The Liver

The liver whilst not one of the most glamorous organs of the body, it is the largest and the most fascinating. By and large, the liver ranks low on the list of popular party topics and generally it is other organs that seem to be of more importance. Liver dysfunction can cause crankiness and irritability and can also cause lethargy. Symptoms of liver dysfunction can include poor skin, constipation, Diarrhoea and anaemia. Looking after liver function can solve many health issues. The liver performs some 22 primary functions out of a total of around two thousand, from one body organ! It is very rare these days to find anyone that does not have some concerns regarding liver function; this is due to the ever changing lifestyles and demands and increased stress. The other aspect of concern is an incorrect diet, as the liver is associated with bowel function, digestion, and the clearing of toxins from the body.

The onslaught of environmental pollution, nutrient deficiencies and over processed or poor diets all contribute to the risk and can accelerate the damage. Liver dysfunction can also cause loss of appetite. A balanced diet is absolutely essential for your health and wellbeing and good liver function, this is very easy to achieve.

The liver detoxifies the blood stream by degrading various hormones no longer required. It also breaks down proteins into sugars and fats for tissue repair or energy and acts as a storehouse of vitamins and secretes serum proteins such as albumins (vital for the removal of tissue waste), alpha-globulins, pro-thrombin (for proper clotting of blood), serum cholesterol and blood glucose. Other functions include storage of various metabolites (such as glycogen, proteins and fat) and the transformation of various compounds into others as fats, etc, and carbohydrates (or vice versa), and the formation of bile. A liver that is not supplied with enough nutrients cannot produce bile of the proper PH, and without this bile, efficient digestion and excretion are not possible.

There are a number of nutrients including methionine, Choline and inositol that can restore liver function and will ensure that uric acid is converted to urine, these are just some of the nutrients used in products like the LivaAid. Supporting your body with powerful antioxidants is also very important.

Phase 1 and Phase 2 liver Detox

To ensure correct liver function is at its optimum Phase 1 and Phase 2 liver detox is of enormous importance.

Phase 1 liver detoxification profile. Drugs,metals and hormones are transformed in this process into reactive bioactive compounds. Up-regulation of this process can lead to the accumulation of these metabolites.

Phase II liver detoxification profile. Metabolites from Phase I liver detoxification will be transformed into water soluble compounds and then excreted in urine. This process depends on a large antioxidant capacity. Down regulation of phase II liver detoxification leads to an accumulation of toxic metabolites. This in turn increases oxidative stress.

Polymorphisms (SNPs) in the genes coding for a particular enzyme can increase or, more commonly, decrease the activity of that enzyme. Both increased and decreased activity may be harmful. Increased phase I clearance without increased clearance in Phase II can lead to the formation of toxic intermediates that may be more toxic than the original toxin in the first place. Decreased Phase I clearance will cause toxic accumulation in the body. Adverse reactions to drugs are often due to a decreased capacity for clearing them from the body.

General Therapies to Improve Detoxification:
Nutrients that generally improve Phase I detoxification and as well improve the efficiency of Phase II conjugation can be recommended. garlic, soy, grape seed extract, green tea, and many herbs and spices like Milk thistle etc.
Catechol-Omethyl transferase is the enzyme primarily responsible for breaking down the neurotransmitters dopamine, epinephrine, and norepinephrine and N-acetyl Transferase detoxifies many environmental toxins. Polymorphisms can result in slower than normal or faster than normal addition of an acetyl group to these toxins. Slow acetylators have a build up of toxins in the system and rapid acetylators add acetyl groups so rapidly that they make mistakes in the process. Both slow and rapid acetylators are at increased risk for toxic overload if they are exposed to environmental toxins. If the toxin exposure is reduced, the risk is reduced.

Glutathione-S-transferase detoxifies many water-soluble environmental toxins, including many solvents, herbicides, fungicides, lipid peroxides, and heavy metals (e.g.,mercury, cadmium, and lead). The various forms of GST work together to eliminate toxins. Decreased glutathione conjugation capacity may increase toxic burden and increase oxidative stress.
Superoxide Dismutase is an enzyme that protects cells from increased oxidative stress and free radical damage to cell structures like membranes, mitochondria, DNA, and proteins.