hundreds of hidden chemical hazards.

#### **Main symptoms of skin disorders**

- Itching
- Lumps
- Rash
- Skin abnormalities

How to help prevent skin problems

- Wear gloves when handling detergents, oils or chemicals
- Do not use towels or face cloths which have been used by others
- Cover fair skin in sunlight with a broad-brimmed hat and cotton sleeves
- Do not sunbathe for hours at a time on the first day of holiday.

Of all skin disorders *skin cancers* are most threatening to health. Because many other skin disorders respond to home remedies it is not surprising to find that often skin blemishes so treated are in fact skin cancers. On the other hand there are harmless lesions that may look like cancers, such as keratoacanthoma<sup>3</sup>. Doctors can not always be sure what they are dealing with and so patients may be referred to skin-specialists who take a sample (biopsy) of the lesion to obtain the correct diagnosis.

#### **Self-diagnosis and treatment of skin disorders can be fatal.**

A survey of 2095 people in Queensland revealed a high use of home remedies to treat skin cancer. Of the total group 43 had invasive skin cancer and 834 had solar keratoses<sup>3</sup>. Fifteen percent of these used home remedies

such as naturopathic plant and mineral-based products, lanolin-based creams and steroid creams which had been prescribed for other skin conditions.

The most common plant extract were *Aloe vera*, *Euphorbia peplus* (Cancer weed, Petty spurge, Milkweed, Radium plant, Wart-weed).<sup>4</sup>

There are three basic kinds of malignant skin cancers:

- 1) Rodent ulcers or basal cell carcinoma (BCC)
- 2) Squamous cell carcinomas (SCC)
- 3) Malignant melanoma

### Rodent ulcers

The medical terms are: basal cell carcinoma, basal cell epithelioma, basaloma, carcinoma basocellulare, hair matrix carcinoma.

This type of cancer grows very slowly and rarely, if ever, spreads (metastasize) to other parts of the body.

Among the rodent ulcers are

- a) the ulcerated open sore form
- b) the encrusted type of rodent ulcer
- c) the cystic type

Changes in the dividing cell in the skin cause a *malignant growth or tumour* to develop, which then become ulcerated. These changes usually seem to be brought about by long-term exposure to strong sunlight, but it may be many years before this produces a rodent ulcer. The ulcer grows slowly, destroying tissues as it spreads. If untreated, the cancer will slowly invade deeper tissues, which could attack vital organs and thus cause death. It seldom spreads (metastasizes) to other parts of the body.

### Symptoms

Basal cell carcinomas may appear as shiny, rounded lumps that often change in size and colour. The ulcer often has a pearly, rounded edge. The location is usually the face especially near the nose and ear. The lump develops with a raised border and a raw, moist centre, which may bleed. Scabs fall from the ulcer, but does not heal. Sometimes it does not even look like an ulcer but a red, flaky patch of skin which slowly enlarges.

The skin disorder occurs most often among elderly people with a light skin, and who have been exposed to strong sunlight in the past. Dark skinned people rarely develop the ulcer, because the extra melanin (skin colouring) in their surface skin protect them against sun-

light.

### Risks

They grow slowly and sometimes they are neglected for many years. An untreated ulcer will destroy underlying and adjacent tissue such as the eye or ear. They do not metastasize, however death may occur if an untreated ulcer erodes some vital underlying structure, such as an artery.

Treatment of a rodent ulcer

The ulcer is removed by

- cryosurgery
- radiotherapy
- curetted
- treated with special cream

**Cryosurgery** means the destruction of the affected tissue by the medium of a cold, thus freezing out.

**Curetted** means that the affected tissue is scooped out with a sharp spoon-like instrument.

These treatments have a high rate of suc-

cess and leave only a slight mark on the skin. Regular yearly check-ups is recommended, because an ulcer may reappear, in which case the treatment is repeated.

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### Treatment of squamous cell carcinoma

Most of these are easily removed by cutting them away. When the carcinoma is large a skin graft or plastic surgery will be needed to cover the scar. Alternative treatments for squamous cell carcinomas are freezing the area (*cryosurgery*) and *radiotherapy*.

**Malignant melanoma** is a cancer of the pigment-containing cells of the skin. It is the most serious of the three types of skin cancer, because unlike the others, malignant melanoma often spread throughout the body (*metastasize*).

Sometimes the tumour arises from pigmented cells in a mole, sometimes from pigment cells in ordinary skin.

The melanocytes are the cells in the skin that create pigment. In Europeans these cells are relatively inactive giving a pale colour to the skin. In Asians they are moderately active and in Africans they are very active giving a steadily darker skin colour.<sup>7</sup> When melanocytes start to multiply abnormally, they form melanomas, which appear as irregularly edged dark or pink spots.

### The symptoms

Any suspicion of any skin cancer should immediately be referred to a doctor.

It is important to recognise a growing malignant melanoma, for the earlier it is identified the more successful treatment. The most common symptom is that a mole which has been present since childhood changes in one of several ways. It may grow, become patchy, lighter or darker, develop a black margin that spreads into surrounding skin, bleeds spontaneously or is itchy.

Another symptom is the development of a new mole at the time of puberty. Sometimes a flesh-coloured or red lump may appear on the skin. A malignant melanoma may also develop in the dark, irregular freckles which sometimes occur on the skin of elderly people. Melanomas may be black, brown, pink or blue. Although most malignant melanomas appear on areas of skins exposed to the sun for a long time, they may also appear on other sites such as the sole of the feet or at the site of a minor injury. In fact, they may appear in

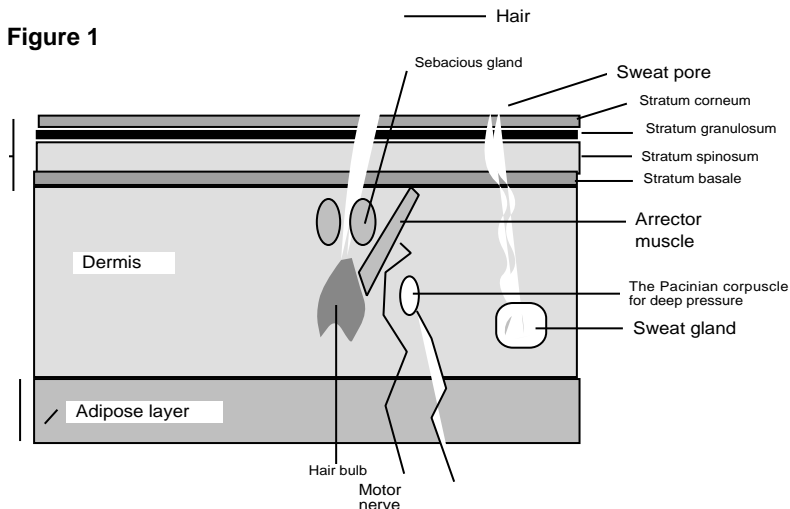


Figure 1

cess and leave only a slight mark on the skin. Regular yearly check-ups is recommended, because an ulcer may reappear, in which case the treatment is repeated.

### Squamous cell carcinoma (SCC)

Squamous cell carcinoma (also called epithelioma) or cancer arising from the squamous epithelium<sup>5</sup>, typically appear on the face - especially on the lips and near the ears - on the back of the hand and top of the head.

They come in two types a) the ulcerated form and b) the wart type.

The skin develop into a malignant tumour, mostly due to long-term exposure to strong sunlight, but it may also be caused by exposure to industrial tar or chemicals. It often occurs on the lower lip, ear and hands. It seldom arises from *solar keratosis*, an other form of skin disorder due to exposure to the sun over many years. Nevertheless, they need to be monitored as they can develop into SCC's. Another possible fore-runner of squamous cell carcinoma is Bowen's disease<sup>6</sup>, a

unusual locations such as under the nail - where they are mistaken for a bruise - in the mouth, under the eyelids, on the retina inside the eye, and in the anus. Again fair-skinned people living in sunny climates are especially vulnerable. Melanomas are slightly more common among women than men, the most common sites are the legs and the back.

The greatest incidence is between 40-50 years of age, and will affect one in 150 people in Australia.

Although the cause is unknown, it is argued that long-term exposure to the sun in the warmer climate in the North of Australia, particularly in childhood and teen years, dramatically increases the risk of developing a melanoma.<sup>8</sup> A different interpretation is given by Professor Ron Laura and will be discussed later. The continual depletion of the ozone layer in the upper atmosphere, which filters out the harmful ultraviolet radiation will inevitably increase the incidence of melanoma, not only in Australia but around the world.

### **Treatment of malignant melanoma**

The melanoma and surrounding tissues must be cut out. This usually leaves a hole that must be covered by a skin graft. The lymph nodes around the melanoma may also need to be removed.

The prospect after early surgery are good, but if symptoms have been neglected the growth can spread rapidly via the lymphatic system or blood stream and spread to other parts of the body.

Australia leads the world in treatment of melanomas and complete cures are possible if the patient presents to the doctor early in the disease.

There is a report that people with metastatic melanoma were treated with their own *tumor-infiltrating lymphocyte (TIL) cells* and interleukin-2 with some promising results.<sup>9</sup>

The best strategy appears to be - especially for the older generation - to seek a referral to a skin specialist for a bi-annual examination of the skin.

### **Alternative interpretation of causes of skin cancer**

Ron Laura, Professor of Education at the University of Newcastle, questions the conventional focus upon sunlight as the cause of melanomas.<sup>10</sup> He claims the highest mortality rates from melanomas are not found in the far north, but rather in Tasmania, and the number of skin cancers, relative to the population, recorded around Brisbane is higher than in the Northern Territory. He points to evidence that melanomas is prevalent among indoor workers and among those of higher social class. The distribution of melanomas is increasing in parts of the body least exposed to sunlight. One reason why indoor workers had more melanomas as compared to outdoor workers could be that indoor workers exposed themselves to the sun in sporadic bursts. They hadn't accustomed their bodies to the natural built-in defense mechanism against sun-rays.

Professor Laura suggests that we may be losing sight of a range of other factors which

affect the workings of the immune system.

His underlying theme is that skin cancers may be due to a general malaise in our health due to the constant bombardment of a man-made environment on our bodies.

We live in a setting where glass has transformed natural light into artificial light, where we are surrounded by harmful chemical vapours coming out of air-conditioning units, carpets, plastic products and resins and paints. "We have actually created an environment in which we are struggling to survive".

He mentions:

**Drugs**, such as broad spectrum antibiotics, some of which contain chemicals which increase the sensitivity of the skin to natural light.

**Foods** that are de-natured to such an extent that worms won't eat it. Most of the vitamins and minerals have been taken out of foods for the sake of improving storage. For example, vitamin B6 is needed for the body to withstand prolonged exposure to the sun, however the addition of vitamin B2 in foods may in fact sensitize the skin to sunlight. Cyclamate, alcohol, some insecticides, fungicides and solubilisers are said to be other skin sensitizers.<sup>11</sup>

**Synthetic fibres** isolate us from the natural world, whether in our clothes or inside our cars, on our chairs and other office furniture.

**Light** entering our windows have been changed to artificial light. He says that natural light entering the eye passes along a neural pathway from the retina to the pineal gland, a major controller of vitamin D-endocrine system<sup>12</sup>. He also claims that tungsten filaments used in globes are a radiation hazard and he includes halogen globes.<sup>13</sup> The recommendation to wear sun glasses adds to the sun screen.

He considers **Vitamin D** less as a vitamin but more a component of the endocrine (hormonal) system. It is essential for the formation of melanin, the pigment that tans the skin giving it a brown colour so you are less susceptible to sunburn. This together with the pineal gland, activated by natural light, forms an important protection to skin cancer.

**Sun screen chemicals** may increase the risk of skin cancer as they tend to block that wavelength of ultra-violet light which stimulates vitamin D production. Para-aminobenzoic acid (PABA) previously included in sun screens is in fact mutagenic and some people who used these creams years ago are now the victim of melanoma, according to Laura.

**Electro-magnetic pollution** is considered to be another factor in the causation of skin cancer. Most people are aware of the effects of ultra-violet radiation, X-rays and microwaves. Very little research has been done on the effects of *microwave ovens*. According to Laura they are known to alter the DNA structure of proteins. He urges that further research is required to clarify the situation. (However, at least one study has shown that microwave cooking preserves the ascorbic acid content (vitamin C) in frozen vegetables to a higher level than conventional domestic cooking with boiling water.<sup>14</sup>)

Professor Ron Laura suggests that "we can no longer explain the extraordinary increase in skin cancers, and in particular malignant melanoma, simply by talking about increased exposure to light."

### **Nutritional treatment**

Because of the seriousness of possible skin cancer self-diagnosis and self-therapy is not recommended. You should have regular check-ups with your doctor, especially when over the age of 40 when skin cancers are likely to develop. When you have a history of long periods of exposures to sunlight or of sunburns, special attention should be given to unusual skin blemishes in later life. These should be referred to a doctor for examination.

Prevention revolves around avoiding long-term exposure to the sun, particularly among children and teenagers with a fair complexion. Babies should not be exposed to the sun for long periods as this could damage their delicate skins. This can be achieved through appropriate dressing with broad-brimmed hats and long-sleeved shirts. The longer UVA rays penetrate deeply, damaging underlying skin tissues causing changes associated with aging. The shorter rays, UVB rays, are only absorbed by the outer layers of the skin, where they might cause pre-cancerous and cancerous cell changes.

The literature on skin cancer in nutritional medicine is poor. The skin is said to reflect the general health of the body. Nutrition and lifestyle play a role in all cancers, including skin cancers. Long-term exposures to pollutants, such as lead, cadmium, mercury, alcohol, cigarette smoke<sup>15</sup>, foods containing traces of herbicides and pesticides all contribute to organ damage, including the skin. One needs to take steps to overcome chronic allergic reactions affecting the health of the skin, by avoiding identified allergens and preservatives in food.

There is no special diet to avoid skin cancer, but general good health (including that of the skin) can be promoted by low-fat, high-fibre, nutrient-dense diet with optimal vitamins and minerals and low in sugars and refined foods. This diet should contain a variety of antioxidants from fruits, vegetables and grains, cooked dried bean, low-fat or non-fat milk, lean meats, chicken and fish. The following nutrients may help protect the skin against the damaging effects of UV radiation;

### **Vitamin A and Beta Carotene**

**Sources:** Apricots, asparagus, avocados, *beetroot greens*, *broccoli*, Brussels sprout, rockmelon (cantaloupe), carrots, chard, chilli peppers, yellow corn, cress, pink grapefruit, greens (mustard, turnip, beet, collard etc), kale, lettuce, butterhead or Romaine lettuce, mandarin oranges, mangoes, papayas, parsley, peaches, bell peppers, plums, pumpkins, tangerines, *spinach*, squash, winter squash, sweet potatoes, tomatoes and water melon. Conversion of beta carotene to vitamin A stimulated by thyroxine from the thyroid gland. (Almanac, 14).

**Vitamin A:** Made in the body from → beta-carotene. Liver, eggs, egg yolk, yellow

fruits and vegetables, spinach, dark-green fruits and vegetables, rhubarb, whole milk products, fish-liver oil\* (Cod liver oil), in fishoils such as cod, salmon and halibut. Supplements should be limited to 9,000 IUs, unless under medical supervision.

**Comments:** People with skin cancers have lower levels of beta-carotene and vitamin A. Numerous studies claim that this vitamin boosts immunity, has anti-cancer effects, fights skin disorders, prevents and reverses ageing of the skin, improves vision and speeds up wound healing. People suffering from night blindness and/or glare sensitivity may be deficient in this vitamin. This may serve as a warning. It is required in the formation of visual purple, the substance in the eyes which enables them to adjust from bright light to darkness.<sup>16</sup>

Studies have shown that pre-supplementation with moderate doses of beta-carotene before and during natural sunlight exposure combined with topical sunscreens are more effective than sunscreen cream alone.<sup>17</sup>

There has been an interest in retinoids in the treatments of skin malignancy. Vitamin A is essential to the maintenance of the integrity of the skin, and animals deprived of vitamin A have been shown to be more likely to develop skin cancer when exposed to carcinogens. Lancet<sup>18</sup> reports the use of *isotretinoin*<sup>19</sup>, a vitamin A derivative, with 7 patients with *xeroderma pigmentosum*<sup>20</sup>, a serious skin disease. During treatment the incidence of cancer dropped from a total of 121 to 15 over two years of retinoid administration. However, supplementation of vitamin A in excess of the recommended allowance during normal pregnancy should be avoided.

#### Vitamin D

**Sources:** Salmon, sardines, herrings, liver, vitamin D-fortified milk and milk products, egg yolks, organ meats, Fish Liver Oils\* Bone-meat\*, also produced in skin from sunlight.

**Comments:** Food sources are generally poor. Because vitamin D can be produced in our bodies by the action of sunlight (ultraviolet light) on 7-dihydroxycholesterol in the skin, many scientists consider this vitamin to be a hormone. Many elderly have inadequate exposure to sunlight and may be deficient in vitamin D. Alcoholics who do not drink milk or consume other sources of vitamin D are also at risk. The chemical reactions starting from the skin can be represented as follows:

(Ultraviolet light + 7-dihydroxycholesterol in skin) → cholecalciferol (Vitamin D3) → 25 hydroxycholecalciferol in liver → 1,25-dihydroxycholecalciferol (calcitriol) in kidney.

The end product promotes calcium resorption in the bone and absorption from the intestines from the diet. A disorder in either the liver or kidney may affect bone metabolism. Many patients with osteoporosis have high levels of 25-hydroxycholecalciferol with low levels of 1,25-dihydroxycholecalciferol indicating a possible impairment in the kid-

ney<sup>21</sup>. High levels of 25-hydroxycholecalciferol seem to be a protection against colon cancer<sup>22</sup> and breast cancer<sup>23</sup>. Calcitriol, the active form of vitamin D, plays an important role in the generation of cells in the skin's outer layer and has been used in treating psoriasis in both oral or topical application. Some authors suggest that the use of sunscreens can increase the risk of melanoma as it may prevent the skin from producing vitamin D.<sup>24</sup> Apparently, they prevent sunburns, but not skin cancer, thus in fact depriving a person from a natural warning that the skin has received too much sun.

#### Vitamin E

**Sources: (Tocopherol)** Almonds, Brazil nuts, cold-pressed oils, eggs, wheat germ oil, sunflower seeds (& oil), safflower oil, sesame oil, peanut oil, corn oil, hazelnuts, olive oil, organ meats, molasses, nuts, soybean oil, sweet potatoes, leafy vegetables, wholegrains, desiccated liver\*.

**Comments:** Vitamin E is a major antioxidant that may protect the skin from free radicals formed during and following UV radiation. In an animal experiment skin cancer in mice was 81% at 33 weeks after first exposure to ultraviolet light. The incidence of cancer was reduced to 42% in mice receiving topical vitamin E 3 times per week 3 weeks prior to exposure of ultraviolet irradiation. Dietary beta-carotene supplementation did not significantly enhance the chemopreventive effect of topical vitamin E.<sup>25, 26</sup>

#### Vitamin C

**Sources:** (Ascorbic acid): Citrus fruits, rose hips, Acerola cherries, Alfalfa seeds, Alfalfa sprouts, cantaloupe (Rock Melon) strawberries, broccoli, cabbage, tomatoes, green peppers, capsicum, parsley, Brussels sprout, paw paw, spinach, cauliflower, oranges, mangoes, grapefruit.

**Comments:** Vitamin C might prevent and repair UV-induced skin damage by attacking free radicals and help to produce collagen - insoluble protein in connective tissues, bones, skin and tendons - and to reduce inflammation. Prolonged exposure to the sun appears to deplete the skin of vitamin C, thus requiring increased dietary intake or topical application of vitamin C in lotions.

#### Selenium and skin cancer

**Sources:** Important antioxidant. Tuna, herrings, Brewer's yeast, wheat germ, garlic, onions, Brazil nuts, bran, broccoli, whole grains.

**Comments:** Selenium is an important antioxidant being an essential component of glutathione peroxidase in the form of selenocysteine, a free radical scavenger. Glutathione peroxidase functions together with the peptide *glutathione* - consisting of the amino acids glutamic acid, cysteine and glycine - to protect cells against the destructive effects of hydrogen peroxide.

Animal studies using selenium in the form of selenomethionine administered topical effectively protected against UV-induced skin

cancer.<sup>27</sup>

In another study with eight volunteer women topical application of L-selenomethionine decreased skin reactions to UV irradiation in a dose-dependent manner.<sup>28</sup>

A recent study showed that oral selenium supplementation (200 µg per day) did not protect against the development of basal or squamous cell carcinoma of the skin, however it supported the hypothesis that selenium may reduce the incidence of cancers of several other sites.<sup>29</sup>

This confirms previous findings that high selenium garlic and onions have good anti-cancer activity and can be adapted for human consumption on a regular basis.<sup>30</sup>

#### Phenylalanine to be avoided in certain skin cancers

Phenylalanine could worsen hypertension. Supplements should not be used in patients with phenylketonuria or with pre-existing pigmented melanoma.<sup>31</sup>

#### Essential fatty acids and skin cancer

According to Judy Graham<sup>32</sup> when cancer cells are exposed to polyunsaturated fatty acids (PUFAs) they generate a large amount of lipid peroxides which help to kill them off.<sup>33</sup> Cancer cells are low in lipid peroxides and although peroxides are generally considered to be harmful they seem to be involved in regulating cell division. Cancer cells block the metabolism of linoleic acid to gammalinolenic acid (GLA) and then to prostaglandins series 1 (PGE1), which are believed to have cancer-controlling properties.

This theory seems to be supported by Van Aswegen CH and Du Plessis DJ who claim that oxidation of linoleic acid by lipoxidase especially increases tumour cell death, whereas GLA inhibits urokinase-type plasminogen activator (uPA) activity. Increased uPA activity is: firstly, responsible for cancer invasion and metastasis and secondly, responsible for proteolysis (breaking down of proteins) of lipoxidase which favours a decrease in cancer cell death. They therefore suggests supplementation of linoleic acid and GLA to available therapeutic regimens to be worth considering in cancer treatment.<sup>34</sup>

Essential fatty acids (EFAs) deficiency is found in a number of medical conditions such as diabetes, rheumatoid arthritis, due to possible inhibition of delta-6-desaturase (D6D), the first enzyme in the EFA pathway to GLA<sup>35</sup>. It is not clear whether this is a cause or symptom.

Judy Graham believes that Evening Primrose Oil (EPO), which by-passes the missing enzyme, provides the GLA that is toxic to cancer cells but not to normals cells. However, vitamin E inhibits the toxic effects of GLA on malignant cells and hence she advises GLA should be given in the form of Efamol Marine *without vitamin E*.

Nevertheless, scientific literature is ambivalent. One study with rats (liver cancer) claims that diets high in corn, soybean or safflower oils (all containing linoleic acid) have been shown to promote tumour growth,



whereas n-3 fatty acids (alpha linolenic acid and eicosapentaenoic acid, thus fishoils) inhibit the promoting effects of linoleic acid.<sup>36</sup> Furthermore, most studies do not relate to human skin cancer in particular. Since Evening Primrose Oil is harmless its addition to the diet may help prevent cancers and skin cancer in particular. Further studies are needed to clarify its role.

### Tannic acid against UVB radiation

Tannic acid (a naturally occurring plant phenol) or tannins are complex organic chemical found in leaves, unripe fruits and bark of trees. They act as astringents in many herbal remedies on mucous membranes and exposed tissues. They 'curdle' protein molecules (like boiling an egg) and this property has been used throughout the ages to make leather from animal skins. Thus astringent remedies may be said to produce 'leather coats' on mucous or exposed surfaces. Astringent herbal remedies are used particularly in the treatment of intestinal inflammations and diarrhoea and burns<sup>37</sup>, thus providing an impenetrable barrier to most infective organisms in the gut wall. However, long term use may also interfere with absorption of nutrients.

Tannic acid (200mg) in topical application has been found to reduce skin cancer incidence in the UVB-irradiated mice from 75% to 42%. Therefore tannic acid appears significantly to inhibit UVB-induced immunosuppression.<sup>38</sup>

**Genistein**, a component found in soya bean is a powerful antioxidant shown to have a preventive effect in UV irradiation of skin cells. It inhibits protein tyrosine kinases, thus altering cell growth of tumours. Wei and co-workers investigated the ability of genistein to inhibit some of the damaging effects caused by UV irradiated skin cells *in vitro*. Genistein inhibited the formation of the oxidised DNA base 8-hydroxy-2 deoxyguanosine which forms in abundance in skin cells exposed to UV light *in vitro*. The success is thought to be due to the remarkable ability of genistein to quench hydrogen peroxide and superoxide anions.<sup>39</sup> Perhaps we might see a cream containing genistein for the prevention or treatment of skin cancer in the not-too-distant future.

### Botanicals with possible role in skin cancer

Other botanicals mentioned are:

Apple off Sodom	Solanum sodomium
Calendula	Calendula officinalis
Greater Celandine	Chelidonium majus
Tumeric Curcumin	Curcuma longa
Kangaroo apple	Solanum aviculare
LaPacho; Pau D'arco	Tabebuia avellandae
Nightshade family vegetables	
Rosemary oil	Rosemarinus officinalis

### Green tea and its anti-cancer polyphenols

Another herb with anti-skin cancer effect

are the the polyphenols found in Chinese green tea (*Camellia sinensis*), providing some protection against tumour growth.<sup>40</sup> Several studies have shown that drinking green tea and also when applied as a topical agent are protective against, not only skin cancer but also cancer of internal body organs, particularly the lung and stomach.<sup>41</sup> Most studies refer, however, to animal studies and it is not clear whether we can extrapolate the findings to humans. It is interesting that *in vitro* experiments showed that black tea and green tea with or without milk had the same antioxidant effects, but when humans consumed the teas with milk it completely blocked the antioxidant activity. It was speculated that the inhibitory effect of milk may be due to the complexation of tea polyphenols by milk casein proteins. The popular custom of drinking green tea with meals in Japan and China, which may inhibit the formation of nitrosamines, is believed to be a major reason for the low cancer rate in these countries.

Werbach and Murray mention several studies in the *Botanical Influences of Illness*<sup>42</sup> showing some anti-cancer properties of botanicals. Solasodine glycosides is a aglycone of many glycoalkaloids found in nightshade family vegetables. A cream formulation Curaderm®, which contains 0.005% of a standardized mixture of purified glycoalkaloids known as BEC® from the Apple of Sodom (*Solanum sodomium*) is available in Australia for skin cancers. In a clinical trial many keratoses and other cancerous skin lesions had regressed without side-effects.<sup>43, 44</sup>

This should not be used in melanomas, moles and highly pigmented lesions

**Rosemary oil** (from *Rosemarinus officinalis*) 1.2 or 3.6 mg applied to mice 5 minutes prior to the application of a carcinogen (benzo(a)pyrene) were found to have 54 and 64% less tumours respectively.<sup>45</sup> Rosemary leaves, but not the oil, contain effective antioxidants. They inhibit superoxide anion production in the xanthine oxidase system and inhibit lipid peroxidation in the microsomes and mitochondria protecting red blood cells from oxidative haemolysis.<sup>46</sup>

The skin is often a reflection of our general health and healthy skin tissues are in a better position to reject cancerous cells. Disorders such as psoriasis, warts, corns, verrucae and even skin cancer may be a sign of toxic conditions of the blood and/or tissues involving the liver, colon or kidneys.

**Greater Celandine** (*Chelidonium majus*) is known in herbal medicine and homeopathy as a "very ancient liver remedy" which taken internally could explain why it can be useful in many chronic skin conditions. As an ointment it has been known to remove warts and corns and even skin cancer.<sup>47</sup>

Maria Treben<sup>48</sup> uses it for kidney, liver and gallbladder disorders and used externally to remove "cancer-like growths" and she also mentions **Calendula**, **Marigold** (*Calendula officinalis*) internally and as a juice applied externally for "cancerlike skin patches".

Despite the favourable signs emerging from

complementary medicine, there is a danger that alternative remedies may create false hopes. In the case of cancer and skin cancer, treatment should always be under the supervision of a medical practitioner.

In the last decade, the scientific basis for the use of botanicals in the treatment of illness has made considerable progress, but is still in its infancy. Australia positioned in the vicinity of Asia has a unique opportunity to combine its tradition of Western medicine with that of the Asian medical culture.

### Wrinkles

The development of wrinkles is a normal part of growing old. However you can always recognise the person with a long history of exposure to either the sun, alcohol and/or smoking. These factors predispose towards wrinkles. Nowadays, young girls with a nicotine addiction outnumber the boys and we may expect to find among the next generation a lot of little old wrinkled ladies.

Similarly, men with a drinking habit will develop early wrinkles. The liver converts alcohol to acetaldehyde which is closely related to formaldehyde. This substance damages the DNA and causes abnormal bonds in the skin resulting in wrinkles.

### Conclusion

Skin cancer is a disease too serious for self-diagnosis and self-therapy; and any nutritional or herbal treatment should be considered only as an adjunct to orthodox medical treatment and with the cooperation with your doctor. The best "natural" prevention of skin cancer are protection against the sun-rays, especially in Australia by the wearing of clothes and broad-brimmed hats.

### Footnotes

- 1) A blockage in the conversion of phenylalanine to tyrosine is associated with abnormal pigmentation of hair and the iris. Wintrobe, MM et als. (1970), **Harrison's principles of internal medicine**, McGraw-Hill Book Co NY page 616
- 2) **Keratoacanthoma** is a benign rapidly growing flesh-coloured papule of the skin with a central plug of horny tissue (keratin), usually on the face. It disappears spontaneously in 4 to 6 months, however biopsy is necessary to differentiate it from squamous carcinoma.
- 3) **Solar keratosis** also called *actinic keratosis* is a slowly developing, localized thickening of the outer layers of the skin as a result of chronic, prolonged exposure to the sun.
- 4) Quale S. (1990), Home remedies used to treat skin cancer, **Australian Dr Weekly - March 2, 11**; & Green and Beardmore (1989), **Aust J Dermatol 29**, 127-130
- 5) Squamous cell carcinomas (SCC) are cancers of the outermost layer of skin. Basal cell carcinomas (BCC) are deeper down in the next layer and are generally not as serious as the more superficial cancers. They occur at an earlier age than SCCs but rarely before 25 years of age. Carter W & Bowen J (1991), **The Macquarie home guide to health & medicine**, the Macquarie Library, 515
- 6) Also called Bowen's precancerous dermatitis, intraepidermal carcinoma or precancerous dermatitis
- 7) It has been suggested that inter-racial marriages will save the survival of the "white race" in the sunny climate of Australia in the long term.

- 8) Carter, W & Bowne, J (1991), **The Macquarie home guide to health & medicine**, The Macquarie Library Pty Ltd, Page 516
- 9) Fox SI (1993), **Human physiology**, Wm C Brown Pubs Melbourne, 574
- 10) Laura, R (1993), Skin cancer: new interpretation of causes, **Natural Health** 6,1,2 December 92/January 93
- 11) Laura, R & Ashton JF(1991), **Hidden hazards - the dark side of everyday technology and how it affects your health**, Bantam (Available from Natural Health Society Bookshop, Ste 28/541 High St, Penrith NSW 2750. Ph: 047-21-5068 and reported in **Natural Health**, 8,1,13 December 1994/January 1995
- 12) Laura, R (1993),p 3
- 13) Laura, R & Ashton J.(1991), **Hidden hazards etc**
- 14) Gould MF, Golledge D. (1989), **Food science and nutrition** 42F, 145-152.
- 15) There is strong association between smoking and aging of the skin. Smoking causes blood vessels to constrict and limits oxygen supply to the skin. Cigarette smoke contains carbon-monoxide and acetaldehyde, an aldehyde and related to formaldehyde. These are major cross-linkers, mutagens and carcinogens and explain why alcoholics and smokers have heavily wrinkled skins.
- 16) Nutrition Search Inc (1979), **Nutrition almanac**, 155
- 17) Gollnick H, Hopfenmuller W, Hemmes C et al. (1996), Systemic beta-carotene plus topical UV-screen are an optimal protection against harmful effects of natural UV-sunlight: results of Berlin-Eilath study, **Eur J Dermatol** 6: 200-205
- 18) Editorial(1988), Retinoids and control of cutaneous malignancy, **Lancet** 2, 545-546
- 19) **Isotretinoin** (brandname Roaccutane) is a vitamin A derivative. It is normally used to treat acne, that has not responded to other treatment. The drug decreases the function of sebaceous glands, hence one of its side-effects is dry skin. There are serious side effects such as dry mouth and nose, muscle/joint pain, headache, impaired vision, temporary increase in triglyceride levels and liver (hepatic) disturbances. It can cause serious birth defects and should not be used during breastfeeding. It interacts adversely with tetracycline antibiotics (also used in acne). Vitamin A supplementation worsens the side effects of the drug. It is a sun-sensitising agents and patients should be sun protected! A similar drug is Retin-A containing tretinoin.
- 20) **Xeroderma pigmentosum** is a rare, inherited skin disease characterized by extreme sensitivity to ultraviolet light, resulting among others in thickening of the horny layer of the skin (keratoses), tumours arising from non-glandular epithelial surface (papillomas), carcinomas, melanomas. Inflammation of the cornea of the eye (keratitis) may lead to blindness.
- 21) Murray M, Pizzorno J (1990), **Encyclopaedia of natural medicine**, Optima, London, 456.
- 22) Garland CF et al (1989), Serum 25-hydroxyvitamin D and colon cancer. Eight year prospective study, **Lancet** 1:178-8
- 23) Colston KW et al. (1989), Possible role of vitamin D in controlling breast cancer proliferation, **Lancet** 1:188-91
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- 29) Clark, LC et als. (1996), Effects of selenium supplementation for cancer prevention in patients with carcinoma of the skin, **JAMA, December 1996, 276 (24):** 1957-1985
- 30) Ip C, Lisk DJ(1994), Characterization of tissue profiles and anticarcinogenic responses in rats fed natural sources of selenium-rich products, **Carcinogenesis** 15(4), 573-576
- 31) Pearson D & Shaw, S, (1982), **Life extension:A practical scientific approach**, Warener Books, NY,Page 136
- 32) Graham, J (1993), **Evening primrose oil**, Thorson London, page 120
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## HOW TO AVOID COSMETIC SURGERY

by a plastic surgeon

*You don't have to resort to going under a surgeon's knife to improve your looks. Skin damage and the effects of premature ageing can be prevented.*

Much of the skin damage we think is due to ageing, in fact, has nothing to do with ageing at all. Even 70- and 80-year-olds can have a smooth, unlined skin on the areas of their bodies which have not ever been exposed to sun - and this is the clue.

As much as 80 to 90 per cent of skin ageing is extrinsic, caused by exposure of the skin to sunlight (photic damage). This extrinsic ageing can be prevented - simply by reducing the amount of time you spend each day in the sun, for example, will have a dramatic age-retarding effect. However, the other type of ageing, known as intrinsic ageing, which occurs when the skin gradually becomes thinner and less robust, can be treated but not prevented altogether.

### Stop smoking

A heavy smoker's face is more lined than the face of a non-smoker of the same age because of the molecules (free radicals) in tobacco smoke. Additional creases are caused by squinting through smoke.

Crow's feet around the eyes, tiny wrinkles spreading between the upper and lower lips, and lines on the cheek and lower jaw are particularly noticeable on smokers. Changes in the blood supply to the skin when cigarette is inhaled can make things even worse, resulting in the skin taking on a greyish tinge.

### Stay out of the sun

Another important anti-ageing tip is to stay out of the sun, and whenever you are outside use a broad-spectrum sunscreen with a sun-protection factor (SPF) of 15+ on exposed areas of the skin, especially your face. Wear a hat in the sun when possible, and choose make-up and moisturisers with UV filters.

### Drink enough water

Maintaining a high water intake is strongly recommended; up to eight glasses of 'pure' water a day will help to keep your skin hydrated. This isn't difficult to achieve if you have a glass of water 10 to 15 minutes before each meal and keep a glass of water nearby to sip during the day. Try to avoid tea and coffee at work and opt for filtered water instead.

It is widely thought that antioxidants, which include vitamins A, C, E, and beta-carotene, can help combat premature ageing. Fresh fruits and vegetables are a good source of antioxidants, so drink plenty of fresh juices, particularly those made from carrots, oranges, apples, grapefruit, parsley and celery.

Hormone Replacement Therapy (HRT)<sup>1</sup> also can improve the skin - it is already being used by some menopausal and post-menopausal women as part as a general anti-ageing strategy.

### Facial exercises

The effects of gravity creep up on us slowly. To see what is happening to your face, stand with your back to a full-length mirror. Bend at the waist, and look at yourself through your legs. Any loose facial skin will feel like it's hanging down. To tone the face, remain with your head between your legs and concentrate on moving the facial muscles back to how they are when you're upright. Once you stand up, your face should feel revitalised.

### Use vitamins to speed healing from skin operations

Anyone contemplating having cosmetic surgery<sup>2</sup> should make sure they are reasonably fit and healthy and eating a well-balanced diet. Your body will be better able to heal after the operation if you take the time to prepare beforehand.

Many people are deficient in a number of vitamins and minerals which are involved in tissue repair. If you feel you are one of these people, it could be helpful to take vitamin supplements about four weeks before the operation, continuing to take them for about eight weeks afterwards, to help the healing process and minimise any bruising and swelling after surgery.

The supplements should contain the essential minerals zinc and magnesium, and the vitamins A (beta carotene), C and E.

You should also try to eat from food groups that are rich in these vitamins, such as fresh fruits and vegetables, lean meat, poultry, fish and wholegrain cereals.

#### Footnotes

- 1) Hormone Replacement Therapy is a controversial topic among natural therapists and women may want to investigate alternative approaches.
- 2) This applies, of course, to any skin operation.

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Table..Drug-Alcohol interactions and their adverse out comes from D.A.Roe(1989), **DIET AND DRUG INTERACTIONS**, An AVI Book, Van Nostrand Reinhold, NY, Page 67.

#### Drug Group

Barbiturates

Coronary vasodilators (nitroglycerine)

Non-steroid Anti-inflammatory drugs  
pirin, indomethacin)

Antihistamine

Anti-gout drugs (Colchicine)

Anticonvulsants (phenytoin),  
diuretics (furosemide)

Oral hypoglycemic agents  
(chlorpropamide) and  
alcohol-aversion  
drugs (Disulfiram)

Cytotoxic agents (Methotrexate)

Gaseous anaesthetics

Tricyclic antidepressants (Imipramine)

#### Alcohol Effect

Additive or synergistic CNS depressant effect

Hypotension can result from use of alcohol and nitroglycerine  
GI bleeding due to salicylates or (As-indomethacin is enhanced by alcohol)

Alcohol increases sedative effect of antihistamines because capsules are rapidly dissolved

Alcohol increases colchicine-induced lactose intolerance

Alcohol excess increases the risk of phenytoin-induced folate deficiency and diuretic-induced magnesium deficiency

Alcohol ingestion triggers drug-related flush reaction

Alcohol enhances the hepatotoxicity of methotrexate

Alcohol increase tolerance for anaesthetics

Dyskinetic effects of antidepressants are increased in alcoholics

## Alcohol and glucose metabolism

By Jurriaan Plesman

Excessive consumption of alcohol can cause a hypoglycemic episode. One reason is that alcohol inhibits the biosynthesis of glucose from non-carbohydrate precursors, such as lactate and amino acids. This process is called *gluconeogenesis*. This effect of alcohol is accelerated after a period of strenuous exercise and lowered food intake. The brain deprived from glucose has problems regulating body temperature and the practice of giving whiskey or brandy to persons rescued from the sea or the wilderness is unsound. Giving glucose would rapidly restore blood glucose levels and therefore restore temperature control.<sup>1</sup>

Another reason seems to be that alcohol consumption may increase the insulin response and decrease the glycaemic response in non-insulin dependent diabetes mellitus.<sup>2</sup>

If this is so it would mean that people who drink alcohol in excess and who suffer from hyperinsulinism (or hypoglycemia) may experience a crash in blood sugar levels. This could explain the association between alcohol consumption and violence. The brain deprived of glucose sends a message to the adrenal glands to pour adrenaline into the blood stream, aiming to convert glycogen, stored in the liver and muscle tissues, back into glucose.

Blood adrenaline concentration may in-

crease to almost thousandfold in seconds or minutes in cases of stress and this galvanizes the fight/flee reaction in the violent person.<sup>3</sup>

On the other hand, diabetics could possibly benefit from having one or two alcoholic beverages taken with a meal to stimulate insulin production. In any case the effect of a small amount of alcohol on glycaemic control in diet-controlled NIDDM patients appears to be minimal.<sup>4</sup>

#### Footnotes

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## Haemorrhoids

by Jurriaan Plesman

The anus, at the end of our digestive system is rarely mentioned in polite conversation, especially around the dinner table where it all begins.

Haemorrhoids or more commonly known as piles may cause itching and pain. Internal piles may protrude from the anus during straining when passing stools. They are often

**Continued on page 12**

associated with a history of constipation, a diet low in fibre and lack of exercise. For those whose means of living depends on a sedentary life-style, such as office workers, it is important to balance this with a daily routine of physical activities. Instead of using a car, public transport forces you to walk considerable distances each day and instead of using the lift, you can always go up by the staircase.

As to constipation perhaps a spoonful of linseed oil added to your diet may soften the stool. Supplements of zinc, beta-carotene are also recommended. One should try to avoid

any strains on the lower bowel by adopting a correct posture. It may well be that chocolate is the real culprit, especially when you are hypoglycemic and crave for sweets. Avoid coffee and cola drinks. A diet high in refined sugar is a major cause of varicose veins in the legs as well as in the digestive system of which haemorrhoids are an example.

In case of anal bleeding a doctor should be consulted to eliminate a more serious underlying medical cause, especially when there is a sudden change in bowel habits, such as constipation or diarrhoea. Examination of the rectum through a tube (proctoscopy) is needed to rule out cancer or polyps (small growths). Doctors often prescribe hydrocortisone ointment or suppositories, but these are short-term measurements which should not replace treatment of the underlying cause.

Piles can be avoided by increasing roughage in the diet with fruits, apples and pears munched in the skin and by eating potatoes in the jacket. These are high in soluble fibres including polysaccharide pectins and gums. Especially good are whole grains such as buckwheat and millet. For bleeding haemorrhoids eat foods rich in vitamin K such as alfalfa, kale, dark green leafy vegetables. Roughage or fibres are said to be the indigestible portion of the diet. This is not entirely correct as it is degraded by many friendly bacteria in the intestines, especially in the large intestine or colon. Some of these bacteria convert fibres by fermentation into "volatile fatty acids" (VFA's), which when liberated in the colon not only produce gases such as hydrogen, methane and carbon dioxide, but

also various acids (acetic, propionic, butyric) which provide a long-term source of energy. Florence & Setright refer to some evidence that butyric acid plays a role in reverting malignant cells in the colon to normal cells.<sup>1</sup> Yoghurt increases the friendly flora in the gut and helps in the digestion of fibres.

Furthermore, dietary fibre is known to help in the treatment of diabetes, diverticulitis, colitis, Crohn's disease and hypercholesterolaemia. It slows down the absorption of sugars and therefore is beneficial to hyper- and hypoglycemics.

Other beneficial nutrients are vitamin C, rutin, bioflavonoids, vitamin A 9,000 IUs daily, folic acid, B complex vitamins, essential fatty acids.

Whilst increased fibre in a wholesome diet and exercise are main components of treatment for haemorrhoids, in the meantime there are a number of agents that can alleviate the pain and itching of thrombosed piles. Apply a combination of zinc oxide, vitamin E and aloe vera gel or olive oil to affected area.

Internally a decoction of dandelion, yellow dock and horse chestnut have been used.

Creams made of some of the following herbs such as witch hazel, pilewort, calendula, St. John's wort, tormentil root, comfrey, rhatany are most useful. Chickweed cream is especially known to stop itching. Agrimony cream is claimed to even shrink the haemorrhoids.

You can now return to polite conversation around the dinner table with ease!

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