Two white lotus flowers are shown against a black background. The top flower is in full bloom, facing slightly to the right. The bottom flower is also in full bloom, facing slightly to the left. Both flowers have multiple layers of white petals and a visible yellow center with stamens. The lighting highlights the texture and curves of the petals.

The Weight Loss Approach & Therapies in Indo-Tibetan Medicine

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INTRODUCTION

Trying to get rid of extra pounds is a challenge, but one well worth taking. Aside from the aesthetic aspect, obesity causes numerous avoidable health problems. Dieting can create difficulties as well, and weight lost this way is often regained. A weight-loss program should seek to restore health and help the body avoid regaining the



lost weight. Seeking the right way becomes an urging matter since we are losing an all important battle with obesity at the societal level. There are approximately 58 million adult Americans that are considered overweight, i.e. men with >22% of body fat, and women with >32% of body fat.

Thus causes of this alarming problem need to be addressed whenever possible, and only then followed by discussion of the possible therapeutic approaches. This review will focus on the currently understood causes, with solutions offered by the long standing experience in Ayurveda and Tibetan medicine.

THE METABOLIC PROCESS

It seems that weighing too much is not just a function of eating too much; there are many factors involved. There appears to be a link in some people between excessive weight gain and a sluggish metabolism.

The healthy metabolism generates heat energy in the process called “thermogenesis”, and the increase in the metabolic rate is proportionate to the heat-energy dissipated. The word “thermogenesis” consists of two words: “thermo” meaning heat, and “genesis”, meaning creation. Therefore the sensation of warmth generated after consuming a good meal, although by itself gratifying and beneficial, is also a symptom of proper digestion, absorption and metabolism of nutrients.

People who have trouble losing weight [despite a reasonable effort] often do not respond to food consumption with adequate thermogenesis, and therefore they suffer from consequences of poor metabolic response in form of carrying those extra pounds.

The group of hormones in our body regulates process of metabolism and thermogenesis by affecting the outposts of the autonomous nervous system, or beta receptors. The autonomous nervous system functions without our conscious effort [thus autonomous] and controls all vital functions of the organism including metabolic functions. The hormones that stimulate beta receptors include neurohormones like norepinephrine, and sometimes are nick-named as thermogenic hormones. As a result of stimulation of beta receptors a secretion of a metabolic hormone insulin is increased, which pumps the glucose inside the cells with resulting energy production and thermogenesis. The thyroid hormones further contribute to sustain metabolic process, the energy production and the resulting thermogenesis.

Thus, a sluggish metabolism may be due to insufficient functioning of any of the above hormones. For example a low thyroid function (goiter) may lead to an increase in fat tissue as well as an accumulation of by-products and a delayed evacuation of toxic metabolites.

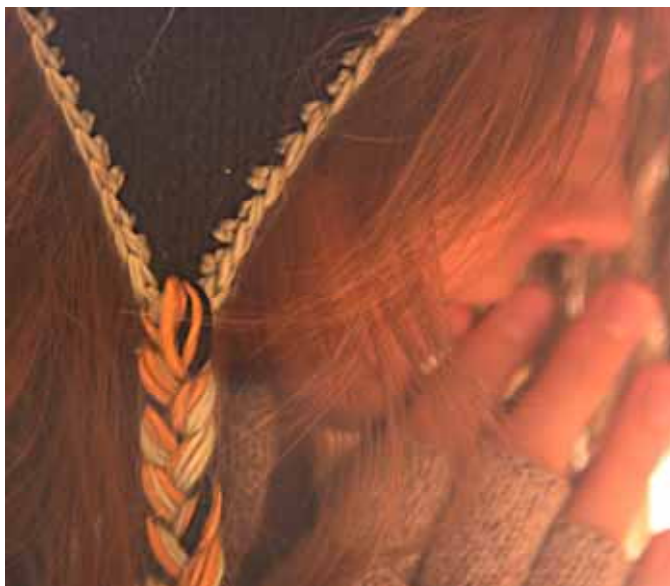
An increase in fat tissue may lead to a decrease in the body's sensitivity to insulin, a well-known mechanism behind the diabetes of adult onset which further derails the metabolism and contributes to excessive weight gain. Insulin is a hormone that regulates not only sugar but also fat and protein metabolism in the body. The balanced metabolism of these substances affects performance of



physical, mental and emotional activities. This important balance also plays a role in the long-term prevention of heart disease and other degenerative conditions. The particular relationship between functioning of insulin, obesity and cardiovascular disease risk has been confirmed by the epidemiological data. The link between the mid-section or central obesity, insulin resistance with high diabetes prevalence and cardiovascular risk is well recognized now in South Asians. It is also known that American and Pacific populations have high prevalence of diabetes in association with general obesity. This intricate relationship between the health status and how we physically look makes exactly the point that getting in shape is not primarily about our looks but about our well-being.

THE WEAK WILL POWER FACTOR

People who have trouble losing weight often blame themselves or are blamed by others to have a weak will power, and just eat too much. It seems however that overeating may have deep roots in our ancient past, rather than being caused solely by lack of self-discipline.



Our mind and bodies of modern men are not much different from those of our most remote ancestors. Yet our contemporary lifestyles and nutrition and those of our ancestors could not differ more drastically. The lifestyle of a primitive ancient man, without agricultural products supermarkets and refrigerators, demanded that you eat as much as you could when food was available. Sugars and fats were rare in that ancient diets and nothing such as flour, milk, cheese, candy and olive oil were

available. Therefore by this ancient design our metabolism is ill-designed to deal with large amounts of grain products, animal fat and refined sugar eaten indiscriminately throughout the year. As a result our metabolism can easily be confused by a pattern and kind of modern nutrition.

It is likely that the problem of overeating, which naturally contributes to the body mass, may not be primarily due to psychological reasons, e.g. seeking comfort of food. Rather, overeating may be a misguided response to a metabolism confused with an inappropriate nutrition. Poor nutrition could lead, in a long run, to a chain reaction, i.e. malnutrition, compensated by overeating, obesity, deteriorating metabolism and related diseases like the adult onset diabetes.

THE ANSWER IN INDO-TIBETAN MEDICINE

Most weight loss pharmaceutical aids are designed to decrease the amount of body fat, by either or all of the following mechanisms, i.e. decreasing appetite for food by increasing brain and systemic levels of neurohormones/neurotransmitters serotonin and cholecystokinin (Dexfenfluramine, Sibutramine, Butabindine, Leptin), decreasing food absorption (Orlistat, Insulinotropin), slowing down the rate of

fatty acid synthesis (Brocristine) and increasing the rate of catabolism of fatty acids (Bta-243, Troglitazone).

By comparison, Ayurveda and related Tibetan medicine are not designed to provide treatment aimed at a single mechanism to regain proper weight and health. By preference any pharmacologic approach is combined there with a behavioral and nutritional modification that goes beyond the commonly known guidelines, e.g. aerobic exercise and sensible nutrition. In the first place, one should be maintained in good shape by seasonally adjusted nutrition, good life-habits, proper adjustment to the seasons of the year, and awareness by the individual of one's physical and psychological predispositions. This approach seeks to address the weight problem through restoring the tranquil mind and body's physical equilibrium. But again uncharacteristically for our western ways, the guidance for the behavioral and nutritional modification comes in Tibetan medicine by exercising the spiritual values of awareness, will power and compassion. The awareness represents knowledge, will power ability to implement that knowledge, and compassion the successful implementation of the knowledge.

This unusual by western standards approach, supports nevertheless our mind and body effectively in addition to the herbal treatments, which per se are not considered a "silver bullet" treatments. Only this combined approach can take care of the psychosomatic causes of overeating and normalize a sluggish metabolism.

In addition to balancing the body, the mind and the spirit several herbals derived from Indo-Tibetan materia medica have been used to help in controlling the body weight. The herbal substances used as helpful adjuncts in weight loss include *Garcinia gambogia*, *Sida cordifolia*, *Commiphora mukul*, *Piper longum*, *Triphala* and multicomponent herbal and mineral formula.

Garcinia gambogia: An extract from the rind of Indian fruit *Garcinia gambogia* (fam. Clusiaceae) of the tamarind family, traditionally used in preparation of Indian curry, is the natural source of hydroxycitric acid or HCA. It is well known that this natural HCA can inhibit citrate lyase, a key enzyme required for production of fatty acids, or building blocks of fatty tissue. As a result, less dietary glucose is utilized for



synthesis of body fat, and the dietary glucose which could be converted to fat is instead converted into its storage form - glycogen. That mechanism of glycogen increase is of special interest, since it may, at least in theory, lead to several events in the body, i.e. feeling of satiety [storage of the nutrient signals that the purpose of eating is accomplished], increase in energy reserves accessible on demand [glycogen is converted back to glucose, which is the main source of energy in the body]. Both events are not only crucial for controlling the overeating, but may be potentially useful in alleviating adult onset diabetes, a condition known for overeating (polyphagia), obesity, chronic tiredness (low energy), and low levels of muscle glycogen.

An extract from *Garcinia gambogia* (fam. Clusiaceae) in form of a compound formula containing 400 mg of calcium salt of hydroxycitric acid (Citrin[®] in Citrisan[®] product) was tested in a double blind weight loss study on 60 patients. The hydroxycitric acid formula or an identical placebo capsules were administered three times daily half an hour before meals. All patients were on a low fat diet of 1200 kcal/ day and were instructed to exercise 3 times per week. The mean weight reduction in the active treatment group was 14.11 lbs, while the patients in placebo group reduced their weight by 8.37 lbs ($p < 0.001$). The near infrared light (NIR) technique for evaluating the body composition determined that 87% of the weight loss in the active treatment group was due to fat loss, while the corresponding figure in the placebo group was 80%. Blood pressure, total blood cholesterol levels and waist hip ratio were statistically significantly reduced as a result of the active treatment ($P < 0.001$). The appetite score using the visual analog scale was significantly reduced in the active treatment group as compared to the placebo group ($p < 0.001$). Two patients dropped out of the study due to gastrointestinal discomfort, one in the active and one in the placebo group (Thom E. Int J Obesity. May 1996;20(4): abstract).

In experiments carried out with laboratory animals at the Department of Food Sciences and Technology, Kyoto University, Faculty of Agriculture, Japan, rodents were fed with 5 mg of HCA for 3 days. The results suggested that mice fed with HCA as compared to the control animals benefited with higher content of glycogen in the muscles. In the endurance test those mice which were fed with HCA could swim significantly longer than the control group.

In a clinical weight-loss study involving Citrin[®], a brand form of HCA, the 52 participating patients were also asked to report in a questionnaire on their energy levels in the course of their eight week treatment. Each patient was taking 500 mg of calcium salt of HCA (corresponding to 750 mg of pure HCA daily). The questionnaire was filled out before the study was started and after four and eight

weeks of the treatment. Analysis of the subjective perception of energy levels showed a significant ($p < 0.01$) increase in energy after four weeks (score 2.27 ± 0.7), and eight weeks (score 2.29 ± 0.69) as compared to the energy levels at the onset of the study - score 1.7 ± 0.98 . These subjective observations of increased energy levels should be further studied since they may reflect, or be a result of, increased levels of glycogen stores in the body (Badmaev, V., Majeed, M [July 1995] Open Field, Physician Controlled, Clinical Evaluation of Botanical Weight Loss Formula Citrin[®]. Nutracon 95: Nutraceuticals, Dietary Supplements and Functional Foods. Day One (Sponsored by Global Business Research LTD).

Based on three double-blind clinical studies and up to 36 months open field clinical study of Citrin[®] in overweight patients, some of which had poor glucose tolerance, it's reported that Citrin[®] in a daily dose of 750 mg of HCA decreased body weight significantly as compared to the placebo group ($p < 0.001$). The treatment did not affect the overall clinical and laboratory status of the patients adversely.

The blood levels of triglycerides, often elevated in patients with poor glucose tolerance, assessed for the entire population studied with Citrin[®] decreased significantly ($p < 0.05$). The mean value of triglyceride levels before Citrin[®] intake was 166.5 mg/dl and after the 8 weeks was 154.8 mg/dl. On the other hand the HDL ("good cholesterol") levels were significantly ($p < 0.01$) increased after 8 weeks of Citrin[®] from a mean value of 47.4 mg/dl to a mean value of 50.4 mg/dl.

The 8 week Citrin[®] intake lowered the risk of coronary heart disease [CHD] (as assessed from the blood lipid profile) significantly ($p < 0.01$) for the entire population studied. The risk index decreased from a mean value of 0.998 to a mean value of 0.90. This finding is particularly important in view of increased risk of CHD in patients with poor glucose tolerance.

Sida cordifolia (fam. Malvaceae) is a source of thermogenic alkaloid ephedrine, similar to that derived from ma huang (*Ephedra sinica*). Ma huang plants contain 1 percent to 1.2 percent ephedrine, compared with .08 percent to .03 percent ephedrine in *Sida cordifolia*. Ephedrine stimulates beta receptors by increasing the levels of neurohormones like norepinephrine, which as mentioned previously can lead to increased thermogenic response of the organism. This mechanism of ephedrine has been clinically tested in overweight individuals for its potential benefit in reducing the body weight. Ephedrine particularly in combination with caffeine contributes to the weight-loss, by reducing

appetite, accounting for 75-80% of weight-loss, and increasing the thermogenesis, accounting for 20-25% of the weight loss (J Clin Nutr 42: 83-94, 1985). *Sida cordifolia*, considered one of the most important herbs in Indo-Tibetan medicine, contains additional active principles-such as vasicine-which opens bronchial tree and improves respiration. Caution should be used with ephedrine containing herbals, because large doses may have harmful effect on the cardiovascular system (increased pulse rate, blood pressure) and central nervous system (nervousness, insomnia), contribute to constipation and retention of urine (particularly important in men with prostate problem). Ephedrine may also increase the blood sugar levels, and should be used with caution by diabetics. Caution should also be exercised with products containing both caffeine and ephedrine, this despite the clinically confirmed beneficial effects.

Commiphora mukul (fam. Burseraceae). The extract of sap from tree of *Commiphora mukul* known as guggulipid is well-studied for its cholesterol-lowering and triglycerides-lowering properties especially in hyperlipidemia type 2b and type IV. On the other hand the results of clinical studies of this herbal used alone for the weight-loss have been inconsistent. In many studies a trend towards reduction of body weight has been



perceived, which was not, however, statistically confirmed. In one clinical study use of several grams of guggulipid by the overweight patients for 12 weeks resulted in a significant reduction in triceps skinfold thickness (J Res Ayur Siddha 6:1984). It has been suggested that the inconsistency in clinical results with guggulipid could be attributed to the insufficient maturation of the sap, and that at least 5 year old sap should be utilized for the best clinical results.

Triphala. Fruits of *Terminalia chebula* (fam. Combretaceae), *Terminalia belerica* (fam. Combretaceae), and *Embllica officinalis* (fam. Euphrobiaceae) combined in equal proportions are known as Triphala. This formula and its individual ingredients are highly valued in Ayurveda, being compared to a “good manager of the house” in aiding digestion, nutrient absorption and body metabolism. Triphala is used either alone or in a compound formula in a broad range of digestive disorders, including psychosomatic conditions affecting GI tract. Triphala is a prime example of adaptogenic herbals, with a particular relevance to the digestive tract and the body metabolism.

One of the first Indo-Tibetan diet formula mentioned in approximately 600 B.C. included Triphala and the gugulipid to normalize the equilibrium of the three elements in the body, i.e. Chi, Schara and Badahan in overweight people. This equilibrium normalizes digestion and absorption of food, two areas that are often faulty in overweight people.

This traditional formula in three variations was tested against placebo in a 3 months weight loss study. The placebo and three active formulae were randomly assigned to 70 non-dieting patients to be taken three times daily before meals. On average patients receiving placebo lost 5.3 lbs vs. 18, 17.4 and 17.6 lbs of body weight shed in course of 3 months treatment with various proportions of gugulipid and triphala and several other ingredients. In addition to weight loss the treated patients benefited from lowering blood cholesterol: 10 mg/dl (placebo), 20 mg/dl, 19 mg/dl and 15 mg/dl in the respective groups receiving active treatments. Few patients on active treatment reported side effects including nausea and mild diarrhea (Ethnopharmacol. 1990; 29(1): 1-11).



Piper longum (Fam. Piperaceae) or long pepper in combination with black pepper (Piper nigrum) and ginger (Zingiber officinalis) in equal proportions is known in Sanskrit, the original language of Indo-Tibetan medicine, as Trikatu or “three acrids”. Long pepper alone or in Trikatu is utilized in treatment of the gastrointestinal conditions including heartburn, gas, constipation and poor absorption of nutrients. It has been used in combination with numerous herbals in

normalizing nutrient digestion and absorption, normalizing metabolism and assisting in weight loss. For example it has been used as a supportive ingredient in the above cited weight-loss formula of gugulipid and Triphala (Ethnopharmacol. 1990; 29(1):1-11).

In addition to assisting nutrient digestion and utilization in metabolic process, Long pepper may owe its weight reducing properties due to a content of alkaloid piperine. Piperine has been found in experimental animals to induce secretion of thermogenic neurohormones, in particular norepinephrine. Oral ingestion of piperine resulted in increased secretion of these neurohormones from a specialized organ in the body, adrenals (Proc Soc Exp Biol Med 188, 229-233, 1988). Alkaloid piperine may also aid the body’s thermogenic response by promoting thyroid hormone production. Piper longum contains a minimum of 1% of alkaloid piperine, however other yet to be identified components may also be responsible for its thermogenic action.

Coleus forskohlii (Fam. Lamiaceae) is a source of a diterpene alkaloid forskolin. This compound has



recently been a subject of numerous worldwide studies and is a patented discovery of a weight-loss mechanism (Majeed, M., Badmaev, V. 1997 US/International patent pending). Forskolin is known from the literature as a compound with a versatile biological action based on its ability to stimulate cyclic AMP (J Pharm Exp Ther 238(2), 659-664, 1996). The

cyclic AMP is nick-named a second messenger in mediating the hormonal activities in the body leading to increased metabolism, thermogenesis and energy expenditure. Typically increase of cAMP leads to subsequent activation of protein kinase. The protein kinase has been shown to phosphorylate (activate) an enzyme lipase which disposes of tryglycerides - known as building blocks of fatty tissue. The other relevant to the weight loss mechanism of forskolin involves its thyroid stimulating action comparable in strength to thyrotropin or TSH, which may also contribute to the increase in the metabolic rate and thermogenesis (Mol Cell Endocrinol 43, 41-50, 1985). Last but not least, forskolin may be involved in the regulation of the insulin secretion, which as discussed previously is an important hormone in regulating metabolism of major macronutrients, i.e. carbohydrates, fats and proteins (Endocrinol 113, 2311, 1983).

The example of compound formula that can be useful in assisting weight-loss through improving digestive and metabolic processes is **Tisanax or Badmaev 179**. This traditional multicomponent gastrointestinal formula of Tibetan origin, in form of 255 mg tablets, has been tested in a 4 week open field study in Switzerland by four independently working physicians. A total of 52 patients of both genders presenting with irregular gastro-intestinal (GI) functions manifested by constipation, flatulence, feeling of fullness, heartburn and belching participated in these studies. The 43 participants reported a significant ($p < 0.001$) GI improvement after using Tisanax 1 to 3 tablets a day. Tisanax eliminated gas in 80% of patients, heartburn in 83%, and abdominal fullness in 76% and constipation in 74%. The 85% of patients reported relief within one week after taking 1 to 3 tablets per day. Those patients who had no history of laxatives use or previously used mild laxatives benefited most from therapy with Tisanax (Badmaev, V. personal communication, 1997).

CONCLUSION

As previously mentioned, a weight-loss program should seek to restore health and help the body avoid regaining the lost weight. Indo-Tibetan medicine offers a “pill” support, but not a “pill” solution. The difficult task of behavioral modification is approached there by tuning to our biological clock, and to do so we need to guide ourselves with spiritual values of awareness, will power and compassion. In this understanding getting in shape should not be taken lightly, and especially gaining health should be considered before improving aesthetics. For more information, contact your nearest Sabinsa sales office.

