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Presented by Dr. Matt Stephens DC



Diabetes: Prevention and Maintenance

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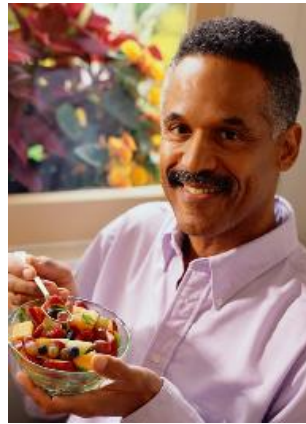
Eating, Exercise, Energy & Metabolism

- Food is fuel for energy, vitality and health
- The glycemic index for balancing blood sugar and insulin
- Physical activity for weight management and optimal health
- Nutritional supplements to enhance metabolic balance

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Food is Your Fuel for Energy

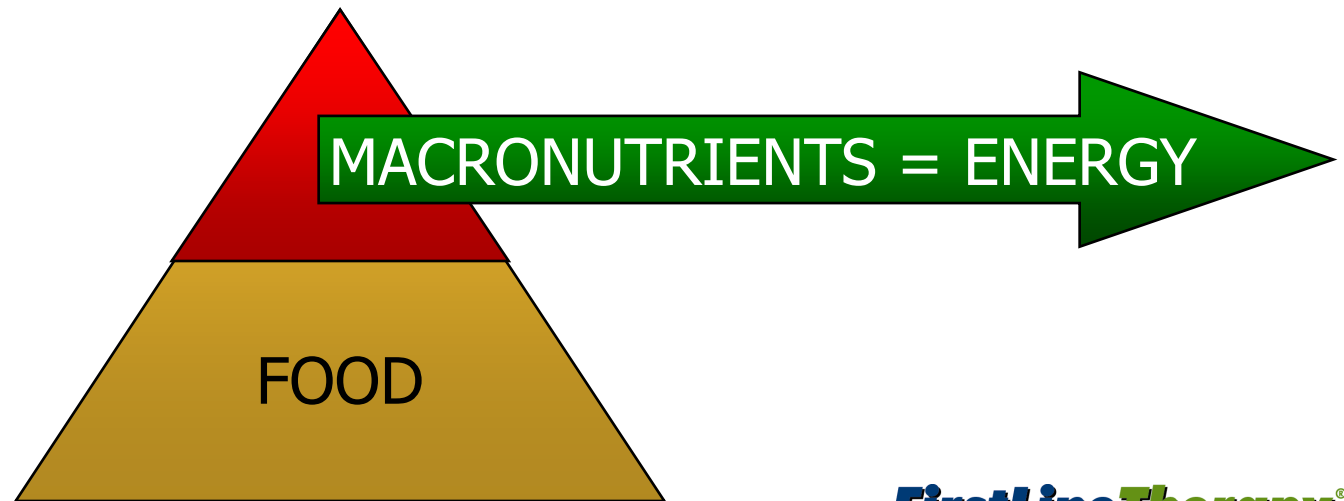
- Food provides energy for performing activities of daily living



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Food Provides Energy

- The energy in food is contained within the macronutrients



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The Macronutrients

- Protein
- Carbohydrate
- Fat



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Macronutrients

- “Macro” means large and is measured in grams
- Micronutrients are smaller nutrients like vitamins and minerals and are measured in milligrams (1000th of a gram)

Energy is Measured in Calories

Calories are the energy currency of the body



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Protein

- Protein provides 4 calories/gram
- Egg white contains 4 grams of protein and has 16 calories
- 4 grams x 4 calories each = 16 calories

Carbohydrate

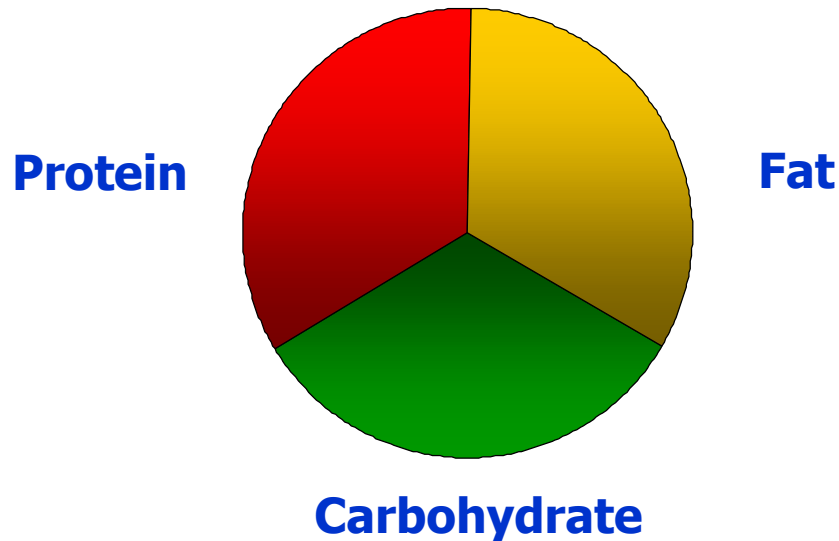
- Carbohydrate provides 4 calories/gram
- An apple contains 21 grams of carbohydrate and has 84 calories
- $21 \text{ grams} \times 4 \text{ calories} = 84 \text{ calories}$

Fat

- Fat provides 9 calories/gram
- 1 tbsp. oil has 14 grams of fat and provides 126 calories
- 14 grams x 9 calories = 126 calories

Food is a Mixture

- Food is a mixture of protein, carbohydrate and fat



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Macronutrients in Food

- Fruits and vegetables are mostly carbohydrate
- Dairy foods, chicken, beef, and fish are good protein sources with widely varying amounts of fat
- Beans have protein and carbohydrate and very little fat
- Oil and butter are pure fat

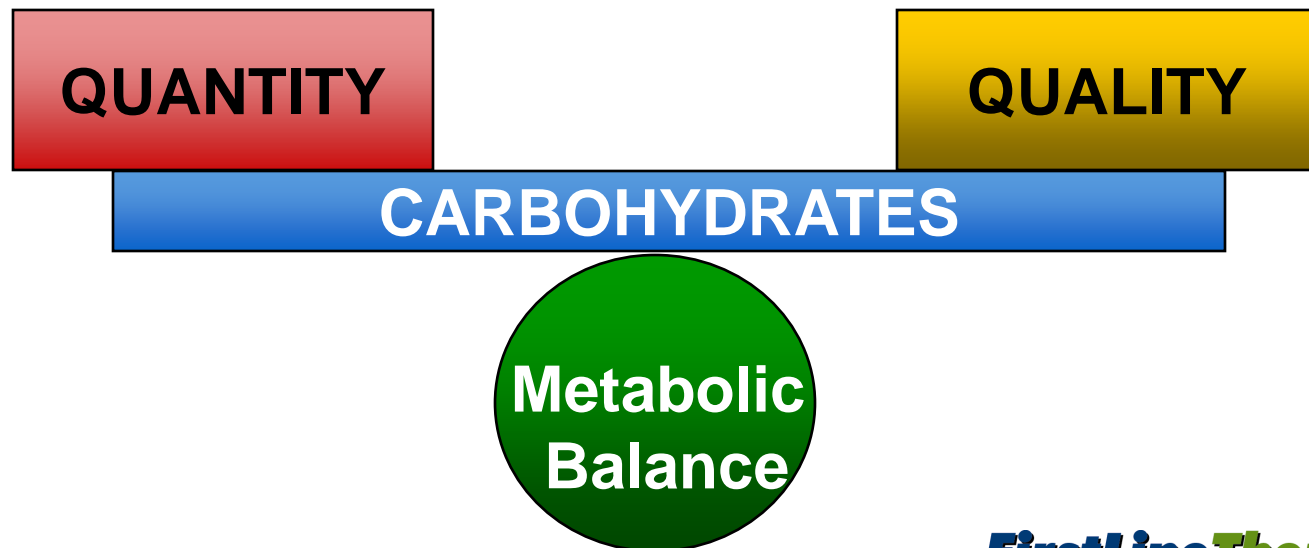
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From High Carb to Low Carb

- Pendulum swing from high carb diets in the 70s, 80s and early 90s
- Switch from high carb/low fat to lower carb/higher protein and higher fat

Quality Versus Quantity

- For carbohydrate foods – the quality matters as well as the quantity for optimal metabolic balance



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Metabolic Balance

- Metabolic balance or “glycemic” balance means keeping blood sugar and insulin levels in proper balance
- Eating quality carbohydrate foods in balance with protein and fat promotes metabolic balance

Metabolic Imbalance – Insulin Resistance Syndrome

- Insulin Resistance Syndrome is common in many chronic conditions:
 - ▶ Heart disease
 - ▶ Diabetes
 - ▶ Hypertension
 - ▶ Obesity
 - ▶ Sarcopenia
 - ▶ Polycystic Ovary Syndrome (PCOS)



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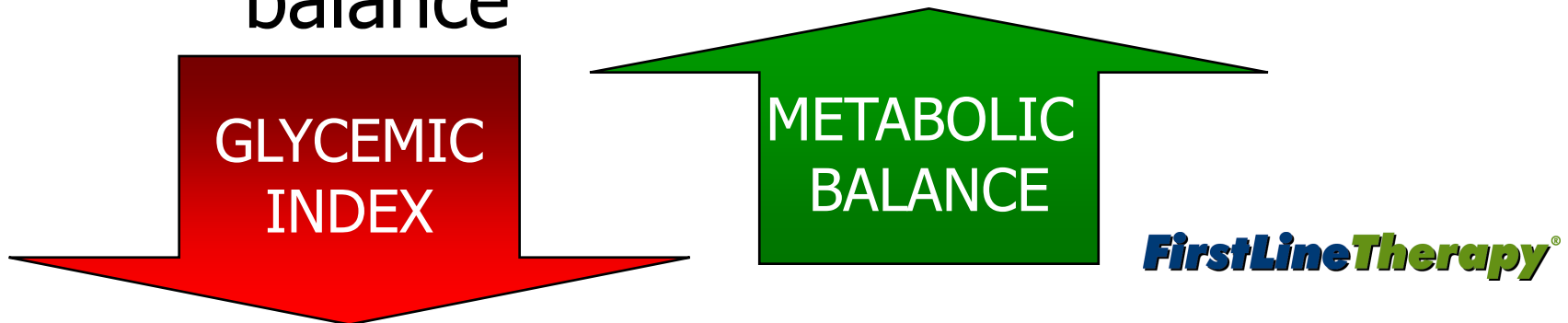
Metabolic Balance

- Consuming the optimal amount of calories is essential for metabolic balance
- Continually eating highly refined or “simple” carbohydrates may contribute to insulin resistance
- Substituting fiber-rich carbohydrates in moderate amounts will help maintain metabolic balance

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The Glycemic Index of Foods

- Some foods cause rapid increases in blood sugar: “high glycemic foods”
- Emphasizing foods low on the glycemic index in conjunction with an optimal calorie level promotes metabolic balance

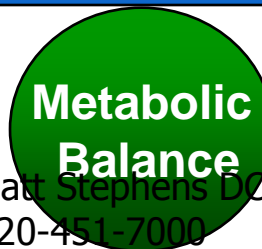
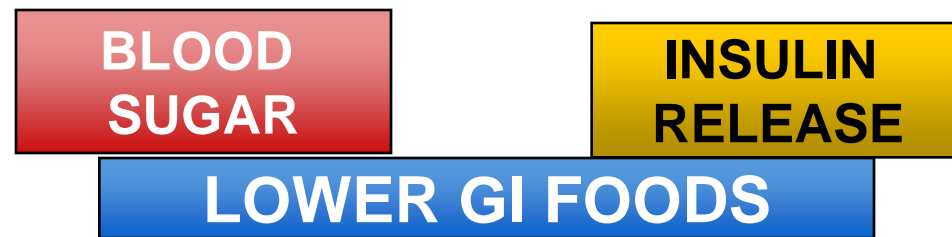


Blood Sugar and Insulin

- The more rapidly the food is absorbed into the blood stream, the higher the blood sugar
- The more rapid the blood sugar increase, the more rapid the insulin release from the pancreas

Using the Glycemic Index for Metabolic Balance

- Choosing foods lower on the glycemic index at each meal will result in:
 - ▶ Controlled blood sugar
 - ▶ Controlled insulin release
 - ▶ Better overall metabolic balance



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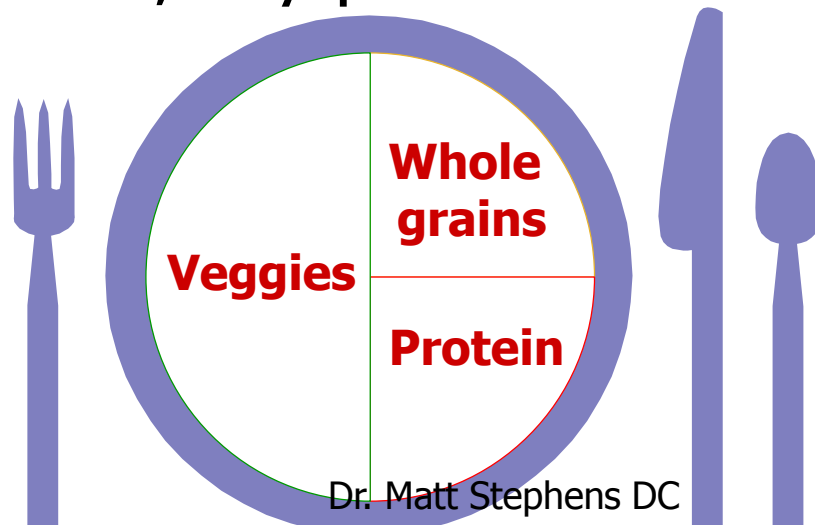
Low GI Meals and Snacks

- Breakfast
 - ▶ Low GI cereal, nuts or breakfast shake
- Snack
 - ▶ Apple, pear slices
- Lunch
 - ▶ Split pea soup and mixed green salad, seeds
- Snack
 - ▶ Shake
- Dinner
 - ▶ Halibut, barley pilaf,
 - ▶ Asparagus, fresh fruit

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Balancing Your Plate

- Divide your plate into 3 sections:
 - ▶ 50% is vegetables, salad
 - ▶ 25% is mixed whole grains or starch
 - ▶ 25% is protein source – poultry, fish, beans, soy products



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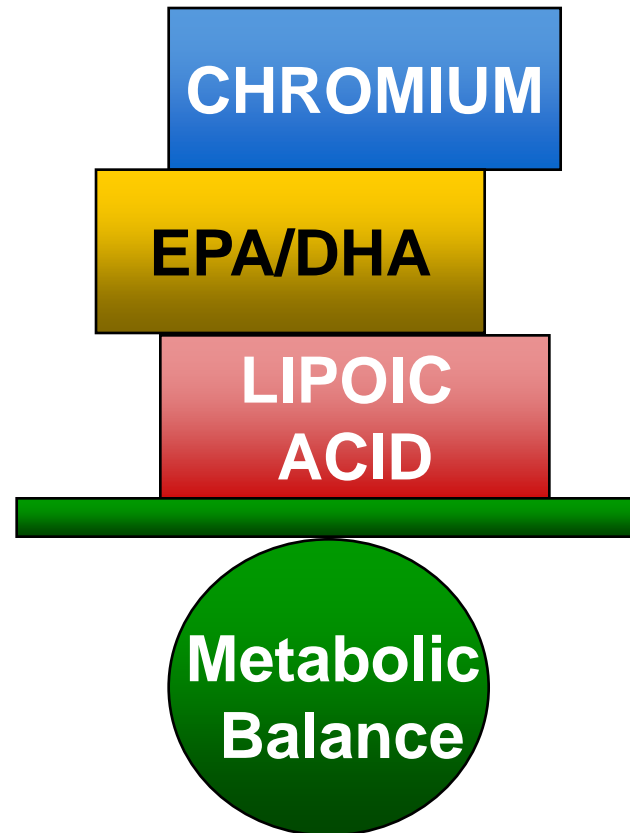
Activity and Exercise

- Regular physical activity is essential for metabolic balance
- Exercise reduces blood sugar
- Exercise promotes healthy weight by burning excess calories and fat for fuel
- Exercise at least 30 - 60 minutes most days of the week

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Nutritional Supplements for Metabolic Balance

- Chromium
- EPA/DHA
- Lipoic acid



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Chromium

- Helps insulin transport glucose into body cells
- Helps the body convert glucose into energy – fuel for muscles
- Eating refined foods increases the need for chromium
- 50 – 200 ug per day recommended

CHROMIUM

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EPA/DHA

- Essential fatty acids needed for healthy cells
- Improves the way a cell functions – lowers insulin resistance and improves metabolic balance
- 2 – 4 grams/day recommended

EPA/DHA

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Lipoic Acid

- Antioxidant that helps the body reduce free radicals
- Improves insulin sensitivity, reduces insulin resistance
- Talk to health provider about dosage

**LIPOIC
ACID**

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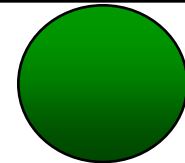
Strategies for Optimal Metabolic Balance

- Eat balanced amounts of protein, carbohydrate and fat
- Maximize high quality foods low on the glycemic index
- Get regular physical activity
- Choose high quality dietary supplements

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Benefits of Metabolic Balance

- Prevent chronic conditions, and therefore, the need for medications
- More energy and vitality, less fatigue
- Improved quality of life
- Better weight control



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