

# APPENDIX A

## GLYCEMIC CONTROL

**A simple and minimally restrictive approach to balancing your diet.**

You can minimize the deposition of body fat and maximize lean body tissue growth, i.e. grow strong muscles.

There are just a few fundamental principles to keep in mind:

- BALANCE CARBOHYDRATES AND PROTEINS
- BALANCE GLYCEMIC INDEX
- KEEP CORTISOL: DHEA RATIO LOW NORMAL

These actions can have a profound effect on our body. Here's why:

- Carbohydrates in the diet induces insulin output.
- Protein induces glucagon.
- Insulin promotes energy storage.
- Glucagon promotes mobilization and utilization of stored energy.
- Insulin and glucose (sugars) do not promote glucagon output to a great degree.

We want to have plenty of glucagon!

When excess carbohydrates are eaten, we produce excess insulin and little glucagon. This excess insulin results in more fat being formed and stored.

The optimal level of insulin to glucagon is brought about by a diet which has carbohydrates balanced with proteins in a ratio close to 2:1 (within a range of 1.7 - 2.2:1). That's about twice as much carbohydrates as protein.

### **RULE #1:**

#### **BALANCE CARBOHYDRATES & PROTEINS IN A 2:1 RATIO.**

We eat when we are hungry. We are hungry when our blood sugar falls below a certain level. Foods cause the blood sugar to rise, dissipating our hunger. Based on both how much and how fast our blood sugar rises as well as how much protein is in our meal, our body determines what to do with this incoming energy. We can either store it as fat, or use it to grow.

Each food's ability to raise the blood sugar is given a value called the glycemic index. This number indicates how rapidly the food will raise the blood sugar. Insulin and glucagon output are influenced by this rise in blood sugar. The higher and more rapid the rise, the more insulin we need to keep the blood sugar levels from going too high. This is insulin's job, to put the sugar into storage as either glycogen or fat. Insulin interferes with glucagon and growth hormone and promotes arachidonic acid.

So, to optimize our need for energy and maximize the efficient utilization of our food and fulfill our desire to gain muscle, lose fat and be fit, foods and meals should have a Glycemic Index within the range of 50 to 80.

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### RULE #2:

### BALANCING THE GLYCEMIC INDEX OF A MEAL BETWEEN 50-85.

Following are several examples of meals which keep the RULES in mind. You'll note that the CARBOHYDRATE TO PROTEIN ratio ranges from 1 to 1, to about 2.5 to 1. The glycemic index also ranges around a bit, but the idea is the closer to a 2 to 1 ratio and a 50 to 85 index, the better.

Also, foods that do not have a direct or significant impact on the INSULIN / GLUCAGON balance can be eaten freely and are not listed as options on the suggested meals. So, then you can eat lots of the non-starchy vegetables, i.e. all the leafy ones, broccoli, raw carrots, peppers and tomatoes, etc.

You'll note that the FATS / OILS are not dealt with in this meal planner. That's because even though important, fats affect insulin and glucagon output indirectly by changing gut transit time. Guidelines for fats are:

- Minimize refined and hydrogenated fat intake
- Butter is better (than margarine)
- Olive oil is good
- Fish oils are great

A really good idea is to get one of those little pocket books at the grocery store which has the nutritive value charts in them. The new food content labels on packaged foods are easy to read and clearly show the amounts of carbohydrates and proteins per serving.

### **TO GET THE NET GLYCEMIC INDEX OF A MEAL:**

- Multiply separately the amount of both carbohydrate / proteins (in grams) x the glycemic index for each food.
- Total these numbers.
- Divide this sum by the Total weight of the Carbohydrates plus Proteins.

The answer is the Net Glycemic Index for the meal.

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## GLYCEMIC INDICES OF FOOD

FOOD	GLYCEMIC INDEX	FOOD	GLYCEMIC INDEX
<b>Breads</b>		<b>Legumes</b>	
Rye (crispbread).....	95	Baked beans (canned) .....	70
Rye (wholemeal) .....	89	Bengal gram dal .....	12
Rye (whole grain i.e. pumpernickel) ..	68	Butter beans .....	46
Wheat (white) .....	100	Chick peas (dried).....	47
Wheat (wholemeal) .....	100	Chick peas (canned) .....	60
<b>Pasta</b>		Green peas (canned).....	50
Macaroni (white, boiled 5 min) ...	64	Green peas (dried) .....	65
Spaghetti (brown, boiled 15 min).61		Garden peas (frozen) .....	65
Spaghetti (white, boiled 15 min) .67		Haricot beans (white, dried) ....	54
Star pasta (white, boiled 5 min) ..54		Kidney beans (dried).....	43
<b>Cereal Grains</b>		Kidney beans (canned) .....	74
Barley (pearled) .....	36	Lentils (green, dried).....	36
Buckwheat.....	78	Lentils (green, canned).....	74
Bulgur .....	65	Lentils (red, dried).....	38
Millet .....	103	Pinto beans (dried).....	80
Rice (brown) .....	81	Pinto beans (canned) .....	64
Rice (instant, boiled 1 min) .....	65	Peanuts .....	15
Rice (polished, boiled 5 min).....	58	Soy beans (dried).....	20
Rice (polished, boiled 10-25 min) 81		Soy beans (canned) .....	22
Rice (parboiled, boiled 5 min) ....	54	Frozen peas .....	74
Rice (parboiled, boiled 15 min) ...	68	<b>Fruit</b>	
Rye kernels.....	47	Apple .....	52
Sweet corn .....	80	Apple juice .....	45
Wheat kernels .....	63	Banana .....	84
<b>Breakfast Cereals</b>		Orange .....	59
“All Bran” .....	74	Orange juice .....	71
Cornflakes .....	121	Grapes .....	62
Muesli .....	96	Raisins.....	93
Porridge oats.....	89	Pear .....	47
Puffed rice .....	132	Peach.....	40
Puffed wheat.....	110	Grapefruit .....	36
Shredded wheat .....	97	Plum.....	34
“Weetabix”.....	108	<b>Sugars</b>	
<b>Cookies</b>		Fructose .....	26
Digestive .....	82	<b>Glucose (Reference) .....</b>	<b>138</b>
Oatmeal.....	78	Honey .....	126
“Rich tea” .....	80	Lactose.....	57
Plain crackers (water biscuits) ..	100	Maltose.....	152
Shortbread cookies.....	88	Sucrose.....	83
<b>Root Vegetables</b>		<b>Dairy Products</b>	
Potato (instant).....	120	Custard.....	59
Potato (mashed).....	98	Ice cream .....	69
Potato (new/white boiled) .....	80	Skim milk .....	46
Potato (Russet, baked) .....	118	Whole milk .....	44
Potato (sweet).....	70	Yogurt.....	52
Yam.....	74	<b>Snack Foods</b>	
		Corn chips .....	99
		Potato chips.....	77