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SECRETS OF SUCCESSFUL WEIGHT LOSS, Part 2

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About two-thirds of North Americans are overweight including about 20% of adolescents and 35% of adults who are actually obese. Many people are drawn to weight-loss programs and books that claim to have “the” method that works. Individual needs and differences are ignored; complexities and variables are neglected. We gravitate towards diet fads and magic pills for solutions. Which strategies are backed by evidence?

FAT, PROTEIN, CARBOHYDRATES. Natural, unaltered **fats** are not only vital for things like brain tissue, nerves, hormone production, cell walls, and blood vessels, but they are required to lose weight. For years people were led to believe that fat was the enemy. They ate low-fat or fat-free foods and **gained weight**. One reason: Inadequate fat causes a craving for sweets and starches—people gorged on refined carbohydrates. Health and waistlines suffered. It’s been claimed that eating meat or saturated fats leads to weight gain, yet an examination of a large scientific database doesn’t verify this. There is conflicting data instead. Some people lose weight while eating plenty of saturated fats. Researchers admit that recommendations to lower fat intake “may have been ill-advised and might actually have caused harm.” Quality fats and fiber (from fruit, vegetables, whole grains, beans) work together to make food more satisfying, help control hunger. Very low fat diets may result in modest temporary weight and body-composition changes, but weight regain begins thereafter.

Eating high quality **protein** confers weight-loss and weight maintenance benefits, especially if fewer refined carbohydrates are consumed. Healthful protein in the diet may result in loss of more fat rather than muscle mass. Inadequate protein can cause loss of muscle as well as fat. Eating protein suppresses ghrelin (a hunger-stimulating hormone), leads to less hunger even several hours later, helps keep blood sugar steadier, and lowers food consumption. Should you follow a ketogenic diet—one very high in protein and fat with virtually no carbohydrates? Not necessarily. Ketones, a byproduct of the metabolism (processing) of fats and some amino acids, are used as fuel instead of glucose or glycogen stores. Ketones are a less efficient fuel source. A ketogenic diet works for and is suitable for some people, not all. Depriving the body of carbohydrates can place significant strain on areas such as liver and kidney function. During the first few weeks of ketosis, many people experience a drop in energy levels and show an increase in inflammation markers as well as other metabolic and emotional effects as their bodies try to adapt to using ketones as fuel. Digestive difficulties, bad moods, confusion, anger, loss of bone-mineral density, and other ill effects have been reported. Some weight loss will result, but often not as much as a similar, but non-ketogenic diet (less [30%] calories as fat).

Cutting out **refined** carbohydrates is essential. Overweight and obesity are definitely linked to consumption of large amounts of refined carbs as are insulin resistance, diabetes, cardiovascular problems and a number of other ills. But dropping **all** carbs can make it harder to drop pounds. **Quality**, whole-food carbohydrates benefit health and weight: fruit, vegetables, whole grains, and beans. These are our sources of fiber as well as many vital nutrients. Boosting fiber results in weight loss and prevents weight gain without ‘dieting.’ Glucose produced from carbs is the brain’s primary fuel and eating quality carbs is the most efficient way of keeping up the supply. The body can store only one or two day’s worth of glucose, and when these stores are gone, blood glucose levels drop. Fats and proteins can be backup fuel sources, but may not provide the glucose needed to sustain peak brain power. It’s been shown that reducing carbohydrate intake two days per week produces better long-term weight and health results than reducing carbohydrates every day of the week.

Thus, eat quality, unaltered, minimally-processed fats, proteins, and carbohydrates. How much of each? This differs with each individual. It’s evident that “weight loss diets need to be individualized, and take into account not only personal taste preferences, but also the unique metabolic make-up of every individual.” Discover what you need to eat to feel your best. Don’t forget exercise. ¹

SKIP THE HCG (human chorionic gonadotropin) DIET. The **HCG** diet is attested to by people who say they lost a pound a day, on average, and were “never hungry.” Sounds like a dream come true, but it **isn’t**. The use of HCG in weight loss originated with Dr Albert TW Simeons in the 1950s. He administered injections of HCG with dietary restrictions totaling only **500 calories** per day. Since then, many variations on the protocol have

been used, including the use of HCG drops (usually homeopathic), pellets, and sprays (some with extra ingredients such as amino acids); different treatment durations; and various specific amounts of protein, carbohydrates, and fat. Natural HCG in the body is a hormone with numerous functions during pregnancy; there are four different types with a wide range of effects on the fetus, placenta, and uterus. One marketing claim is that HCG “helps the developing fetus to get the necessary nutrients.” From this a case is made about how the body mobilizes fat stores during the weight loss protocol. There’s no evidence for this claim. Neither is there any evidence that HCG signals the hypothalamus to release stored fats when low levels of calories are consumed. Only one study found positive results for HCG over placebo; it could never be corroborated. ALL other clinical trials and studies, including a meta-analysis of 24 studies, **failed** to find any benefit in weight loss or other measured parameters for HCG over placebo. There was no difference in amount of weight lost, type of weight lost, hunger level, or mood. People lost weight, but it had nothing to do with the HCG. Instead, it was the extremely restricted 500-calorie intake. All studies used HCG injections; no studies have been performed on the homeopathic or other products with various HCG dosages and forms. So there’s no evidence of their efficacy or safety. Possible side effects from injected HCG include temporary fluid retention, nipple and breast tenderness, blood clots, over-stimulation of ovaries, shortness of breath, headaches, restlessness, depression, irritability, and dizziness. There are **dangers** with rapid weight loss and the severe calorie restriction; they can cause weakness, fatigue, gallstones, low blood sugar levels, muscle cramps, electrolyte imbalance, constipation, nutritional deficiencies, and more. Elevations of urinary ketones and serum uric acid can occur, the latter a possible concern for gout. A 500-calorie-a-day diet is not sustainable or healthy; nutritional needs can’t be met. When you’re on a very low calorie diet, your body begins to adapt to it, sensing near starvation, so it holds on to weight and fat. When you return to a normal diet, the tendency will be to regain weight. Instead, you need to make permanent lifestyle changes—the foundation of healthy weight loss.²

DON’T BET ON THE GLYCEMIC INDEX. Some weight-loss diets are based on the glycemic index (**GI**)—a measure of how quickly each food raises blood sugar. High-glycemic foods cause a high, quick rise in blood sugar and then insulin, so we’re advised to stick with low-glycemic foods. The **theory** is that low-glycemic carbs digest more slowly, have more gradual effects on insulin and glucose levels, and combat hunger better than high-GI foods. But it’s not that simple. Study results have been **inconsistent**. For example, the GI rates potatoes high, yet when potatoes are eaten with a bit of butter, their effect on blood sugar is much slower and lower. Or a candy bar can be rated low if it contains fat even though it contains next to no nutrients and disturbs blood sugar handling by the pancreas and liver. Researchers report that the GI may not affect appetite as previously thought. Other studies challenge the claim that the GI is a panacea for long-term weight loss. The GI helps about 50% of people, not the other 50%. Why? One reason is many high-GI foods are **refined** carbs; eliminating these will aid **anyone** to lose weight. But for people who don’t have a big appetite for refined carbs, the diet won’t work. Neither will it work for those who have eaten a lot of refined carbs over the years—their organs and biochemistry have been altered too much (a long-term program is needed). Also, nutritional deficiencies predispose many people to eat too much—bodies starving for nourishment—so low GI-foods won’t allay their appetites. When emphasis is placed on quality nutrient-dense foods and not calorie restriction, people lose weight on a low-GI program. Glycemic **Load** (GL) takes into account how much carbohydrate is in a serving of a particular food. Watermelon, for example, has a high GI, but most of its content is water. So its glycemic **load** is low. Besides, as researcher Mark A Pereira says, “diets that are high in GI, whether they are high in GL or not, are almost invariably abundant in nutrient-poor carbohydrates of a fiber-depleted, highly processed nature.” GI diets are questionable because: 1) Study findings are inconsistent. 2) Glycemic response changes when several foods are eaten together. Eating a high-GI food with protein, fat or fiber lowers the GI response. 3) The GI of a food can change depending on production and preparatory methods; some low GI foods are not healthy or nutritious (like ice cream). “Indeed, a healthy diet could never be selected from a simple numbering system, be it GI of any other single dietary factor.”³

AVOID TOXINS. Toxic chemicals in your food, water, air, personal care products, cleaning products, and so on, interact with your body on many levels, leading to disruptions in your endocrine system, organs, tissues and even fat cells that make it more likely you’ll gain weight. Persistent organic pollutants (**POPs**) such as dioxins, DDT, PCBs, hexachlorobenzene (HCB), and pentachlorophenol (PCP) persist in the environment and resist breaking down. They accumulate in the food chain, posing serious risks to health as they can damage virtually any bodily system. Study results implicate POPs as affecting people’s fat mass and obesity. Plastics leach Bisphenol-A and phthalates, hormone disruptors. Other hormone disruptors include DDE (a metabolite of

DDT), DEHP (used in synthetic fragrances), NPES (nonylphenol ethoxylates), PFCs (perfluorochemicals used in manufacturing non-stick pans, microwave popcorn bags, other items), DBP (in nail polishes, floor finishes, paints), and various pesticides (used on food crops). A review of 450 studies found that exposure to certain endocrine-disrupting pesticide chemicals is linked to increased body size. Exposure in utero can cause permanent changes that predispose a baby to weight gain during his/her life. Commercial **foods** contain residues of pesticides, hormones, drugs and other toxins. Many chemicals are in food as a result of how they're preserved, prettied, and packaged. TBT (tributyltin), used to make construction products, wood preservatives, insecticides and fungicides, has been implicated in the weight-gain epidemic as has PVC (polyvinyl chloride) used to make food packaging, credit cards, floor tiles, shower curtains, and toys. Children whose mothers smoked during pregnancy are about twice as likely to be obese compared with children of non-smoking mothers. There has been a "parallel increase in our environmental toxic burden and obesity." The only question is the individual's **tolerance** and his/her toxic **load**—at what point it affects weight.

Not only do many toxic chemicals damage the biochemistry needed to lose weight, but losing weight floods the body with accumulated toxic chemicals. Fat cells store many toxins and when weight begins to drop, the toxins are released. So, the first step in weight loss should be getting rid of some stored toxins—a **detoxification** program. Then focus on a healthy lifestyle including minimizing toxic-chemical exposure as much as possible. We can't avoid every source of toxic pollution, but we can avoid many. By optimizing your diet, you'll also amplify the ability of your beneficial gut bacteria to thrive, furthering your body's ability to detoxify poisons. Plus a healthful diet supports the liver and kidneys, your primary detoxification organs, to function optimally.

As much as possible, obtain organically-raised foods. Animal foods tend to have higher concentrations of toxins, so buy only organically-raised meats, poultry, and milk products. Eat smaller, wild-caught fish; avoid conventional large or farm-raised fish (often heavily contaminated with mercury, PCBs, etc). Eat fresh whole real foods; shun processed, prepackaged, messed-with foods to avoid artificial additives, artificial sweeteners, chemical preservatives, food-packaging chemicals, MSG, and other toxins. Store foods and beverages in glass containers rather than plastic. Avoid using plastic wrap. Avoid foods in cans lined with BPA-containing liners. Get rid of non-stick pots and pans. Use a water filter or purifier on all water faucets (even in your shower or bath). Use only natural, nontoxic personal-care and cleaning products. Avoid most scented products (artificial air fresheners, dryer sheets, fabric softeners, perfumes, etc.); use essential oils instead. Replace your vinyl shower curtain with one made of cotton duck. If redecorating your home, look for toxin-free alternatives instead of regular paint, carpeting, vinyl floor coverings, pressboard, cabinets, and so on.

Many **medications** can cause weight gain including antihistamines, steroids (like prednisone), anticonvulsants, fertility drugs, oral contraceptives, over-the-counter sleep aids, and drugs used to treat diabetes, depression, psychosis, migraines, hypertension, and heart conditions. Antibiotics disrupt the balance of healthy and 'sick' bacteria in the gastrointestinal tract, killing off both types; this can contribute to extra pounds. These drugs can change the composition of the gut flora to favor growth of 'sick' bacteria, though the mechanism is still not completely understood. Antibiotics may permanently alter gut bacteria and interfere with hunger hormones secreted by the stomach, leading to increased appetite and body mass index (BMI). Research shows that 18 months after antibiotics are used to eradicate *H. pylori* bacteria, for example, there is a 6-fold increase in the release of ghrelin (a hunger hormone) after a meal, a 20% increase in leptin (a hormone produced by fat tissue), and a 5% increase in BMI. (Antibiotics are routinely used in livestock to promote weight gain; metabolic processes are stimulated to enhance feed consumption and growth.) Interactions of multiple medications can cause weight gain. Review your medication regimen with your doctor. There may be drug-free options. ⁴

SUPPLEMENTS ARE ADDITIONS. Many people want magic pills or powders to burn fat, build muscle, boost metabolism, and lose weight **effortlessly**. Some nutritional supplements can definitely help but never replace a quality food diet and physical activity. Overweight people are notoriously deficient in numerous nutrients and can benefit from supplementation. When nutritional needs are being met, they tend to eat lower quantities of food and feel more satisfied with what they do eat. Research has found deficiencies in, for example, vitamins A, B6, B12, C, D, and E; folate, isoflavones, chromium, calcium, magnesium, many amino acids (including leucine, isoleucine, and valine), as well as **many** other nutrients. Nutrient complexes, as in whole foods, work better than isolated or synthetic nutrients. Chromium by itself, for instance, doesn't have much effect, but in complex form with associated nutrients, can help weight loss and blood sugar metabolism. A combination of

manganese, chromium, and magnesium was found to work better than each mineral individually. Whey protein, rather than separate amino acids, better helps to alter body weight and composition.

Low **vitamin D** levels are associated with excess fat and weight. Overweight people tend to hold vitamin D in their fat (adipose) cells, reducing the amount of the vitamin in circulation and available to other tissues. People with a good vitamin D status respond more positively to weight loss diets and lose more body fat. With low levels of **calcium** our bodies make more synthase, a fatty acid enzyme that converts calories into fat. Calcium supplements and/or dairy products (as a source of calcium) are thought to boost weight loss. But research found that calcium **alone** is not a magic bullet, though it does play a role. When combined with vitamin D and other nutrients that normally appear with calcium in foods, it has more positive effects. Dairy products contain more nutrients than calcium, but the role of dairy in weight loss has been mixed and controversial. Research found that dairy intake doesn't reduce appetite, food intake, or weight; but the products used were pasteurized, homogenized, and otherwise altered. This means enzymes needed for calcium utilization were destroyed; the protein was denatured; the fatty acids were altered or removed (low-fat and non-fat products) by a process that changes the milk's nature. One study found that children who drank the most **low-fat** milk gained more weight. "Dietary calcium and skim and 1% milk were associated with weight gain, but dairy fat was not." Another study involving Swedish women found that at least one serving per day of **whole** milk and **sour** (fermented) milk lowered weight gain by 15%; a serving of **cheese** (cultured) resulted in 30% less weight gain. Whole natural foods unchanged by humans work best. Don't look for any isolated nutrient to produce weight loss.

Various **fatty acids** play a role in improving health while reducing excess weight. Conjugated linoleic acid (CLA), a group of closely related omega-6 fatty acids found mostly in the meat and milk of grazing (pasture-fed) animals (beef, turkey, lamb) helps to increase lean body mass and decrease fat mass, especially over time when continuous, gradual weight loss is involved. Long-term supplementation with gamma-linolenic acid (GLA) may suppress weight regain following major weight loss. Study results suggest a role for essential fatty acids such as GLA in fuel partitioning. Alpha-lipoic acid improves mitochondrial function and may aid loss of fat and weight. Supplemental fish oil as a source of omega-3 fatty acids increases lean mass and decreases fat mass as weight is lost. **Probiotics** help improve digestion, balance metabolism, and lower abdominal adiposity and weight. Prebiotics (nondigestible fibers that serve as food for probiotics) in the gut tend to reduce levels of hormones linked to hunger. Prebiotic supplements may help maintain a healthy weight and aid digestion. Together, pre- and probiotics are a great team. Real food sources result in more significant weight loss in overweight people than most isolated fiber supplements. Chitosan, a fiber from shells of insects and shellfish, can bind to fat and pass it through the digestive tract, but its effect on fat excretion is negligible to modest. Sodium alginate, a compound in **seaweed** (kelp, dulse, nori) is a strong-gelling substance that induces a feeling of fullness, reducing food intake. Seaweed is also a great source of nutrients like iodine and potassium.

Many weight-loss supplements do little or nothing for weight or fat mass. Those containing extracted or isolated substances or nutrients are particularly poor performers. One is L-carnitine, shown to be ineffective for weight loss. Pyruvic acid made by the body helps produce energy or fatty acids. It's also found naturally in foods (like red apples, cheese, red wine). Separated out and put in a pill, it may boost metabolism and suppress appetite—when combined with regular exercise. So far, trials have been small and short-timed—not conclusive. Positive effects could be due to the exercise or a pharmacological effect that can't be sustained. Malabar tamarind fruit has been used for centuries in Southeast Asia to make meals feel more filling. Some studies found that hydroxycitric acid (HCA), separated from the fruit, may increase weight loss; other studies did not. The largest and most rigorous trials found no significant differences in weight or body fat mass. Eating the tamarind fruit before each meal **can** lead to weight loss; the whole food is superior to the isolated compound.

Various herbs are promoted for weight-loss effects. People who exercise and drink green **tea** lose a moderate amount of weight over time. Herbal **diuretics** may purge fluid from the body, but that's not effective for weight-loss. Extracts of **hoodia** decrease food intake and body weight in lab animals, but clinical evidence in humans is lacking. Traditionally, hoodia is an appetite suppressing emergency food used by people of Namibia. But studies on the extract demonstrate little or no benefits in food intake or body weight. A review of 77 studies on herbal weight-loss supplements concluded that **ginseng** consistently supports safe, effective weight loss when combined with a healthy diet and exercise. There's no evidence yet that **bitter orange**, an extract from the fruit or rind of *Citrus arantium* (one of many orange species) has significant effect on body fat or weight. The best

results showed an average of only a 2.2-pound weight loss over 6 months. This extract can have adverse effects such as increasing heart rate and blood pressure. **Coleus** may increase metabolism, possibly by increasing production and release of thyroid hormone. **Gymnema** blocks taste buds from recognizing sweet flavors. Within minutes of putting it on your tongue, a cookie will taste only like a wad of salt and flour. It also helps to balance blood sugar levels (don't use with insulin or anti-diabetic drugs unless under a doctor's supervision). **Red pepper** in the diet can help manage appetite and burn more calories after a meal, especially for people who don't use the spice regularly. **Acai** berries leave people feeling full, so they are thought to suppress appetite; however, no studies have been published. A number of herbs get conflicting results in studies or have little or no research performed on them. People respond differently. Though side effects are not common (except perhaps for bitter orange), avoid huge doses; you can overdo them.

Dozens of 'natural' or 'herbal' weight-loss supplements have been found to be tainted with potentially harmful and hidden drugs including amphetamine-like chemicals, tranquilizers, laxatives, antidepressants, diuretics, anticonvulsants, and drugs not approved for marketing (such as experimental compounds, stimulants, anabolic steroids, or drugs rejected by the FDA because of safety concerns). If supplements are used, be sure they have a trustworthy source and are suggested by a reliable clinician (not the Internet or hyped-up ads). Steer clear of products that claim to: **1)** Cause substantial weight loss no matter what or how much you eat and without exercise. **2)** Cause permanent weight loss (even when you stop using the product). **3)** Block absorption of fat, carbohydrates, or calories so you to lose substantial weight. **4)** Cause significant weight loss for all users, regardless of health history or lifestyle. **5)** Cause substantial weight loss by rubbing into the skin. Weight loss is neither quick nor easy. Nothing "melts fat away." No magic. Back to basics—real food and exercise. ⁵

HOW ABOUT FASTING? Fasting to lose fat won't work. At first you may lose weight, but much of this will be fluid loss. Then you may lose some fat, but you'll also lose some muscle. Additionally, since your body will be in a 'starvation mode,' it will hold onto calories instead of burning them. You'll regain weight once you start to eat again. However, a 'mini-fast,' perhaps one day each week, may help. On this one day, eat only vegetables and fruit, and drink plenty of freshly-made vegetable/fruit juices. If you feel good doing this, include it in your program. If not, then continue to eat quality real foods that are best for you. ⁶

HORMONES CAN INFLUENCE. **1)** **Men** often lose and control weight with less effort than **women**. Men have more muscle mass than women; women have more fat tissue than men. Muscle burns more calories than fat. The higher level of testosterone in men aids their tendency for less subcutaneous fat. Hormones higher in women cause fat accumulation under the skin to protect a growing fetus. **2)** A woman's appetite normally changes throughout the phases of her **menstrual** cycle. Estrogens, progesterone, and prolactin are among the hormones that lead appetite through the monthly phases. The progesterone surge that occurs mid-cycle causes more calorie burning and less fat storage. Women typically want more food in the premenstrual phase and may eat 270 to 300 more calories per day than during preceding phases. This may be fine (no weight gain) if hormones are in balance. Hormone **imbalances** can affect appetite. **3)** After menopause, the **adrenal** glands are called upon to do more; levels of cortisol rise and weight can rise as well. This is especially true if estrogen levels have fallen below normal for post-menopause. A healthy woman should continue producing sufficient estrogen into her 80s. If she isn't, nutritional supplementation may help in addition to a good eating pattern. **4)** Another adrenal hormone, **DHEA**, can affect weight, especially belly fat. It helps reduce insulin resistance and helps transform of cortisol into its inactive storage and transportation form, cortisone, which doesn't promote weight gain. With adrenal fatigue, nutritional support is warranted. **5)** As men get older, their **testosterone** levels can drop if some testosterone is transformed into estrogen. Too much estrogen in a man works against weight loss and may cause weight gain. Support to testes and adrenals may be needed. **6)** **HGH** (human growth hormone) as a drug used for weight loss and muscle building has a bad reputation. But when the body naturally makes it, health can benefit. Children normally produce more than adults. If HGH is at a healthy adult level, adding more carries a number of health hazards. If HGH levels are well below the normal adult range, supplements and foods that increase bodily production may help. Testosterone, thyroid hormone, DHEA, and probably estrogen all stimulate internal production of HGH. Nutritional support to the testes, thyroid, adrenals, or ovaries—based on individual needs—can be explored. **7)** High levels of **insulin**, a fat-storing hormone, promote weight gain. **8)** Various **toxins** cause hormonal decline and disruption. Herbicides, pesticides, other hormone-disrupting chemicals, chlorine, fluoride, toxic metals such as lead, mercury, and cadmium, and other toxins can also disturb hormonal balance. ⁷

To support hormonal balance, the following can be considered:

Before Morning Meal:

2 Ovatrophin PMG (females) or 2 Orchic PMG (males)
2 Wheat Germ Oil
2 Chlorophyll Complex

Before Evening Meal:

2 Drenatrophin PMG (chew)
2 Cataplex C (chew)
2 Organically-Bound Minerals (chew)

To assist cravings for sweets, make sure sufficient fats are included in the diet, and consider:

Midway Through Two Meals:

1 Gymnema 4 g by MediHerb (for three months only) 1 Cholacol or 2 Cholacol II (three months only)
2 Betafood (chew)

¹ J Chaput, A Tremblay, et al, *Am J Clin Nutr*, Feb 2008, 87(2):303-9; G Brinkworth, J Buckley, et al, *Arch Intern Med* 2009, 169:1873-80; P Clifton, J Keogh, et al, *Am J Clin Nutr*, Jan 2008, 87(1):23-9; *Women's Nutr Connec*, Oct 2011, 14(10):3; T Larsen, S Dalskov, et al, *N Engl J Med*, 2010, 363:2102-13; G Hendrie, R Golley, *Am J Clin Nutr*, May 2011, 93(5):1117-27; C Chow, *Am J Clin Nutr*, Mar 2011, 93(3):663; K Vinknes, S de Vogel, et al, *J Nutr*, Mar 2011, 141(3):440-6; G Bray, *Am J Clin Nutr*, Mar 2011, 93(3):481-2; L Pereira-Lancha, D Coelho, et al, *J Amer Coll Nutr*, Aug 2010, 29(4):343-51; *UC Berkeley Wellness Ltr*, Aug 2010, 26(11):8; G Brinkworth, J Buckley, et al, *Arch Intern Med*, 2009, 169(20): 1873-80; *Environ Nutr*, Nov 2009, 32(11):3 & Oct 2008, 31(10):3; E Delbridge, L Prendergast, et al, *Am J Clin Nutr*, Nov 2009, 90(5):1203-14; D Layman, E Evans, et al, *J Nutr*, 2009, 139:514-21; G Brinkworth, M Noakes, et al, *Am J Clin Nutr*, Jul 2009, 90(1):23-32; F Sacks, et al, *N Engl J Med*, 26 Feb 2009, 360: 859-73; J Foreyt, J Salas-Salvado, et al, *Nutr Rev*, May 2009, 67(S1):99-101; J Cooper, A Watras, et al, *Am J Clin Nutr*, May 2009, 89(5):1350-6; R Gorman, *Eating Well*, May/Jun 2009, 8(3):37; K D'Anci, K Watts, et al, *Appetite*, Feb 2009, 52(1):96-103; D O'Mathuna, *Altern Med Alert*, Oct 2008, 11 (10):119-20; C Bertii, P Riso, et al, *J Amer Coll Nutr*, Apr 2008, 27(2):244-52; N Seppa, *Sci News*, 16 Aug 2008, 174(4):9; C Gardner, A Kiazand, et al, *JAMA*, 7 Mar 2007, 297(9): 969-77; A Mahon, M Flynn, et al, *J Amer Coll Nutr*, Apr 2007, 26(2):182-9; *Duke Med Hlth News*, Oct 2010, 16(10):6 W McCarthy, T Kuo, *JAMA*, 11 Jul 2007, 298(2):173; K Rushing, A Stenhouse, et al, *Top Clin Nutr*, Oct/Dec 2006, 21(4):251-9; J Halkjaer, A Tjonneland, et al, *Am J Clin Nutr*, Oct 2006, 84(4):789-97; <http://www.medicalnewstoday.com/articles/238909.php>; S Rizkalla, E Piftii, et al, *Am J Clin Nutr*, Jan 2012, 95(1):49-63.

² S Lijesen, et al, *Br J Clin Pharmacol*, 1995, 40:237-43; W Asher, H Harper, *Am J Clin Nutr*, 1973, 26(2):211-8; F Greenway, G Bray, *West J Med* 1977, 127(6):461-3; M Stein, R Julis, et al, *Am J Clin Nutr*, Sep 1976, 29(9):940-8; R Young, et al, *JAMA*, 1976, 236(22):2495-7; *UC Berkeley Wellnss Ltr*, Sep 2011, 27(12):2; J Mercola, <http://articles.mercola.com/sites/articles/archive/2011/04/13/pregnancy-hormone-hcg-can-...>, 13 Apr 2011; R Rowan, *Sec Opinion*, Mar 2011, 21(3):5-7; D Kiefer, *Altern Med Alert*, Jan 2012, 15(1):5-6; B Kuehn, *JAMA*, 25 Jan 2012, 307(4):351; C Robb-Nicholson, *Harvard Womens Hlth Watch*, 2010, 17:8; G Dubnow-Raz, E Berry, *Med Clin North Am*, 2011, 95:939-52; L Cole, *Reprod Bio Endocrin*, 2010, 8:102-115; P Liu, et al, *J Clin Endo Metab*, 2002, 87:3125-35; K Shetty, R Kalkhoff, *Arch Intern Med*, 1977, 137:151-5; B Bosch, et al, *S Afr Med J*, 1990, 77:185-9.

³ J Klotter, *Townsend Ltr*, May 2009, 310:33-4; *Tufts Univ Hlth & Nutr Ltr*, Jun 2011, 29(4):8; L Spieth, J Harnish, et al, *Arch Pediatr Adolesc Med*, Sept 2000, 154:947-51; K Behall, D Scholfield, et al, *J Am Diet Assoc*, 2006, 106(9):1445-9; K Maki, T Rains, et al, *Am J Clin Nutr*, Mar 2007, 85(3):724-34; M Pereira, *Am J Clin Nutr*, Oct 2006, 84(4):677-9; A Flint, B Moller, et al, *Am J Clin Nutr*, Dec 2006, 84(6):1365-73; C Ebbeling, M Leidig, et al, *JAMA*, 16 May 2007, 297(19):2092-102; SK Das, C Gilhooly, et al, *Am J Clin Nutr*, Apr 2007, 85(4):1023-30; D Ludwig, *Lancet*, 17 Mar 2007, 369(9565):890-2.

⁴ J Mercola, <http://articles.mercola.com/sites/articles/archive/2011/07/18/is-your-shampoo-making-you-fat> & 2011/08/24/are-you-fat-because-you-are-being..., & 2011/11/24/antibiotics-promote-obesity, a...; C Benbrook, A Greene, *San Francisco Chron*, 9 Jul 2010; J Lim, H Son, et al, *Int J Obes Lond*, 7 Sept 2010, epub ahead of print; SA Rogers, *Total Wellness*, Feb 2011:6-8 & Mar 2007:6-7 & Mar 2007:5-6 & Nov 2011:6-7; J Evans, *What Doctors Don't Tell You*, May 2009, 20(2):6-9; S Perrine, H Hurlock, http://www.msnbc.msn.com/id/35315651/ns/health-diet_and_nutrition..., 8 Mar 2010; *Acres USA*, May 2009, 39(5):10; A Cunningham, *Sci News*, 24 Mar 2007, 171(12):179-80; *Health*, May 2009, 23(4):20 & Oct 2007, 21(8):103-4 & Jun 2007, 21(5):108; *Beyond Pesticides Tech Rpt*, Mar 2007, 22(3):2-3 & Jan 2007, 22(1):2-3; *Pesticides & You*, Spr 2007, 27(1):7 & Wint 2006-7, 26(4):7; M Hyman, *Altern Ther*, Mar/Apr 2010, 16(2):56-8; R Newbold, *Am J Clin Nutr*, Dec 2011, 94(6S):1939-42; J Legler, T Hamers, et al, *Am J Clin Nutr*, Dec 2011, 94(6S):1933-8; *Environ Nutr*, Sept 2008, 31(9):3; J Whitaker, *Health & Healing*, May 2008, 18(5A):1-4; I Kohlstadt, *Townsend Ltr*, Dec 2010, 329:34-5.

⁵ P Cohen, *N Engl J Med*, 2009, 361:1523-5; S Mahabir, S Ettinger, et al, *Eur J Clin Nutr*, 2008, 62(5):644-50; E Aasheim, D Hofso, et al, *Am J Clin Nutr*, Feb 2008, 87(2):362-9; C Johnston, B Mostow, *J Amer Coll Nutr*, Oct 2006, 25(5):446; M Aubertin-Leheudre, I Dionne, et al, *Eur J Clin Nutr*, 21 Feb 2007, epub ahead of print; http://www.fda.gov/cder/consumerinfo/weight_loss_products.htm, 2009; Y Yazaki, Z Faridi, et al, *J Altern Complemen Med*, Mar 2010, 16(3):291-9; G Wolf, *Nutr Rev*, Jan 2010, 68(167-70); S Anton, C Morrison, et al, *Diabetes Technol Ther*, 2008, 10(5):405-12; *UC Berkeley Wellness Ltr*, Jan 2008, 24(4):8 & Dec 2011, 28(3):2 & Feb 2012, 28(5):4; C Kim, et al, *J Nutr Biochem*, epub 7 Jan 2011; L-Q Qin, P Xun, et al, *J Nutr*, Feb 2011, 141(2): 249-54; D Baer, K Stote, et al, *J Nutr*, Aug 2011, 141(8):1489-94; N Racine, D Schoeller, et al, *Am J Clin Nutr*, 3 Mar 2010, epub ahead of print; J Gaullier, J Halse, et al, *Br J Nutr*, 2007, 97(3):550-60; E Koh, et al, *Am J Med* 2011, 124:85, e1-85.e8; M Schirmer, S Phinney, *J Nutr*, Jun 2007, 137(6):1430-5; E Noreen, L Averill, et al, *J Int Soc Sports Nutr*, 8 Oct 2010, epub ahead of print; C Weaver, W Campbell, et al, *Am J Clin Nutr*, Nov 2011, 94(5):1163-70; A Tremblay, J Gilbert, *J Amer Coll Nutr*, Oct 2011, 30(5):449S-53S; D Shahar, D Schwarzfuchs, et al, *Am J Clin Nutr*, Nov 2010, 92(5):1017-22; *Tufts Univer Hlth & Nutr Ltr*, Aug 2008, 26(6):6; I Onakpoya, R Perry, et al, *Nutr Rev*, Jun 2011, 69(6):335-43; R Heaney, *Nutr Rev*, Jun 2011, 69(6):333-4; J Yanovski, et al, *Ann Intern Med*, Jun 2009, 150(12):821-9; *Tufts Univ Hlth & Nutr Ltr*, Sept 2009, 27(7):6 & Dec 2011, 29(10):1-2; A Gonzalez, E White, et al, *J Am Diet Assoc*, 2006, 106:1066-73; A Lanou, N Barnard, *Nutr Rev*, May 2008, 66(5):272-9; M Bortolotti, S Rudelle, et al, *Am J Clin Nutr*, Oct 2008, 88(4):877-85; R Heaney, K Rafferty, *Nutr Rev*, Jan 2009, 67(1):32-9; G Major, A Tremblay, et al, *Brit J Nutr*, 2009, 101(5):659-63; T Tzotzas, FG Papadopoulou, et al, *J Clin Endocrinol Metab*, 9 Jun 2010, epub ahead of print; P Lee, J Greenfield, et al, *Am J Med*, 2009, 122:1056-60; S Cheng, J Massaro, et al, *Diabetes*, 15 Oct 2009, epub ahead of print; R Ortega, A Aoaricio, et al, *Br J Nutr*, 2008, 100(2):269-72; J Deithley, B Swanson, *Altern Ther*, Nov/Dec 2005, 11(6):30-4; Y Kadooka, M Sato, et al, *Eur J Clin Nutr*, Jun 2010, 64(6):636-43; S Genta, W Cabrera, et al, *Clin Nutr*, Apr 2009, 28(2):182-7; J Evans, *WDDTY*, Aug 2011, 22(5):22-3 & Sept 2011, 22(6):22-3; GD Wagner, *Nat Solutions*, Jun 2010, 126:61-5; D Kiefer, *Altern Med Alert*, Aug 2006, 9(8):90-4; K Bone, *Nutr & Healing*, Mar 2007, 14(1):7-8 & 2007 bonus:1-2; M Blumenthal, *Nat Health*, Sept 2007, 37(8):104-5; B Bongaard, *Altern Med Alert*, Aug 2007, 1098:85-8; J Paxman, J Richardson, et al, *Appetite*, 2008, 51(3):713-9; K Maki, M Reeves, et al, *J Nutr*, Feb 2009, 139(2):264-70; O Phung, W Baker, et al, *Am J Clin Nutr*, Jan 2010, 91(1):73-81; S Stohs, H Preuss, et al, *HerbalGram*, Feb-Apr 2010, 85:58-63; K Grove, J Lambert, *J Nutr*, Mar 2010, 140(3):446-53; W Blom, S Abrahams, et al, *Am J Clin Nutr*, Nov 2011, 94(5):1171-81; S Glasl, *Schweiz Zschr Ganzheits Medizin*, 2009, 21(6):300-6; T Lee, Z Li, et al, *Nutr Metab*, 6 Oct 2010, 7:78; M Ludy, R Mattes, *Physiol Behav*, 2011, 102(3):251-8; D O'Mathuna, *Altern Med Alert*, Apr 2011, 14(4):37-41; J Rosenblum, V Castro, et al, *Am J Clin Nutr*, Jan 2012, 95(1):101-8.

⁶ J Alvarez, P Higgins, et al, *Am J Clin Nutr*, Apr 2009, 89(4):1138-44; K Varady, S Blutani, et al, *Am J Clin Nutr*, Nov 2009, 90(5):1138-43.

⁷ I Iohlstadt, *Townsend Ltr*, Apr 2011, 333:93-4; J Wright, *Nutr & Healing*, Apr 2011, 18(2):1-7; *Environ Nutr*, Jul 2006, 29(7):1, 4.