YOGA THERAPY AND DIABETES

THE BIOLOGICAL MODEL OF HEALTH IN A NUTSHELL

I am a biologist and view the body and health from a biologist's perspective. Through this training I have been able to assist many people to regain the health they had lost—in many fields from cancer to emotional stress to physical fitness—by restoring healing responses in their bodies and teaching them the methods to keep these responses intact. The following essay on diabetes is based on my understanding. Firstly, an introducion on how biologists like myself view chronic diseases.

All organ systems in the body have a zone of homoeostasis in which they function normally—from day to day the body does all it can to function within this zone. When the organ systems temporarily move outside this zone, temporary symptoms occur indicating that an organ system is dysfunctioning. For example, if a person drinks too much red wine they may experience a temporary headache for several hours until their body detoxifies—the organs then return to normal function and the headache goes.

On the other hand, chronic symptoms occur when the body cannot reset its organ systems to function within the normal zone of homoeostasis—the symptoms of dysfunction continue month after month, or for the rest of the life. In other words, every day something continually prevents the organ systems from regaining the zone. In biology, only six catagories of influences can prevent the organ systems regaining the normal range of homoeostasis and cause chronic illnesses. They are:

- Either there is a pathogen in the body that cannot be removed and every day it keeps the organ systems from regaining their zone of homoeostasis.
- Or every day, or every several days something comes into contact with the body that stops the organ systems from regaining their zone of homoeostasis—like a food, a chemical toxin or ongoing physical injuries, etc.
- Or geopathic stress is occurring— 'geo' means 'of the earth'—earth pathology. The geography of an area continually creates organ system dysfunction (consider hayfever in Canberra which is relieved by going to

the coast). By going to another area the dysfunction goes and the person is relieved of the associated symptoms of ill health. When they return to the original area, the symptoms return as the organ systems begin to dysfunction.

- Genetic predispositions inherited from the parents—with age, the genetic defects cause dysfunction to specific organ systems.
- Ongoing emotional stress from the non-conscious mind.
- Irreparable physical injury such as scar tissue.
- All types of diabetes are considered to be chronic illnesses—they develop and continue for life, even progressing to more debilitating states of health. Except for geopathic stress and irreparable physical injury, each of the above catagories has some connection with all the different types of diabetes.

DIABETES DEFINED

Diabetes in all its forms, is a chronic imbalance in the ability to regulate blood glucose concentrations. It involves elevated blood-glucose levels beyond the normal range (known as hyperglycaemia) caused through a decrease or an absolute lack of the availability of the hormone insulin—and insulin is one of the primary hormones for maintaining normal blood glucose concentrations. Glucose is used as one of the energy sources for the body's cells.

The imbalance in insulin regulation occurs through metabolic and, or immune disorders associated with a variety of chronic ill-health symptoms. A single encompassing definition of diabetes is difficult to create—because there are different causes to the different types of diabetes, along with varying degrees of severity as well as many different symptoms. Diabetes is now considered as a common disease in affluent societies, appearing to reach epidemic proportions in some countries.

Diabetes in general occurs through:

- Alteration to normal insulin secretion and/or activity of pancreatic beta cells.
- Neuro-hormonal, immune-hormonal dysfunction in cellular communication.

- The inappropriate action of immune T-cells destroying healthy beta pancreatic cells.
- An inability of particular body cells to utilise insulin in the process of glucose transfer across their outer walls.

There are three catagories of diabetes Type 1, Type 2 and Type 3 with several sub-category relationships such as diabetes due to: pancreatic diseases; hormonal imbalances, drug induced, insulin receptor abnormality; gestational; and states of prediabetes. Type 3 diabetes is related to malnutrition and will not be discussed in this paper.

The Dangers of diabetes

When the blood glucose elevates beyond a normal range, several hormones are activated—insulin being the principal hormone. Insulin regulates blood glucose by converting excess glucose in the blood to store as fat. Insulin also assists the transfer of glucose from the bloodstream into body cells where it can be used as an energy source—in general this is a secondary modality of energy conversion. When there is an insulin deficiency, the volume of glucose in the blood is liable to rise but in one group of diabetics, the transfer of glucose into cells may become compromised—in other words, there may be high volumes of glucose freely circulating in the blood, but without sufficient insulin, the body's cells in this type of person will be unable to feed on the glucose—and the cells may actually be starving.

When the person experiences high blood glucose with low insulin production, their body attempts to remove it through urination—they tend to lose weight because there is little deposition of fat, and they experience ongoing muscle weakness and lethargy.

The muscle cells which form the walls of the blood vessels, are particularly affected by sugar starvation and a number of degenerative vascular changes can occur, including heart disease, arteriosclerosis, hypertension and kidney failure. Poor circulation is a secondary affect which can lead to chronic skin infections, gangrene, retinal destruction, loss of peripheral sensory nerve functions and impotence.

People who depend on injected insulin to regulate their blood glucose have to be careful that they do not inject too much insulin—because this will reduce the blood glucose concentrations below the normal operating range. When blood

glucose levels drop below a normal range it is known hypoglycaemia. Brain function depends on a regular supply of energy producing chemicals including glucose and if blood glucose concentrations are rapidly forced below normal and the body cannot compensate with alternate energy sources, diabetic coma and sometimes death can occur.

Type 1 diabetes

The less prevalent but more severe form of diabetes is that type which occurs mostly in young people. This is Type 1 (once called juvenile onset diabetes) where the capacity of the pancreas to produce insulin has been partially or completely lost—due to a genetic defect (very small in number), or following a viral infection initiating a CD 8 T-cell mediated disease.

In the prevalent form of Type 1 diabetes there is ongoing inappropriate targeting and destruction of pancreatic beta cells by the immune system—and this creates chronic insulin deficiency resulting in widespread metabolic disorders. The specific immune cells attacking the pancreas beta cells are continually subverted by human viruses—and create what is known as a T-cell mediated autoimmune action directed at the pancreas islet proteins of beta cells. Typically it is characterised by autoantibody and peripheral blood mononuclear cell reactivity.

(Note: in experiments in which diabetic people are transplanted with half a pancreas from an identical twin donor, the new beta cells in the grafted tissue are rapidly and selectively destroyed by CD 8 T cells)

Most Type 1 diabetic people are diagnosed in childhood or young adulthood before the age of 35 years. However, there is clearly a subgroup of people older than 35 years who are initially diagnosed as Type 2 diabetes in the clinic setting simply because of their age—these people also have the autoimmune response typical of Type 1 diabetics. In general, in this older-age onset form, there is both diminished and/or delayed secretion of insulin in response to glucose as well as a reduced availability of circulating insulin in the blood—because of the destruction of pancreatic beta cells.

This late onset Type 1 diabetes in older people is classified in three subtypes—altogether constituting between 15% and 20% of diabetes in people older than 35 years. These categories are:

- Slowly progressive Type 1 diabetes,

- Latent Type 1 diabetes,
- Type 1.5 diabetes.

Of these subgroups, both the slowly progressive insulin-dependent diabetes and the latent Type 1 diabetes initially have the same features as the non-insulin dependent diabetes (Type 2) people—however without ecological management of lifestyle these people usually progress to an insulin-dependent stage due to ongoing T-cell destruction of their beta pancreas cells (See later in the text for an understanding of ecological management of diabetes)

The Type 1.5 diabetes people tend to initially present with islet cell autoantibodies, islet-reactive T-cells, higher HbA1c levels, lower C-peptide and without ecological management, they follow a slow progression from minor insulin dependency to total insulin dependency.

Type 1 diabetes is not a genetically transferred disease—research has demonstrated that less than 5% of people with genetic susceptibility to developing Type 1 diabetes, which can be passed on through their parents, ever develop diabetes. Other lifestyle and environmental factors appear to act as the initiating triggers.

The autoimmune connection for type 1 diabetes

(You can skip this section if you like—being a bit technical)

The scientists who first studied the functions of the immune system theorised that it was possible for the defence system to turn against the body and create severe tissue damage. Paul Ehrlich, (1854 - 1915), a respected medical researcher into humoral theories of immunity, termed autoimmunity: horror autotoxicus.

Autoimmune diseases involve a type of misdirected immune response which targets healthy body cells (known as targeting self-antigens). It is believed that this process develops through the inappropriate activation of cytotoxic CD 8 T-lymphocyte cells—other immune cells are secondarily involved. The phenomena creating an autoimmune responses can only occur because lymphocyte cells are able to be coded for an infinite variety of antigens—both chemical and pathogenic and this includes the body's own healthy body cells. Medical science is still not really sure of the range of factors that are involved, however clinically, there is strong evidence to assert that many types of autoimmune diseases relate directly or indirectly to human virus infections.

In theory, any person can develop an autoimmune disease at any time of life, however genetic predispositions and abnormal blood/hormone/neuropeptide concentrations are always involved to some degree. The inherited predispositions really refer to structural and functional deficiencies of organs that are genetically inherited. For example, children of a parent with tuberculosis, inherit a greater chance of having weaker lungs than children from healthy parents. This does not mean that the offspring would contract tuberculosis, rather the person has a greater chance of contracting the disease than those with normal lungs.

Studies have shown that many autoimmune diseases appear to have a sex bias and in experiments with animals, castration usually normalises the bias between the sexes. There is evidence to show that many autoimmune diseases are more common in ovulating females than with other members of the population and while links with estrogen and/or progesterone have failed, there is strong clinical evidence to suggest that hormones are a somewhat linked to autoimmune diseases.

When a person has an accident in which physical damage occurs, autoantibodies are often produced following the trauma—however this is not the action of an autoimmune disease since it stops within a short period of time. However, a continuing disease which has observable pathology and continuing self-targeting immune responses is classified as autoimmune. Experiments have demonstrated that an autoimmune disease is able to be transferred from one animal to another by simply transferring autoantibodies and not the pathogen responsible for the original autoimmune response. For example diseased mothers can transfer IgG antibodies across the placenta to the unborn baby which then develops the same disease as the mother.

Autoimmune diseases are mostly linked to three responses:

1. Inappropriate production of immunoglobulins by B-cells;
2. Direct targeting by CD 8 T-cells;
3. The orchestration of macrophages by CD 4 T-cells.

There are two types of autoimmune responses involving immunoglobulins—Type 1, IgE mediated autoimmune responses do not appear as a major initiator of autoimmune disease however Type 2 mediated autoimmunity involving IgM and IgG responses are quite common (eg autoimmune hemolytic anaemia and

autoimmune thrombocytopenic purpura). The binding of IgG and IgM autoantibodies to cells in tissues causes inflammation due to activated macrophages. In addition, natural killer cells along with CD 8 T-cells can also complicate the autoimmune response.

All types of cells can be targeted in autoimmune diseases. An example of organ dysfunction caused by autoimmune response occurs in Graves' disease. In this disease, subverted CD 8 T-cells attack and destroy the hormone receptor cells in the thyroid gland that are involved in suppressing the production of the thyroid hormones (thyroxine and triiodothyronine). The thyroid continuously produces these hormones unless the receptors inhibit the production. Both the production of hormones and the size of the thyroid gland are controlled by the level of iodine in the gland as well as a negative feedback system involving the hypothalamus and the anterior pituitary gland. Low concentrations of thyroid hormones in the blood or low metabolic rate, stimulates the pituitary (via the hypothalamus) to release thyroid-stimulating hormone (THS) which reduces the inhibiting response of the thyroid receptor cells and allows more thyroid hormones to be released. High concentrations of blood thyroid hormones reverses this. However with the destruction of the receptors in the thyroid, there is unregulated production of the hormones.

In laboratory testing it is much more difficult to demonstrate the link between the different autoimmune diseases and CD 8 T-cells than it is to demonstrate the link between autoimmune diseases and antibody responses such as IgG and IgM. In laboratory testing, autoantibodies can be used to stain targeted healthy tissue cells to reveal the occurrence of an autoantigen—whereas the T-cells cannot be used in any way to stain tissue cells. Thus the evidence linking CD 8 T-cells to autoimmune diseases remains mostly clinical and anecdotal. The laboratory methods to allow the use of T-cells to transfer autoimmune diseases to experimental animals has yet to be devised. Similarly there is good evidence, but much difficulty, in linking viruses to all autoimmune diseases through CD 8 T-cell subversion.

Of all the different types of healthy cells attacked, the pancreas beta cells appear to be commonly targeted. The pancreas beta cells produce insulin for the regulation of of blood and cellular glucose. A reduction in beta cell numbers reduces the efficiency of insulin production and regulation.

Insulin dependent diabetes mellitus is a disease in which the insulin-producing beta cells of the pancreatic islets are selectively destroyed by CD 8 T-cells.

Progression of this disease has been halted by the immunosuppressive drug cyclosporin A which inhibits this T-cell activation but does not cure the disease.

Attention has been focused on MHC molecules as the link between autoimmune diseases and the subverted immune response. MHC molecules are the signature carriers of the status of cell infection which CD 8 T cells inspect. The association of MHC molecules with autoimmune disease is not surprising since all autoimmune responses are believed to involve T-cell activity. T-cells respond to a particular antigen depending on peptide information presented by MHC surface molecules!

In all likelihood in the future, autoimmune diseases will be directly linked to viruses, notably the human viruses such as the herpes group. It is well recorded that epidemics of particular viral illnesses, such as mumps, Coxsackie B, influenza, glandular fever infections and others have often been directly followed by increased incidence of Type 1 diabetes and other types of autoimmune diseases. So far using laboratory techniques, it has been impossible to fix any single viral agent as the regular forerunner of diabetes Type 1, but clinical research strongly suggests the ongoing involvement of human viruses in the subversion of T-cells, weakening their ability to communicate with other cells and under particular circumstances, inappropriately destroying beta pancreas cells. These particular circumstances have been labelled as environmental co-factors and it is believed that a type of food defence chemical is directly involved in the etiology of this disease.

My own clinical research, based on more than 5000 clinical trials, over the last dozen years overwhelmingly shows that the major environmental co-factor is related to grain foods (rice, wheat, corn, rye, maise, oats, barley etc). For information on this co-factor in autoimmune diseases see ‘No More Chronic Fatigue —Improving Immune Strength and Efficiency’ on the website: nibm.com.au.

OTHER FACTORS TO CONSIDER

Less than 5% of people with genetic susceptibility to diabetes (passed from their parents) ever develop diabetes and it is now believed that an environmental factor such as a food is involved in the etiology of this disease. Adequate breast feeding as well as adequate nicotinamide, zinc, vitamins C, D, and E supplements have been reported as possible protecting agents against Type 1 diabetes, whereas N-nitroso compounds, early exposure of the infant to cow's milk (or lack of breast-feeding) and being generally overweight through indulging

in entertaining carbohydrate foods or excess alcohol, may increase the risk. Thus far, only the significance of infant feeding, cow's milk and vitamin D have been studied in both case-control and cohort settings.

Historical perspective of Type 1 diabetes

It is interesting to note that the incidence of childhood Type 1 diabetes increased worldwide in the closing decades of the 19th century, (at about the same time that vaccinations were introduced for general use into the western populations) but the origins of this increase have been poorly documented. Before 1880, childhood Type 1 diabetes was rarely recorded although the symptoms were well understood before the discovery of the connection with insulin. The incidence of diabetes suddenly increased from the 1880s until the 1920s and from then until 1955, low but consistent incidence and prevalence rates were recorded in several European countries. From about 1955 there occurred an almost simultaneous upturn in occurrence of Type 1 diabetes in children documented in several countries. The overall pattern since then has been one of linear increase, with evidence of a plateau in some high-incidence populations and of a catch-up phenomenon in some low-incidence areas. Steep rises in the age-group under 5 years have been recorded again in the last several years.

Along with this trend in Type 1 diabetes can be seen a general trend of increased occurrence of immune weakening from generation to generation correlating with increases in the incidence of all autoimmune diseases!

Type 2 Diabetes

The more common form of diabetes is that which develops gradually with age, more often occurring in overweight, under-exercised people with a diet high in sugars (which includes starches). The long term overuse of sugary foods leads to progressive deterioration in the efficiency of insulin secretion by the pancreas beta cells in combination with desensitivity of certain body cells to insulin. In this form of diabetes, insulin is still released but it has problems. In one group of people, its release is often too slow to match the increasing concentrations of glucose from the carbohydrate meals and the pancreas is forced to overcompensate in production—within an hour or so of the meal, the pancreas produces high blood insulin (hyperinsulinaemia) which results in the promotion of excess weight. In other people, the pancreas simply cannot release sufficient quantities of insulin to keep pace with the rise in blood glucose from the predominantly carbohydrate meals.

The hormone somatostatin (and possibly some other hormones) is believed to inhibit glucose uptake through the wall of the gastro-intestinal tract. Many diabetics have a dysfunction in this regulation—that is, their body uptakes glucose at a greater rate than it should when they eat carbohydrate foods and this gives them the symptoms of Type 2 diabetes. This hormonal/intestinal dysfunction should be corrected rather than offering daily insulin injections.

Because some insulin producing capacity remains in Type 2 diabetics, this form of diabetes can be initially controlled through dietary restrictions alone. If the person is not totally disciplined with their diet or with alcohol, their pancreas will continue to deteriorate—oral hypoglycaemic drugs, which directly reduce blood glucose, are prescribed. At some later stage, due either to diminishing control or increasing side effects, these drugs lose their effect and the person is introduced to daily injections of insulin—which according to medical science, are required for the rest of life.

The category of Type 2 diabetes is characterised by no obvious autoimmune response to beta pancreas cells. Rather the symptoms result from a combination of a non-autoimmune insulin secretory defects within the beta pancreas cells and/or resistance to insulin action by the body's cells. There still is little real understanding of the defect in islet beta cell function in Type 2 diabetes—but a defect in neuro-hormonal communication is strongly considered.

In the cases where obesity is one of the symptoms associated with the Type 2 diabetes, increased cellular resistance to the action of insulin is strongly occurring and the pancreas beta cells of these overweight people still function normally or near normally. Twenty-five percent of Type 2 diabetes are overweight or obese and the failure of insulin production is only relative to excessive needs imposed by the development of insulin resistance by body cells. It is uncertain whether grossly obese diabetics with marked hyperinsulinaemia should be thought of as primary Type 2 diabetes or be classified as having prediabetes secondary to obesity—because a great percentage of these people, when they lose weight by altering carbohydrate to protein-fat content in their meals, transform back to normal glucose/insulin interactions.

A number of hypotheses have been presented regarding cellular resistance to insulin including:

- Insulin receptor and post-receptor defects on the surface of cells.

- Circulating antagonists such as increased concentrations of catabolic hormones—glucagon, cortisol, growth hormone and catecholamines.
- Increased concentrations of fatty acids and ketone bodies.
- Anti-insulin antibodies and receptor antibodies.
- Recent evidence has suggested that a post-receptor disturbance could be initiated by lectin compounds of certain foods—notably the grains.

Because of increases in cellular down-regulation of receptor acceptance to insulin, very large blood concentrations of insulin become necessary for cells to uptake enough glucose for the cells to function using that energy pathway. With increasing insulin blood concentrations, the conversion of blood glucose into fat for storage is similtaneously occurring. Some degree of insulin resistance is found in nearly all Type 2 diabetics—if their glycaemia is not perfectly controlled. Also, there is clinical evidence that people find extreme difficulty in controlling glycaemia while they are eating grain-based foods and are overweight. Simply removing the post-receptor disturbances (the grain lectins) totally from the diet allows good weight loss and normal control of blood glucose.

Seventy percent of Type 2 diabetics are not overweight—most are underweight. This is because the pancreas beta cells are simply unable to produce enough insulin to regulate blood glucose concentrations or store sugars as fat reserves. Most people with this condition, have greatly stressed their pancreas for many years through eating too many carbohydrate foods—they have been somewhat ‘addicted’ to sugar.

Choosing low-glycaemic foods in place of conventional or high-glycaemic foods has been shown to be clinically appropriate as a long-term glycaemic control for those diabetics with some beta cells remaining. The most exciting research in recent years has centred on the disruptive effective of grain lectin compounds on immune-hormonal-neurological communication and the incidence of autoimmune diseases. Many researches accept that the symptoms of diabetes, both Type 1 and Type 2, are considered to be part of the broader relevance of autoimmune diseases.

Diagnosis of DIABETES

Diagnosis of diabetes occurs when a person presents with the following symptoms:

- weight loss,
- fatigue,
- excessive production of urine,
- excessive thirst
- 2% or more glucose in the urine with an elevated random blood glucose estimation.

In the symptomatic person a random plasma glucose value of 11.1 mmol/l (200 mg/dl) or more is diagnostic. If hypoglycaemia is not so marked, two further measures may be employed—these are the estimation of fasting glucose levels and/or an oral glucose tolerance test.

The diagnosis of Type 1 versus Type 2 diabetes is made phenotypically using criteria such as age at onset, abruptness of hyperglycemic symptoms, presence of ketosis, degree of obesity and the perceived need for insulin replacement.

Total hormone regulation of blood glucose

For those who are interested, the following is a summary of the main and secondary hormones responsible for the regulation of blood glucose and/or of glucose use by cells for energy production (adenosine triphosphate or ATP). Some hormones regulate blood glucose concentrations and others regulate glucose conversion to ATP. There is still a great deal of research to be done in this area to fully understand the complexity of glucose use by the body, but basic regulation of diet with a combination of specific medicinel herbs keeps all the hormones balanced.

Interesting to note that when the pancreas is removed from laboratory animals, logic would suggest that because there would be no insulin production and the blood glucose would go into overload (hyperglycaemia)—and the animals would die. In fact the opposite occurs, the test animals shift into hypoglycaemia and survive! (Reference: ‘Hypoglycaemia’, by V. Marks and F.C. Rose, 1981, Blackwell Publications, Oxford). This indicates that a complex hormonal system regulates blood glucose, not a simple insulin/glucose relationship. It also indicates that people with Type 1 diabetes should be able to survive without being totally dependent on injected insulin. Further, it also suggests that all

diabetics should undertake self-trials to see if they can trigger other hormone and neurohormone pathways to regulate cellular energy production.

Insulin is produced in the pancreas which is both an endocrine and an exocrine gland. The pancreas is a flattened organ about 15 cm in length located behind and above the stomach and slightly under the left ribs, closely associated with the spleen. Over 95% of the pancreatic cells are arranged in clusters called acini. These cells produce digestive enzymes which flow into the gastrointestinal tract through a network of ducts. Scattered among the exocrine acini are 1-2 million groups of cells (like islands) called pancreatic islets of Langerhans.

Islet cells are composed of four types of hormone-secreting cells. Alpha cells make up about 20% and secrete glucagon (which raises blood glucose concentrations converting glycogen, lactic acid and amino acids to glucose); beta cells constitute about 70% and secrete insulin; delta cells make up about 5% and secrete somatostatin (which inhibits insulin release and slows glucose absorption from the intestines); the remainder being F cells which secrete pancreatic polypeptide to inhibit the secretion of somatostatin and reduce the secretion of pancreatic digestive enzymes and this indirectly reduces blood glucose. It is possible that in an emergency survival situation, somatostatin stops both insulin and glucagon from being released. These four pancreatic hormones interact in a complex manner to regulate blood glucose and to date the complete interactions have not been mapped.

The other main hormone gland responsible for blood glucose regulation is the hypothalamus. It secretes human growth hormone (to control insulin-like growth factor), thyroid hormones and oestrogen which have an effect of regulating the conversion of blood glucose to ATP. Insulin-like growth factor breaks down fats and stops the uptake of glucose into cells while at the same time promoting amino acid conversion to ATP energy in cells.

Secondary hormones in blood glucose regulation are the thyroid hormones. They stimulate oxygen consumption and protein synthesis while increasing the conversion ability of glucose for cellular ATP energy production. Oestrogen, while regulating the female reproductive cycles and maintaining pregnancy, also sensitises the adrenal glands to release dehydroepiandrosterone (DHEA) and glucorticoids which increase blood glucose concentration. The hormones adrenaline and noradrenaline, responsible for the flight/fight response, decreases the rate of digestion and increases blood glucose concentrations. The glucocorticoid hormones (cortisone, corticosterone, cortisol) while helping resist stress, convert fats to glucose.

THE ROLE OF INSULIN

Before the advent of insulin replacement therapy, the diagnosis of genetic Type 1 diabetes was somewhat equivalent to a death sentence. Those diagnosed with autoimmune related Type 1 diabetes, who could not find a practitioner to assist their body to compensate in some way, also wasted away and died from starvation—they drowned in a sea of sugar. Insulin has certainly saved or prolonged many lives in the past fifty years, however it is recognised that insulin therapy has health drawbacks as well as the inconvenience of lifelong dependency on daily injections.

Insulin is considered the body's most anabolic hormone because its main function is to store fats, proteins and carbohydrates and assist cells to utilise glucose when blood concentrations are high. When insulin levels are high, glucose from carbohydrate foods is modified by the insulin and initially stored in the liver as glycogen, then in the muscle tissue and lastly as fat (in a process called lipogenesis).

Note also that when fats and protein foods are eaten and they concentrate in the blood stream, they do not initiate increases in glucose nor insulin concentration. However all carbohydrate foods, raise blood glucose and initiate insulin release. For example, four eggs and two slices of bacon only for breakfast will not initiate nor require insulin release to utilise the proteins and fats for energy and other uses in the body. A diabetic who eats this meal will find their blood glucose is stable. However if they include a slice of toast or a glass of orange juice or a teaspoon of sugar in their coffee for example, this will initiate an increase in blood glucose and require insulin release to balance the blood glucose.

Insulin secretion occurs in two phases: a fast first phase, probably from release of already formed granules situated near the cell surface and with sustained stimulus, there is then a slower but prolonged second phase of secretion in which much of the insulin is newly synthesised. Insulin secretion is controlled by a finely integrated combination of metabolic, hormonal and neural mechanisms. On ingesting a glucose-containing meal and before there is digestion, a rise in insulin secretion occurs due to neurohormonal influences. This is followed by the release of gut hormones and the absorption of glucose which together cause a steady rise in insulin levels which peak about 45 to 60 minutes after the meal. Absorbed amino acids from proteins and fats have a synergistic effect with glucose for the supply of energy. There may also be an added effect from amino acid stimulated glucagon secretion, although this will be counteracted by the action of glucose on the pancreas alpha cells and will only be of major

importance with a pure protein meal. As food absorption is completed the stimulus to insulin secretion falls and plasma levels return to baseline after 2-3 hours.

Insulin is secreted into the portal vein and immediately reaches its main target organ - the liver. The liver takes up to 20 - 70 percent of the insulin reaching it.

Considerable controversy still surrounds the mechanism of action of insulin. The first step however, seems clear enough. Insulin binds to red and white blood cells and specific cell surface receptors in insulin-sensitive tissues, including fat, muscle and brain. If too much blood insulin is continually operating due to a high carbohydrate diet, the number of cell surface receptors is reduced—the so-called ‘down-regulation’. Conversely, when insulin is unavailable, such as with untreated insulin deficient diabetes, the number fo receptors increases. The classical example of ‘down-regulation’ is obesity.

After binding of the insulin molecule with the cell insulin receptor, the combination of the two is internalised as a vesicle. The vesicle fuses with lysomes in which both insulin and the receptor are degraded and new receptors are synthesised within the cell and inserted into the cell membrane. The action of insulin within the cells is controversial but there is some agreement on the use of insulin as a transporter of glucose.

Through my clinical research over the last several years I have come to the understanding that the lectin defence chemicals of grains have some action, through immune communication, on ‘down-regulation’ of the insulin receptor to produce insulin resistance. This is firstly based on taking hundreds of clients with Type-2 diabetes through grain-removal clinical trials and then associating immune responses before, during and after the trials. Following the trials and with specific natural medicines and sometimes therapy, their bodies respond as normal to eating carbohydrate foods as long as they do not ingest any foods made from grains!

Associated in action with insulin is the hormone known as glucagon—also produced by the pancreas. When blood glucose falls to a low normal level, this hormone is secreted. It initiates the production of several enzymes that enable stored fat to be released and used as fuel. However glucagon cannot activate these enzymes if either blood sugar or insulin is normal or high. This relationship is known as the insulin-glucagon ratio. If a person consistently eats sugar-based foods in preference to protein/fat based foods, their body is predominantly

producing insulin and rarely producing glucagon—and this is not a healthy situation to be in over the long term.

Eating a higher percentage of sugar based foods over fat-protein based foods inclines the glucose-insulin ratio towards fat storage and away from fat usage. A carbohydrate predominant diet is really only suitable for people who are able to quickly use up this energy source by doing regular low to medium intensity physical work or athletic training for hours every day—it is not really a suitable way of eating for the person working in an office environment or having a sedentary lifestyle.

REDUCTION OF DEPENDENCE ON INSULIN PRODUCTION

It is an advantage for all people with diabetes to reduce their dependence on glucose as their main energy source. Over the last few thousand years, the principal energy foods appear to have been free fatty acids and ketones from flesh foods and insects, but we tolerate carbohydrates quite well as a secondary food source (see 'Remove and Improve—the comprehensive intestinal cleanse' available from the Canberra Medical Ecology Centre—phone 026 2826800). With the modern diet, carbohydrates have been selected by people because of their cost, availability, preservability and taste—simply they are a part of our life. If you are a diabetic, it is advisable that you break away from this normal use of carbohydrates and undertake controlled trials with clinical practitioners who can supervise you as you conduct your own experiments in changing your body to metabolise fats and proteins rather than carbohydrates. This needs to be undertaken for at least six weeks to record the beneficial effects on your body and then a further three months with specific natural medicines to firmly establish this way of living healthily.

It is impractical to present broad sweeping information here that may be of benefit to the individual diabetic because the different types of diabetes and the underlying causes need to be individually treated. To give you an example, consider the following clinical information related to the catagory of Type 2 diabetics who are overweight.

If the average-build healthy person reduces the amount of carbohydrates with each meal to less than 80g a day, then their blood glucose will steadily decrease—while at the same time their glucagon production by the pancreas will increase to prepare their body for fat metabolism. With increasing glucagon, the

liver will begin to release glucose which it has previously stored as liver glycogen and it does this to maintain normal blood glucose concentration (150 grams of fat will provide almost 20 grams of glucose via this pathway). The pancreas beta cells are then released of their burden to supply insulin. The Type 2 diabetics who are overweight can follow somewhat this approach gradually reducing their their carbohydrate load over a week until they are eating less than 50 to 80 grams a day.

Eventually the liver will not be able to supply the necessary glucose to maintain normal blood glucose and when this is sensed by the body, a long-term process of fat metabolism starts. At the same time the body will efficiently conserve as much stored energy as possible by reducing metabolism while maintaining normal vitality. Immediately carbohydrate intake is increased, the body reverses this process and the pancreas beta cells again come under stress. To make sure that the person is eating the correct amounts of carbohydrates as they move into eating these types of foods, they can measure the presence of ketones in the urine using Keto Diastix (available from chemists)—also it is useful as a guage to ensure that you don't go too deeply into ketosis.

Understand that consumption of alcohol such as beer stops ketosis immediately and initiates demand on the beta cells due to the high maltose and fructose content in addition to the alcohol.

Over the first two weeks it is advisable to add a teaspoon of psyllium husks to each meal or take a herbal mix of cascara, aloes and dandelion to ensure regular bowl movements over this time. Also use a tablespoon of flaxseed oil with each meal to ensure an adequate percentage of fats in your diet.

If the diabetic is going to experiment with a ketogenic diet, they will need to commit themselves, because the first week of reducing carbohydrate meals will not be easy as they crave the sweet and filling foods. Diabetics should not attempt this process if they are really stressed at work or at home or have a demanding schedule.

We are told by the vast majority of nutritionists that ‘carbohydrates are the ideal foods for health’ or that ‘the brain needs glucose to function’. Neither of these statements is correct—carbohydrates are predominantly energy foods and not medicine foods and except for supplying energy, do not directly promote health (see The Melody of Healing—broaden your options and overcome cancer; available at the Canberra Medical Ecology Centre). The brain will use glucose to function if the body is eating carbohydrates. If carbohydrates are reduced or

removed, the brain utilises the free fatty acid-ketone pathways including the liver conversion of glycogen to glucose and fat storage conversion to glucose by gluconeogenesis.

During the first few days in which carbohydrates are reduced, blood glucose concentration drops slightly and the volumes of insulin required to balance this also reduces. Within seven to fourteen days, ninety percent of the body's energy requirements are met by free fatty acids and ketones from the increased protein-fat diet and this stabilises even further over the next month, particularly if liver and bowl tonic herbs are prescribed along with specific homoeopathic medicines.

A question for you: Think of carnivores that only eat other animals—having the same basic neurological composition, how do their brains operate if they do not eat carbohydrates? Tissues such as muscles can use both ketones and free fatty acids to operate normally and do not need glucose, while organs like the brain can operate on both ketones and glucose. On a ketone-styled diet, the amount of glucose needed each day for the body to function efficiently reduces to less than one fifth of its former levels during the times when the person was eating a predominately a carbohydrate diet—the new amount is about 20 grams or less of glucose a day compared to 100 or more grams previously—and remains stable over the long term while ever the ketone diet is continued.

When a person undertakes a fast and drinks only water for several days, the hormone cortisol is released in higher and higher amounts—this also occurs during continuous strenuous exercise such as marathon running or cycling following the time in the race when the competitors ‘hit the wall’—this is about 15 to 20 minutes into the race. Cortisol is a ‘catabolic hormone’—it inhibits glucose uptake into cells and increase proteolysis—the cells operate more through free fatty acids and ketones metabolism while ever the exercises or fasting is occurring.

MEDICAL APPROACHES TO DIABETES

There are two medical approaches to diabetes.

- A curing approach is mostly adopted by mainstream medicine. This involves very minor changes to eating carbohydrate foods, the use of drugs to reduce blood glucose concentrations when a person eats too

much carbohydrate at one sitting, and daily insulin injections to supplement the inability of the pancreas to produce its own insulin.

- Accept where there is a genetic deficiency and the person has no beta cells in their pancreas, or the cases where the T-cells have completely destroyed all beta cells, a healing approach can be adopted by using lifestyle discipline and natural medicines—in an effort to promote as much restoration of pancreatic beta cell function as possible as well as improve to maximum the ability of cells to uptake any available glucose. Those with Type 1 diabetes and no beta cells left in the pancreas will always need insulin assistance at some stages, even with improved regulation of energy production through these techniques.

THE HEALING APPROACH

Medical science has demonstrated that Type 1 diabetes can never be cured, because it is an autoimmune related disease and the cause of the immune function is most likely due to a virus which cannot be eliminated from the body (think of Herpes zoster—chickenpox. This virus stays in the body for life in a dormant form after the initial infection and can reactivate at any time when the immune system is weakened. There is no cure for chickenpox). With this in mind, orthodox medicine takes an intervention approach to address individual symptoms. Type 2 diabetes is similarly treated—there is common opinion that this form of diabetes is also more than likely associated with immune dysfunction at some indirect level.

I have taken a different approach in which individuals are stimulated to change their long-term lifestyle to improve their health and reduce the inefficiency in immune-hormonal communication.

In my clinical trials, newly diagnosed diabetics of all the different types have reduced their blood glucose to normal levels through better dietary habits, specific natural medicines, a type of immunisation, specific exercises and emotional stress control techniques. Insulin dependent diabetics have been able to either discontinue insulin usage completely or have been able to considerably reduce their insulin consumption for long-term manageable health—but the only drawback to this approach is that the person must decide to follow the programs rigorously, and this requires a special sort of disciplined mind. A newly diagnosed diabetic has excellent prospects of completely controlling and correcting their condition if they are able to adopt these practices.

The diabetic who is unable to strictly discipline themselves are advised to follow the conventional medical approach of daily insulin injections and the intake of drugs to reduce blood glucose. Make no mistake however, that the prescription of insulin or other drugs to counteract the effects of an unhealthy lifestyle is typically a curing approach and simply supports an already diseased state by counteracting the symptoms—eventually this approach leads to secondary and tertiary symptoms and a reduction in life expectancy.

To induce the body to heal requires that the individual undertake five things:

1. Decides themselves to undertake the discipline for at least four months.
2. Strictly adhere to an eating protocol and the ingestion of natural medicines to stimulate the body's natural regenerative processes, restore normal pancreatic function and assist in the resensitisation of the body's cells to regain normal insulin interaction, support the gastro-intestinal tract to improve glucose uptake.
3. Enforces boundaries and conditions in their life to ensure that others assist them with their trials.
4. Keep a conscious focus on the required outcome.
5. Keep a comprehensive clinical diary of their trials.

NATURALLY Rejuvenating the pancreas

Rejuvenating the pancreas requires:

1. Reducing or halting cytotoxic the destruction of pancreatic beta cells by the body's immune cells—through the use of a style of immunisation.

CD 8 T-lymphocyte cells live for about two weeks after they are born in the bone marrow and coded in the thymus. Unlike leucocyte cells which initiate an inate immune response to common pathogens and chemicals, T-cells initiate and adaptive immune responses to an infinite variety of pathogens or chemicals. It is this adaptive response that has a flaw—for certain pathogens can re-code T-cells to attack healthy cells in the body. Human viruses (and some other pathogens such as Staphlococcus aurus) do this and are known as super-antigens. The ways to stop this happening usually requires the use of an immunisation over a

period of three to six months, to continually alert the newly born T-cells to the presence of the super-antigen—eventually the pathogen reverts to a dormant phase.

This can be achieved with an authoimmunisation—a type of serum that is taken every few days, until the subverting pathogen is driven into dormancy (See No More Chronic Fatigue—Improving Immune Strength and Efficiency on the website: www.nibm.com.au). Herbs and homoeopathic medicines taken over a long term can also be used to increase immune strength and efficiency. The authoimmunisation at the moment costs about $40.00 a year.

My own clinical research over the last dozen years, on immune dysfunction has led to the discovery of the disruptive effect of grain lectins on immune cell communication—all grain lectins disrupt immune communication and are involved to varying degrees with all types of autoimmune diseases. My advice is that all diabetics should undertake a grain-removal trial (a comparison of 'with and without' grain foods) and determine for themselves the effect of these starchy foods on the occurrence of some of their symptoms.

Note: it is a waste of time to simply remove grain foods without graphing symptoms over a six week period—there are complexities such as delay before the symptoms occur (two to ten days) and duration of ongoing symptoms from each meal (two days to four weeks)—and there are good reasons to have this information. Also, the trials require that absolutely no grain foods be eaten during the 'without' part of the trial—one mouthful can cause symptoms to continue and totally disrupt the trial (hundreds of grain chemicals known as lectins, which cause disruption to immune communication, can adhere to each human cell and as many as two million human cells can fit on the head of a pin! Thus one mouthful of a grain food can supply vast numbers of lectins to cause specific immune disfunctions at specific locations in the body). Unfortunately all grains, modern and primitive have these lectins—although they have different effects on different individuals. All people can tolerate grain foods at some level, but they have to accept the immune disfunctions that accompany their ingestion.

See the website www.nibm.com.au for information on undertaking a grain-removal trial.

2. Regeneration of pancreatic beta cells.

Promotion of the growth of pancreatic beta cells mostly requires the use of natural medicines, physical and mental exercises.

- Herbs such as fennel and homoeopathic medicines such as Phaseolus nanus, Syzgium jambolanum and phloridzinum broadly assist pancreatic function and some cell regeneration.

- Yoga exercises that promote blood circulation in the region of the pancreas, along with specific internal massage, are most helpful. Asanas that stimulate the pancreas meridian also assist in some people. Bundhas also assist with internal muscular spasming and the energetic distribution of prana.

3. Reduction of pancreatic stress by reducing or removing sugar/starch based foods.

Eating fats and proteins does not stimulate a need for insulin production—consequently blood glucose does not rise. Eating sugar based foods such as breads, fruits, potatoes, carrots, pasta and a host of others stimulates the production of insulin by raising blood glucose. The adoption of a diet high in proteins, salads and non-starchy vegetables, reduces demand for the production of insulin by the pancreas beta cells. Weight generally stabilises (whether overweight or underweight).

The best way to stabilise hormone balance is to vary what is eaten and how much, according to a monthly cycle—this has also been shown to support pancreatic rejuvenation. Note: this type of diet is more the ‘hunter and gatherer’ style of eating of our ancestors—our body evolved on this diet—and it is not entertaining in the least. This should be adopted only by those people determined to heal their bodies and can discipline themselves over a long term. Information on this style of eating can be obtained from the Canberra Medical Ecology Centre.

Additional healing can occur by undertaking a once yearly cleansing program of the large and small intestines, the liver and kidneys (see ‘Immune and Improve—the Comprehensive Intestinal Cleanse’ on the website www.nibm.com.au).

4. Stabilisation of blood glucose using specific herbs

There are a number of herbs that have been shown to assist the regulation of blood glucose and I understand that if they are taken over the long term in combination with homoeopathic medicines, the symptoms of diabetes can be more easily controlled. Although is is best to find the specific herbs for the individual by a competent practitioner of electrodermal testing, the following herbs have been found useful in stabilising blood glucose.

French Bean (Haricot Bean) (Phaseolus vulgaris) reduces blood glucose levels in Type 2 diabetes

Parts used: Beanpods.

Medicinal actions: Reduce blood glucose levels.

Cell building: None known.

Cautions: None.

Gymnema (Gymnema sylvestre) reduces blood glucose levels and repairs beta cells in Type 1 diabetes.

Parts used: Leaves.

Medicinal actions: Reduces blood sugar, blocks sweet cravings and reduces appetite.

Cell building: Regenerates beta pancreatic cells.

Cautions: None.

Holy Basal (Ocimum sanctum) reduces blood glucose levels in Type 2 diabetes

Parts used: Aerial parts, leaves, stem.

Medicinal actions: Stabilises blood glucose.

Cell building: Known known.

Cautions: May inhibit sperm production.

Jambul (Syzygium Cumini) reduces blood glucose levels in Type 2 diabetes and repair beta cells in Type 1 diabetes.

Parts used: Seeds

Medicinal actions: Lowers blood glucose levels.

Cell building: None known.

Cautions: Known known

Goat's rue (Galega officinalis)

Parts used: Aerial parts.

Medicinal actions: Lowers blood glucose levels.

Cell building: None known

Cautions: Used only under professional supervision.

Garlic (Allium sativum) assists some people with Type 2 diabetes

Parts used: Bulb.

Medicinal actions: Lowers blood glucose.

Cell building: None known

Cautions: None

Bilberry (Vaccinium myrtillus)

Parts used: Leaves

Medicinal actions: mildly anti-diabetic helping in pre-diabetic states.

Cell building: None

Cautions: None known

Kerala (Momordica charantia)

Parts Used: Leaves, fruit, seeds and oil

Medicinal actions: Used to treat late-onset diabetes (non-insulin dependent diabetes)

Cell building: Stimulates the regeneration of beta pancreatic cells

Cautions: While Kerala is safe in small doses, do not use for more than six weeks at a time without a break of a few weeks. Do not take if prone to low-blood levels.

The hormone somatostatin (and possibly some other hormones) regulates glucose uptake through the wall of the gastro-intestinal tract. Many diabetics have a dysfunction in this regulation—that is, their body uptakes glucose at a greater rate than it should when they eat carbohydrate foods. While not all types of carbohydrates increase blood glucose at the same rate, the Type 2 diabetic is advised to eat slow-release carbohydrate foods such as baked starchy vegetables (not grains) and improve the regulation at the intestinal wall, by taking herbal tonics with fennel, aloe vera, cascara, dandelion and-or specific hormonal toning herbs for their body type.

5. Stabilisation of blood glucose using specific exercises

The following ideas are made from personal and clinical observations of the effects that different styles of exercise have on body hormones as well as discussions with my long-term friend Kit Laughlin, the originator of the ‘Posture and Flexibility’ organisation. Exercise certainly changes the way people feel both physically and emotionally. Chiropractors and osteopaths are well aware of these types of changes in their clients after a therapy session. People feel more vibrant and contented after yoga, tai chi and martial arts classes. Many people find relief from stress by attending the gym for a strong workout or playing a sport. The diabetic will also feel better and alter their neuro-immuno-hormone balance through specific exercising.

Most of the Type 2 diabetics I have worked with do not exercise consistently and it is really difficult to get them to discipline themselves to undertake long-term exercise—they may be their own worse enemy, both with the addiction to carbohydrate foods and the sedentary lifestyle. So what is a workable approach to getting these people to incoporate consistent exercise throughout their lives?

And what is the best type of exercise for people with the different types of diabetes? Let me generalise:

Firstly as a yoga teacher you will know the benefits of regular exercise, but how do you coerce someone who does not have adequate strength, aerobic fitness, coordination and balanced biochemistry to even attempt to exercise, let alone make it part of their lives? You will have your own coercive ways, but keep in mind that long benefit will occur with these people only if they themselves decide and commit themselves to exercise and focus on a long term approach. Give them ‘baby’ steps and with a good degree of patience, give them a simple understanding of why they have to exercise consistently. ‘Slow and steady’ is a good motto to adopt in combination with ‘make it simple and easy’.

The most beneficial type of exercising to introduce to a diabetic who has not exercised, is that of walking—but it must incoporate some form of anaerobic content to be of benefit. So I suggest a small back pack with a waist strap and at least two plastic milk containers filled with water. This weight will make their larger muscles (thigh and buttock) work harder as they walk. It will also partly engage stomach and chest muscles to add to the anaerobic component.

They should start with normal to slow walking for 15 to 20 minutes on a set route—it is not necessary to climb up and down hills as they are experiementing with their potential routine. Their route should be attempted once a day in the mornings for at least a month and when they get fit enough, they should attempt it twice a day if possible, or increase the load by replacing the water for sand in one of the containers. Gradually every few weeks, they should attempt to increase the load so that they continue to feel the strain after 15 minutes of walking. They should attempt to push the limits of their physical ability if at all possible (remember this requires discipline and an understanding of the benefits). Exercising should become a routine over the years or they can move onto other exercises, yoga or do a combination of these. They really need a coach to monitor them for a few months and give them enthusiasm.

The exercise of a single slow squat without weights, done once daily, should eventually be added to the walking routine. This squat should be performed with correct form (they may need coaching on this) and take at least two minutes, and possibly three minutes to do the one squat. Eventually they can add the rolling action of a Swiss ball to the exercise (between their back and a wall). Kit Laughlin suggests a one leg squat (with the other leg resting on a chair) can be added at a later stage to engage the buttock complex of large muscles. Added to this exercise is a single slow pushup that should take at lease two minutes. Thus

within five to ten minutes they have worked their major muscles for the day and beyond a certain level of intensity, this should trigger alternate biochemical pathways to the glucose/insulin ratio.

In terms of yoga, surya namaskara can be substituted as long as the sequence is complete in exercising the larger muscles and performed in slow motion, concentrating on form and not speed. Ten minutes of this slow practice each day should do the same thing as the squat and pushup and improve flexibility as a bonus.

After the exercises the diabetic must not eat—drinking water is OK or having a cup of tea is OK. After the exercises, it is advisable that they sleep or catnap or undertake yoganidra for 15 to 20 minutes if possible. This reduces the need for glucose for the brain and allows the neurohormonal changes initiated by the exercises to 'lock-in' for the day. Eating will reverse these changes. Try this on yourself for the effects before you start coaching diabetic yoga students.

Individuals doing these exercises will soon recognise the changes that come to them. They will feel less hungry and have more consistent feelings of available energy.

6. Repair of damaged organs and tissues

With the advent of diabetes there occurs secondary organ and tissue dysfunction. These may heal by themselves when the diabetes is controlled and they may not. It is advisable to see a professional to assist with this. Medicinal herbs have been used for thousands of years to address symptoms of organ dysfunction. To give you an idea of the homoeopathic medicines which assist diabetes associated organ dysfunction on a broad level—see the section: Natural Medicines in this yogalink website.

Classical homoeopathy treats associated symptoms of diabetes using singular remedies. For example:

- For associated nervousness and diabetes, the medicine Acid phos. 10X to 30X may be prescribed.
- For associated digestive upsets and diabetes, the medicine Uran nit. 10X to 30X may be prescribed.

Homoeopathic medicines that incorporate a broader range of symptoms can also be prescribed. For example:

- To address broad peripheral disorders of circulation, the clinical combination of homoeopathic medicines known as Aesculus compositum may be prescribed (Heel homoeopathic Biologische Heilmittel Heel GmbH, Baden-Baden)
- To broadly activate the non-specific defence system, the clinical homoeopathic combination of medicines known as Galium-Heel may be prescribed (Heel homoeopathic Biologische Heilmittel Heel GmbH, Baden-Baden)

7. The reduction or removal of emotional stress in individuals, certainly benefits both the stabilisation of their immune system and the function of organs (specific to them).

- Emotional stress often causes oscillations of the metabolism of blood sugar and by incorporating a balanced approach to one's expectations in life—particularly in work, these oscillations are reduced or eliminated. The techniques to do this are imparted by professional therapists.
- Engaging a professional to coax the non-conscious mind toward mental harmony and increased physical healing is essential—hypnotherapists or meditation teachers can do this.
- Learning the techniques of relaxation and meditation to be able to effectively reduce all types of emotional stress.
- Incorporating specific yoga exercise programs:

    1. To alter general hormonal balances as well as reducing emotional stress.
    2. To improve circulation around the pancreas, spleen and stomach.
    3. Strengthen muscles and joints along the stomach-pancreas meridian.

- Herbal and homeopathic medicines are also helpful in many cases. For example, the well known herbalist Dorothy Hall suggests the following herbs are helpful to calm the‘nerves’ and remove stress from people.

Camomile (Matricaria chamomilla)

For the person who lives each day twice—going over the day’s negative experiences (often with more drama), generally at home at night.

Hops (Humulus lupulus)

For the person who plans for the future and crosses their bridges before they appear—worrying and planning before the event happens. This is usually done at night before sleep.

Mugwort (Artemisia vulgaris)

For the person who is oversensitive to sound, light, and sometimes, the sense of touch (sensitive sleepers).

Skullcap (Scutellaria lateriflora)

For the person who lives in the ‘fast lane’ and fears the unknown, suffering from adrenal exhaustion (fine internal shaking when stressed).

St John’s Wort (Hypericum perforatum)

Generally prescribed for the person who responds too quickly: quick to grow, to mature, and diving headlong into life (low pain thresholds).

Valerian (Valeriana officinalis)

For the tight-lipped, controlled person, who never tells of their day’s experiences and whose calm exterior hides the turmoil inside.

- Vervain (Verbena officinalis)

For those who are always busy, often doing two jobs at the one time (irritated by the finer details).

Aided by these approaches, the person can gradually withdraw external insulin injections. If this is too difficult to undertake by yourself, consider a course of yogic management for diabetes.

YOGIC Management of diabetes

Yogic management of diabetes is demanding and more easily undertaken while resident in an ashram or under weekly supervision with a qualified yoga therapist. At least one full month should be allowed for the initial period of supervision and treatment so that the new attitudes and practices can be thoroughly integrated into the person's lifestyle.

Extended residence in an ashram is impractical for most people and the alternative is to engage a yoga therapist with the appropriate training and undertake three months of intensive supervision and tutoring for a complete understanding and implementation of lifestyle change—as well as serial assessment of blood and urinary sugar levels in order to reduce the risk of precipitating ketoacicosis and hypoglycemic coma during the initial period of training when blood glucose levels begin to stabilise. Taking these measurements allows the individual to gradually reduce the volume of insulin taken daily at the same time implimenting lifestyle changes with natural medicine intake.

Contact Samyama yoga on 026 282 6800

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