

# **Magic Potions: Evidence-Based Diet Solutions for Diabetes and Weight Management**

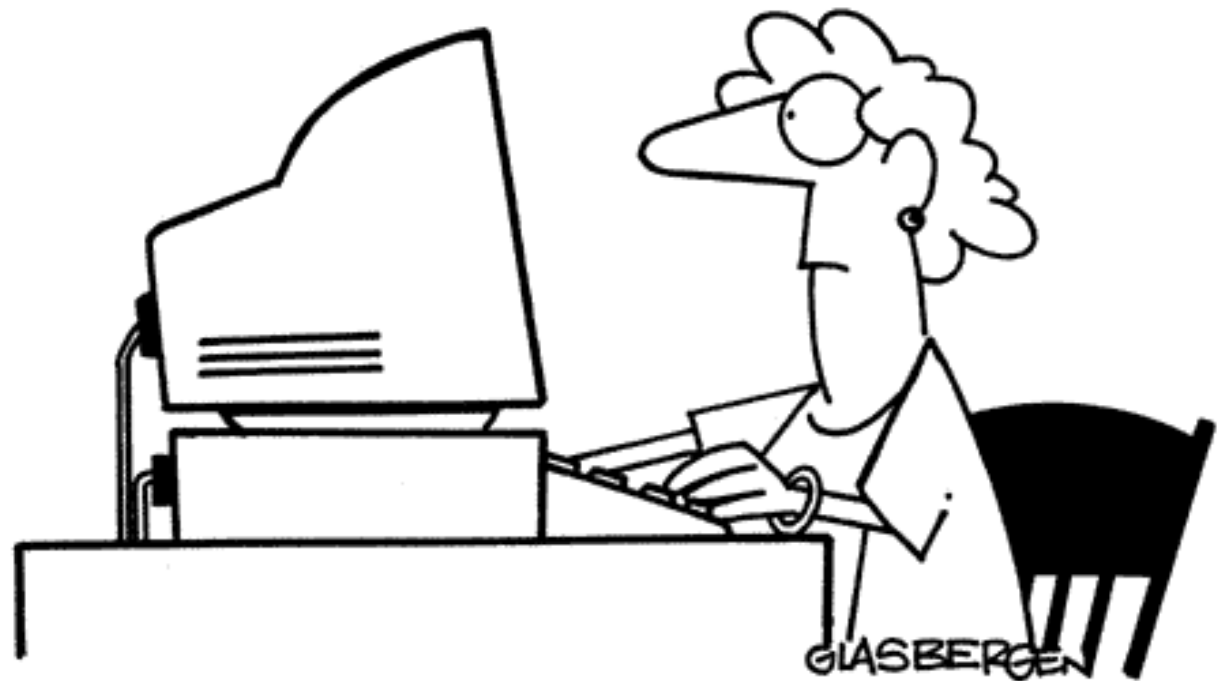
**Monica A. Dixon, Ph.D., R.D.**

Washington State Dept of Health

Cardiovascular, Diabetes, Nutrition and Physical  
Activity Section

QuickTime™ and a  
TIFF (Uncompressed) decompressor  
are needed to see this picture.

© 2000 Randy Glasbergen. www.glasbergen.com



**“Welcome to the Weight Loss Forum.  
To lose one pound, double-click  
your mouse six million times.”**

# Beyond insanity?



# Fat Focused Diets

- Moderate Fat (30-35% total fat)
  - Mediterranean diet
  - DASH diet
  - Weight Watchers
- Low fat (20-30%)
- Very low fat (<10%)
  - The Ornish Diet
  - The Pritikin Diet

# Low Carbohydrate Diets

- **Dr. Atkin's New Diet Revolution**
- **The South Beach Diet**
- **The Zone Diet**
- **Sugar Busters Diet**
- **Protein Power**
- **Schwarzbein Principle**

# Assumptions of Low CHO Approaches

- **Carbohydrates**
  - **Increase hunger**
  - **Increase insulin resistance**
  - **Addictive**
  - **Ketosis confers a metabolic advantage**
  - **Calories don't matter**

# Atkins vs. Lowfat: Calories or Carbs?

- Atkins

- 3 slices bacon
- 2 scrambled eggs
- 6 oz. Black coffee

- Low Fat

- 1/2 c. skim milk
- 1 c. low fat granola
- 2 slices ww toast with 1 T. strawberry jam
- 6 oz orange juice



# Atkins vs. Lowfat

- **Atkins**
  - **Kcal** 296
  - **Fat (g)** 22.4
  - **Carbs** 3.5
  - **Protein** 19.3
  - **Fiber** 0
  - **Cholesterol** 447
- **Low fat**
  - 755
  - 9.8
  - 42 g (81% kcal)
  - 20 g
  - 11 g
  - 3

# Why greater weight loss?

- Calories, calories, calories
- Increased satiety
- Increased structure
- Depleted muscle and glycogen stores (2-3 gms of water vs. fat/.5 gm)
- Unusual features

# Limitations of low carb studies

- **Short-term (up to 1 year)**
- **Can weight loss be maintained?**
- **Limited assessments**
- **High drop outs**
- **Lack of behavioral treatment**

# Ongoing Study

- NIH, 3-center study of 360 patients
- Followed for 2 years
- Comprehensive behavioral treatment
- Multiple outcomes (kidney, bone, exercise tolerance, endothelial function, insulin sensitivity)

# Low Carb: Pros and Cons

## Cons

- ✓ High in saturated and trans-fats (atherogenic)
- ✓ Constipation (low fiber), halitosis and headache
- ✓ Reduced exercise capacity (depleted glycogen)
- ✓ Increased fatigue?
- ✓ Possible increased risk of renal stones
- ✓ Possible increased risk of osteoporosis
- ✓ Low in micronutrients
- ✓ Requires dietary supplements (high costs)
- ✓ Questionable long term adherence
- ✓ Goes against 30 years of CVD epidemiology

# Lollipops and Lentils,

...or throwing the baby out with the bathwater?

- The fad diet implication that “carbs” are a uniform food class borders on asinine
  - (Katz, DL. *Pandemic Obesity and the Contagion of Nutritional Nonsense*, Pub Health Review, 2003:31
- The implication that insulin only responds to carbohydrate is equally absurd
  - American College of Preventive Medicine. *Position Statement: Diet in the Prevention and Control of Obesity, Insulin Resistance, and Type II Diabetes*. 2002.

# Are all Carbs created equal?

- Simple CHO--High GI (rapid absorption)
  - Sugar, corn syrup, fructose, molasses...
  - Cookies, candy, cake (3 c's)
  - White bread and rice
  - Potatoes
  - White foods
- Complex CHO-Low GI (slow absorption)
  - Beans legumes, vegies (B foods)

# Influence on serum lipids

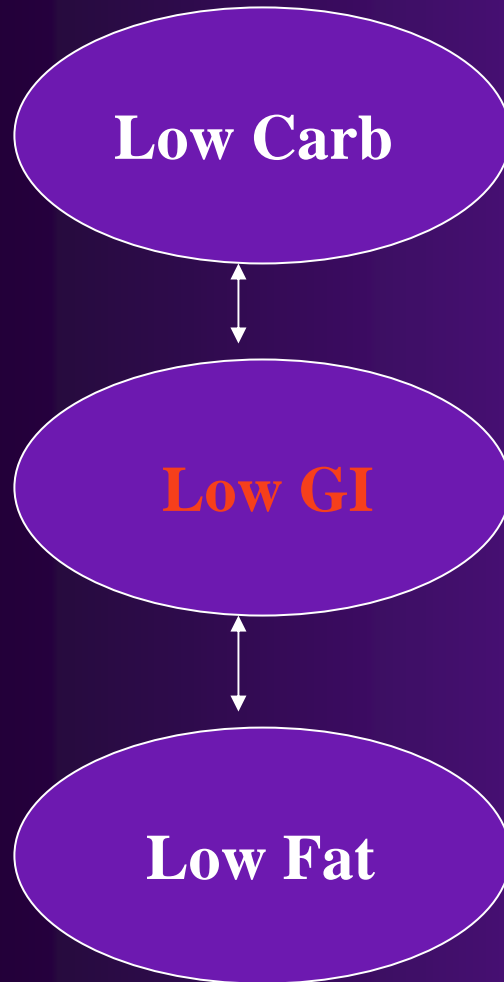
- High-fructose corn syrup
  - ↑ LDL's
  - ↑ insulin resistance
- High fat diets
  - ↑ fasting serum triglycerides
  - ↑ insulin resistance
  - ↑ free fatty acids (long term problem)
  - ↑ serum cholesterol levels
  - Long-term use would increase serum cholesterol by 25%, while Ornish would decrease by 32%

Anderson, et al. *Health Advantages and Disadvantages of Weight-Reducing Diets: A Computer Analysis and Critical Review.*

J Am Col Nut, 2000.



# Carbohydrate Middle Ground



- Refined CHO are easily digested and increase post-prandial glucose and insulin levels
- Reactive hypoglycemia
- Increased hunger
- Over time, this is associated with development of insulin resistance

# The glycemic index: The evidence

Epidemiological data links low GI foods:

- To higher HDL-c
- Less incidence of Type 2 diabetes
- HbA<sub>1c</sub> test results showed .43 percentage drop
- Fructosamine (2-4 weeks), when combined in meta analysis, were significant
- Larger improvements in Type 1
- Comparable to oral meds

*Low-glycemic index diets in the management of diabetes:*

*A meta-analysis of randomized controlled trials, Diabetes Care, 2003.*

# Nurses' Health Study

- Harvard University
- Since 1976
- 120,000 female nurses
- Now Nurses' Health Study II
  - 116,000 younger women

# Significant Nutrition Findings

- Not fat, but type of fat, that is harmful
- Drinking alcohol, gaining 45 pounds or more since 18, apple-shaped body all linked to breast cancer increase. Eating lots of fruit and vegies and exercising decrease breast cancer risk.
- Two glasses of milk no better than one. Instead, 400 IU of D supplemented with foods rich in Vitamin K

# More...

- Caffeine and too much red meat increase osteoporosis risk. Exercise and weight lifting lower it.
- Orange should be our favorite color. Daily C and E supplements, folic acid and lots of orange fruits and veggies significantly lower cancer and heart disease risk
- Aspirin and folic acid reduce colon cancer risk

# Still More...

- Increased waist size ( $>35$ ), smoking and too little fiber, magnesium, potassium and calcium= increased diabetes risk
- Low glycemic foods and low body weight decreased diabetes risk significantly

# Commercial Weight Loss Programs

- Weight Watchers
- Jenny Craig
- LA Weight Loss
- NutriSystem
- Tops Club
- Overeaters Anonymous

# Groups!

- Women in group weight loss consistently show the greatest long-term results
  - Women more verbal
  - Decreased isolation
  - Increased support/education
  - Practice Skills!



# Recommendations

- One diet doesn't fit all...
  - Reduce trans and saturated fats
  - Reduce sodium
  - Increase fruit and vegetable consumption
  - Reduce “white” foods
  - Increase “good” fats
  - Increase fiber
  - Increase micronutrients
  - Control portions