



Leptin Resistance, Fat Metabolism and Weight Loss

For years Americans have been gaining weight because we have been told that fat is the enemy and not good for us to eat; the “remedy”: **low fat diets**. Because of this erroneous advice, we have created a situation where our bodies are allowed to burn plentiful amounts of sugar, AKA glucose for energy. Because of this, we are much less likely to burn fat for energy, even when we should be. As a result, our metabolism, health and waist-lines are suffering. A glucose-based (AKA sugar-based) metabolism is for sudden bursts of energy and a fat-based burning metabolism is healthier for day-to-day living. **A fat-based metabolism is more efficient and supports the rest of your body more effectively than a glucose-based metabolism.**

What is leptin?

Leptin is a hormone secreted from fat cells; it helps to tell you when you need to eat and it also helps to tell you when to stop eating. Leptin is specifically, a hormone that tells the rest of your body that fat cells are full or close to being filled with fat (specifically, triglycerides). This in turn, triggers your body to stop absorbing fat from the food you eat and start utilizing it in addition to burning stored fat. It also helps to give you that feeling of fullness after a good nutritious meal (that includes good healthy fats).

Experiments have shown that mice with low leptin levels are obese and hungry. A few years ago, the pharmaceutical industry was enthusiastic to start to produce leptin in the attempt to help people lose weight. What they found was that obese human beings had elevated leptin. This sounds contradictory to the information I just gave you; what has happened is that leptin has lost its ability to affect these individuals. As a result, there is a failure to have leptin trigger the proper responses from your metabolism and other important organs and organ systems – this is called “Leptin Resistance.” If you become leptin resistant, an increased amount of leptin will be needed for you to feel satisfied after a meal and for those important weight and fat-controlling processes to occur. As a result, you may eat more while your body burns less fat for fuel. Your brain, not receiving the messages from leptin as readily as it once did, frantically signals the rest of your body to store more fat (because fat cells secrete more leptin as they are filled-up). This causes an abnormally high amount of leptin circulating in your blood because the messages fat cells send to the brain are so important.

Unfortunately, whenever a hormone is secreted in excess, one of a few things can occur.

1. The cells or tissues that create the hormone shrink in number and/or size.
2. The cells that are the targets of the hormone start to lose their receptors for that hormone.
3. The things that are needed to make the hormone are used by other parts of your body

In the case of hormone resistance problems like leptin-resistance or insulin-resistance, the cells that are meant to receive the hormones lose their ability to do so; even though more and more of the hormone is secreted (and in fact, it is directly caused by the excess hormone that is secreted).

The foods to trigger leptin resistance are exactly the foods that you have been told should be the foundation of the food pyramid, such as breads, grains, cereal, pasta and starchy vegetables. These starchy foods lead to higher blood sugar levels and the inability of insulin to function properly. Not only will this type of eating lead to leptin resistance, it will also lead to insulin resistance; this may lead to type II diabetes as well. If this is allowed to occur, you will find yourself in a position where your body is aging more rapidly because high blood sugar levels are a significant marker of aging.

When sugar combines with proteins in your body (glycation), it triggers chemical reactions that can promote free radicals (these are unstable oxygen molecules that can damage important cells). The objective of a healthy diet is to promote burning fat for energy unless you need quick, short bursts of energy.



Eating fat does not make you fat or unhealthy; especially when all of the different fats in your diet are balanced. Not being able to burn fat will make you unhealthy, decreasing both your quality of life and possibly your life in general. **Good fats lower leptin levels** and therefore lower the risk of developing leptin resistance. Leptin resistance also desensitizes your taste buds to sugar and makes you crave more sweet foods; creating a vicious cycle.

Sugar that isn't used is made into saturated fat which is resistant to burning. It is stored as fat and produces even more leptin which can cause, aggravate and perpetuate leptin resistance. Grain fed animals produce more saturated fat than normal free-range, grass-fed animals. If you are eating sugar (or foods that turn into sugar) and fat together, the body will burn the sugar and store the fat.

There are many different types of fats – there are fats that are “good” for you and fats that are “bad” for you. Some of the “bad” fats are only bad when you eat them in large quantities; while others, notably the trans-fats or partially-hydrogenated fats are not necessary and should be avoided at all costs. In fact, we need ALL naturally-occurring fats in our diet (not trans fats or interesterified fats)

Polyunsaturated fat is liquid at room temperature. Examples of this are vegetable oils, which contain Omega-6 fatty acids, such as soy, sesame, safflower, corn and peanut oils. Other examples are Omega-3 polyunsaturated oils such as fish oils. All unsaturated fats are unstable and easily oxidized and can easily promote free radical formation. Frying polyunsaturated oils in a pan accelerates the formation of free radicals. Trans-fats and hydrogenated fats are particularly unhealthy and should be avoided completely.

Saturated fats are hard at room temperature. Saturated fats are found in grain fed animals, meat, lamb and dairy products (milk, cheese, lard and butter). Coconut oil is also a saturated fat. Consider the fat in grain fed animals as second generation carbohydrates because the fat they produce was once corn and other grains. Saturated fats may promote heart disease and insulin resistance. Most of the fat stored in your body is saturated fat. Saturated fat is the best fat to cook things in at high temperature because it is very stable. Saturated fats, when found in your diet in small quantities are not inherently bad.

Monounsaturated fats are the omega-9. Examples of these are olive oil and avocado and nuts. It is considered to be part of the Mediterranean diet and it is considered to decrease the risk of heart disease and some cancers and we would therefore like you to use olive oil or avocado or canola oil.

Essential fatty acids are polyunsaturated fats that cannot be produced by the body. Examples of these are omega-3 fatty acids and things like DHA and EPA. DHA has been shown to decrease depression. Today's modern diet is high in omega-6 and this throws off the balance of omega-6 to omega-3 fatty acids. We used to and more indigenous cultures and those that eat a fat-balanced diet have a ratio of 6:1 of omega-6 to omega-3. Today's standard American diet (or S.A.D.) promotes a ratio that is more like 24:1. This is one reason why most Americans would benefit from adding fish oils and eating more fish in their diets. Omega-3 fats help improve insulin and leptin sensitivity. Flax oil, while containing omega-3 fats, does not contain EPA or DHA; it contains alpha linoleic acid (ALA). ALA can be converted to EPA or DHA, but many of us do not have the enzymes necessary to promote this conversion as readily as we would want to optimize our fat-balance.

The objective of this diet is to restore leptin sensitivity and help you burn more fat as fuel. Once leptin sensitivity is restored, your cells will also become more sensitized to hormones, such as insulin and insulin-like growth factor or IGF-1, which is instrumental in muscle development.

The diet will be divided into essentially two different levels. Level 1 will last 3 weeks and will teach your metabolism to burn fat instead of sugar. During this time you will have no starchy or sugary carbohydrates and will eat foods high in good fat and vegetables that are high in fiber. Individual supplement programs will be based upon biochemical individuality. In level 2, you will be allowed to have some of the starchy and sugary foods introduced into your diet but will be limited based upon your sensitivity to leptin levels.



Optimum Function: Nutrition Handout

I must again, emphasize the need to stick to the diet because when sugar reacts with protein in your body it affects the way you regulate both sugar and protein. Sugar damaged proteins are called advanced glycation end products, (A.G.E.S). These end products promote inflammation and glycation is one of the major reasons those with diabetes have problems with their cardiovascular systems and seem to age quicker than non-diabetics. Glycation has been linked to the mutation of nerve cell structures and it is thought that these mutations can eventually lead to Alzheimer's and other age-related brain diseases.

I'd like to share a few new thoughts with you about this diet. Fats make food taste great and fats help to make you feel satisfied after a meal. On this diet you will be allowed to have up to 4 oz. of red wine daily. I don't necessarily want you to be looking at carbohydrates in the realm of simple vs. complex, but rather carbohydrates containing high fiber vs. carbohydrates not containing fiber. Fiber cannot be broken down into sugar. Non fiber carbohydrates create many of the problems related to leptin and insulin resistance. You must eliminate or drastically reduce non-lean cuts of beef, lamb and pork for the first 3 weeks unless it is grass fed. Feedlots fatten up cattle before slaughter with simple carbohydrates. Almond butter and cashew butter are great additions to this diet. You may have protein shakes with your breakfast. Your major sources of protein will be meat, fish, poultry and dairy. For the first 3 weeks, you are allowed only foods on the "A" list. The "B" list contains foods that you can have on an occasional basis when you are past the first 3 weeks. Avoid all foods on the "C" list. If you are unsure, or think you have a healthy alternative to a "B" or "C" list food, email me or call 503-866-9739 and I'll help you. There are always varying degrees of "cheating" with any food plan. For instance, low-fat Greek yogurt that has only 10 grams or so of sugar and up to 20 grams of protein is a pretty good choice in comparison to full-sugar yogurt. If flavored yogurt is something you can't live without, this would be a good alternative. I actually like to buy fat-free Greek yogurt and mix Pharmax's Finest Fish Oils with Orange Essence in with the yogurt Mmmmm!

In addition, you should eat meat as more of a side-dish, or a dish that complements the whole meal, rather than the main-course. By doing so, you will optimize the nutrients you eat because you will undoubtedly be adding more vegetables to your diet. Lastly, if you are having trouble finding meals and food ideas that stick to the plan; or are having trouble finding variety. Email me at info@Optfunction.com and I will send you some info about a great cookbook that will help.

Yours in Health,

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Optimum Function = Optimum Health
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THE "A" LIST - Plan most of your meals and snacks from this list

"A" List-Fats

Nuts/Nut Butters (raw, unroasted, unsalted)

Almonds
Brazil nuts
Cashews
Hazelnuts
Macadamia
Pecans
Pine nuts
Pistachios
Walnuts
NO PEANUTS! (they're legumes)

Fruit

Avocado (guacamole)
Olives (green and black)

Oils

Almond oil
Avocado oil
Olive Oil

Fish (highest in omega-3 fatty acids)

Halibut
Herring
Mackerel
Orange roughy
Sardines
Tuna

"A" List-Proteins

Eggs (from algae or flax-fed chickens)

Omega-3 enriched eggs

Fish and Seafood

Bass
Catfish
Cod
Crab
Flounder
Grouper
Haddock
Halibut
Herring
Lobster
Mackerel
Mahimahi
Orange roughy
Oysters (canned or fresh)
Perch
Pike
Pollack
Rainbow trout
Salmon (canned or fresh)

Sardines (canned in water, sardine oil, mustard or olive oil)

Scallops
Shrimp (canned or fresh)
Snapper
Sole
Tilapia
Tuna (canned or fresh)
Turbot

Poultry (preferably free-range or organic)

Chicken breast, no skin
Ground chicken
Ground turkey
Chicken sausage
Turkey sausage

Game

Cornish game hen
Buffalo
Ostrich
Pheasant
Rabbit
Venison

Veggie Burgers (< 7 carbs ea)

Chik Sticks Vegetable and Grain Protein Burgers
Morning Star Farms veggie sausage pattie
Natural Touch vegetable burgers

Dairy

Goat cheese
No-fat cottage cheese
No-fat cream cheese
No-fat ricotta cheese
Feta cheese
Jarlsberg Lite Swiss cheese
Parmesan cheese (1 TBS/svg)

Tofu

Plain
Herb
Flavored (Italian, Oriental, Thai)

Protein Powder

Egg protein powder
Vegetable protein
Whey protein

"A" List Sweeteners:

Xylitol

"A" List-Carbohydrates

Vegetables

Asparagus
Artichoke Hearts
Arugula
Bamboo shoots
Bell peppers (red, green, yellow,
orange, hot)
Bok choy
Broccoli
Brussel sprouts
Cabbage
Cauliflower
Celery
Chard
Chives
Cilantro
Cucumbers
Endive
Eggplant
Fennel
Greens (collard, turnip,
mustard, chard)
Hot peppers
Kale
Kohlrabi
Lettuce (except iceberg)
Leeks
Mushrooms (portobello,
shitake, oyster, button)
Okra
Onions
Parsley
Radicchio
Radishes
Rutabaga

Scallions
Seaweed (dulse, nori, hikiki, kombu)
Snow peas
Spinach
Sprouts (all varieties)
String beans
Turnip
Water chestnuts
Watercress
Zucchini

High Fiber Starches

La Tortilla Factory tortilla
"Manna from Heaven" bread
(also counts as a protein)
Low carb, high fiber crackers
(2-3/day)

Legumes (eat in limited qty)

Black soybeans
Hummus-as a condiment, not a
meal (made from chickpeas)

Coffee Substitutes

Roma
Teecino
Cafix
Pero

Tea

Black tea
Green tea
Herbal tea

Condiments, Spices, Seasonings

Basil
Bragg's Liquid Aminos (non-
fermented soy sauce substitute)
Cardamom
Black pepper
Cayenne pepper
Capers
Cajun blended seasonings
Cinnamon
Crushed red pepper flakes
Cumin
Curry powder
Dill weed
Fennel
Garlic (fresh or powdered)
Ginger
Indian blended seasonings
Lemon
Lime
Mexican blended seasonings
Miso salt (if not salt-restricted)
Mustard
Nutmeg
Onion (fresh or powdered)
Oregano
Paprika
Rosemary
Tamari
Tarragon
Thyme
Vanilla
Vinegar (balsamic, red wine,
umeboshi [plum], and rice)
Worcestershire sauce

THE "B" LIST - Eat these foods in limited quantities; avoid for the first 3 weeks on the diet; grass-fed meats OK

"B" List-Fats

A splash of cream in your coffee or tea daily is allowed	Canola oil	High oleic safflower oil
Butter for cooking	Coconut oil	
	Ghee (clarified butter for cooking)	

"B" List-Proteins

Beef (no more than 3-5 servings/week unless grass-fed, lean cut)	Lamb (no more than one svg twice per week)	Colby
Cubed steak	Chop	Havarti
Filet mignon	Leg	Monterey Jack
Flank steak	Roast	Provolone
Ground round, extra lean		Swiss
Ground sirloin, lean	Pork	<i>Soft Cheese</i>
Round steak	Lean, boiled ham	Nonfat plain yogurt w/one TBS of flaxseed to increase protein content (no more than 2-1/2 cup servings per week)
Roast beef (top round or rump)	Loin chop	One percent cottage cheese
Sirloin steak	Pork tenderloin	Part skim milk ricotta cheese
Beef tenderloin	Dairy	
	<i>Hard Cheese - eat lite or low-saturated fat varieties (no more than one slice daily)</i>	
	Cheddar	

"B" List-Carbohydrates

Vegetables (no more than 1/2 C. per day and avoid first 2 wks)	Pears	Low Starch, High Protein Pasta
Carrots	Plums	Keto spaghetti (low carb, high protein)
Parsnips	Raspberries	
Peas	Strawberries	Low Carb Tomato Sauce
	Tomatoes	Any brand with 5 or less grams of carbs.
Fruit (no more than 1 svg/day, 1/2 C. berries, 1/2 grapefruit, or one small piece of whole fruit. Use only fresh or frozen - not canned)	Seeds (preferably raw, unroasted and unsalted-nuts are best)	Beverages
Apples	Pumpkin	1 C. of real coffee
Apricots	Poppy	4 oz. of red wine
Blueberries	Sesame	
Cherries	Sesame Tahini (sesame paste)	Sweeteners (in very limited qty)
Grapefruit	Sunflower	Stevia
Kiwi		Sucralose
Nectarines	Legumes	
Peaches	Adzuki	
	Navy	
	Lentil	
	Mung	

THE "C" LIST - avoid these at all costs

Dairy

Milk
Frozen custard
Frozen yogurt
Fruit-flavored yogurt (plain is OK)
Ice cream

All Full-Fat Hard Cheeses

Cheddar
Colby
Havarti
Monterey Jack
Provolone
Swiss

All Cuts of Meat not Included in "A" Protein or "B" Protein Deli Meats (other than fresh cooked)

Chicken roll
Corned beef
Honey turkey
Hot dogs (all varieties)
Pastrami
Sandwich meats
Sausage (other than turkey
or chicken)
Turkey roll
Roast beef

Off-Limits Legumes

Chickpeas (garbanzos), except
for small amount of hummus)
Lima beans
Peanuts
Peanut butter
Pinto beans

Vegetables

Corn and corn products (such as
corn tortillas)
White potatoes (powdered,
mashed, fried, baked, etc.)
Pumpkin
Yams

All Fried Foods

Fried chicken
Fried fish
Chicken nuggets
French fries

Bad Fats

All commercially processed oils
Corn oil
Hydrogenated fats
Lard
Margarines with transfatty acids
Peanut oil
Safflower oil
Soybean oil
Sunflower oil
Squeezable butter or shortening

Bad Condiments

Barbecue sauce
Most commercially prepared salad
dressings
Ketchup
Mayonnaise (unless made with good
oils, such as olive oil, almond oil,
avocado oil, or canola oil)

Beverages

Fruit juice (all varieties)
Soda pop (all varieties)
Sports drinks
Sweetened teas

Sugar and Artificial Sweeteners

Brown sugar
Corn syrup
Dextrose
Fructose
Honey
Maple sugar
Maple syrup
Nutrasweet
Saccharin
Sucrose
Sugar
Sweet'n Low
Turbinado

Starches

All bread (except "Manna from Heaven"
bread or very low-carb bread)
Couscous
Crackers (except low carb and
made with good fat)
Muffins
Packaged pancake mix
Packaged dry cereal (all brands)
Pasta
Rice
Quinoa
Waffles

Fruits

Banana
Cantaloupe
Dried fruit (all varieties)
Grapes
Honeydew
Orange
Pineapple
Watermelon

Snack Foods

Chips (all varieties)
Breakfast bars
Energy bars
Cakes
Candy
Cookies
Flavored Jello-O (sugar free or
regular)
Frozen fruit ice
Gelato
Ice cream
Popcorn
Pretzels