



Sensible News

Issue 17, May 2004

Sensible Philosophy

Sensible News aims to provide important health information that may not be readily available from conventional sources. Articles are factual. Any references not listed are available on request.

Insulin Resistance

If you eat a diet with even standard amounts of bread, sugar and alcohol, your insulin levels may be chronically elevated. This causes insulin receptors to become resistant, which can result in Type 2 Diabetes. Diabetes, however, is only part of the problem.

Insulin resistance, hyperinsulinemia, or Syndrome X (a term coined by the American doctor Gerald Reaven), is also known to cause:

- High cholesterol and blood lipids
- High blood pressure
- Death from cardiovascular disease
- Apple shaped obesity
- Ageing
- Fatty Liver
- Underactive thyroid
- Breast Cancer
- Polycystic Ovarian Syndrome

Appointments at Sensible-Alternative Naturopathic Clinic are available weekdays from 8am to 8pm. 498 Miller St. Cammeray

Call **02 9922 4009**

web: www.sensible-alternative.com.au
email: lara@sensible-alternative.com.au

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Insulin: The Ageing Hormone

Insulin is an ancient hormone. It is found in all forms of animal life, and is known to regulate (shorten) the lifespan of primitive organisms.

Insulin is an anabolic storage hormone. Used sparingly, this is not a bad thing. Excessive release, however, causes many problems, and not just with blood sugar. Too much storage results in obesity, sodium retention, resistance to magnesium, and many other problems. Insulin also inhibits the production of thyroid hormone and DHEA, and causes imbalance in the production of sex hormones. It promotes cell proliferation, causing cancer and plaques in the arteries. (1,2)

At this stage, we do not fully understand this hormone. We do know that cells become a little bit more insulin resistant every time they are exposed, and this is how insulin exposure determines the onset of ageing. Longevity studies in humans and animals have clearly demonstrated that insulin-lowering diets (low GI and low calorie diets) improve longevity. (3)

Causes of Insulin Resistance

- **Carbohydrate sensitivity.** About 25% of people are genetically predisposed to a heightened insulin response. (4) This may be because they inherited a "thrifty gene" from ancestors who experienced regular famine. The "thrifty" metabolism stores very easily, and is adapted primarily to a diet of protein, fat and leafy carbohydrates. They should not eat sugar or flour. Alternatively, 25% of people can tolerate whole meal flours and other complex carbohydrates. The other 50% are somewhere in the middle.
- **Trans-fat.** Insulin receptors are located in the cell membrane, and so they depend on the nature of that cell membrane, especially the type of polyunsaturated fat that it contains. The worst fat for the cell membrane is trans fat, or partially hydrogenated vegetable oil, which is found in any vegetable oil spread, deep fried food, or commercially prepared oil. The best fats are omega 3 fatty acids found in fish and leafy greens, and mid-chain fatty acids, found in coconut milk and butter.

Hormonal Conditions caused by Insulin Resistance

- **Polycystic ovary syndrome:** Insulin acts on the pituitary gland to inhibit ovulation, and on the ovary to produce excessive amounts of testosterone. This results in acne, unwanted body hair, infertility, and weight gain. Upper body weight causes further insulin resistance, thereby creating a vicious cycle.
- **Breast cancer:** Failure to ovulate causes a deficiency of the protective hormone progesterone. Progesterone deficiency increases risk for cancer, fibrocystic breasts and other conditions. In addition, breast cancer cells are stimulated to multiply by insulin-like growth factors. (2)
- **Prostate cancer:** insulin-like growth factors contribute to prostate (5) and other forms of cancer.
- **Underactive Thyroid:** Thyroid hormone is not properly converted to its active form (T3) when the liver is insulin resistant. The result is low thyroid action in the tissues even though lab tests for TSH are normal.

Insulin is only one of multiple factors contributing to these conditions.

References:

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- (3) *Medical News Today*. 20 April 2004.
- (4) Eaton SB, et al. An evolutionary perspective enhances understanding of human nutritional requirements. *Journal of Nutrition* 1996;126:1732-1740.
- (5) Wolk A, et al. Insulin-like growth factor 1 and prostate cancer risk: a population-based, case-control study. *J Natl Cancer Inst*. 1998 Jun 17;90(12):911-5.
- (6) Yevdokimova, N. and Andrej Yefimov. Effects of wheat germ agglutinin and concanavalin A on the accumulation of glycosaminoglycans in pericellular matrix of human dermal fibroblasts. A comparison with insulin. *Acta Biochemica Polonica* 2001, 48(2):563-572

Treatment

Insulin resistance is reversible. Insulin lowering medication may help, but the most important treatment is diet and exercise.

- **Avoid Trans-fat.** Eliminate soy oil, corn oil, cottonseed oil or any generic "vegetable oil". Particularly bad are margarine, vegetable oil spreads and deep-fried food. Eat only naturally occurring fats such as butter, avocado, olive oil, coconut milk, meat, fish, and nuts and seeds.
- **Eat Low Glycemic Index (GI) foods.** The most important factor is fibre, and the lowest GI foods are vegetables, especially leafy green vegetables. People with carbohydrate sensitivity get NO nutritional benefit from breads and cereals. (People without carbohydrate sensitivity may use Low GI pumpkin, rice and root vegetables as a stable source of energy.)
- **Eat Protein with every meal.** Regular protein consumption curbs the release of insulin. It is not necessary to exceed 90-100 grams of protein per day. Good sources include: 2 eggs (12 grams protein), 1 chicken breast (25 grams protein), 2 lamb chops (29 grams protein), 25 grams whey protein (23 grams protein)
- **Avoid Wheat.** Lectins (proteins) in wheat mimic insulin (6) thereby worsening insulin resistance. Avoid flour-containing bread, pasta, cereal, and biscuits. If you do have flour, choose flour made from rice, oats, barley, spelt, and rye. Ordinary "flour" is wheat.
- **Avoid sugar and alcohol.**
- **Exercise.** Strength training dramatically improves insulin resistance, because muscle uses insulin for energy consumption rather than storage.
- **Supplement** chromium and magnesium to improve insulin's effectiveness at the cell.
- **Use the herbs** Gymnema and Bitter Melon,
- **Eat Less.**

How do you know if you are insulin resistant? Look for upper body fat, and a high reading on a fasting insulin test. Full assessment is available at Sensible-Alternative.

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