Update on the Nutrition and Treatment of Weight Loss/Obesity

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Objectives

1. Review the nutritional etiology of obesity
2. Establish the relevance of diet therapy for obesity.
3. Explore the metabolic barriers to weight loss as well as the different types of dietary interventions.
4. Know the effective diagnosis and treatment strategies — what works!
   - Nutrition
   - Exercise
5. Identify the efficacy of other possible diet therapies for obesity

Obesity Management in an Outpatient Office Practice

Appropriate Office Environment for Obese Patients

- Waiting room chairs without arms
- Step stools next to examination tables
- Large gowns and blood pressure cuffs
- Scale that can weigh extremely obese patients, located in a private area
- Appropriate obesity educational materials, handouts, and treatment protocols
- Empathetic, respectful, and supportive office staff

Initial Office Visit

- Include evaluation of potential obesity related diseases within history, physical examination, and laboratory tests
- Nutritional Assessment: A,B,C,D,E
  - Obtain weight history, eating, and activity behaviors
  - Search for triggering factors, including medications
  - Measure weight, height, waist circumference and calculate body mass index
- Categorize obesity classification and health risk
- Determine readiness to lose weight
- Initiate treatment plan (involve other professionals as needed)
- Discuss goals and expectations
- Arrange follow-up and support

Key Food Triggers

- Boredom
- Being alone
- Being in company
- TV
- Holidays
- Weekends
- Habitual routine, etc.

Assessing Weight Loss Readiness

• Motivation: Patient seeks weight reduction
• Stress level: Free of major life crises
• Psychiatric issues: Free of severe depression, substance abuse, bulimia nervosa
• Time availability: Patient can devote 15-30 min/d to weight control for next 26 weeks

Patient Ready?
- YES: Initiate weight loss therapy
- NO: Prevent weight gain and explore barriers to weight reduction

Factoids
- Obesity is a chronic disease
- Modest weight loss (5% - 10% of body weight) can have considerable medical benefits
- Lifestyle change (diet and physical activity) is the cornerstone of therapy
- Pharmacotherapy can be useful in properly selected patients
- Bariatric surgery is the most effective therapy for type III Obesity

Obesity Trends* Among U.S. Adults

1990
1999
2004

Health Consequences of Obesity

- Liver Disease
- Stroke
- Diabetes
- Heart Disease
- Cancer
- Osteoarthritis

Health Consequences of Obesity

- Mental: depression, anxiety, personality disorder, self esteem, etc.
- Mechanical: osteoarthritis, sleep apnea, reflux disease, urinary incontinence, intertrigo, etc.
- Metabolic: diabetes, dyslipidemia, fatty liver, hypertension, cancer, PCOS, gall bladder, infertility, etc.
Cause of Obesity: Imbalance

Maintaining a Healthy Weight is a Balancing Act
Calories In = Calories Out

One Problem = Portion SIZE
CHEESEBURGER

20 Years Ago  Today

- 333 calories
- 590 calories

Calorie Difference: 257 calories

Calories In = Calories Out

If you lift weights for 1 hour and 30 minutes, you will burn approximately 257 calories. *

*Based on 130-pound person

20 Years Ago

- 203 calories
- 590 calories

Calorie Difference: 387 calories

SPAGHETTI AND MEATBALLS

20 Years Ago  Today

- 500 calories
- 1,025 calories

Calorie Difference: 525 calories

Calories In = Calories Out

If you houseclean for 2 hours and 35 minutes, you will burn approximately 525 calories. *

*Based on 130-pound person
Factors contributing to gradual weight gain:

- Most individuals gradually gain weight over a long period of time; often without realizing they have changed their behaviors.
- These changes could be very small, e.g., an excess of only 10 Kcal/day could result in a weight gain of ~1 lb/yr (~10 lbs in 10 years).
- The modern environment has taken successful body-weight control from an instinctual (unconscious) process to one that requires cognitive skill and effort, and that individuals who are not devoting substantial conscious effort to managing body weight are probably gaining weight. (JOURNAL OF WOMEN’S HEALTH Volume 18, Number 3, 2009.)

Classification of Overweight and Obesity by BMI:

<table>
<thead>
<tr>
<th>Obesity Class</th>
<th>BMI kg/m²</th>
</tr>
</thead>
<tbody>
<tr>
<td>Underweight</td>
<td>&lt;18.5</td>
</tr>
<tr>
<td>Normal</td>
<td>18.5-24.9</td>
</tr>
<tr>
<td>Overweight</td>
<td>25-29.9</td>
</tr>
<tr>
<td>Obesity I</td>
<td>30.0-34.9</td>
</tr>
<tr>
<td>Obesity II</td>
<td>35.0-39.9</td>
</tr>
<tr>
<td>Extreme Obesity III</td>
<td>≥40.0</td>
</tr>
</tbody>
</table>

Obesity Treatment: Not Simple!

Surgery
Pharmacotherapy
Lifestyle Modification
Overweight

Calories In = Calories Out

If you walk leisurely for 1 hour and 10 minutes you will burn approximately 400 calories.*

*Based on 160-pound person.

If you walk leisurely for 1 hour and 10 minutes you will burn approximately 400 calories.*
Selected Medications That Can Cause Weight Gain

- Psychotropic medications
  - Tricyclic antidepressants
  - Monoamine oxidase inhibitors
  - Specific SSRIs
  - Atypical antipsychotics
  - Lithium
  - Specific anticonvulsants
  - β-adrenergic receptor blockers

- Diabetes medications
  - Insulin
  - Sulfonylureas
  - Thiazolidinediones
  - Highly active antiretroviral therapy
  - Tamoxifen
  - Steroid hormones
  - Glucocorticoids
  - Pregestational steroids

How Important are Genetic Factors in the Development of Obesity?

Hurdles of Weight Loss

- Body tries to maintain fat stores by regulating the amount of food and calories consumed.
- Research with animals and humans has found that a person has a programmed “set point” weight.
- The existence of this set point helps to explain why most diets do not work.
- In addition, their set point is now set at a higher level, making it even more difficult to lose weight.
- “Ratchet effect” and “yo-yo dieting”.
- The key to overcoming the fat cell’s set point appears to be increasing the sensitivity of the fat cells to insulin.

Control of Energy Metabolism

Table 1. The status of the HPA axis in relation to visceral obesity, glucose, insulin, and lipids.

<table>
<thead>
<tr>
<th></th>
<th>Normal HPA axis regulation</th>
<th>Disturbed HPA axis regulation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Visceral obesity</td>
<td>0</td>
<td>↑</td>
</tr>
<tr>
<td>Fasting glucose</td>
<td>0</td>
<td>↓</td>
</tr>
<tr>
<td>Fasting insulin</td>
<td>0</td>
<td>↓</td>
</tr>
<tr>
<td>Triglycerides</td>
<td>0</td>
<td>↑</td>
</tr>
<tr>
<td>Total cholesterol</td>
<td>0</td>
<td>↑</td>
</tr>
<tr>
<td>Low-density lipoprotein cholesterol</td>
<td>0</td>
<td>↑</td>
</tr>
<tr>
<td>High-density lipoprotein cholesterol</td>
<td>0</td>
<td>↑</td>
</tr>
</tbody>
</table>
Reactivity profiles of high and low reactors during stress session.


Raw mean calories consumed by reactivity group on stress and control days


Factoids

- Healthy active living is important at any weight
- Maintenance of healthy eucaloric diets and physical activity are essential to prevent weight gain
- Once established, obesity is a chronic disease and requires long-term management and treatment
- Weight alone is a poor indicator of body fat or related health risks

Systematic Review of Weight Loss Studies
Average Weight Loss of Subjects Completing a Minimum 1-Yr Weight Management Intervention
80 Studies, 24,698 Subjects, 16,823 Completers (68%)

<table>
<thead>
<tr>
<th>Diet Program</th>
<th>Kcal (m)</th>
<th>Kcal Sat (g)</th>
<th>Fiber (m)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Atkins</td>
<td>924</td>
<td>26</td>
<td>4</td>
</tr>
<tr>
<td>“Protein Power”</td>
<td>657</td>
<td>19</td>
<td>11</td>
</tr>
<tr>
<td>“Sugar Busters”</td>
<td>280</td>
<td>9</td>
<td>24</td>
</tr>
<tr>
<td>“The Zone”</td>
<td>264</td>
<td>7</td>
<td>18</td>
</tr>
<tr>
<td>Ornish</td>
<td>300</td>
<td>2</td>
<td>49</td>
</tr>
</tbody>
</table>

Evidence Model for Treatment of Overweight and Obesity
Talking With Patients About Weight Loss: Tips for Primary Care Professionals

- Patients who were counseled in a primary care setting about the benefits of healthy eating and physical activity lost weight, consumed less fat, and exercised more than patients who did not receive counseling.

- Exercise and Diet Prescription!

- Studies show that short 3- to 5-minute conversations during routine visits can contribute to patient behavior change.

Talking With Patients About Weight Loss: Tips for Primary Care Professionals

- Unluckily, the majority of primary care professionals do not talk with their patients about weight.

- Most people who are overweight or obese want assistance in setting and achieving weight-loss goals, but may hesitate to broach the topic during office visits.

What do patients want from health care professionals regarding weight?

- **Talk**: before starting a conversation about weight control with your patients, allow them to discuss other issues that may be affecting their physical or emotional well-being.

- **Non-offensive terms**: Patients prefer the terms “weight” or “excess weight,” and dislike the terms “obesity,” “fatness,” and “excess fat.” You may wish to ask your patients what terms they prefer when discussing weight.

Advising they can use – realistic weight goals, specific type of exercise, weight loss products and services
Which patients might benefit from a discussion about weight?

- Approach the subject of weight loss if your patient has:
  - A body mass index (BMI)* of 30 or above.
  - A BMI between 25 and 30 and two or more weight-related health problems, such as a family history of coronary heart disease or diabetes.
  - A waist measurement over 35 inches (women) or 40 inches (men)—even if BMI is less than 25—and two or more weight-related health problems, such as a family history of coronary heart disease or diabetes.

Tips for Talking About Weight Control

- Address your patient’s chief health concerns or complaints first, independent of weight.
- Open the discussion
- Decide if your patient is ready to control weight
  - Set a weight goal
  - Preserve healthy eating and physical activity behaviors
  - Follow up.

Dietary approaches in the management of overweight and obesity

- Low-fat diets
- Low-energy diets
- Fixed energy deficit (2.5 MJ (600 kcal) energy deficit from calculated energy requirements)
- Meal replacements
- Very-low-energy diets

Weight maintenance skills are distinct from those required to achieve weight loss.

- The skills required for maintenance phase is enabling individuals to remain motivated without the powerful reinforcement of losing weight.

The National Weight Control Registry is the largest study of individuals successful at long-term weight maintenance.

- They report that the successful maintainers have the following habits:
  - 78% eat breakfast every day.
  - 75% weigh them self at least once a week.
  - 62% watch less than 10 hours of TV per week.
  - 90% exercise, on average, about 1 hour per day
  - limiting fast food intake
  - accepting realistic weigh goals
  - recognizing that weight control is not ‘painless’ but requires ongoing commitment

Low-Calorie Step I Diet

<table>
<thead>
<tr>
<th>Nutrient</th>
<th>Recommended Intake</th>
</tr>
</thead>
<tbody>
<tr>
<td>Calories</td>
<td>500 to 1,000 kcal/day reduction</td>
</tr>
<tr>
<td>Total Fat</td>
<td>30 percent or less of total calories</td>
</tr>
<tr>
<td>SFA</td>
<td>8 to 10 percent of total calories</td>
</tr>
<tr>
<td>MUFA</td>
<td>Up to 15 percent of total calories</td>
</tr>
<tr>
<td>PUFA</td>
<td>Up to 10 percent of total calories</td>
</tr>
<tr>
<td>Cholesterol</td>
<td>&lt;300 mg/day</td>
</tr>
</tbody>
</table>
**Low-Calorie Step I Diet (continued)**

<table>
<thead>
<tr>
<th>Nutrient</th>
<th>Recommended Intake</th>
</tr>
</thead>
<tbody>
<tr>
<td>Protein</td>
<td>~15 percent of total calories</td>
</tr>
<tr>
<td>Carbohydrate</td>
<td>55 percent or more of total calories</td>
</tr>
<tr>
<td>Sodium Chloride</td>
<td>No more than 100 mmol/day (~2.4 g of sodium or ~6 g of sodium chloride)</td>
</tr>
<tr>
<td>Calcium</td>
<td>1,000 to 1,500 mg</td>
</tr>
<tr>
<td>Fiber</td>
<td>20 to 30 g</td>
</tr>
</tbody>
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**Increase Physical Activity**

- Most important in preventing weight regain
- Health benefits independent of weight loss
- Start slowly and increase gradually
  - Can be single session or intermittent
  - Start with walking 30 minutes 3 days/week
  - Increase to 45 minutes 5 or more days/week
  - Encourage increased “lifestyle” activities

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**Physical Activity**

Recommended as part of a comprehensive weight loss therapy and maintenance program because it:

- Modestly contributes to weight loss
  - Evidence Category A.
- May decrease abdominal fat
  - Evidence Category B.
- Increases cardiorespiratory fitness
  - Evidence Category A.

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**10,000 Steps® Results**

- 25% lose 4 lbs of weight or more
- 93% indicate they would refer the 10,000 Steps® program to a friend

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**Impact of 10,000 Steps Prescription on Physiological Parameters among Overweight and Obese Individuals**

- Single group, repeated measures experimental design
- Community recruitment
- N=56
- Number of steps:
  - Baseline = 5,123
  - 20 weeks = 9,324
  - 36 weeks = 9,117
- No changes in diet

* = statistically significant improvement

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**Behavior Therapy**

The routine use of behavior therapy strategies to promote diet and physical activity is recommended, as these strategies are helpful in achieving weight loss and weight maintenance.

- Evidence Category B.
Behavior Therapy (continued)

Implementation of strategies, based on learning principles, that provide tools for overcoming barriers to compliance with diet or physical activity changes:

- Self-monitoring
- Stress management
- Stimulus control
- Problem-solving
- Contingency management
- Cognitive restructuring
- Social support

Self-Monitoring

Keep records of:

- Amount and types of foods eaten
- Frequency, intensity, and type of physical activity
- Time, place, and feelings

Stress Management

Defuse situations that lead to overeating:

- Coping strategies
- Meditation
- Relaxation techniques

Stimulus Control

Behavior change techniques:

- Learn to shop for healthy foods.
- Keep high-calorie foods out of the home.
- Limit the times and places of eating.

Cognitive Restructuring

Rational thoughts designed to replace negative thoughts:

**Instead of...**

- “I blew my diet this morning by eating that doughnut.”

**Use...**

- “Well, I ate the doughnut, but I can still eat in a healthy manner the rest of the day.”

Social Support

Maintain motivation and positive reinforcement:

- Family
- Friends
- Colleagues
Optimizing Practice through Research

- **Weigh-By-Day Trial** – an effectiveness trial
  - Home-based scale connected via telephone line to health coach allows for measurement of body weight
  - Frequency of self-weighing a significant predictor for weight loss
  - Participants lost about 5 extra pounds of weight for every 30% increase in daily self-weighing during the program
  - Participants who self-weighed at least weekly had a 27.5 times greater odds of losing at least 5% of their baseline body weight

Impact of Context – Research and Practice

![Graph showing weight loss over time for different contexts: Weigh-To-Be Trial, Weigh-By-Day Trial, Worksite-Based Experience.]

**Obesity Resources**

- [www.obesityplus.org](http://www.obesityplus.org)
- [www.obesityonline.org](http://www.obesityonline.org)
- [www.diabetes.org/home.jsp](http://www.diabetes.org/home.jsp)
- [www.eatright.org](http://www.eatright.org)
- [www.acsm.org](http://www.acsm.org)
- Better Health and You: Tips for Adults is a brochure from WIN on healthy eating and physical activity. It is part of the series Healthy Eating and Physical Activity Across Your Lifespan. NIH Publication No. 07–4992.

"No health system is yet meeting the challenges of managing obesity, and no society has developed an effective strategy to prevent it."  
*The Lancet, May 13, 2006*

However there is progress!!

There is light there is hope!

Thanks!