**A Natural Approach to Cancer**

**Overview**

***History:***

* Plants have been used by humans as medicine for thousands of years
* Today, the practice of western herbal medicine incorporates traditional practice with on-going development, incorporating plants from other herbal traditions and research findings (research is increasing but limited due to limited funding and tends to concentrate on extracted chemicals rather than whole plant extracts).
* Although interest in natural remedies is widespread and growing, most use is through over-the-counter herbal extracts and the practice of herbal medicine has largely been forgotten.

***Comparison with conventional medicine:***

* The herbal approach differs from conventional medicine fundamentally in that a pharmaceutical drug is generally used to have a specific outcome in the body for therapeutic aims whereas herbs are used to aid the body in over-all healthy function by addressing imbalances from many different angles. All functions of the body are considered including the immune system, eliminative functions, cardiovascular function, digestive health, hormonal balance, tissue health etc. Herbal medicine treats ‘the person’ not ‘the disease’.
* Plant medicines also consist of a balance of many different chemicals that have evolved over millennia and as such have a more balanced effect in the body than single chemicals with fewer side effects.

***Chronic inflammatory conditions:***

* We are plagued in today’s society by a multitude of chronic inflammatory conditions such as rheumatoid arthritis, ulcerative colitis, atherosclerosis and cancer. They all share common features in that there is immune dysregulation, inflammation, oxidative processes and other factors such as impaired eliminative function. The herbal approach aims to aid a return to healthy function in all these areas as well as using specific approaches depending on the characteristics of each condition.

**Caution: Information presented here is for educational purposes only and not intended to be used as treatment – please consult your healthcare provider.**

**Cancer: A natural approach**

Cancer is a chronic inflammatory condition generally characterised by genetic mutations and a compromised immune system, which lead to abnormal processes such as dysregulated growth, inflammation, oxidation and degradation of structural components of tissue.

The development of dysregulated cells in our bodies is a constant process and at any time a body may have many mini tumours which will be dealt with naturally by the ever-vigilant immune system.

The problems start when the ability of the body to remove rogue cells is reduced and this can be due to factors such as genetics, stress or toxins.

Therefore it is of primary importance to shift the balance in favour of a strong healthy body response by reducing stresses on the body where possible and promoting pathways that make the growth of tumours less likely.

**Processes involved in the development and progression of cancer and how we can address them**

* ***General factors that promote cancer*Cancer is associated with:**
	+ A diet high in hydrogenated fats and processed food, low in fibre, fruit, veg and fish oils/omega 3 oils
	+ Elevated blood sugar and insulin
	+ Suppressed emotions and chronic stress
	+ Reduced immune function
	+ Toxic chemicals (tobacco, alcohol, synthetic chemicals in the environment etc)
	+ Heredity/genetics
	+ Viruses
	+ Radiation
	+ Inflammation
	+ High levels of free radicals and oxidation
* ***Genetic mutations and cellular communication***Mutations in DNA may be encouraged by toxins, radiation, inflammation, oxidation, viruses or genetics etc. and this leads to cells behaving in a less regulated way in terms of growth patterns and communication within cells and between cells.
There are many herbs and supplements that encourage normal cell signalling and inhibit mutations including turmeric/curcumin, flavonoids (e.g. quercetin, green tea/ECGC, apigenin), fish oils, reservatrol, modified citrus pectin (MCP), tangeretin, vitamins E, A, D, C, selenium, beta-carotene, lycopene, antioxidants in general.
* ***Inflammation and oxidation***Cancer is a condition characterised by inflammation and oxidative processes which can both encourage initial development of cancer through mutations and sustain its development by activating growth-promoting chemical pathways leading to angiogenesis, invasion and metastasis.
There are many herbs and supplements that can be used to reduce inflammation and oxidation such as turmeric/curcumin, quercetin, bromelain, fish oils, alpha-lipoic acid, Coenzyme Q10, liquorice and antioxidant vitamins A, C, E, alpha-lipoic acid (ALA) and N-acetyl cysteine (NAC).
* ***Immune dysregulation***Immune dysfunction is involved in initiation and progression of cancer and cancer cells cause dysfunction both by suppressing immune function and enhancing immune-cell derived inflammatory compounds, which aids in cancer development. Activating and regulating the immune response is a fundamental part of supporting the body in fighting cancer.
Natural agents which offer immune support include astragalus, Siberian ginseng, Asian ginseng, chinese mushrooms (shiitake, cordyceps, maitake), the proteolytic enzyme bromelain, anti-inflammatories (e.g. flavonoids and fish oils) and antioxidants such as alpha-lipoic acid, Selenium, Vitamins C,E and carotenoids.
* ***Weakness of the extra-cellular matrix (ECM)***The ECM surrounds cells and is made up of a mesh of collagen and elastin fibres embedded in a substance composed of sugar chains. In cancer the ECM is weakened via enzymes that break down its components and this aids spread of cells and angiogenesis.
A wide variety of natural products inhibit the degradation of the ECM including gotu kola, horsechestnut, reservatrol, bilberry, flavonoids (apigenin, green tea, quercetin), fish oils, turmeric, chinese mushrooms(e.g. shiitake), vitamins A and C
* ***Angiogenesis – development of tumour blood supply***The tumour produces chemicals that encourage the growth of disordered blood vessels and this can be inhibited by using remedies that support the development of healthy tissue, inhibit the breakdown of the ECM and reduce chemical signalling that promotes angiogenesis.
There are lots of herbs and supplements that can aid tissue health including those that aid ECM maintenance and vascular tissue health as above and those that inhibit chemical signalling that promotes angiogenesis such as turmeric/curcumin, fish oils, apigenin from celery seed, gotu kola, horsechestnut, reservatrol, Selenium, CAPE from propolis and Chinese mushroom Coriolus extract (PSK), the flavonoid quercetin, vitamins C,A and D and anti-inflammatories in general.
* ***Elevated insulin and glucose***Elevated insulin (insulin resistance) may promote cancer development e.g. through increased lactic acid production aiding angiogenesis, inhibiting the immune response, and increasing circulating hormones in hormone-dependent cancers. Insulin resistance may be addressed through using turmeric, flavonoids, fish oils, Chromium, Selenium, Vitamin E and adopting a low GL diet to balance blood sugar (high in unprocessed foods and avoiding refined carbohydrates). Cancerous cells thrive on glucose and therefore reducing elevated blood glucose is crucial, via avoiding sugars and processed carbohydrates.
* ***Metastasis***Metastasis is aided by angiogenesis, degradation of supporting matrix, inflammation, dysfunctional chemical signals and also surgery. Enhancing immune function aids the destruction of migrating cancer cells in blood vessels and lymphatic vessels. Binding of cancer cells to vessels walls may be inhibited by modified citrus pectin and reduction of fibrin formation (e.g. bromelain) and platelet aggregation may also be inhibitory. Anti-coagulants include garlic, bromelain, turmeric, fish oils, flavonoids, reservatrol, vitamin E (avoid these if taking conventional anti-coagulants).
* ***Fibrin production***The tumour produces a fibrin ‘shield’ for support and evading the immune system. Garlic, ginger, gingko and bromelain degrade fibrin.
* ***Stress - The Hypothalamic-pituitary-adrenal axis (HPA axis)***Cancer places as great stress on the body and conversely a stressed body is more likely to develop and promote cancer as the immune system is suppressed. The HPA axis is centrally involved in the healthy response of the body to stress and excess stress can place too much demand on the system leading to insufficient response and fatigue. Adpatogens are an important class of herbs used to support the stress response and prevent fatigue. They include the ginsengs, astragalus and ashwaganda.
To reduce the stress response other herbs can be used to relax the body and mind, together with other relaxation therapies or practices. Examples are passionflower, skullcap, vervain, lime flower and lots of others.
* ***Circulatory issues***Tumours thrive in acidic, high carbon dioxide and low oxygen environments. Therefore it’s important to promote healthy microcirculation to provide a good supply of well oxygenated blood. Microcirculation through the capillaries and capillary health are crucial here – ginger and chilli are both used to promote circulation in the capillaries.
* ***Elimination***Many chronic inflammatory conditions are associated with poor elimination of toxins and waste from the body. Conditions may be initiated in this way by a build-up of such products and inflammation itself requires more eliminative capacity by its nature. The main routes of elimination are via the liver/digestive system and kidneys.
Therefore, in considering a chronic inflammatory condition like cancer, it is important to ensure that eliminative function is supported.
There are a variety of herbs that are used for this purpose including burdock root, dandelion root and poke root.
* ***Digestion***A healthy digestive system is of fundamental importance to general health. If digestion is poor, nutrients in foods eaten will not be absorbed well and conversely, toxins may be absorbed across the intestinal wall and cause unwanted responses in the body, contributing to ill health. It is of fundamental importance to maintain good digestive health in cancer to enable absorption of nutrients and reduce the ‘toxic load’. This is even more important to address if conventional therapies such as chemotherapy or radiation treatment have caused damage.
* ***Oestrogen imbalances***Oestrogen-dependent breast cancer is associated with excess oestrogen signalling and therefore it may be beneficial to consider:
	+ Reducing reactive oestrogen species such as the metabolite 2-hydroxy-oestrone (via indole-3-carbinol in broccoli)
	+ Aiding elimination of oestrogen via the liver and gut (e.g. via cabbage family)
	+ Preventing re-absorption of oestrogen from the gut by ensuring good gut function and gut flora balance
	+ Improving hormonal balance e.g. using chaste tree berry or red clover.
	+ Using the seaweed wakame to aid thyroid function if low thyroid function is affecting hormones
	+ Soy intake is controversial in hormone-dependant cancers as the extracted compound genistein has been associated with promotion of breast cancer cell growth in a laboratory study, although fermented soy intake is associated with reduced incidence of cancers.
* ***Diet***Eat foods associated with reduced cancer incidence in studies:
	+ Avoid sugar and processed carbohydrates to reduce blood glucose and insulin which are both extremely harmful.
	+ Carotenoids – red and yellow foods - carrots, beets, sweet potatoes, red peppers
	+ Cruciferous vegetables – broccoli, sprouts, cabbage etc (several chemicals, indoles and thiols, inhibit carcinogenesis)
	+ Turmeric
	+ ‘Wild greens’ – e.g. watercress, dandelion leaves, nettle leaves
	+ Beets (beetroot has shown anticancer and antioxidant activity in animal studies, inhibiting angiogenesis, inflammation, proliferation and increasing apoptosis)
	+ Celery (inhibits cancer and aid in elimination of wastes)
	+ Calcium D glucarate (apples, grapefruit, oranges, grapes, cauliflower, cabbage etc) – useful for aiding elimination of carcinogens, oestrogen and reduces re-uptake of oestrogen in gut.
	+ Shiitake mushrooms and mushroom/yeast beta-glucans (immune enhancing; maitake trial showed tumour reduction and enhanced chemotherapy)
	+ Onions and garlic (antitumour, antioxidant and immune enhancing and sulphur-containing)
	+ Berries (high levels of flavonoids)
	+ Citrus (contain flavonoids) and citrus peel (D-limonene)
	+ Whole grains (large breast cancer study showed benefits)
	+ Omega-3 fatty acids - Oily fish, flax seed, walnuts (anti-inflammatory and immune stimulating)
	+ Flax (lignans have anticancer properties and low levels of ALA (found in flax) are associated with metastatic breast cancer)
	+ Nuts and seeds
	+ Live yoghurt (aids intestinal health and immune function and may inhibit breast cancer)
	+ Isoflavones - fermented soy, alfalfa sprouts
	+ ‘greens’ – chlorella, spirulina (aids immune function, anticancer)
	+ Green tea (preclinical studies show it acts against cancer via many mechanisms and signalling pathways, antioxidant, antitumour, antiangiogenesis, aids chemotherapy. Most recent 2011 studies suggest it’s use to enhance chemotherapy). Black tea and Rooibos tea have similar chemical constituents and properties.
	+ Wakame seaweed (healing, nutritive, anticancer)