Session 2: Effective Approaches for Promoting Weight Management and Physical Activity in Cancer Survivors and Other Populations

Lessons Learned from

Weight Management and Physical Activity Interventions in Other Populations

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Great Variation in Macronutrient Profiles of Popular Diets

**CONCLUSIONS:**
Reduced-calorie diets result in clinically meaningful weight loss regardless of which macronutrients they emphasize.

Low-Carb Diets
Source of Calories or Caloric Intake?

Systematic Review
• 107 articles from 1966-2003
• 3,268 participants
• 5 studies > 90 days
• None were controlled trials

Conclusion:
• Weight loss principally associated with decreased caloric intake and increased diet duration, not reduced carbohydrates
• Insufficient evidence for recommendation for or against use of low-carbohydrate diets

Adherence - Not Diet - Predicts Success
Comparison of Four Popular Diets

RESULTS: Amount of weight loss was associated with self-reported dietary adherence level ($r = 0.60; P<.001$) but not with diet type ($r = 0.07; P = .40$)

Adherence - Not Diet - Predicts Success

5 Meta-analyses: \textbf{ADHERENCE} is key to weight loss

- Consistent finding in four 2012 meta-analyses, each summarizing 13 to 24 trials: adherence was most strongly associated with weight loss\textsuperscript{1-4}

- Meta-analysis 2014: 48 trials, n = 7,286; conclusion: any diet a patient will adhere to lose weight is best\textsuperscript{5}

New Guidelines: Recommendations

2013 AHA/ACC/TOS Guideline for the Management of Overweight and Obesity in Adults

1. **Use BMI** to identify risk; advise patients of their risk
2. **Use waist circumference** to identify risk; advise patients of their risk
3. **3%-5% sustained weight loss reduces risk factors and risk of diabetes**
4. **Prescribe set number of calories per day**
5. There is **no ideal diet**
6. Advise obese adults who meet criteria that **surgery** may be an option

*J Am Coll Cardiol. 2014 Jul 1;63(25 Pt B):2985-3023.*

*2013 AHA/ACC/TOS Guideline for the Management of Overweight and Obesity in Adults*
Lessons Learned:
Successful Lifestyle Weight Loss Programs for Noncancer Patients
At 8 years: 26.9% of the ILI group had ≥10% initial weight loss (vs. 17.2% DSE group) (P < 0.001)
DPP/DPPOS: 15 Year Results

Cumulative diabetes incidence 27% lower lifestyle group vs. placebo

For every 2.2 lbs (1 kg) of weight loss there is a 16% reduction in the risk of developing diabetes

**Figure 2:** Cumulative incidence of diabetes by treatment group in the 2776 DPP-DPPOS participants

The Diabetes Prevention Program (DPP) and DPP Outcomes Study (DPPOS) periods, and the overlap between them, are shown. Over the entire study, the cumulative incidence was 27% lower for the lifestyle group than for the placebo group ($p<0.0001$) and 18% lower for the metformin group than for the placebo group ($p<0.0001$). The difference between the lifestyle and metformin groups was not significant ($p=0.10$).

High Protein Diets: Literature Overview

Higher-protein diets provide improvements in:
• Appetite
• Body weight management
• Cardiometabolic risk factors, or
• All of these health outcomes

1.2-1.6 gm protein/kg of body wgt per day

~25-30 gm protein per meal

Higher protein preloads have a greater effect on fullness than lower protein preloads.

Overall effect estimate: 2,435.74 mm.240 min
(95% CI 1,375.18 to 3,496.31 mm.240 min; P<0.0001)

Protein Intake in Elderly

- 1.6-1.8 g/kg/day supports anabolism at rest or after exercise in older men and women\(^1\)

- Leucine enriched AA – beneficial in elderly\(^2\)

- Prevent sarcopenia by including 25-30 gm high quality protein per meal to maximize muscle protein synthesis\(^3\)


(2009)
Best Sources of High Quality Protein

**DIETARY SOURCES**

- Light skinless chicken
- Fish
- Egg white
- Skim milk (casein and whey)

**NUTRITIONAL SUPPLEMENTS**

- Whey
- Colostrum
- Casein
- Milk proteins
- Egg protein

Lessons Learned: Pediatrics
### Stages of Treatment for Pediatric Obesity

#### Recommendations of American Academy of Pediatrics

<table>
<thead>
<tr>
<th>Prevention Plus</th>
<th>Structured Weight Management</th>
<th>Comprehensive Multidisciplinary Intervention</th>
<th>Tertiary Care Intervention</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Ambulatory care clinic:</strong></td>
<td><strong>Ambulatory care clinic:</strong></td>
<td><strong>Weight management clinic:</strong></td>
<td><strong>Tertiary care center:</strong></td>
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<tr>
<td>• Addresses medical evaluation and initial lifestyle counseling by primary care provider</td>
<td>• Addresses evaluation and lifestyle counseling by primary care</td>
<td>• Includes care by a multidisciplinary team consisting of specialists in medicine, dietetics, mental health, and exercise</td>
<td>• Intensive interventions for select patients by a specialty clinic multidisciplinary team</td>
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<td>• Typically follow-up visits tailored to family needs</td>
<td>• Providers and additional support from other health care professionals (e.g. registered dietitians, mental health providers)</td>
<td>• Typically involves weekly or bi-weekly follow-up</td>
<td>• Tailored to the patient and may involve pharmacological and surgical options</td>
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<td></td>
<td>• Typically involves monthly follow-up</td>
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<thead>
<tr>
<th>Stage</th>
<th>Description</th>
<th>Medical Risk</th>
<th>Behavior Risk</th>
<th>Attitudes</th>
<th>Prevention</th>
<th>Treatment</th>
</tr>
</thead>
<tbody>
<tr>
<td>Healthy Weight</td>
<td>BMI 5-84th percentile</td>
<td>Child history &amp; exam, Child growth, Parental obesity, Family history</td>
<td>Sedentary time, Eating, Physical activity</td>
<td>Family/patient concern and motivation</td>
<td>Target Behavior</td>
<td>STAGE 1 Prevention Plus, Primary care office</td>
</tr>
<tr>
<td>Overweight</td>
<td>BMI 85-94th percentile</td>
<td>Child history &amp; exam, Child growth, Parental obesity, Family history, Labs as needed</td>
<td>Sedentary time, Eating, Physical activity</td>
<td>Family/patient concern and motivation</td>
<td>Patient/Family Counseling</td>
<td>STAGE 2 Structured Weight Management, Primary care office with support</td>
</tr>
<tr>
<td>Obese</td>
<td>BMI ≥ 95th percentile</td>
<td>Child history &amp; exam, Child growth, Parental obesity, Family history, Labs as needed</td>
<td>Sedentary time, Eating, Physical activity</td>
<td>Family/patient concern and motivation</td>
<td></td>
<td>STAGE 3 Comprehensive Multidisciplinary Intervention, Pediatric weight management center</td>
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<td>STAGE 4 Tertiary Care, Tertiary care center</td>
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Lessons Learned:
Physical Activity

“The handle on your recliner does not qualify as an exercise machine.”
Percentage Weight Loss by Minutes of Physical Activity (calories per week)

Those who exercised ≥300 min/wk (expending >2000 kcal/wk) maintained weight losses nearly 3 times as great as those at 150 min/wk (expended 1000 kcal/wk)

Participation in a regular exercise program is an effective intervention to reduce/prevent a number of functional declines associated with aging.
Goals of Exercise Intervention in Seniors

- Increase strength
- Preserve lean body mass
- Rehabilitate from bed rest
- Increased functional capacity (activities of daily living)
- Reduce incidence of falls
- Improve Quality of Life
- Improve metabolic and biochemical markers
Physical Function in Obese Elderly Women
A Quality of Life Concern in the Elderly

Physical Performance Test

BMI

20  30  40  50

26  28  30  32  34  36

Progressive Resistance Training for Sarcopenia

PRT can reverse and at least partially prevent sarcopenia

**Figure 2** Change in strength and vastus lateralis area (measured by CT scan) over a 12 y follow-up period in 7 healthy men, and the amount gained during a 12 week period of intensive resistance training in the same men. (From Frontera et al, 2000).

Lessons Learned:
Successful Long-term Weight Loss
Initial Weight Loss Predicts Ultimate Success

ILI participants who lost ≥10% at year 1 (N=887)

- N=88 (9.9%)
- N=174 (19.6%)
- N=251 (28.3%)
- N=374 (42.2%)

70% had ≥5% loss at 4 years

ILI participants who lost 5.0% to 9.9% at year 1 (N=702)

- N=177 (25.2%)
- N=247 (35.2%)
- N=177 (25.2%)
- N=101 (14.4%)

40% had ≥5% loss at 4 years

ILI participants who lost <5% at year 1 (N=729)

- N=325 (44.6%)
- N=245 (33.6%)
- N=107 (14.7%)
- N=52 (7.1%)

22% had ≥5% loss at 4 years


Look AHEAD Trial at 4 Years
Diet and Physical Activity

For Best Results

- Balanced caloric deficit diet
- Protein-sparing modified fast

Successful Long-term Weight Loss
National Weight Control Registry

- 10,000 registrants
- Maintaining 33 kg loss for 5 years
- Eat 1800 kcal/day with 27% fat
- Perform 2700 kcal/week exercise
- 40% weigh themselves daily
- 20% weekly
- Reduced TV watching
- Limit diet variety
- 78% eat breakfast
- Eat fast food once per week
- Use more artificially sweetened beverages than others of normal weight
- They are VIGILANT

Ten Year NWCR Data
- N=2886 who lost 31 kg maintained for 5 years
- Regain at end of 10 years but still lost 30% total body weight then gained to 22.6% total weight loss
- 10 year loss = 23 kg
- Weight regain levels out from 5 years to 10
- 85% of registrants lost 20%
- 40% of registrants lost 30%
- If exercise decreased by 500 kcal per week they regain 9 kg
- If exercise is maintained they regain only 4.5% or 4.5 kg

Long-term Weight Loss
Best with Long-term Support

Long-term treatment with regular support can be effective\textsuperscript{1-5}

Weight must be managed on an ongoing basis\textsuperscript{5-9}

SUMMARY: Lessons Learned

- Adherence, not diet, predict weight loss success
- Calories, not macronutrients, determine weight loss
- **Guidelines**: there is no ideal diet
- **Guidelines**: prescribe set number of calories
- **Guidelines**: sustained weight loss of 3%-5% reduces risk factors and risk of diabetes
- High protein diets provide greater satiety
- 200 to 300 min/wk of moderately vigorous aerobic activity
  - Strength training also desirable
  - Strength training for seniors to prevent/reduce sarcopenia
- Long-term weight loss succeeds best with long-term support
END

Thank you!