Pediatric Weight Management

PWM: Major Recommendations (2007)

Major Recommendations

Recommendations By Topic

Below you will find a list of Childhood Overweight Treatment Recommendations organized by Topic. To see the Recommendation Summary, click on the Recommendation title. Also view the Executive Summary of Recommendations or print the guideline material in PDF format.

Resources Available with Each Recommendation

In addition to the recommendation statement and strength rating you will find on each recommendation page:

- a brief narrative summary of the evidence analyzed to reach the recommendation
- a statement of justification, or reason, for the strength of the recommendation
- information on the evidence supporting the recommendations and background narrative (available in the Supporting Evidence section toward the bottom of each recommendation page)
- a reference list at the end of each recommendation page that includes all the sources used in the evidence analysis for the particular recommendation (each reference is hyperlinked to a summary of the article analyzed in the evidence analysis)

Guideline Update

In 2015, the Academy published the 2015 Pediatric Weight Management Guideline. This Summary of Changes provides an overview of revisions to the 2007 Guideline.

Pediatric Weight Management (PWM) 2007 Major Recommendations

Overview

PWM: Comprehensive Multicomponent Weight Management Program for Treating Childhood Obesity

PWM: Obesity in Children Ages 2-5

Assessment

PWM: Assessing Foods and Pediatric Obesity
PWM: Assessing Child and Family Diet Behaviors in Pediatric Obesity
PWM: Assessing Physical Activity and Sedentary Behaviors
PWM: Determination of Total Energy Expenditure
PWM: Assessing Family Climate Factors

Intervention

Nutrition Prescription

PWM: Nutrition Prescription in the Treatment of Pediatric Obesity

Energy Restriction

PWM: Energy Restricted Diets

Altered Macronutrient Diets

PWM: Reduced Glycemic Load Diet
PWM: Very Low Carbohydrate Diet
PWM: Using Protein Sparing Modified Fast Diets for Pediatric Weight Loss
PWM: Very Low Fat Diet (<20% Daily Energy Intake from Fat)

Nutrition Education

PWM: Nutrition Education in the Treatment of Pediatric Obesity

Nutrition Counseling

PWM: Nutrition Counseling and Behavior Therapy Strategies in the Treatment of Obesity in Children and Adolescents
PWM: Family Participation in Treating Pediatric Obesity in Children and Adolescents
PWM: Nutrition Counseling: Setting Weight Goals with Patient and Family

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Recommendations Summary

Pediatric Weight Management (PWM) Comprehensive, Multicomponent Weight Management Program for Treating Childhood Obesity

Click here to see the explanation of recommendation ratings (Strong, Fair, Weak, Consensus, Insufficient Evidence) and labels (Imperative or Conditional). To see more detail on the evidence from which the following recommendations were drawn, use the hyperlinks in the Supporting Evidence Section below.

- **Recommendation(s)**

  **PWM: Multicomponent Program**

  Interventions to reduce pediatric obesity should be multi-component and include diet, physical activity, nutrition counseling and parent or caregiver participation. A large body of strong research indicates that clinically supervised, multi-component weight-management programs are more successful than single component programs for short-term and longer-term (more than one year) improvement in child and adolescent obesity.

  **Rating:** Strong
  **Imperative**

  - **Risks/Harms of Implementing This Recommendation**

    Within each component area, particular risks exist that must be monitored by the appropriate professionals:

    - Nutrition interventions should be monitored by a registered dietitian to ensure adequate nutrition and growth and to prevent micronutrient deficiencies (see Pediatric Weight Management (PWM) Energy Restricted Diets).
    - Intense physical activity, in some overweight and obese individuals, may contribute to disability or death. Thus, consultation with a physician prior to beginning an exercise program should be recommended (see Pediatric Weight Management (PWM) Physical Activity in the Treatment of Childhood and Adolescent Obesity).
    - Adequate screening for eating disorders, depression and family risk factors is critical (see Pediatric Weight Management (PWM) Assessing Family Climate Factors and Pediatric Weight Management (PWM) Assessing Child and Family Diet Behaviors in Pediatric Obesity).
    - Program success is conditioned by the above factors.

  - **Conditions of Application**

    Clinically supervised multi-component weight management programs require the participation of professional staff with expertise in distinct areas: Behavioral interventions, dietary interventions and physical activity interventions. Adequate screening processes are also needed to address and assess the above factors.

    Organizational barriers may limit options for multi-component programs, including lack of space for physical activity and trained staff to conduct components of the intervention program.

    Adequate screening for eating disorders, depression and family risk factors are necessary. Program success may be limited by the above factors.

  - **Potential Costs Associated with Application**

  Costs to Program or Organization

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Multi-component weight-management programs may require substantial organizational infrastructure to implement well. Organizational costs are associated with:

- Access to qualified professional staff to determine and supervise interventions
- Access to adequate clinical space and instruments for treatment.

Costs to Patient and Family

Costs of MNT sessions and reimbursement vary. The absence of health insurance coverage for weight management could limit program access.

Additionally, parent commitment to program participation is required.

**Recommendation Narrative**

**Multi-Component Program**

Research on multi-component weight-management programs indicate strong support for:

- Including a **nutrition component** that includes an individualized diet prescription that promotes an energy deficit
- Including a **physical activity component**
- Including a **behavioral intervention component**.

For evidence analysis on the above topics, see the Supporting Evidence section below.

Additionally, when the focus is on children (ages six to 12), research indicates that weight management in children without parents is not effective. See, [Is counseling children (ages 6 to 12) for weight loss in the absence of their parents effective?](Evidence: Grade III). Direct parent participation in weight-management programs appears to be less critical for adolescents (see [Is counseling of adolescents for weight loss in the absence of their parents effective?](Evidence: Grade II)).

**Weight Loss vs. Weight Stabilization**

Because of growth occurring within children and adolescents, the goal of pediatric weight management programs may be weight stabilization rather than weight loss. Research indicates that weight stabilization in children and adolescents may be associated with improvements in BMI and other measures of adiposity.

Goals for weight status should be individualized for the child. While weight loss may be appropriate in some cases, weight stabilization in growing children and adolescents may be more appropriate.

**Recommendation Strength Rationale**

Research comparing the inclusion of each of the three program components (dietary, physical activity and behavioral interventions) consistently show improved outcomes in both short-term and longer-term improvement in child and adolescent adiposity.

**Minority Opinions**

None.

**Supporting Evidence**

The recommendations were created from the evidence analysis on the following questions. To see detail of the evidence analysis, click the blue hyperlinks below (recommendations rated consensus will not have supporting evidence linked).

- In children ages 6-12, what is the effectiveness of using balanced macronutrient, low calorie (900-1200 kcal per day) dietary interventions for treating childhood obesity?
- In children ages 6-12, what is the effectiveness of using balanced macronutrient, reduced calorie (>1200 kcal-DRI per day) dietary interventions for treating childhood obesity?
- In adolescents, what balanced macronutrient dietary interventions are effective in treating obesity?
- What is the effectiveness of using a program to increase physical activity as a part of an intervention program to treat childhood obesity?
- What is the effectiveness of using a program to decrease sedentary behaviors as a part of an intervention program to treat childhood obesity?
- What is the effectiveness of using behavioral counseling as part of a multicomponent pediatric weight management program to treat childhood obesity?
- What is the effectiveness of family-based counseling including parent training or modeling as part of a multicomponent pediatric weight management program to treat obesity in children (ages 6-12)?
- What is the effectiveness of family-based counseling including parent training or modeling as part of a multicomponent pediatric weight management program to treat obesity in adolescents (ages 13-18)?

**References**

Links to supporting recommendations and evidence are located in Recommendation Narrative.
Recommendations Summary

Pediatric Weight Management (PWM) Obesity in Children Ages Two to Five

Click here to see the explanation of recommendation ratings (Strong, Fair, Weak, Consensus, Insufficient Evidence) and labels (Imperative or Conditional). To see more detail on the evidence from which the following recommendations were drawn, use the hyperlinks in the Supporting Evidence Section below.

- **Recommendation(s)**

  **PWM: Children Two to Five Years Old**

  Weight maintenance is generally recommended in overweight children two to five years old, within a multi-component weight-management intervention with active participation of a parent or caregiver. Weight loss may be recommended when the child has serious medical complications. Research was not identified on the efficacy and safety of weight-loss interventions among children ages two to five years old. The practitioner should refer to the Expert Committee Recommendations (Pediatrics Dec 2007, Vol 120 / Issue Supp4) for weight goals (Table 8) for children two to five years old.

  **Rating: Consensus**
  Imperative

  **PWM: Children Two to Five Years Old, Interventions**

  The practitioner should refer to the Expert Committee Recommendations for interventions (Table 8) with children two to five years old.

  **Rating: Consensus**
  Imperative

- **Risks/Harms of Implementing This Recommendation**

  - A negative energy balance during this period of rapid growth and development may have detrimental effects
  - Nutrition interventions should be monitored by a registered dietitian to ensure adequate nutrition and growth and to prevent micro-nutrient deficiencies (see Pediatric Weight Management (PWM) Energy Restricted Diets).

- **Conditions of Application**

  Strategies for increasing physical activity among preschool children need not be highly structured. Regular outdoor play and decreased television viewing have been shown to be beneficial among some subpopulations of preschool children. The recent Expert Committee report recommends no television for children less than two years old.


  Medical monitoring of growth and development is critical in the treatment of this age group, since a negative energy balance, during this period of rapid growth and development, may have detrimental effects.

  Adequate screening of family risk factors is critical for this age group: See Pediatric Weight Management (PWM), Assessing Child and Family Diet Behaviors in Pediatric Obesity and Pediatric Weight Management (PWM) Assessing Family Climate Factors.

- **Potential Costs Associated with Application**

  None.

- **Recommendation Narrative**

  Research was not identified on the efficacy and safety of weight-loss interventions among children ages two to five. The ADA Pediatric Weight Management Work Group refers the reader to the Expert Committee Recommendations regarding weight goals and approaches to weight management within this age group Sarah E. Barlow and the Expert Committee. Expert Committee Recommendations Regarding the Prevention, Assessment, and Treatment of Child and Adolescent Overweight and Obesity: Summary Report. Pediatrics, 2007; 120; S164-S192.

- **Recommendation Strength Rationale**

  The rating of "consensus" was based on the lack of direct research on this age group and because the ADA Work Group drew on the consensus recommendations in Sarah E. Barlow and the Expert Committee. Expert Committee Recommendations Regarding the Prevention, Assessment, and Treatment of Child and Adolescent Overweight and Obesity: Summary Report. Pediatrics, 2007; 120; S164-S192.

- **Minority Opinions**

  None.
Quick Links

Recommendations Summary

Pediatric Weight Management (PWM) Assessing Foods and Pediatric Overweight

Click here to see the explanation of recommendation ratings (Strong, Fair, Weak, Consensus, Insufficient Evidence) and labels (Imperative or Conditional). To see more detail on the evidence from which the following recommendations were drawn, use the hyperlinks in the Supporting Evidence Section below.

PWM: Foods Associated with an Increased Risk of Overweight

Dietary factors that may be associated with an increase in the risk of overweight and should be included in Nutrition Assessment are: increased total dietary fat intake and increased calorically sweetened beverages. ADA Evidence Analysis has shown that these factors are positively associated with childhood overweight.

Rating: Strong
Imperative

PWM: Foods Associated with a Decreased Risk of Overweight

Dietary factors that may be associated with a decrease in the risk of overweight and should be included in Nutrition Assessment are: increased fruit and vegetable intake. ADA Evidence Analysis has shown that these factors may be negatively associated with childhood overweight

Rating: Strong
Imperative

PWM: Assessment - Total Energy Intake and 100% Fruit Juice

Dietitians should be aware of the research on the following dietary factors when carrying out their Nutrition Assessment: reported total energy intake and 100% fruit juice intake. ADA Evidence Analysis has found that these factors may or may not be related to pediatric overweight, but the research is still unclear on the relationship.

Rating: Fair
Imperative

PWM: Assessment - Dairy and Calcium

Dietitians should be aware of the observational research that indicates an inadequate intake of dairy and calcium may be related to an increase in the risk of pediatric overweight. Consideration should be given to including dairy and calcium intake as part of the nutrition assessment.

Rating: Fair
Imperative

- Risks/Harms of Implementing This Recommendation

None

- Conditions of Application

The above topics were selected for evidence analysis. However:

- The practitioner should not limit their assessment to these factors
- Modification of these factors should be considered when developing the nutrition prescription
- Evidence analysis on other factors is currently underway and will be added to the guideline as they are finished

- Potential Costs Associated with Application

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Evidence analysis was carried out on several foods associated with pediatric overweight. All factors are based only on observational (association) research and do not include research on interventions.

The following foods and nutrients were associated with an increased risk of pediatric overweight:
- increased total dietary fat intake (Grade II)
- calorically sweetened beverages (Grade II)
- inadequate intake of dairy and calcium (both Grade III)

The following foods and nutrients were associated with a decreased risk of pediatric overweight:
- increased fruit and vegetable intake (Grade II)
- reported total energy intake (Grade II)
- 100% fruit juice intake (Grade II)

The following foods and nutrients may not be related to pediatric overweight. A relationship may or may not, in fact, exist, but research has not been able to determine this definitively.
- reported total energy intake (Grade II)
- 100% fruit juice intake (Grade II)

No direct research was analyzed regarding the benefits of knowledge-based assessment and intervention practices. However, the work group felt strongly that knowledge of relevant scientific research is indispensable for responsible dietetic practice.

With the exception of the evidence on dairy and calcium, all grades for the food and nutrient associations with childhood overweight were a Grade II. Additionally, while there is no risk to the patient/client with respect to the practitioner’s knowledge of these factors, the dietitian’s ignorance of this research could result in substantial risk to the patient/client.

The recommendations were created from the evidence analysis on the following questions. To see detail of the evidence analysis, click the blue hyperlinks below (recommendations rated consensus will not have supporting evidence linked).
- Is intake of calcium related to adiposity in children?
- Is intake of dairy related to adiposity in children?
- Is intake of 100% fruit juice related to adiposity in children?
- Is intake of fruits and vegetables related to adiposity in children?
- Is intake of calorically-sweetened beverages related to adiposity in children?
- Is intake of dietary fat associated with adiposity in youth?
- Is total energy (caloric) intake associated with higher risk or prevalence of overweight among children?
- In children, does using beverages with non-nutritive sweeteners (saccharin, aspartame, acesulfame-K, sucralose, neotame) in a calorie-restricted or ad libitum diet affect energy balance?

References

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References not graded in Academy of Nutrition and Dietetics Evidence Analysis Process

None

**Quick Links**

**Recommendations Summary**

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Pediatric Weight Management (PWM) Assessing Child and Family Diet Behaviors in Pediatric Obesity

Click here to see the explanation of recommendation ratings (Strong, Fair, Weak, Consensus, Insufficient Evidence) and labels (Imperative or Conditional). To see more detail on the evidence from which the following recommendations were drawn, use the hyperlinks in the Supporting Evidence Section below.

- **Recommendation(s)**

  **PWM: Family Diet Behaviors - Increased Risk of Obesity**

  Child and family diet behavior factors that may be associated with an increase in the risk of pediatric obesity and should be included in Nutrition Assessment are: Parental restriction of highly-palatable foods, consumption of food away from home, increased portion size of meals and breakfast-skipping. ADA Evidence Analysis has shown that these factors are positively associated with childhood overweight or obesity.

  **Rating:** Fair
  **Imperative**

- **PWM: Family Diet Behaviors - Relationship Unclear**

  Dietitians should be aware of the research on the following child and family diet behavior factors when carrying out their Nutrition Assessment: Parental encouragement or pressure to eat, parental control over child's dietary intake, meal frequency, snacking frequency or snack food intake and using food as a reward. ADA Evidence Analysis has found that these factors may not be related to pediatric overweight or obesity or that the research is still unclear on the relationship.

  **Rating:** Fair
  **Imperative**

  - **Risks/Harms of Implementing This Recommendation**

    None.

  - **Conditions of Application**

    The above topics were selected for evidence analysis. However:
    - The practitioner should not limit their assessment to these factors
    - Modification of these factors should be considered when developing the nutrition prescription
    - Evidence analysis on other factors is currently underway and will be added to the guideline as they are finished.

  - **Potential Costs Associated with Application**

    None.

  - **Recommendation Narrative**

    Evidence analysis was carried out on several child and family diet behaviors associated with pediatric obesity.
    - All factors are based only on observational (association) research and do not include research on interventions.
    - The following child and family diet behaviors were associated with an increased risk of pediatric obesity:
      - Parental restriction of highly palatable foods (Grade II)
      - Consumption of food away from home (Grade III)
      - Increased portion size of meals (Grade III)
      - Breakfast-skipping (Grade III).
    - The following child and family diet behaviors may not be related to pediatric obesity. A relationship may or may not, in fact, exist, but research has not been able to determine this definitively:
      - Parental encouragement or pressure to eat (Grade II)
      - Parental control over child's dietary intake (Grade II)
      - Meal frequency (Grade III)
      - Snacking frequency or snack food intake (Grade III)
      - Using food as a reward (Grade III).

  - **Recommendation Strength Rationale**

    No direct research was analyzed regarding the benefits of knowledge-based assessment and intervention practices. However, the work group felt strongly that knowledge of relevant scientific research is indispensable for responsible dietetic practice.

    The majority of grades for the associations between child and family diet behaviors and pediatric obesity were a Grade III. However, while there is no risk to the patient or client, with respect to the practitioner's knowledge of these factors, the dietitian's ignorance of this research could result in substantial risk to the patient or client.

  - **Minority Opinions**

    None.
Supporting Evidence

The recommendations were created from the evidence analysis on the following questions. To see detail of the evidence analysis, click the blue hyperlinks below (recommendations rated consensus will not have supporting evidence linked).

Is eating out related to adiposity in children?
Is portion size related to adiposity in children?
Is breakfast skipping related to adiposity in children?
Is eating frequency related to adiposity in children?
Is snacking related to adiposity in children?
Is parental encouragement/pressure to eat associated with higher risk or prevalence of overweight among children?
Is parental restriction of highly palatable foods associated with higher risk or prevalence of overweight among children?
Is parental control over child dietary intake associated with higher risk or prevalence of overweight among children?
Is using food as a reward (Instrumental feeding) & emotional feeding associated with higher risk or prevalence of overweight among children?

References


Fisher JO, Birch LL. Restricting access to foods and children’s eating. Appetite 1999; 32: 405-419.


French SA, Story M, Neumark-Sztainer D, Fulkerson JA, Hannan P. Fast food restaurant use among adolescents: associations with nutrient intake, food choices and behavioral and psychosocial variables. International Journal of
Obesity. 2001;1832-1833.


References not graded in Academy of Nutrition and Dietetics Evidence Analysis Process

None.

Pediatric Weight Management

Pediatric Weight Management (PWM) Guideline (2007)

Quick Links

Recommendations Summary

Pediatric Weight Management (PWM) Assessing Physical Activity and Sedentary Behaviors

Click here to see the explanation of recommendation ratings (Strong, Fair, Weak, Consensus, Insufficient Evidence) and labels (Imperative or Conditional). To see more detail on the evidence from which the following recommendations were drawn, use the hyperlinks in the Supporting Evidence Section below.

Recommendation(s)

PWM: Sedentary Behaviors that Increase the Risk of Pediatric Overweight and Obesity

Sedentary behaviors that may be associated with an increase in the risk of pediatric overweight and obesity and that should be included in Nutrition Assessment are: Excessive television viewing and excessive use of video games. ADA Evidence Analysis has shown that these factors are positively associated with childhood overweight and obesity.

Rating: Fair

Imperative

PWM: Physical Activity Behaviors that Decrease the Risk of Pediatric Overweight and Obesity

Physical activity behaviors that may be associated with a decrease in the risk of pediatric overweight and obesity and that should be included in Nutrition Assessment are: Regular physical activity and sports participation. ADA Evidence Analysis has shown that these factors may be negatively associated with childhood overweight and obesity.

Rating: Fair

Imperative

Risks/Harms of Implementing This Recommendation

None.

Conditions of Application

The above topics were selected for evidence analysis. However:

- The practitioner should not limit their assessment to these factors
- Modification of these factors should be considered when developing the nutrition prescription
- Evidence analysis on other factors is currently underway and will be added to the guideline as they are finished.

Potential Costs Associated with Application

None.

Recommendation Narrative

- Evidence analysis was carried out on several physical activity and sedentary behavior factors associated with pediatric overweight and obesity
- All factors are based only on observational (association) research and do not include research on interventions
- The following physical activity and sedentary behavior factors were associated with an increased risk of pediatric overweight and obesity:
  - Excessive television viewing (Grade II)
  - Excessive use of video games (Grade III).
- The following physical activity and sedentary behavior factors were associated with a decreased risk of pediatric overweight and obesity:
  - Regular physical activity (Grade II)
  - Sports participation (Grade III).
**Recommendation Strength Rationale**

No direct research was analyzed regarding the benefits of knowledge-based assessment and intervention practices. However, the work group felt strongly that knowledge of relevant scientific research is indispensable for responsible dietetic practice.

The grades for the physical activity and sedentary behavior factors associated with childhood overweight and obesity were evenly split between Grade II and Grade III. However, while there is no risk to the patient or client, with respect to the practitioner’s knowledge of these factors, the dietitian’s ignorance of this research could result in substantial risk to the patient or client.

**Minority Opinions**

None.

**Supporting Evidence**

The recommendations were created from the evidence analysis on the following questions. To see detail of the evidence analysis, click the blue hyperlinks below (recommendations rated consensus will not have supporting evidence linked).

- Is frequent television viewing associated with a higher risk or prevalence of overweight among youth?
- Is frequent use of video games associated with a higher risk or prevalence of overweight among youth?
- Is physical activity associated with a lower risk or prevalence of overweight among youth?
- Does participation in sports or exercise programs reduce the risk or prevalence of overweight among youth?

**References**


References not graded in Academy of Nutrition and Dietetics Evidence Analysis Process

None.

Pediatric Weight Management
Pediatric Weight Management (PWM) Guideline (2007)

Recommendations Summary

Pediatric Weight Management (PWM) Determination of Total Energy Expenditure

Click here to see the explanation of recommendation ratings (Strong, Fair, Weak, Consensus, Insufficient Evidence) and labels (Imperative or Conditional). To see more detail on the evidence from which the following recommendations were drawn, use the hyperlinks in the Supporting Evidence Section below.

Recommendation(s)

PWM: Option for Determining Energy Expenditure

If possible, RMR should be measured (e.g., indirect calorimetry). If RMR cannot be measured, then the equations for estimating total energy expenditure in overweight youth provided in the 2005 US Institutes of Medicine "Dietary Reference Intakes for Energy, Carbohydrate, Fiber, Fat, Fatty Acids, Cholesterol, Protein, and Amino Acids (Macronutrients)." may be used. Estimated energy needs should be based on Total Energy Expenditure (TEE--see below for TEE calculation).

Rating: Consensus
Conditional

PWM: Types of Energy Expenditure Indices

Total Energy Expenditure (TEE) is the sum of BEE (which includes a small component associated with arousal, as compared to sleeping), thermic effect of food, physical activity, thermoregulation, and the energy expended in depositing new tissues and in producing milk.

Basal energy expenditure (BEE) is determined by extrapolating BMR to 24 hours, expressed as kcal/24 h.

Basal metabolic rate (BMR) corresponds to the situation in which food and physical activity have minimal influence on metabolism. The BMR reflects the energy needed to sustain the metabolic activities of cells and tissues, plus the energy needed to maintain blood circulation, respiration, and gastrointestinal and renal processing (i.e., the basal cost of living).

PWM: Calculations for Total Energy Expenditure

TEE in Overweight Boys Ages 3 Through 18 Years in a Weight Maintenance Program
TEE = 114 – (50.9 × age [y]) + PA × (19.5 × weight [kg] + 1161.4 × height [m])

Where PA is the physical activity coefficient:

- PA = 1.00 if PAL is estimated to be = 1.0 < 1.4 (sedentary)
- PA = 1.12 if PAL is estimated to be = 1.4 < 1.6 (low active)
- PA = 1.24 if PAL is estimated to be = 1.6 < 1.9 (active)
- PA = 1.45 if PAL is estimated to be = 1.9 < 2.5 (very active)

**TEE in Overweight Girls Ages 3 Through 18 Years in a Weight Maintenance Program**

TEE = 389 – (41.2 × age [y]) + PA × (15.0 × weight [kg] + 701.6 × height [m])

Where PA is the physical activity coefficient:

- PA = 1.00 if PAL is estimated to be = 1.0 < 1.4 (sedentary)
- PA = 1.18 if PAL is estimated to be = 1.4 < 1.6 (low active)
- PA = 1.35 if PAL is estimated to be = 1.6 < 1.9 (active)
- PA = 1.60 if PAL is estimated to be = 1.9 < 2.5 (very active)

Evidence analysis not completed on pediatric population; not a recommendation.

- **Risks/Harms of Implementing This Recommendation**

  None

- **Conditions of Application**

  Use of the 2005 US Institutes of Medicine "Dietary Reference Intakes for Energy, Carbohydrate, Fiber, Fat, Fatty Acids, Cholesterol, Protein, and Amino Acids (Macronutrients)" is suggested. However, the practitioner's clinical judgement should be used to determine the appropriate method of energy expenditure estimation.

- **Potential Costs Associated with Application**

  Measuring energy expenditure requires specialized equipment which may be cost prohibitive for some programs. If costs of the measurement of energy expenditure is passed along to families in the program, costs could be prohibitive to lower income families.

- **Recommendation Narrative**

  No evidence analysis was completed for this question at this stage.

- **Recommendation Strength Rationale**

  Consensus rating is based on the lack of evidence analysis carried out for pediatric weight management.

- **Minority Opinions**

  None

- **Supporting Evidence**

  The recommendations were created from the evidence analysis on the following questions. To see detail of the evidence analysis, click the blue hyperlinks below (recommendations rated consensus will not have supporting evidence linked).

  - **References**
  - References not graded in Academy of Nutrition and Dietetics Evidence Analysis Process
  - 2005 US Institutes of Medicine "Dietary Reference Intakes for Energy, Carbohydrate, Fiber, Fat, Fatty Acids, Cholesterol, Protein, and Amino Acids (Macronutrients)"
  - The reader who is interested in the details of the IOM Report's methods for creating the equations may find them at [http://www.nap.edu/catalog/10490.html](http://www.nap.edu/catalog/10490.html) (especially chapter 5 and Appendix I).

- **Pediatric Weight Management**
- **Pediatric Weight Management (PWM) Guideline (2007)**

**Quick Links**

**Recommendations Summary**

Pediatric Weight Management (PWM) Assessing Family Climate Factors

Click here to see the explanation of recommendation ratings (Strong, Fair, Weak, Consensus, Insufficient Evidence) and labels (Imperative or Conditional). To see more detail on the evidence from which the following recommendations were drawn, use the

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• Recommendation(s)

PWM: Family Climate - Increased Risk of Overweight or Obesity

Family climate factors that may be associated with an increase in the risk of pediatric obesity and should be included in Nutrition Assessment are: Parental dietary disinhibition and restraint, negative aspects of family functioning (such as lack of parental support or over-possessiveness) and parental concern about child’s weight status. ADA Evidence Analysis has shown that these factors are positively associated with childhood overweight or obesity.

Rating: Fair
Imperative

PWM: Family Climate - Decreased Risk of Overweight or Obesity

Family climate factors that may be associated with a decrease in the risk of pediatric obesity and should be included in Nutrition Assessment are: Positive aspects of family functioning (such as family cohesion, expressiveness, democratic style, parental support and cognitive stimulation at home). ADA Evidence Analysis has shown that these factors may be negatively associated with childhood overweight or obesity.

Rating: Fair
Imperative

PWM: Family Climate - Relationship Unclear

Dietitians should be aware of the research on the following family climate factor when carrying out their Nutrition Assessment: Household food insecurity. ADA Evidence Analysis has found that this factor may not be related to pediatric overweight or obesity or that the research is still unclear on the relationship.

Rating: Fair
Imperative

• Risks/Harms of Implementing This Recommendation

None.

• Conditions of Application

The above topics were selected for evidence analysis. However:

• The practitioner should not limit her assessment to these factors
• Modification of these factors should be considered when developing the nutrition prescription
• Evidence analysis on other factors is currently underway and will be added to the guideline as they are finished.

• Potential Costs Associated with Application

None.

• Recommendation Narrative

• Evidence analysis was carried out on several family climate factors associated with pediatric overweight or obesity.
• All factors are based only on observational (association) research and do not include research on interventions.
• The following family climate factors were associated with an increased risk of pediatric overweight or obesity:
  • Parental dietary disinhibition and restraint (Grade III)
  • Negative aspects of family functioning such as lack of parental support or over-possessiveness (Grade III)
  • Parental concern about child’s weight status (Grade II).
• The following family climate factors were associated with a decreased risk of pediatric overweight or obesity:
  • Positive aspects of family functioning such as family cohesion, expressiveness, democratic style, parental support and cognitive stimulation at home (Grade III).
• The following family climate factors may not be related to pediatric overweight or obesity. A relationship may or may not, in fact, exist, but research has not been able to determine this definitively:
  • Household food insecurity (Grade II).

• Recommendation Strength Rationale

No direct research was analyzed regarding the benefits of knowledge-based assessment and intervention practices. However, the work group felt strongly that knowledge of relevant scientific research is indispensable for responsible dietetic practice.

The majority of grades for the family climate factors associated with childhood overweight or obesity were a Grade III. However, while there is no risk to the patient or client with respect to the practitioner's knowledge of these factors, the dietitian's ignorance of this research could result in substantial risk to the patient or client.

• Minority Opinions
Supporting Evidence

The recommendations were created from the evidence analysis on the following questions. To see detail of the evidence analysis, click the blue hyperlinks below (recommendations rated consensus will not have supporting evidence linked).

- Are parental attitudes towards their own dietary intakes (Dietary restraint & disinhibition) associated with higher risk or prevalence of overweight among children?
- Is family functioning associated with higher risk or prevalence of overweight among children?
- Is parental concern about or criticism of their child's weight status associated with higher risk or prevalence of overweight among children?
- What is the relationship between household food insecurity and childhood overweight?

References


Davison KK, Birch LL. Processes linking weight status and self-concept among girls from ages 5 to 7 years. *Developmental Psychology*. 2002; 38: 735-748.

Kelishadi R, Pour MH, Sarraf-Zadeqan N, Sadry GH, Ansari R, Alikhassy H, Bashardoust N. Obesity and associated...


- References not graded in Academy of Nutrition and Dietetics Evidence Analysis Process

None.

- Pediatric Weight Management
- Pediatric Weight Management (PWM) Guideline (2007)

Quick Links

Recommendations Summary

Pediatric Weight Management (PWM) Nutrition Prescription in the Treatment of Pediatric Obesity

*Click here* to see the explanation of recommendation ratings (Strong, Fair, Weak, Consensus, Insufficient Evidence) and labels (Imperative or Conditional). To see more detail on the evidence from which the following recommendations were drawn, use the hyperlinks in the Supporting Evidence Section below.

- **Recommendation(s)**
  
  **PWM: Nutrition Prescription**

  A nutrition prescription should be formulated as part of the dietary intervention in a multi-component pediatric weight-management program. The exact specification of nutrients and energy is often translated into a specific eating plan. Nutrition interventions are selected based on the nutrition prescription. Research shows that when an individualized nutrition prescription is included, improvements in weight status in children and adolescents are consistent. When an individualized nutrition prescription is not included, results are less consistent.

  **Rating:** Strong
  
  Imperative

- **Risks/Harms of Implementing This Recommendation**

  None.

- **Conditions of Application**

  The patient's or client’s individualized recommended dietary intake of energy and selected foods or nutrients should be based on current reference standards and dietary guidelines and the patient's or client's health condition and nutrition diagnosis.

  Before starting a prescribed diet plan that will be hypocaloric, the child or adolescent should have a complete medical exam performed by a qualified medical provider, who should also approve of the child or adolescent being placed on this individualized diet.

  To be able to provide a prescribed diet plan, the registered dietitian needs to have accurate measurements of height and weight. The registered dietitian should be familiar with ways of estimating energy needs of children and adolescents who suffer from pediatric overweight or pediatric obesity. Whenever possible, direct measurement of energy requirements should be obtained through indirect calorimetry, although this technique may not be readily available to most dietitians (see Determining Energy Needs in Overweight Children and Adolescents).

  The prescribed diet plan should be discussed with the child as well as his or her caregivers, and the family’s habits as well as any cultural or religious restrictions should be taken into account when prescribing dietary changes. Close follow-up of the child or adolescent is essential when prescribing an individualized diet plan, with scheduled visits with the registered dietitian to discuss progress and measure weight. Depending on the child’s or adolescent’s progress, changes should be made to the prescribed diet plan.

- **Potential Costs Associated with Application**

  Designing, providing and following-up on a prescribed diet plan will require additional time from the registered dietitian, thus adding to the cost of the program. This additional time and costs may stress the budget of existing programs.

  If program costs are passed on directly to patients, this may limit access for patients and their families who do not have health insurance coverage.

  Absence of health insurance coverage for weight management could limit program access.

- **Recommendation Narrative**

  The majority of research identified on multi-component weight-management programs for children and adolescents appeared to include individualized dietary recommendations (that is, dietary recommendations which were based on differences in sex, age, weight, etc.).
When both a decrease as well as stabilization in weight status are taken together as positive outcomes, the large majority of the 39 studies analyzed indicates that a prescribed diet plan is associated with positive outcomes in children ages six to 12. Research on adiposity outcomes one year or more from post-treatment indicate that the use of a prescribed diet plan is associated with longer-term improvement in adiposity outcomes (Grade I). All seven studies (13 treatment arms) of outcomes with adolescents indicate that the use of a prescribed diet plan is associated with positive longer-term outcomes, with the majority of treatment arms demonstrating a longer-term (more than one year) decrease in adiposity (Grade I).

**Recommendation Strength Rationale**

The evidence for positive outcomes was much stronger when a prescribed diet plan was used (Grade I for both children and adolescents). In contrast, the evidence of the effectiveness of diet interventions that did not include prescribed diet plans (but only nutrition education) was weak (Grade III for children and Grade II for adolescents).

**Minority Opinions**

None.

**Supporting Evidence**

The recommendations were created from the evidence analysis on the following questions. To see detail of the evidence analysis, click the blue hyperlinks below (recommendations rated consensus will not have supporting evidence linked).

**What is the effectiveness of using a prescribed dietary plan as part of an intervention program for child (ages 6-12) obesity?**

**What is the effectiveness of using a prescribed dietary plan as part of an intervention program for adolescent (ages 13-18) obesity?**

**References**


Epstein LH, Paluch RA, and Raynor HA. Sex Differences in Obese Children and Siblings in Family-based Obesity Treatment. *Obesity Research* 2001;9:746-753.


**Pediatric Weight Management (PWM) Guideline (2007)**

**EAL Resources section.**


- **International Dietetics & Nutrition Terminology (IDNT)**

**References not graded in Academy of Nutrition and Dietetics Evidence Analysis Process**


*ADA Members only: [Click here](#) for the link to the Research page on the ADA website members page where you can find 12 presentations about the Nutrition Care Process.*

- **Pediatric Weight Management**

- **Pediatric Weight Management (PWM) Guideline (2007)**
Pediatric Weight Management (PWM) Energy Restricted Diets

If energy-restriction is appropriate, based on the registered dietitian's professional judgment, then a balanced macro-nutrient diet that contains no fewer than 900kcal per day is recommended to improve weight status within a multi-component pediatric weight management program in children ages six to 12, who are medically monitored. Research indicates that balanced macro-nutrient diets at 900kcal to 1,200kcal per day are associated with both short-term and longer-term (more than one year) improved weight status and body composition among six- to 12-year-old children.

Rating: Strong
Conditional

If energy-restriction is appropriate, based on the registered dietitian's professional judgment, then a balanced macro-nutrient diet that contains no fewer than 1,200kcal per day is recommended to improve weight status within a multi-component pediatric weight-management program in adolescents (ages 13 to 18), who are medically monitored. Research indicates that energy-restricted balanced macro-nutrient diets no lower than 1,200kcal per day are associated with both short-term and longer-term (more than one year) improved weight status and body composition among 13- to 18-year-old adolescents.

Rating: Strong
Conditional

Note: A balanced macro-nutrient diet for children is defined by the DRI in terms of the following percentage of daily energy intake: Carbohydrates (45% to 65%), protein (10% to 35%), fat (20% to 35%).

Risks/Harms of Implementing This Recommendation

Children and adolescents on energy-restricted diets should be monitored for adequate micro-nutrient intake as well as adequate growth and development.

Conditions of Application

Patient, family and caregiver goals should be considered in determining treatment goals.

Potential Costs Associated with Application

- Longer-term (more than one year) participation in a weight-management program may be necessary to sustain improvement in weight status and body composition. However, longer-term participation increases costs both for the program and to the patient.
- If organizational and program costs are passed on to participants, this could limit program access.
- Additionally, parent commitment to program participation is required.
- The absence of health insurance coverage for weight management could limit program access.

Recommendation Narrative

While balanced macro-nutrient, reduced-calorie diets (over 1,200kcal to the recommended kcal-per-day level, per DRI) were inconsistent in their results (Grade III) in children (ages six to 12), using a balanced macro-nutrient, low-calorie diet (900kcal to 1,200kcal per day), as part of a multi-component weight-management program, showed consistent reduction in adiposity measures, both short-term and longer-term (Grade I).

In adolescents, if stabilization of weight is taken as the minimum measure of effectiveness, then eight of the nine treatment arms examined indicate that a balanced macro-nutrient, calorie-deficit diet (more than 1,200kcal to recommended kcal-per-day level, per DRI) is effective in the short-term for treatment of adolescent obesity (Grade I). However, in all cases where follow-up occurred, adolescents had gained some if not all of their weight back.


The ADA Evidence Analysis Work Group on Pediatric Weight Management (focused on the treatment of childhood obesity) completed the evidence analysis on a series of childhood obesity topics.
Management Evidence Analysis Project) and released their Evidence-Based Pediatric Weight Management Nutrition Practice Guideline in Summer 2007. The Work Group determined, at the time of the ADA guidelines were created, that recommendations of the Expert Committee would be used to supplement the ADA Pediatric Weight Management Guideline, as there were a few topical areas where there was insufficient research to make strong evidence-based recommendations.

In cases where there was a paucity of research, the ADA Work Group followed the Expert Committee's recommendations. In only one case did the Expert Committee's recommendation differ from the ADA Work Group's recommendation. This is with regard to energy intake recommendations for treatment of pediatric obesity within a medically-supervised, multi-component pediatric weight-management program.

**Different Energy Intake Recommendations**

Even though the ADA Work Group and the Expert Committee examined the same body of research, the Expert Committee decided to exclude a body of research by Epstein, et al. This influenced their recommendation for energy intake in treating obesity in children (ages six to 12). The Expert Committee treated this body of research separately from the research used to formulate their major recommendation and did not include the results of this research as part of their final recommendation. In the Expert Committee's words:

"Because the research by Epstein et al focused primarily on white, middle-class, intact families with younger children (6–12 years of age), it is...unclear how well results may be generalized beyond this population." (p.261).

The ADA Work Group also treated the Epstein et al research separately (using the Traffic Light Diet). However, the ADA Work Group determined that challenges to generalizability for this research were no more serious than much of the other research on this topic. Thus, the ADA Work Group included the research on the Traffic Light Diet as part of the basis for formulating its recommendation for energy intake in children (ages six to 12 years).

**Comparison of the Two Groups' Recommendations**

- **ADA**
  - **PWM:** Energy-restricted diets; children six to 12 years old
    - If energy restriction is appropriate, based on the registered dietitian's professional judgment, then a balanced macro-nutrient diet that contains no fewer than 900kcal per day is recommended to improve weight status within a multi-component pediatric weight-management program in children ages six to 12 who are medically monitored.
    - Research indicates that balanced macro-nutrient diets at 900kcal to 1, 200kcal per day are associated with both short-term and longer-term (over one year) improved weight status and body composition among six- to 12-year-old children.
    - Grade: Strong
    - Conditional.
  - **Expert Committee**
    - Although the outcomes are mixed, evidence does suggest that, in both the short term and the long term, a reduced-energy diet [less energy than required to maintain weight, but not less than 1, 200kcal (5, 040kJ per day)] may be an effective part of a multi-component weight-management program in children six to 12 years of age. (Spear BA, Barlow SE, Ervin C, Ludwig DS, Saelens BE, Schetzina KE, Taveras EM. Recommendations for treatment of child and adolescent overweight and obesity. *Pediatrics.* 2007, Dec; 120 Suppl 4: S254-298. p.260).

- **Recommendation Strength Rationale**
  - The evidence for short- and longer-term (more than one year) improvement in adiposity status for children (ages six to 12) was given a Grade I, according to ADA evidence standards.
  - The evidence for short-term (under one year) improvement in adiposity status for adolescents (ages 13 to 18) was given a Grade I, according to ADA evidence standards.

- **Minority Opinions**
  - None.

- **Supporting Evidence**

The recommendations were created from the evidence analysis on the following questions. To see detail of the evidence analysis, click the blue hyperlinks below (recommendations rated consensus will not have supporting evidence linked).

- In children ages 6-12, what is the effectiveness of using balanced macronutrient, low calorie (900-1200 kcal per day) dietary interventions for treating childhood obesity?
- In children ages 6-12, what is the effectiveness of using balanced macronutrient, reduced calorie (>1200 kcal-DRI per day) dietary interventions for treating childhood obesity?
- In adolescents, what balanced macronutrient dietary interventions are effective in treating obesity?

- **References**
References not graded in Academy of Nutrition and Dietetics Evidence Analysis Process.
Recommendations Summary

Pediatric Weight Management (PWM) Reduced Glycemic Load Diet

Click here to see the explanation of recommendation ratings (Strong, Fair, Weak, Consensus, Insufficient Evidence) and labels (Imperative or Conditional). To see more detail on the evidence from which the following recommendations were drawn, use the hyperlinks in the Supporting Evidence Section below.

**PWM: Reduced Glycemic Load Diet - Children Six to 12 Years**

If an ad libitum, reduced glycemic load diet is selected for use in children (ages six to 12), then this diet could be used to produce modest short-term improvement in weight status. Limited research shows that an ad libitum reduced glycemic load diet results in short-term improvement in weight status in this age group.

**Rating:** Weak

**Conditional**

**PWM: Reduced Glycemic Load Diet - Adolescents**

If an ad libitum reduced glycemic load diet is selected for use in adolescents (ages 13 to 18), then this diet could be used to produce modest short-term and longer-term improvement in weight status and body composition. Limited research shows that an ad libitum reduced glycemic load diet results in short-term improvement in weight status and body composition in this age group. One study shows weight status improvement at one year.

**Rating:** Fair

**Conditional**

**Risks/Harms of Implementing This Recommendation**

None.

**Conditions of Application**

Parents or caregivers of obese children need to participate in the counseling process.

**Potential Costs Associated with Application**

- The use of specialized commercial food products to implement this diet could be an additional cost
- If organizational and program costs are passed on to participants, this could limit program access.
- Additionally, parent commitment to program participation is required.
- The absence of health insurance coverage for weight management could limit program access.

**Recommendation Narrative**

Three studies were identified that met inclusion criteria for treatment of childhood obesity using a low glycemic load diet. In all three studies (Ebbeling CB, Leidig MM et al., 2003; Spieth L, Harnish J et al., 2000; Young, West et al., 2004), results showed an improvement in anthropometric outcomes measured by BMI. However, only Ebbeling et al., showed long-term improvement, in one-year follow-up data, of anthropometric outcomes.

In the analysis of six studies (Ludwig DS, Majzob et al., 1999; Ball SD, Keller KR et al., 2003; Ebbeling CB, Leidig MM et al., 2003; Warren, Henry et al., 2003; Young, West et al., 2004; Spieth L, Harnish J et al., 2000), which prescribed an ad libitum low glycemic load diet or meal to their subjects, all studies that reported the actual intake showed a reduction in caloric intake (compared to either baseline calorie intake or higher glycemic load diet).

Thus, it is likely that one of the reasons low glycemic diets may bring about weight loss is simply that this type of diet brings about a reduced caloric intake. In the Ebbeling et al. study, both groups, the low-fat hypocaloric diet and the ad libitum low glycemic diet, demonstrated a reduction in energy intake from baseline to follow-up. However, the low glycemic diet group was able to demonstrate long-term weight loss, while the low-fat hypocaloric group regained the lost weight.

**Recommendation Strength Rationale**

1. Both conclusion statements are given Grade III
2. All studies had small numbers of participants (seven to 64 participants). Only one study (Ebbeling CB, Leidig MM et al., 2003) included a follow-up at one year. Of the three intervention studies, two were given a neutral rating and one a positive rating. However, the results of these studies were consistent supporting
the recommendations.

- **Minority Opinions**

None.

- **Supporting Evidence**

The recommendations were created from the evidence analysis on the following questions. To see detail of the evidence analysis, click the blue hyperlinks below (recommendations rated consensus will not have supporting evidence linked).

Are low-glycemic diets effective in treating obesity in children (age 6-12) and adolescents?

Do low-glycemic meals increase satiety in children and adolescents compared to higher glycemic meals?

- **References**


- References not graded in Academy of Nutrition and Dietetics Evidence Analysis Process

None.

- **Pediatric Weight Management**

- **Pediatric Weight Management (PWM) Guideline (2007)**

**Quick Links**

**Recommendations Summary**

**Pediatric Weight Management (PWM) Very Low Carbohydrate Diet**

*Click here* to see the explanation of recommendation ratings (Strong, Fair, Weak, Consensus, Insufficient Evidence) and labels (Imperative or Conditional). To see more detail on the evidence from which the following recommendations were drawn, use the hyperlinks in the Supporting Evidence Section below.

- **Recommendation(s)**

  **PWM: Very Low Carbohydrate Diet - Adolescents**

If a low-carbohydrate diet is selected for use in adolescents, then it is recommended for short-term (up to 12 weeks) use. The use of an *ad libitum* very-low-carbohydrate diet, which is defined as a diet containing 20g to 60g of carbohydrates to treat obese adolescents has shown short-term improvement in weight status. However, due to the lack of evidence, it is not recommended for long-term treatment of pediatric obesity.

**Rating: Weak**

Conditional

- **Risks/Harms of Implementing This Recommendation**

  - Electrolyte imbalance, especially hypokalemia, can be a side-effect of the diet, especially when an adolescent is in a state of ketoacidosis
  - Electrolytes should be monitored and potassium should be supplemented through dietary supplements when this diet is implemented
  - Constipation may occur secondary to inadequate fiber and fluid intakes
  - A daily multi-vitamin supplement containing 100% of the *DRI* should be prescribed with the diet to ensure adequate vitamin and mineral intake especially since fruit, vegetable and dairy consumption may be limited.

- **Conditions of Application**

  - Adolescents with a positive family history of premature atherosclerosis or an *LDL-cholesterol* level above 130 should not be prescribed this diet
The very-low-carbohydrate diet has not been studied in children under the age of 12 years and therefore should not be used in this population. The very-low-carbohydrate diet should not be used in obese pregnant adolescents. Prior to implementing a protein-sparing modified fast diet, screen for pregnancy and provide anticipatory guidance to avoid pregnancy while on this diet.

Potential Costs Associated with Application

None.

Recommendation Narrative

There is only a single study, Sondike SB, Copperman N et al, 2003, that reports that adolescents on ad libitum, low-carbohydrate diets lose weight and improve BMI in the short term. Even though this study received a positive rating, there is too little research to be able to determine whether calorie unrestricted low-carbohydrate diets would be effective longer term (one year or more).

Recommendation Strength Rationale

Only one study with a positive rating available.

Minority Opinions

None.

Supporting Evidence

The recommendations were created from the evidence analysis on the following questions. To see detail of the evidence analysis, click the blue hyperlinks below (recommendations rated consensus will not have supporting evidence linked). 

What is the evidence to support using an ad libitum, low carbohydrate diet as a way of treating obesity in adolescents?

What is the evidence to support using an ad libitum, low carbohydrate diet as a way of treating obesity in children (ages 6-12)?

References


References not graded in Academy of Nutrition and Dietetics Evidence Analysis Process

None.

Pediatric Weight Management

Pediatric Weight Management (PWM) Guideline (2007)

Quick Links

Recommendations Summary

Pediatric Weight Management (PWM) Using Protein Sparing Modified Fast Diets for Pediatric Weight Loss

Click here to see the explanation of recommendation ratings (Strong, Fair, Weak, Consensus, Insufficient Evidence) and labels (Imperative or Conditional). To see more detail on the evidence from which the following recommendations were drawn, use the hyperlinks in the Supporting Evidence Section below.

Recommendation(s)

PWM: Protein Sparing Modified Fast Diets: Short-term Treatment

If children and adolescents are >120% of ideal body weight, have serious medical complications and would benefit from rapid weight loss, then a Protein Sparing Modified Fast Diet (PSMF) could be utilized in a short-term intervention (typically 10 weeks) under the supervision of a multidisciplinary team of healthcare providers who specialize in pediatric obesity. Research shows that short term use of a PSMF brings about short term and longer term improvement in weight status and body composition when part of a medically supervised, multicomponent program.

Rating: Weak

Conditional

PWM: Protein Sparing Modified Fast Diets: Long-term Treatment

The Protein Sparing Modified Fast Diet is not recommended for long-term weight management for obesity in children or adolescents. There are few well designed studies to support the use of this intervention for longer than 10 weeks.
Risks/Harms of Implementing This Recommendation

- Electrolyte imbalance, especially hypokalemia, can be a side effect of the PSMF,
- Electrolytes should be monitored and potassium should be supplemented through dietary supplements when this diet is implemented,
- A daily multivitamin supplements containing 100% of the DRI should be prescribed with the diet to ensure adequate vitamin and mineral intake especially since fruit, vegetable and dairy consumption may be limited,
- Adequate fluid intake should be encouraged to prevent dehydration.

Conditions of Application

Parents/caregivers of obese children and adolescents need to participate in the counseling process.

The Protein Sparing Modified Fast Diet should not be used in obese pregnant adolescents. Prior to implementing PSMF, screen for pregnancy and provide anticipatory guidance to avoid pregnancy while on this diet.

PSMF stage of intervention should be followed by a less restrictive diet intervention.

Potential Costs Associated with Application

Additional medical and laboratory monitoring may incur increased healthcare costs.

Recommendation Narrative

The purpose of using a PSMF diet is to bring about rapid weight loss in obese children during the initial phase of treatment (10-20 weeks) while minimizing the negative effects of a very low calorie diet. Even though studies utilizing the PSMF diet showed significant short term weight loss (Figueroa-Colon, von Almen, et al 1993 Brown R, Sothern M et al 2000, Brown R, Sothern M et al 2000, Sothern and Hunter 1999, Sothern, M., Loftin, M. et al 2000, Sothern, M., Loftin, M. et al 2000) it is unclear if the weight loss can be solely attributed to the macronutrient content of the diet or a result of a hypocaloric intake. Only one study, Figueroa-Colon, von Almen, et al 1993, compared the PSMF to a hypocaloric balanced macronutrient diet. However, the PSMF intervention arm still consumed a mean of 200 kcal/day less than the hypocaloric balanced nutrient control group.

Long-term treatment outcomes (> =1 year) for PSMF studies show that subjects initially treated were able to maintain some weight loss at one year. However, the data is limited to 4 studies with neutral ratings and a majority of the data was from the same treatment program. The one study (Figueroa-Colon, von Almen, et al 1993) that compared the PSMF diet with a hypocaloric balanced macronutrient diet showed some weight regain at one year compared to their post-treatment weight but, the children remained below their pre-treatment weight.

Only 2 studies provided data on short term growth velocity but long-term effects on growth have not been studied. Data of hunger and satiety implications of the PSMF is very limited.

Recommendation Strength Rationale

Conclusion Statements are Grade III and V

- One received a positive rating, three received a neutral rating, and one received a negative rating,
- All studies present results from the same treatment program (thus, no variation across settings),
- Only one of the studies compared the use of a protein sparing modified fast diet with a control diet (balanced macronutrient diet)--and this study had subjects on the PSMF diet on a lower energy intake than the control group,
- Four of the studies report outcomes at one year (or greater) post treatment,
- Only two studies report on growth velocity,
- Only one study provided information on self reported hunger "side effects" of PSMF versus balanced macronutrient diet.

Minority Opinions

None.

Supporting Evidence

The recommendations were created from the evidence analysis on the following questions. To see detail of the evidence analysis, click the blue hyperlinks below (recommendations rated consensus will not have supporting evidence linked).

Does short term (no more than 20 weeks) use of protein sparing modified fast diets compromise fat free body mass in obese children?

Do protein sparing modified fast diets bring about greater weight loss in children than macronutrient balanced diets of the same level of energy intake?

Are children on protein sparing modified fast diets less hungry than children on balanced macronutrient diets at the same level of energy intake?

Do protein sparing modified fast diets preserve fat free body mass in children better than balanced macronutrient diets at the same level of energy intake?

What evidence is there that short-term use of protein sparing modified fast diets for childhood weight loss may compromise the growth velocity of children?

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References


References not graded in Academy of Nutrition and Dietetics Evidence Analysis Process

None.

Pediatric Weight Management

Pediatric Weight Management (PWM) Guideline (2007)

Quick Links

Recommendations Summary

Pediatric Weight Management (PWM) Very Low Fat Diet (Less than 20% Daily Energy Intake from Fat)

Click here to see the explanation of recommendation ratings (Strong, Fair, Weak, Consensus, Insufficient Evidence) and labels (Imperative or Conditional). To see more detail on the evidence from which the following recommendations were drawn, use the hyperlinks in the Supporting Evidence Section below.

Recommendation(s)

PWM: Very Low Fat Diet

Use of a very-low-fat diet (less than 20% of total daily energy) is not recommended for use in pediatric weight management. The efficacy of a very-low-fat diet, defined as less than 20% of total daily energy intake from fat in the treatment of pediatric obesity, has not been studied.

Rating: Insufficient Evidence

Imperative

• Risks/Harms of Implementing This Recommendation

None.

• Conditions of Application

None.

• Potential Costs Associated with Application

None.

• Recommendation Narrative

There are no studies in the pediatric population that used a very-low-fat diet, as defined above, as the dietary intervention for the treatment of pediatric obesity. Some trials used a modified-fat hypocaloric diet, based on the NCEP Step I Diet recommendations (Ebbeling CB, Leidig MM et al, 2003 and Spieth L, Harnish J et al, 2000) as the control dietary intervention, but the percentage of total calories from fat exceeded 20%.

• Recommendation Strength Rationale

Conclusion statement was a Grade V.

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and so there is no evidence to support using very-low-fat diets for treatment of pediatric obesity.

- **Minority Opinions**
  None.

- **Supporting Evidence**
  The recommendations were created from the evidence analysis on the following questions. To see detail of the evidence analysis, click the blue hyperlinks below (recommendations rated consensus will not have supporting evidence linked).

  **What is the evidence to support using a low fat diet (<20% of total daily energy intake) as a means to treat pediatric obesity?**

  - **References**
  - **References not graded in Academy of Nutrition and Dietetics Evidence Analysis Process**
    None.

- **Pediatric Weight Management**
  - **Pediatric Weight Management (PWM) Guideline (2007)**

**Quick Links**

**Recommendations Summary**

**Pediatric Weight Management (PWM) Nutrition Education in the Treatment of Pediatric Obesity**

*Click here to see the explanation of recommendation ratings (Strong, Fair, Weak, Consensus, Insufficient Evidence) and labels (Imperative or Conditional). To see more detail on the evidence from which the following recommendations were drawn, use the hyperlinks in the Supporting Evidence Section below.*

- **Recommendation(s)**

  **PWM: Tailor Nutrition Education to Nutrition Prescription**

  In a multi-component program, if there is a Nutrition Diagnosis for food and nutrition-related knowledge deficit, then Nutrition Education should be tailored to the Nutrition Prescription. Research shows that if nutrition education is not tailored to nutrition prescription, improvement in weight status is not consistent.

  **Rating:** Fair
  
  Conditional

  - **Risks/Harms of Implementing This Recommendation**
    None.

  - **Conditions of Application**
    
    The patient or the patient's family will almost always need some form of Nutrition Education. It is imperative that patient education be tailored to the specific knowledge deficits identified in the Nutrition Assessment.
    
    According to the Nutrition Diagnosis and Intervention: Standardized Language of the Nutrition Care Process:

    Nutrition Education is a formal process to instruct or train a patient/client in a skill or to impart knowledge to help the patients/clients voluntarily manage or modify food choices and eating behavior to maintain or improve health...In [some] cases the patient/client knows what to do but has been unable to make or sustain a behavioral change. (p.191).

    Thus, the dietitian must distinguish between the etiology or cause of the problem. If the patient or client or their family demonstrates adequate knowledge, but are still unable to make the behavioral changes, then nutrition education should be tailored to take advantage of existing knowledge to support the desired behavior change.

    Thus, it is critical for the nutrition education intervention be closely coordinated with the Nutrition Prescription.

  - **Potential Costs Associated with Application**
    Absence of health insurance coverage for weight management could limit program access.
Recommendation Narrative

Results from studies that include Nutrition Education without a prescribed diet plan are less consistent than results where nutrition education interventions were integrated with the Nutrition Prescription:

- See the evidence questions in the Supporting Evidence section below.
- These findings are in contrast to the outcomes reported from studies that integrated nutrition education with an individualized nutrition prescription. See Pediatric Weight Management (PWM) Nutrition Prescription in the Treatment of Pediatric Obesity.

Recommendation Strength Rationale

A strong body of research indicates much more consistent results when Nutrition Education is tailored to an individualized Nutrition Prescription [Grade I for combined nutrition prescription and nutrition education, Grade III (children) and Grade II (adolescents) for nutrition education alone.]

Minority Opinions

None.

Supporting Evidence

The recommendations were created from the evidence analysis on the following questions. To see detail of the evidence analysis, click the blue hyperlinks below (recommendations rated consensus will not have supporting evidence linked).

- What is the effectiveness of using nutrition education without a prescribed diet plan as the dietary component of a multicomponent pediatric weight management program in children (ages 6-12)?
- What is the effectiveness of using nutrition education without a prescribed diet plan as the dietary component of a multicomponent pediatric weight management program in adolescents (ages 13-18)?

References


References not graded in Academy of Nutrition and Dietetics Evidence Analysis Process


Quick Links

Recommendations Summary

Pediatric Weight Management (PWM) Nutrition Counseling and Behavior Therapy Strategies in the Treatment of Obesity in Children and Adolescents

Click here to see the explanation of recommendation ratings (Strong, Fair, Weak, Consensus, Insufficient Evidence) and labels (Imperative or Conditional). To see more detail on the evidence from which the following recommendations were drawn, use the hyperlinks in the Supporting Evidence Section below.

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• **Recommendation(s)**

**PWM: Nutrition Counseling**

Nutrition counseling, delivered by an RD (which is inclusive of goal-setting, self-monitoring, stimulus control, problem-solving, contingency management, cognitive restructuring, use of incentives and rewards and social supports), should be a part of the behavior therapy component of a multi-component pediatric weight-management program.

**Rating: Consensus**
**Imperative**

**PWM: Behavioral Therapy**

Behavior therapy strategies should be included as part of a multi-component pediatric weight-management program. Research shows that when behavior therapy strategies are included within the context of a multi-disciplinary team, weight status and body composition improve.

**Rating: Strong**
**Imperative**

**PWM: Family-Based Counseling**

Family-based counseling that includes parent training or modeling should be included as part of a multi-component weight-management program that targets children ages six to 12 years. During the development of a multi-component treatment program for children ages 12 years and younger, the registered dietitian should advise the health-care team on the advantages of incorporating parent training or modeling as part of the treatment program. Research studies that including parent training or modeling as part of a multi-component weight-management program for children 12 years and younger showed positive changes in a child’s weight status and adiposity.

**Rating: Strong**
**Imperative**

- **Risks/Harms of Implementing This Recommendation**
  None.

- **Conditions of Application**
  Additional training may be required for some dietitians to implement some behavior strategies.
  Adequate screening for eating disorders, depression and family risk factors (see the topics under Parent/Child Relationship or Emotional Climate) may fall outside the scope of expertise of individual dietitians and may require consultation with a behavioral therapy specialist member of the health-care team.

- **Potential Costs Associated with Application**
  Behavioral interventions targeting children may require resources that some programs do not have available. Program budgets may need to be increased in order to incorporate a behavioral component with a qualified professional. If program costs are passed directly to patients and families, this may limit access to the program for less affluent patients and their families. Absence of health insurance coverage for weight management could limit program access.

- **Recommendation Narrative**

**Recommendation: Nutritional Counseling by a Registered Dietitian**

Nutrition counseling is defined as "a supportive process, characterized by a collaborative counselor-patient/client relationship, to set priorities, establish goals, and create individualized action plans that acknowledge and foster responsibility for self-care to treat an existing condition and promote health."

**Recommendation: Behavioral Strategies**

Inclusion of behavioral therapy strategies was a well-developed and well-described part of the majority of the studies that show successful results. 50 of the studies reviewed contained a behavioral counseling component. Of these studies, eight compared a treatment group with a behavioral counseling component to a treatment group without behavioral training.

Seven of the randomized controlled trials received a positive quality rating, while one (Golan, Weizman, et al 1998) received a neutral quality rating.

The six studies that compared an intervention with a behavioral component to an intervention without a behavioral component all found that the treatment group that included a behavioral training intervention had greater improvement in adiposity than the comparison groups DISC, 1995; Flodmark CE, Ohlsson T et al, 1993; Graves T, Meyers AW et al, 1988; Saelens B, Sallis J et al, 2002; Obarzanek, Kimm et al, 2001; Golan, Weizman, et al, 1998).

In addition, intervention studies that included parent training or modeling showed positive changes in the child’s weight status and adiposity for children 12 years old and younger. The results of studies in youth over 12 years of age were more limited or inconsistent, thus the evidence to recommend parent training or modeling in obese adolescents needs further investigation.
Recommendation: Family-Based Counseling

There is a strong association between the inclusion of family-based counseling as part of the childhood obesity treatment program and reductions in weight status or adiposity in children ages six to 12. See What is the effectiveness of family-based counseling as a part of an intervention program to treat obesity in children (ages 6-12)? (Grade I).

Inclusion of family counseling as part of a multi-component adolescent weight-management program may provide beneficial effects. However, definite conclusions are hampered by the fact that evidence is limited to a small number of older studies, studies of weak design and inconsistent results. See What is the effectiveness of family-based counseling as a part of an intervention program to treat obesity in adolescents (ages 13-18)? (Grade III).

Recommendation Strength Rationale

Recommendation: Nutritional Counseling by a Registered Dietitian

Nutrition Counseling has been defined as an integral part of the Nutrition Care Process by the American Dietetic Association. Since the recommendation is policy-based, rather than research-based, the strength of the recommendation is consensus.

Recommendation: Behavioral Strategies

Strong – The six studies that compared an intervention with a behavioral component to an intervention without a behavioral component all found that the treatment group that included a behavioral training intervention had greater improvement in adiposity than the comparison groups. (Grade I)

The evidence for an association between improvement in adiposity and including a behavioral treatment component as part of a multicomponent pediatric weight management program was strong (Grade I).

Recommendation: Family-Based counseling

In relation to incorporating parent training or modeling with children 12 years and under, the bulk of the studies show that incorporating these to the intervention produces positive changes in the children’s weight and adiposity. (Grade I)

Minority Opinions

None.

Supporting Evidence

The recommendations were created from the evidence analysis on the following questions. To see detail of the evidence analysis, click the blue hyperlinks below (recommendations rated consensus will not have supporting evidence linked).

What is the effectiveness of using behavioral counseling as part of a multicomponent pediatric weight management program to treat childhood obesity?

What is the effectiveness of family-based counseling including parent training or modeling as part of a multicomponent pediatric weight management program to treat obesity in children (ages 6-12)?

What is the effectiveness of family-based counseling including parent training or modeling as part of a multicomponent pediatric weight management program to treat obesity in adolescents (ages 13-18)?

References


- References not graded in Academy of Nutrition and Dietetics Evidence Analysis Process.

Pediatric Weight Management
Pediatric Weight Management (PWM) Guideline (2007)

Quick Links

Recommendations Summary

Pediatric Weight Management (PWM) Family Participation in Treating Pediatric Obesity in Children and Adolescent Obesity Treatment

Click here to see the explanation of recommendation ratings (Strong, Fair, Weak, Consensus, Insufficient Evidence) and labels (Imperative or Conditional). To see more detail on the evidence from which the following recommendations were drawn, use the hyperlinks in the Supporting Evidence Section below.

- **PWM: Family Participation - Children Six to 12 Years Old**
  
  Parent or caregiver should be included in multi-component pediatric weight-management programs as an agent of change when treating children ages six to 12. A strong body of research indicates that including parents and caregivers as agents of change in the treatment of their child’s obesity is associated with both short-term and longer-term (more than one year) improvements in weight status. A more limited body of research indicates that treating six- to 12-year-old children without parental participation is not effective.
  
  **Rating:** Strong
  Imperative

- **PWM: Family Participation - Adolescents**
  
  Parent or caregiver may be included in multi-component pediatric weight-management programs when treating adolescents. A limited body of research indicates that programs with or without parent or caregiver participation may be effective for improvements in weight status and adiposity in adolescents.
  
  **Rating:** Fair
  Conditional

- **PWM: Family Participation - Treatment Format**
  
  If parent or caregiver participation is included in child and adolescent weight-management programs, health professionals should tailor the format (e.g., group vs. individual format, parent or caregiver with child vs. parent or caregiver and child separate, etc.) to meet individual, family and program needs. Research does not show a clear superiority of one format vs. another for parent or caregiver participation.
  
  **Rating:** Consensus
  Conditional

  - **Risks/Harms of Implementing This Recommendation**

    None.

  - **Conditions of Application**

    - Multi-component weight-management programs must have adequate staffing and appropriate training materials to educate parents so that they may support their child's weight management
    - Clinically supervised multi-component weight-management programs require the participation of professional staff with expertise in distinct areas: Behavioral interventions, dietary interventions and physical activity interventions. Adequate screening process are also needed to address and assess the above factors.
    - Organizational barriers may limit options for family participation in a multi-component program, including lack of space for physical activity and trained staff to conduct components of the intervention program
    - Adequate screening for eating disorders, depression and family risk factors are necessary. Program success may be limited by the above factors.

  - **Potential Costs Associated with Application**

    - Organizational costs may be increased in order to incorporate a family counseling component
    - Because of the time commitment required of parents, program participation may be limited by parent schedules
    - If organizational and program costs are passed on to participants, this could limit program access
    - The absence of health insurance coverage for weight management could limit program access.

  - **Recommendation Narrative**

    **Recommendation: Children (Ages Six to 12 Years)**

    A strong body of research (21 studies exclusively of children and 12 studies of mixed children and adolescent subjects) on programs that include a family counseling component as part of a multi-component treatment program for pediatric obesity indicates that family counseling is associated with improvements in child adiposity,
both post-treatment and in the longer term (more than one year). See What is the effectiveness of family-based counseling as a part of an intervention program to treat obesity in children (ages 6-12)? (Grade I).

The body of research that directly compares the inclusion of a family counseling component to a child-alone approach is more limited (only five studies). See Is counseling children (ages six to 12) for weight loss in the absence of their parents effective? (Grade III). This research is limited because:

- Treatment of younger children in the absence of their parents is not the norm, so it is not surprising that so few studies use a child-only approach for treating overweight in this population
- The studies are older (three studies are between 10 and 22 years old) and family counseling techniques have developed during the intervening period
- The more recent studies are of neutral quality.

Additionally, the research comparing different methods of family involvement is quite limited and does not afford us the ability to judge what method of family counseling is best.

In sum, while we can confidently assert that including family counseling as part of a multi-component child weight-management program is associated with improved adiposity outcomes, we can be much less confident that omitting family counseling will have negative consequences. Also, we cannot tell from the research which formats or methods for family counseling are most strongly associated with improvements in child adiposity.

**Recommendation: Adolescents (13 to 18 years)**

Unlike the research on children (ages six to 12), evidence is lacking for the superiority of programs that include family participation in multi-component weight-management programs. Research indicates that adolescents are likely to improve adiposity status both in the short term and the longer term (more than one year), when they are treated with or without family participation in a multi-component weight-management program.

While the research does indicate benefits in including family participation in adolescent weight management programs (see What is the effectiveness of family-based counseling as a part of an intervention program to treat obesity in adolescents (ages 13-18)? (Grade III)), research also indicates that adolescents demonstrate improvements in adiposity when treated without parents (see Is counseling of adolescents for weight loss in the absence of their parents effective?) (Grade II). Thus, while including family members in the treatment of adolescent obesity may have added benefits over treatment without family members, the research is not clear on this point.

Research comparing different formats for including family participation in treating adolescent obesity is both limited and dated. So, we cannot conclude that one format for including parental participation is better than any other in the treatment of adolescent obesity. (See the evidence analysis under Effectiveness of Different Family Treatment Formats for Treating Pediatric Obesity)

**Recommendation: Family-Based Counseling**

There is a strong association between the inclusion of family-based counseling as part of the childhood obesity treatment program and reductions in weight status or adiposity in children ages six to 12. See What is the effectiveness of family-based counseling as a part of an intervention program to treat obesity in children (ages 6-12)? (Grade I).

Inclusion of family counseling as part of a multi-component adolescent weight-management program may provide beneficial effects. However, definite conclusions are hampered by the fact that evidence is limited to a small number of older studies, studies of weak design and inconsistent results. See What is the effectiveness of family-based counseling as a part of an intervention program to treat obesity in adolescents (ages 13-18)? (Grade III).

- **Recommendation Strength Rationales**

**Recommendation - Children Ages Six to 12**

The strength and consistency of the research on the association between the inclusion of family counseling as a part of a multicomponent child weight management program justifies a strong rating.

**Recommendation - Adolescents**

Research on adolescent weight-management programs indicates adiposity improvement with or without including family members in the treatment process.

**Recommendation - Treatment Format**

Research was inadequate to make any recommendations about the format or content of family participation.

- **Minority Opinions**

None.

- **Supporting Evidence**

The recommendations were created from the evidence analysis on the following questions. To see detail of the evidence analysis, click the blue hyperlinks below (recommendations rated consensus will not have supporting evidence linked).

Is counseling children (ages 6 to 12) for weight loss in the absence of their parents effective?

How does child-only treatment of obesity compare to interventions with both children (ages 6-12) and their parents (together)?

How does child-only treatment of obesity in children ages 6-12 compare to treating both child and parent in a mixed treatment format (sometimes together sometimes separate)?

How does treatment of childhood obesity in children ages 6-12 by interventions with parents and children together compare to interventions with parents and children separate?
How does child-only treatment of obesity compare to interventions with both children (ages 6-12) and their parents (separately)?

What is the effectiveness of family-based counseling as a part of an intervention program to treat obesity in children (ages 6-12)?

Is counseling of adolescents for weight loss in the absence of their parents effective?

How does adolescent-only treatment of obesity compare to interventions with both adolescents and their parents (together)?

How does adolescent-only treatment of obesity compare to interventions including both adolescent and parent in a mixed treatment format (sometimes together sometimes separate)?

How does treatment of adolescent obesity by interventions with parents and adolescents together compare to interventions with parents and adolescents separate?

How does adolescent-only treatment of obesity compare to interventions with both adolescents and their parents (separately)?

What is the effectiveness of family-based counseling as a part of an intervention program to treat obesity in adolescents (ages 13-18)?

References


References not graded in Academy of Nutrition and Dietetics Evidence Analysis Process

None.

Pediatric Weight Management

Pediatric Weight Management (PWM) Guideline (2007)
**Recommendation(s)**

**PWM: Weight Goals**

Weight goals should be individualized for the child. Because of growth occurring within children and adolescents, the goal of pediatric weight-management programs may be weight stabilization rather than weight loss. Research indicates that weight stabilization in children and adolescents may be associated with improvements in BMI and other measures of adiposity.

**Rating: Consensus**

**Imperative**

- **Risks/Harms of Implementing This Recommendation**
  
  None.

- **Conditions of Application**
  
  None.

- **Potential Costs Associated with Application**
  
  None.

- **Recommendation Narrative**
  
  In analyzing the research, the ADA Pediatric Weight Management work group defined both stabilization of weight (no statistically significant change in weight from baseline), as well as decrease in weight or adiposity as a positive outcome.

  Since there currently exists no universal research-based treatment goal for addressing pediatric obesity, the ADA Pediatric Weight Management work group maintains that weight goals should be individualized for the child and family. While weight loss may be appropriate in some cases, weight stabilization in growing children and adolescents may be more appropriate.


- **Recommendation Strength Rationale**
  
  The "consensus" rating is appropriate since the current recommendations for pediatric weight management treatment goals are based on consensus documents and the ADA's policy that all nutrition care should be individualized to the particular needs of the patient and family.

- **Minority Opinions**
  
  None.

**Supporting Evidence**

The recommendations were created from the evidence analysis on the following questions. To see detail of the evidence analysis, click the blue hyperlinks below (recommendations rated consensus will not have supporting evidence linked).

- **References**
  

**Quick Links**

**Recommendations Summary**

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Pediatric Weight Management (PWM) Coordination of Care in Pediatric Weight Management

Click here to see the explanation of recommendation ratings (Strong, Fair, Weak, Consensus, Insufficient Evidence) and labels (Imperative or Conditional). To see more detail on the evidence from which the following recommendations were drawn, use the hyperlinks in the Supporting Evidence Section below.

- **Recommendation(s)**

**PWM: Coordination of Care**

The dietitian should collaborate with members of the health-care team (as available) in planning and implementing behavior, physical activity and adjunct therapy strategies. Effective multi-component pediatric weight management interventions benefit from the diverse expertise of different health-care professionals.

**Rating:** Consensus

**Imperative**

- **Risks/Harms of Implementing This Recommendation**

  Within each component area, particular risks exist that must be monitored by the appropriate professionals:

  - Dietary interventions should be monitored by a registered dietitian to ensure adequate nutrition and growth and to prevent micro-nutrient deficiencies (see Pediatric Weight Management (PWM) Energy Restricted Diets)
  - Intense physical activity in some individuals with pediatric overweight or pediatric obesity may contribute to disability or death, thus approval from a primary health-care provider prior to beginning an exercise program should be obtained (see Pediatric Weight Management (PWM) Physical Activity in the Treatment of Childhood and Adolescent Obesity)
  - Risks to program success are conditioned by: Adequate screening for eating disorders, depression, family risk factors, etc. (see the topics under Parent/Child Relationship or Emotional Climate).

- **Conditions of Application**

  Clinically-supervised multi-component weight-management programs require the participation of professional staff with expertise in distinct areas:
  - Behavioral interventions
  - Dietary interventions
  - Physical activity interventions
  - In some cases, pharmacological or surgical interventions.
  - To provide a multi-component weight-management intervention, the RD may need to establish a practice network with other health-care professionals with complementary expertise
  - Organizational barriers may limit options for multi-component programs, including lack of space for physical activity and trained staff to conduct components of the intervention program
  - Adequate screening for eating disorders, depression and family risk factors is critical for success
  - Program success is conditioned by the above factors.

- **Potential Costs Associated with Application**

  Multi-component weight-management programs may require a substantial organizational infrastructure to be implemented well. Organizational costs are associated with:
  - Access to qualified professional staff to determine and supervise interventions
  - Access to adequate clinical space and instruments for treatment.

  If organizational and program costs are passed on to participants, this could limit program access. Additionally, parent commitment to program participation is required.

  Absence of health insurance coverage for weight management could limit program access.

- **Recommendation Narrative**

  **Multi-Component Program**

  Research on multi-component weight-management programs indicate strong support for:

  - Including a nutrition component that includes an individualized diet prescription to promotes an energy deficit
  - Including a physical activity component
  - Including a behavioral intervention component.

  To see the evidence analysis on the above pediatric weight management components, see the Supporting Evidence section below.

  Additionally, when the focus is on children (ages six to 12), research indicates that weight management in children without parents is not effective. Direct parent participation in weight-management programs appears to be less critical for adolescents (see Pediatric Weight Management (PWM) Family Participation in Treating Pediatric Obesity in Children and Adolescents).

- **Recommendation Strength Rationale**

  Research is strongly in support of the effectiveness of a multi-component pediatric weight-management program. None of the research analyzed indicated that interventions were carried out exclusively by a single health-care professional.
Research comparing the inclusion of each of the three program components (dietary, physical activity and behavioral interventions) consistently shows improved outcomes in both short-term and longer-term child and adolescent adiposity. ADA Evidence Category Grade I (six- to 12-year-olds) and Grade II (adolescents, 13 to 18 years old).

- **Minority Opinions**

  None.

- **Supporting Evidence**

  The recommendations were created from the evidence analysis on the following questions. To see detail of the evidence analysis, click the blue hyperlinks below (recommendations rated consensus will not have supporting evidence linked).

  - In children ages 6-12, what is the effectiveness of using balanced macronutrient, low calorie (900-1200 kcal per day) dietary interventions for treating childhood obesity?
  - In children ages 6-12, what is the effectiveness of using balanced macronutrient, reduced calorie (>1200 kcal-DRI per day) dietary interventions for treating childhood obesity?
  - In adolescents, what balanced macronutrient dietary interventions are effective in treating obesity?
  - What is the effectiveness of using a program to increase physical activity as a part of an intervention program to treat childhood obesity?
  - What is the effectiveness of using a program to decrease sedentary behaviors as a part of an intervention program to treat childhood obesity?
  - What is the effectiveness of using behavioral counseling as part of a multicomponent pediatric weight management program to treat childhood obesity?
  - What is the effectiveness of family-based counseling including parent training or modeling as part of a multicomponent pediatric weight management program to treat childhood obesity in children (ages 6-12)?
  - What is the effectiveness of family-based counseling including parent training or modeling as part of a multicomponent pediatric weight management program to treat obesity in adolescents (ages 13-18)?
  - What is the effectiveness of using orlistat as part of a childhood obesity treatment program?
  - What is the effectiveness of family-based counseling as a part of an intervention program to treat obesity in children (ages 6-12)?
  - What is the effectiveness of family-based counseling as a part of an intervention program to treat obesity in adolescents (ages 13-18)?

- **References**

  
  
  
  
  
  
  
  
  
  
  
  


de Mello ED, Luft VC, Meyer F. Individual outpatient care versus group education programs. Which leads to greater


- References not graded in Academy of Nutrition and Dietetics Evidence Analysis Process


- Pediatric Weight Management
- Pediatric Weight Management (PWM) Guideline (2007)

Quick Links

Recommendations Summary

Pediatric Weight Management (PWM) Decreasing Sedentary Behaviors in Children and Adolescents

Click here to see the explanation of recommendation ratings (Strong, Fair, Weak, Consensus, Insufficient Evidence) and labels (Imperative or Conditional). To see more detail on the evidence from which the following recommendations were drawn, use the hyperlinks in the Supporting Evidence Section below.

- Recommendation(s)
  - PWM: Decreasing Sedentary Behaviors - Children
    Children should be counseled to reduce or limit sedentary activities (e.g., television, video games, "screen time"). Intervention research indicates that reducing sedentary activities may have both short-term and longer-term benefits in terms of pediatric obesity. Observational research also indicates that television time may also be associated with increased consumption of energy-dense foods.
    Rating: Fair
    Imperative
  - PWM: Decreasing Sedentary Behaviors - Adolescents
    Adolescents should be counseled to reduce or limit sedentary activities (e.g., TV, video games, "screen time"). Limited intervention research indicates that reducing sedentary activities may have both short term benefits in terms of pediatric obesity.
    Rating: Weak
    Imperative

- Risks/Harms of Implementing This Recommendation
  None.

- Conditions of Application
  None.

- Potential Costs Associated with Application
  Absence of health insurance coverage for weight management could limit program access.

- Recommendation Narrative
  Five studies (four RCTs and one non-randomized trial) were analyzed that included an intervention to reduce sedentary behaviors (e.g., television-watching), as part of a multi-component childhood weight management program. Only one study examined adolescents (Saelens B, Sallis J, et al 2002), while the others focused on children (ages six to 12). All studies earned a positive quality rating.

  In children (ages six to 12), the addition of interventions to decrease sedentary activities to a multi-component pediatric obesity program is associated with improved adiposity outcomes. For adolescents however, the results are promising but less clear.

  Research also indicates that the effectiveness of interventions to reduce sedentary behaviors may be more effective for boys and is dose-dependent.

  Some very limited research (Epstein LH, Valoski AM, Vara LS, McCurley J, et al. 1995 Health Psych) suggests that interventions to reduce sedentary behaviors may be more effective than interventions to increase physical activity alone. However, this research is too limited to be generalized.

- Recommendation Strength Rationale
  The number of studies on the reduction of sedentary activities and the treatment of pediatric obesity was limited, though the results are consistent (Grade II). The findings with regard to adolescents is promising, but even more limited (Grade III).
**Minority Opinions**

None.

**Supporting Evidence**

The recommendations were created from the evidence analysis on the following questions. To see detail of the evidence analysis, click the blue hyperlinks below (recommendations rated consensus will not have supporting evidence linked).

**What is the effectiveness of using a program to decrease sedentary behaviors as a part of an intervention program to treat childhood obesity?**

**Is frequent television viewing associated with a higher risk or prevalence of overweight among youth?**

**Is frequent use of video games associated with a higher risk or prevalence of overweight among youth?**

**References**


Epstein LH, Paluch RA, and Raynor HA. Sex Differences in Obese Children and Siblings in Family-based Obesity Treatment. *Obesity Research* 2001;9:746-753.


 References not graded in Academy of Nutrition and Dietetics Evidence Analysis Process

 None.

**Quick Links**

**Recommendations Summary**

**Pediatric Weight Management (PWM) Physical Activity in the Treatment of Childhood and Adolescent Obesity**

*Click here* to see the explanation of recommendation ratings (Strong, Fair, Weak, Consensus, Insufficient Evidence) and labels (Imperative or Conditional). To see more detail on the evidence from which the following recommendations were drawn, use the hyperlinks in the *Supporting Evidence Section* below.

**Recommendation(s)**

**PWM: Physical Activity**

Physical activity should be included as part of a multi-component pediatric weight-management program. Research indicates that increasing physical activity as part of a multi-component program results in significant improvements in weight status and body composition in children and adolescents.

**Rating:** Strong

Imperative

- Risks/Harms of Implementing This Recommendation
Physical Activity Risks
- Consultation with a physician prior to beginning an exercise program is needed. Consultation with an exercise specialist is recommended if an exercise prescription is given.
- Intense physical activity in some overweight and obese individuals may contribute to disability or death.

Conditions of Application
None.

Potential Costs Associated with Application
- If the physical activity component of the pediatric weight-management program includes organized exercise sessions, program resources and personnel will need to be available.
- If physical activity is required, program resources may be necessary to facilitate this.
- Absence of health insurance coverage for weight management could limit program access.

Recommendation Narrative
Physical Activity is an Integral Part of Pediatric Weight Management
28 randomized and controlled trials, 16 studies of other design and one review article reported on treatment programs for childhood obesity. The evidence indicates that including a physical activity component as part of a multi-disciplinary weight-management program for children and adolescents is both standard practice and makes important contributions to the overall goal of weight loss.

Six RCTs compared the same diet and behavioral interventions with and without an exercise component.
- Three studies reported at least short-term improvements in at least one adiposity measure when exercise was added to the program (Epstein LH, Wing RR, Penner BC, Kress, 1985; Gutin B, Barbeau P et al., 2002; Becque MD, Katch V et al., 1988). Only the Epstein study examined the differences between groups at 12 months. By this time, the between-group differences had disappeared.
- Three studies (Epstein LH, Wing RR, Koeske R, Valoski, 1984; Rocchini AP, Katch V et al., 1988; Schwinshandl T, Sud K et al., 1999) did not find any significant differences in adiposity measures when a physical activity component was added to a diet and behavior intervention.

Only one study (Owens S, Gutin B et al., 1999) examined the ability to bring about weight loss with physical activity alone. The authors report that participation in a four-month, high-intensity, five-days-a-week program, brought about greater reduction in total fat mass and increased fat-free mass than controls. It is worth noting that subjects were paid ($1 per session) to participate in the exercise sessions. There was no report of longer-term outcomes.

As the above studies indicate, the link between physical activity and weight loss appears to be dependent upon other factors such as the type of physical activity intervention (e.g., see Epstein LH, Wing RR, Koeske R, Valoski A, 1985 below), intensity, duration and frequency of exercise (Grade I).

What Type of Physical Activity Intervention Is Best?

Only Epstein LH, Wing RR, Koeske R, Valoski A, 1985, report statistically significant differences among different physical activity interventions: Subjects in a lifestyle physical activity group maintained greater weight loss at two years, compared to aerobics and calisthenics groups. Epstein LH, Valoski A, Wing RR, McCurley J, 1994, report that differences among exercise interventions (aerobics vs. calisthenics and lifestyle activity vs. calisthenics) persisted over 10 years.

Thus, while lifestyle physical activity interventions may provide longer-lasting benefits, the research is still too limited to draw any strong conclusions (Grade III).

Recommendation Strength Rationale
Both intervention and observational research are consistent in demonstrating a significant contribution to adiposity improvement from the inclusion of a physical activity intervention as part of a multi-component pediatric weight-management program.

Minority Opinions
None.

Supporting Evidence
The recommendations were created from the evidence analysis on the following questions. To see detail of the evidence analysis, click the blue hyperlinks below (recommendations rated consensus will not have supporting evidence linked).

What is the effectiveness of using a program to increase physical activity as a part of an intervention program to treat childhood obesity?
How do different physical activity interventions compare as part of a multicomponent childhood obesity treatment program?
References


References not graded in Academy of Nutrition and Dietetics Evidence Analysis Process

None.

Pediatric Weight Management

Pediatric Weight Management (PWM) Guideline (2007)

Quick Links

Recommendations Summary

Pediatric Weight Management (PWM) Adjunct Therapies: Use of Weight Loss Medications in Treating Obesity in Adolescents

Click here to see the explanation of recommendation ratings (Strong, Fair, Weak, Consensus, Insufficient Evidence) and labels (Imperative or Conditional). To see more detail on the evidence from which the following recommendations were drawn, use the hyperlinks in the Supporting Evidence Section below.

Recommendation(s)

PWM: Collaboration with Health Care Team

The dietitian should collaborate with the health-care team regarding the use of weight-loss medications as an adjunct therapy within a multi-component pediatric weight-management program for adolescents. Clinical outcomes are likely to be enhanced with the participation of a dietitian.

Rating: Consensus

Imperative

PWM: Weight Loss Medication

If a weight-loss medication is selected as an adjunct therapy, then an over-the-counter or prescription gastrointestinal lipase inhibitor (e.g., orlistat), approved by the FDA for use in adolescents, may be recommended to treat obese adolescents participating in a multi-component pediatric weight-management program. Research indicates that a gastrointestinal lipase-inhibitor further improves weight status and body composition in some individuals within a multi-component adolescent weight-management program. However, the FDA has not studied or approved the use of this class of medication for children under the age of 12.

Rating: Fair

Conditional


Risks/Harms of Implementing This Recommendation

Gastrointestinal Lipase Inhibitor

Adverse effects from the use of a gastrointestinal lipase inhibitor were determined by the intake level of dietary fat
(the higher the intake of dietary fat, the higher the likelihood of adverse effects). Adverse effects generally improved over time. Commonly occurring adverse effects include:

- Malabsorption of fat soluble vitamins
- Increased defecation
- Oily spotting on clothing
- Soft stools
- Increased flatus
- Fatty or oily stools
- Fecal incontinence.

**Conditions of Application**

- If a gastrointestinal lipase inhibitor is used as an adjunct therapy, the FDA has only approved one gastrointestinal lipase inhibitor for use in weight-loss therapy among adolescents (over 12 years) [http://www.accessdata.fda.gov/scripts/cder/drugsatfda/index.cfm?fuseaction=Search.Label_ApprovalHistory](http://www.accessdata.fda.gov/scripts/cder/drugsatfda/index.cfm?fuseaction=Search.Label_ApprovalHistory)

- Close medical monitoring is critical when over-the-counter or prescription weight-loss drugs are used as an adjunct therapy in a multi-component pediatric weight-management program.

**Potential Costs Associated with Application**

Including weight-loss medications within a multi-component adolescent weight-management program requires the supervision of the appropriate healthcare professional. Some programs may incur additional staffing costs to include this type of adjunct therapy.

**Recommendation Narrative**

Because research continues apace, and new drugs are approved continually, the reader is encouraged to check the FDA website for information on a particular drug to see if it has been approved for use in a pediatric population for weight loss. The list of drugs (and associated information) approved by the FDA may be found at [http://www.accessdata.fda.gov/scripts/cder/drugsatfda/index.cfm?fuseaction=Search.Search_Drug_Name](http://www.accessdata.fda.gov/scripts/cder/drugsatfda/index.cfm?fuseaction=Search.Search_Drug_Name).

**Gastrointestinal Lipase Inhibitor**

- A gastrointestinal lipase inhibitor may be moderately effective in promoting short-term weight loss (12 months or less), as part of a comprehensive weight-loss program (diet, exercise and behavioral therapy), in adolescents. However, application is limited by gastrointestinal adverse events.

- Long-term efficacy and tolerability of a gastrointestinal lipase inhibitor as part of a comprehensive behavioral treatment program for adolescents has not been thoroughly studied.

- As seen with adults, adverse side effects are gastrointestinal, usually occur early in treatment and tend to decrease in time (Grade II).

**Recommendation Strength Rationale**

The combination of FDA approval (in 2003) as well as a number of well-designed and well-powered studies (Grade II) argues for a Fair rating. One gastrointestinal lipase inhibitor has been approved by the FDA for use as a weight-loss medication in adolescents (aged less than 12 years).

**Minority Opinions**

None.

**Supporting Evidence**

The recommendations were created from the evidence analysis on the following questions. To see detail of the evidence analysis, click the blue hyperlinks below (recommendations rated consensus will not have supporting evidence linked).

1. **What is the effectiveness of using orlistat as part of a childhood obesity treatment program?**
2. **What is the effectiveness of using sibutramine as part of a childhood obesity treatment program?**

**References**


References not graded in Academy of Nutrition and Dietetics Evidence Analysis Process

None.

Pediatric Weight Management
Pediatric Weight Management (PWM) Guideline (2007)

Quick Links

Recommendations Summary

Pediatric Weight Management (PWM) Adjunct Therapies: Weight Loss Surgery and Adolescent Obesity

Click here to see the explanation of recommendation ratings (Strong, Fair, Weak, Consensus, Insufficient Evidence) and labels (Imperative or Conditional). To see more detail on the evidence from which the following recommendations were drawn, use the hyperlinks in the Supporting Evidence Section below.

Recommendation(s)

PWM: Weight Loss Surgery

Dietitians should collaborate with other members of the health-care team regarding the appropriateness of weight-loss surgery for severely obese adolescents who have not achieved weight-loss goals with less-invasive weight-loss methods and who meet specified criteria (see Conditions of Application below). Research indicates that for a subset of adolescents who meet the recommended criteria, weight-loss surgery may be effective in bringing about significant short-term and long-term weight loss. Obese children (under 13 years of age) are generally not considered to be appropriate candidates for weight-loss surgery.

Rating: Consensus

Imperative

Risks/Harms of Implementing This Recommendation

- Surgical complications,
- Micro-nutrient deficiencies (e.g., vitamin D for African-Americans, vitamin K).

Conditions of Application

The Expert Committee Recommendations include the following criteria for adolescents being considered for weight-loss surgery:

- Experienced failure of at least six months of organized weight-loss attempts, as determined by their primary care provider
- Have met certain anthropometric and medical criteria:
  - Be severely obese (BMI 40 or greater) with serious obesity-related medical complications or have a BMI of 50 or more with less-severe co-morbidities
  - Have co-morbidities related to obesity that might be resolved with durable weight loss
  - Have attained a majority of skeletal maturity (generally at least 13 years of age for girls and at least 15 years of age for boys).
- Demonstrate commitment to comprehensive medical and psychological evaluations both before and after weight-loss surgery
- Be capable and willing to adhere to nutritional guidelines post-operatively
- Possesses decisional capacity and participates in the decision process to undergo weight-loss surgery. In other words, the adolescent must want the intervention and understand what is involved.
- Have a supportive family environment
- Is being evaluated by a multi-disciplinary team that is involved in the patient selection, preparation and surgery as well as immediate and long-term post-operative follow-up care.

Potential candidates for bariatric surgery should be referred to centers with multi-disciplinary weight-management teams that have expertise in meeting the unique needs of obese adolescents. Surgery should be performed in institutions that are equipped to meet the tertiary needs of severely obese patients and to collect long-term data on the clinical outcomes of these patients.

Potential Costs Associated with Application

- If organizational and program costs are passed on to participants, this could limit program access.
- Additionally, parent commitment to program participation is required.
- The absence of health insurance coverage for weight management could limit program access.

Recommendation Narrative

What Are the Effects of Weight-Loss Surgery in Children and Adolescents?
A small number of case studies report sustained weight loss in severely obese adolescents with serious co-morbidities following weight-loss surgery. Associated surgical complications and short- and long-term macro- and micro-nutrient deficiencies are reported.

However, the research on children and adolescents is still very limited and the ADA evidence-analysis work group for pediatric weight management recommends more research in the following areas.

- **Surgical technique and design of the pre- and post-operative nutritional intervention**
  - Effects of different surgical procedures on children and adolescents
  - Impact of pre-operative weight loss on surgical complications and adherence to post-operative nutritional care plan
  - Optimal post-operative dietary progression, regarding the type, amount, consistency and texture of foods and the frequency of feedings
  - Role of the dietitian in pre- and post-operative care.

- **Physiologic effects**
  - Short- and long-term changes in body composition (muscle mass and body fat)
  - Growth risks
  - Bone health
  - Management of excess skin following significant weight loss.

- **Behavioral or psychological aspects**
  - Risk-taking behaviors (e.g., cigarette-smoking, substance abuse, sexually intimate relationships)
  - Impact on establishing a healthier lifestyle (e.g., making healthier food choices, becoming more physically active) and improving quality of life
  - Risk of developing an eating disorder
  - Body image distortion.

- **Recommendation Strength Rationale**

A review paper of only six case studies involving a small number of patients (range, 11 to 41 patients) reports sustained weight loss in severely obese children and adolescents with serious co-morbidities following weight-loss surgery. Associated surgical complications and short- and long-term macro- and micro-nutrient deficiencies are reported.

- **Minority Opinions**

  None.

- **Supporting Evidence**

  The recommendations were created from the evidence analysis on the following questions. To see detail of the evidence analysis, click the blue hyperlinks below (recommendations rated consensus will not have supporting evidence linked).

- **References**


- **Quick Links**

  - Pediatric Weight Management
  - Pediatric Weight Management (PWM) Guideline (2007)

**Recommendations Summary**

**Pediatric Weight Management (PWM) Treatment Format Options: Group vs. Individual Intervention**

Click here to see the explanation of recommendation ratings (Strong, Fair, Weak, Consensus, Insufficient Evidence) and labels (Imperative or Conditional). To see more detail on the evidence from which the following recommendations were drawn, use the hyperlinks in the Supporting Evidence Section below.

- **Recommendation(s)**

  **PWM: Group vs. Individual Interventions**

  Either group or individual nutrition intervention may be used as part of a multi-component pediatric weight-management program. Limited research that compares individual vs. group format does not indicate differences in overall pediatric weight status. However, two studies suggest that some dietary outcome measures may be improved with an individual counseling format.

  **Rating: Weak**

  Imperative

- **Risks/Harms of Implementing This Recommendation**
Conditions of Application

Intervention format should be age and developmentally appropriate.

Potential Costs Associated with Application

- Both individual and group interventions may have different costs and resources associated with them
- If organizational and program costs are passed on to participants, this could limit program access.
- Additionally, parent commitment to program participation is required.
- The absence of health insurance coverage for weight management could limit program access.

Recommendation Narrative

Only four articles were identified that compared individual vs. group formats within the same pediatric obesity treatment program. This limited body of research did not find differences in weight status using group vs. individual counseling formats (Grade III).

However, the two studies that reported dietary intake outcomes separately from adiposity outcomes (De Mello ED, Luft VC et al, 2004; Nuutinen O, 1991) found that changes in dietary intake varied according to treatment format. Additionally, De Mello ED, Luft VC et al, 2004, reported significant changes in physical activity measures only in the group intervention format.

Goldfield GS, Epstein LH et al, 2001, found that a group intervention format (compared to a mixed treatment, group and individual treatment format) was associated with larger decreases in percentage overweight per dollar spent at 12 months. However, the authors point out that it is not clear whether this finding can be generalized to different subject populations.

Recommendation Strength Rationale

Research directly comparing treatment formats within a single program was very limited.

Minority Opinions

None.

Supporting Evidence

The recommendations were created from the evidence analysis on the following questions. To see detail of the evidence analysis, click the blue hyperlinks below (recommendations rated consensus will not have supporting evidence linked).

How do group versus individual sessions compare in terms of effectiveness of treating childhood obesity?


References not graded in Academy of Nutrition and Dietetics Evidence Analysis Process

None.

Pediatric Weight Management

Pediatric Weight Management (PWM) Guideline (2007)

Recommendations Summary

Pediatric Weight Management (PWM) Optimal Length of Weight Management Therapy in Children and Adolescents

Click here to see the explanation of recommendation ratings (Strong, Fair, Weak, Consensus, Insufficient Evidence) and labels (Imperative or Conditional). To see more detail on the evidence from which the following recommendations were drawn, use the hyperlinks in the Supporting Evidence Section below.

Recommendation(s)

PWM: Optimal Length of Treatment
During the intensive treatment phase, Medical Nutrition Therapy for pediatric obesity should last at least three months or until initial weight-management goals are achieved. Because overweight and obesity are chronic, often life-long conditions, it is critical that a weight-management plan be implemented after the intensive phase of treatment. A greater frequency of contacts between the patient and practitioner may lead to more successful weight loss and maintenance.

**Rating: Consensus**

**Imperative**

- **Risks/Harms of Implementing This Recommendation**

  Pediatric weight management can affect growth, development, metabolic parameters and sometimes produce unintended effects such as excessive weight loss and nutritional deficiencies. Therefore, continued monitoring by health-care professionals is warranted.

- **Conditions of Application**

  None.

- **Potential Costs Associated with Application**

  - If program costs are passed on directly to patients, this may limit access to the program for less affluent patients and their families
  - Absence of health insurance coverage for weight management could limit program access.

- **Recommendation Narrative**

  The large majority of studies we analyzed included a treatment phase for pediatric obesity that was at least three months long. The range of length of programs varied from a few weeks to over a year. We were not able, in this phase of the project, to determine if there were any systematic differences in outcomes based on length of treatment. However, since the programs that demonstrated longer-term (more than one year) outcomes were at least three months long, we consider this the minimum general recommendation for length of time.

  In addition to the evidence analysis carried out directly for this guideline, the work group consulted two other sets of recommendations:


  Because the ADA Pediatric Weight Management Guideline focuses on treatment within the context of a multi-disciplinary program, the Expert Committee recommendations for Stage Three: Comprehensive Multidisciplinary Intervention are most relevant here:

  "Frequent office visits should be scheduled; weekly visits for a minimum of 8 to 12 weeks seem to be most efficacious (Consistent Evidence). Subsequently, monthly visits can help maintain new behaviors" (pp. S183-S184).

  Additionally, this recommendation was also made with reverence to The Clinical Guidelines on the Identification, Evaluation, and Treatment of Overweight and Obesity in Adults: The Evidence Report, NIH Publication No. 98-4083, September 1998, produced by the National Heart, Lung, and Blood Institute in cooperation with the National Institute of Diabetes and Digestive and Kidney Diseases.

  Although the NHLBI guidelines for adults recommends a six-month treatment program, growth and development issues in children and adolescents argue for more flexibility in length of treatment. Also, weight loss may not be appropriate for all children, so the practitioner should use their clinical judgment when applying the NHLBI criteria.

- **Recommendation Strength Rationale**


  While the NHLBI evidence categories are strong for this question, the strength rating for the recommendation for children and adolescents is weakened by the lack of direct evidence analysis on weight-maintenance programs for a pediatric population.

- **Minority Opinions**

  None.

- **Supporting Evidence**

  The recommendations were created from the evidence analysis on the following questions. To see detail of the evidence analysis, click the blue hyperlinks below (recommendations rated consensus will not have supporting evidence linked).

  **References**

  References not graded in Academy of Nutrition and Dietetics Evidence Analysis Process


To access the pdf of the NHLBI Clinical Guidelines click here: http://www.nhlbi.nih.gov/guidelines/obesity/e_txtbk/index.htm.