



Your Monthly Update

Dear Colleague

Welcome to the January newsletter from Pure Bio Ltd.

With another Christmas behind us and many suffering the after-effects of over-indulgence and lack of activity, many people are turning their attention to diets and exercise regimes.

With the ever-increasing press coverage of obesity and its impact on the health of the nation, we have decided to focus on Syndrome X as our chosen topic for the month.

We are in the process of setting dates for forthcoming one-day seminars sponsored by Pure Bio in 2005. Please check the website for updates, on www.purebio.co.uk. We always welcome feedback and suggestions.

Syndrome X

Also known as: Metabolic Syndrome, Insulin Resistance Syndrome

What IS Syndrome X?

When a person eats carbohydrate, the digestive system converts the starches and complex sugars into glucose, which is, in turn, absorbed into the bloodstream. The rise in blood sugar stimulates production of insulin from the pancreas. Excess glucose not immediately required for energy is converted into glycogen and stored in the liver and muscle tissue.

Glycogen is quickly converted back into usable glucose.

A diet even moderately high in refined carbohydrates and sugars triggers Syndrome X. These foods trigger a rapid increase in blood sugar levels. The pancreas responds by secreting increasingly higher levels of insulin. The more carbohydrates the person consumes, the more insulin the body will produce to deal with the high blood sugar.

After a while, the body starts responding more slowly to the overwhelming insulin levels. Glucose is not carried into cells when it's needed. Instead it gets shuffled into the long-term energy storage system where it is converted into fat.

To exacerbate the problem, high insulin levels cause the hypothalamus to stimulate sensations of hunger. This slow response eventually builds into a full-fledged insulin resistance.

The more refined carbohydrates the person consumes, the hungrier he / she becomes and the less effective the metabolism is in dealing with the calorie intake. Syndrome X may lead to adult onset diabetes. It also leads to extremely high levels of free radicals, causing cell damage and premature aging.

| Ranking | Nutritional Supplements | Botanical Medicine |
|---|--|---------------------------|
| Primary | Glucomannan | |
| Secondary | Chromium Guar gum | |
| Other | Calcium Coenzyme Q10 Magnesium Vitamin E Zinc Vanadium Omega 3 fatty acids | Green tea Cinnamon |
| <p>Primary – Reliable and relatively consistent scientific data showing a substantial health benefit.</p> <p>Secondary – Contradictory, insufficient, or preliminary studies suggesting a health benefit or minimal health benefit.</p> <p>Other – An herb is primarily supported by traditional use, or the herb or supplement has little scientific support and/or minimal health benefit.</p> | | |

Dietary Modification

Some authorities recommend people with Syndrome X avoid high-carbohydrate diets. The rationale is that high carbohydrate intake stimulates increased insulin levels, which can lead to high triglycerides, low HDL, and other adverse changes in the levels of blood fats that contribute to cardiovascular disease risk. Other authorities disagree, however, because they believe a lower carbohydrate diet will result in higher calorie intake from fat, leading to more difficulties with overweight, insulin resistance, and cardiovascular disease risk. A recent preliminary study suggested that a healthy, balanced diet low in fried foods and sausages, and high in vegetables, fruits, fish, and complex carbohydrates, such as whole grain rice and pasta, was associated with protection from many aspects of Syndrome X.

The effect of dietary fat on insulin resistance seems to depend on the type of fat eaten. Preliminary studies in animals and humans suggest that insulin resistance is worsened with increased use of saturated fat and improved with increased unsaturated omega-3 fatty acids from fish, while the role of other unsaturated fats is less clear. However, recent research has reported that diets high in monounsaturated fat improve insulin sensitivity in both healthy people and people with diabetes. A diet low in saturated fat, but which allows both fish and mono-unsaturated fat makes sense for people with Syndrome X, because such a diet is associated with protection from cardiovascular disease.

The type of carbohydrate consumed may influence the effect of a high-carbohydrate diet on insulin sensitivity. Animal research suggests that very high intake of fructose or sucrose worsens insulin sensitivity. “Glycaemic index” refers to the blood sugar-

raising effect of a food, and there is preliminary evidence from some, though not all, human research, that consumption of low glycaemic index foods improves insulin sensitivity.

Very little research has investigated the effect of increasing dietary protein intake on insulin resistance in people with or without Syndrome X. One controlled study found that people with some features of Syndrome X lost more weight on a high protein / low carbohydrate diet than on a low-carbohydrate diet alone, although both diets produced similar improvements in a measurement of insulin sensitivity.

In two controlled studies, a combined program of a weight-loss diet that was lower in fat and higher in fish, along with exercise three times per week, improved several measures of insulin resistance, blood triglycerides and cholesterol, and blood pressure in a group of people with Syndrome X.

High salt intake decreases insulin sensitivity according to preliminary studies.

Lifestyle Modification

Obesity, especially when fat accumulates in the abdominal region, increases the severity of insulin resistance, and has been associated with Syndrome X. Loss of excess weight tends to improve insulin sensitivity (i.e., reduce insulin resistance), and this has been recently shown to be true for people with Syndrome X as well.

Cigarette smoking, in most studies, as well as exposure to secondhand smoke and use of nicotine replacement products have been associated with insulin resistance.

Alcohol consumption in the light to moderate range is associated with better insulin sensitivity in healthy, non-diabetic people. Since alcohol consumption also reduces other risk factors for cardiovascular disease, it is unlikely that people with Syndrome X would benefit from avoiding alcohol if they are currently light to moderate drinkers.

Either aerobic exercise or strength training improves insulin sensitivity in both healthy and insulin-resistant people in most studies, though a recent controlled trial found that aerobic exercise alone did not affect insulin resistance in people with Syndrome X. Studies comparing strength training to aerobic exercise in insulin-resistant people have reported greater benefits from strength training, but a combination of the two will probably be more effective than either one alone.

Some popular diet books claim that insulin resistance causes weight gain and prevents successful weight loss. However, one controlled study found no difference in the number of women experiencing successful short-term weight loss between women with or without insulin resistance.

Insulin sensitivity decreases after certain stressful experiences, such as surgery, and decreased insulin sensitivity is associated with work-related mental and emotional stress, and other aspects of a stressful lifestyle.

Nutritional Supplement Treatment Options

Glucomannan, and other supplemental dietary fibres e.g. Nutraflax P.E., may reduce many risk factors in people with Syndrome X. A double-blind trial found that 8–13 grams per day of glucomannan significantly improved several measures of blood cholesterol control and one measure of blood glucose control in people with Syndrome X.

Vitamin E, 800–1,350 IU per day, has been shown to increase insulin sensitivity in both healthy and hypertensive people in double-blind studies. Further research is investigating this effect in people with Syndrome X.

One double-blind trial found that 1,500 mg per day of calcium improved insulin sensitivity in people with hypertension. No research on the effects of calcium in people with Syndrome X has been done.

Magnesium deficiency can reduce insulin sensitivity, and low dietary intake and low blood levels of magnesium have been associated with greater insulin resistance in non-diabetic people.

Chromium has long been known to be helpful to people with insulin-related disorders. Known mechanisms of chromium's effects indicate that chromium plays a role in promoting insulin sensitivity. Preliminary evidence also suggests that insulin resistance may cause loss of chromium from the body, increasing the likelihood of chromium deficiency.

Zinc - Preliminary studies have reported that low zinc intake is associated with several of the risk factors common in Syndrome X, and a low blood level of zinc is associated with insulin resistance in overweight people.

Co-Enzyme Q10 - A double-blind trial showed that coenzyme Q10, 120 mg per day, reduced glucose and insulin blood levels in people with high blood pressure and cardiovascular disease. These results suggest that coenzyme Q10 may improve insulin sensitivity in people with components of Syndrome X.

Polyunsaturated fatty acids (PUFAs) to stimulate fat burning, stimulate the metabolism and improve glandular secretions.

Green Tea – the catechins in green tea are potent antioxidant flavinoids and inhibit the activity of amylase. This results in a slower conversion of starch to sugar and therefore a more controlled release of sugar into the blood. Green tea is therefore best drunk before and during a meal.

Cinnamon – the polyphenolic polymers in cinnamon increase insulin sensitivity by activating key enzymes that stimulate insulin receptors, whilst also inhibiting the enzymes that de-activate them.

Address the need for support to the **adrenal glands** with orthomolecular and / or herbal support; relaxation and a shift in mental attitude.

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