# PEDIATRIC
## WEIGHT MANAGEMENT PLAN

# Guidelines for the HealthWise Pediatric Wgt Mgmt Program

These guidelines are intended as recommendations for screening, evaluating, and monitoring the pediatric population (ages 2-18 years of age). They are founded on evidence-based research and they are guidelines followed by trained pediatric dietitians and physicians. These guidelines are not intended to serve as a substitute for the personal attention of a physician. The guidelines do not necessarily address all medical conditions encountered in the treatment of overweight and obese individuals, and therefore cannot replace a physician's judgement.

# Pediatric Overweight/Obesity Statistics and Definitions

Obesity amongst U.S. youth is a serious concern as being overweight and obese increases risk for poor overall health. Although the rate at which the prevalence among preschool-aged children has decreased, overweight/obesity rates among our youth is still too elevated. The prevalence of obesity among U.S. youth (2-19 years) was 17% in 2011-2014 and affects about 12.7 million youth. [1] The prevalence of childhood obesity was higher among the Hispanic population (21.9%) and non-Hispanic black populations (19.5%) than among the non-Hispanic white population (14.7%). [1] The prevalence of childhood obesity was lower in non-Hispanic Asian populations (8.6%) than in youth who were of non-Hispanic white, non-Hispanic black and Hispanic populations. [1] The prevalence of childhood obesity varied amongst age groups: 8.9% among 2-5 years of age; 17.5% among 6-11 years of age; and 20.5% among 12-19 years of age. [1]

Overweight in youth is defined as a body mass index (BMI) of >85$^{th}$ percentile and <95$^{th}$ percentile based on age and sex.[2] Obesity is defined as a BMI $\geq$95$^{th}$ percentile based on age and sex. [2] (see Appendix A).

Table 1: BMI Categories for Pediatric Populations[2]

| <5$^{th}$ %tile for Age and Sex | 5$^{th}$-84$^{th}$ %tile for Age and Sex | 85$^{th}$-94$^{th}$ %tile for Age and Sex | $\geq$95$^{th}$ %tile for Age and Sex |
|---|---|---|---|
| *Underweight* | *Healthy Weight* | *Overweight* | *Obesity* |

The concern for the prevalence of youth obesity stems from the health risks associated with this disease. Youth obesity is associated with increased co-morbidities. Scientific evidence supports the effectiveness of weight management in children and adolescents who are overweight or obese in:

- Reduction in risk factors for diabetes and cardiovascular disease[1]
- Reduction of blood pressure[1]
- Improvement of insulin sensitivity[1]
- Reduction of serum triglycerides[1]

**Table 2: Symptoms Associated with Obesity-Related Health Conditions[4]**

- Sleep apnea or snoring
- Shorter sleep time or restlessness
- Shortness of breath
- Wheezing
- Recurrent abdominal pain
- Heartburn or epigastric pain
- Frequent headaches
- Polyuria or polydipsia
- Amenorrhea or oligomenorrhea (irregular menses)
- Hip or knee pain
- Depression
- Problems with social interaction
- Anxiety, school avoidance, social isolation
- Poor self-esteem
- Body dissatisfaction
- History of eating disorders (binge eating, bulimia, anorexia nervosa)

Dietary interventions have been shown to be an integral part of a comprehensive weight management program. [1] A comprehensive weight management program for youth should include nutrition guidelines, behavior therapy, physical activity and pharmacotherapy, if applicable and necessary. This manual will provide further guidelines for the nutritional intervention needed for successful pediatric and adolescent weight management programming.

## Overview of Youth Weight Management Strategies

Children and adolescents are in active growth periods of their lives and due to this, there is no straightforward treatment approach as there is with adults. The overall goal of weight loss and weight management programming for youth who are *overweight* is to maintain their current weight and let them "grow into it" by growing taller. For youth that are *obese*, the overall goal is to create a caloric deficit utilizing healthy, portion-controlled food choices and encouraging physical activity on a

regular basis. Weight loss and management programming should not mimic practices conducted in adult weight loss and management programming. It is not until after puberty has been obtained, should an adolescent attempt to lose 1-2 pounds per week. [3] The following pages of this manual will highlight the nutrition protocol for each age group more specifically.

## Guidelines for Youth 2-5 years old

Children in this age group rely heavily on parental choices and guidance for their daily routine. Much of parenting this age group revolves around food and children watch their parents/caregivers and mimic a lot of what they see. This is a great age to start introducing healthy habits to children when it comes to food, physical activity, and behavior by having the parents/caregivers demonstrate them themselves. Below is a list of suggested recommendations for when working with this age group.

**Table 3: Pediatric Weight Management Evidence-Based Recommendations for 2-5 years of age[2]**

| **Food & Nutrient Intake** | | |
|---|---|---|
| ***Outcome Assessment Factor*** | ***Target/Expected Outcome*** | ***Recommendations and/or Guidelines*** |
| Fat Intake | Limit foods ↑ in fat to reduce calories as part of a low-calorie diet<br><br>Limit calorie dense foods and snacks | Tailor calorie intake to lose weight or maintain weight |
| Calorically sweetened beverages (i.e. soda, sports drinks, punch, and other drinks made with sugar, etc.) | Limit intake or eliminate consumption | Decreased intake of beverages associated with risk of obesity. Children who drink large amounts of sugar-sweetened beverages will benefit from reducing intake to 1 per day. |
| Fruit & Vegetable Consumption | Increase consumption of both fruits and vegetables (preferably without sauces and/or butter/margarine) | Use the USDA age-specific recommendations for daily amounts. Increased fruit & vegetable intake decreases the risk of obesity. |
| Fruit Juice | Limit fruit juice to 4-6oz per day | Consumption of large quantities of juice can contribute to overweight/obesity |
| Dietary Fiber | Choose foods high in fiber (fruits, vegetables, etc.) | Adequate intake for 2-3 years of age is 19gm per day, 4-5 years of age is 25gm per day |

| | | |
|---|---|---|
| Dairy Foods | Choose low-fat dairy foods | Calcium needs for the day<br>2-3 years of age: 500mg<br>4-5 years of age: 800mg |
| **Physical Activity** | | |
| ***Outcome Assessment Factors*** | ***Target/Expected Outcome*** | ***Recommendations and/or Guidelines*** |
| Physical Activity | Limit screen time (I.e. TV, computer, video games, tablets, phones, etc.)<br><br>Participate in regular physical activity | 2 hours of less of screen time per day<br><br>60 minutes of moderate intensity physical activity per day |
| **Family Support** | | |
| ***Outcome Assessment Factors*** | ***Target/Expected Outcome*** | ***Recommendations and/or Guidelines*** |
| Family behaviors associated with increased risk of obesity:<br>• Skipping breakfast<br>• Increased portion size of meals<br>• Consumption of food away from home | • Daily Breakfast consumption<br>• Age appropriate portion sizes (foods/beverage) at meals<br>• ↓ consumption of food away from home | High sugary and/or calorie dense foods should be avoided in daily breakfast. |
| Family Support | Family eats together | Eat as a family at least 5-6 times per week. Involve the whole family in lifestyle changes, not just the child. |

## Guidelines for Youth 6-11 years old

Children in this age group start to make their own food choices and rely less on parental decisions at meal and snack time. However, children in this age group still rely on their parents/caregivers to make healthy food choices when food shopping; they also continue to mimic behaviors exhibited by their parents/caregivers. Parents/caregivers should be included in the weight management program as agents of change. A strong body of research indicates that including parents and caregivers as agents of change in the treatment of the child's overweight/obesity is associated with both short-term and long-term improvements in weight status[4]. Below is a list of suggested recommendations for when working with this age group.

**Table 4: Pediatric Weight Management Evidence-Based Recommendations for 6-11 years of age[2]**

| **Food & Nutrient Intake** | | |
|---|---|---|
| ***Outcome Assessment Factor*** | ***Target/Expected Outcome*** | ***Recommendations and/or Guidelines*** |
| Fat Intake | Limit foods ↑ in fat to reduce calories as part of a low-calorie diet<br><br>Limit calorie dense foods and snacks | Tailor calorie intake to lose weight or maintain weight |
| Calorically sweetened beverages (i.e. soda, sports drinks, punch, and other drinks made with sugar, etc.) | Limit intake or eliminate consumption | Decreased intake of beverages associated with risk of obesity. Children who drink large amounts of sugar-sweetened beverages will benefit from reducing intake to 1 per day. |
| Fruit & Vegetable Consumption | Increase consumption of both fruits and vegetables (preferably without sauces and/or butter/margarine) | Use the USDA age-specific recommendations for daily amounts. Increased fruit & vegetable intake decreases the risk of obesity. |
| Fruit Juice | Limit fruit juice to 4-6oz per day for 6 years old and 8-12oz per day for ages 7-11. | Consumption of large quantities of juice can contribute to overweight/obesity |
| Dietary Fiber | Choose foods high in fiber (fruits, vegetables, etc.) | Adequate intake for 4-8 years of age is 25gm per day and for 9-11 years of age, it is 31gm per day for males and 26gm per day for females |
| Dairy Foods | Choose low-fat dairy foods | Calcium needs for the day<br>6-8 years of age: 800mg<br>9-11 years of age: 1300mg |
| **Physical Activity** | | |
| ***Outcome Assessment Factors*** | ***Target/Expected Outcome*** | ***Recommendations and/or Guidelines*** |
| Physical Activity | Limit screen time (I.e. TV, computer, video games, tablets, phones, etc.)<br><br>Participate in regular physical activity | 2 hours of less of screen time per day<br><br>60 minutes of moderate intensity physical activity per day |
| **Family Support** | | |
| ***Outcome Assessment Factors*** | ***Target/Expected Outcome*** | ***Recommendations and/or Guidelines*** |

| | | |
|---|---|---|
| Family behaviors associated with increased risk of obesity:<br>• Skipping breakfast<br>• Increased portion size of meals<br>• Consumption of food away from home | • Daily Breakfast consumption<br>• Age appropriate portion sizes (foods/beverage) at meals<br>• ↓ consumption of food away from home | High sugary and/or calorie dense foods should be avoided in daily breakfast. |
| Family Support | Family eats together | Eat as a family at least 5-6 times per week. Involve the whole family in lifestyle changes, not just the child. |

## Guidelines for Youth 12-18 years old

Youth and teens in this age group are typically making their own food choices and start to make their own food purchases. Peers are typically who influence choices in this age group. It is important for the youth in this age group to have good support around them to help encourage healthy lifestyle choices. Parents/caregivers may start to have less involvement in the follow up visits as the teen becomes older. Below is a list of suggested recommendations for when working with this age group.

**Table 5: Pediatric Weight Management Evidence-Based Recommendations for 12-18 years of age[2]**

| **Food & Nutrient Intake** | | |
|---|---|---|
| ***Outcome Assessment Factor*** | ***Target/Expected Outcome*** | ***Recommendations and/or Guidelines*** |
| Fat Intake | Limit foods ↑ in fat to reduce calories as part of a low-calorie diet<br><br>Limit calorie dense foods and snacks | Tailor calorie intake to lose weight or maintain weight |
| Calorically sweetened beverages (i.e. soda, sports drinks, punch, and other drinks made with sugar, etc.) | Limit intake or eliminate consumption | Decreased intake of beverages associated with risk of obesity. Children who drink large amounts of sugar-sweetened beverages will benefit from reducing intake to 1 per day. |

| | | |
|---|---|---|
| Fruit & Vegetable Consumption | Increase consumption of both fruits and vegetables (preferably without sauces and/or butter/margarine) | Use the USDA age-specific recommendations for daily amounts. Increased fruit & vegetable intake decreases the risk of obesity. |
| Fruit Juice | Limit fruit juice to 8-12oz per day for ages 12-18. | Consumption of large quantities of juice can contribute to overweight/obesity |
| Carbohydrate Intake | Consider reducing carbohydrate intake to reduce calories | |
| Dietary Fiber | Choose foods high in fiber (fruits, vegetables, etc.) | Adequate intake for 12-18 years of age is 31gm per day for males and 26gm per day for females |
| Dairy Foods | Choose low-fat dairy foods | Calcium needs for the day 12-18 years of age: 1300mg |
| **Physical Activity** | | |
| ***Outcome Assessment Factors*** | ***Target/Expected Outcome*** | ***Recommendations and/or Guidelines*** |
| Physical Activity | Limit screen time (I.e. TV, computer, video games, tablets, phones, etc.)<br><br>Participate in regular physical activity | 2 hours of less of screen time per day<br><br>60 minutes of moderate intensity physical activity per day |
| **Family Support** | | |
| ***Outcome Assessment Factors*** | ***Target/Expected Outcome*** | ***Recommendations and/or Guidelines*** |
| Family behaviors associated with increased risk of obesity:<br>• Skipping breakfast<br>• Increased portion size of meals<br>• Consumption of food away from home | • Daily Breakfast consumption<br>• Age appropriate portion sizes (foods/beverage) at meals<br>• ↓ consumption of food away from home | High sugary and/or calorie dense foods should be avoided in daily breakfast. |
| Family Support | Family eats together | Eat as a family at least 5-6 times per week. Involve the whole family in lifestyle changes, not just the child. |

# Pediatric Weight Management Program Protocol

**Initial Visit (should include primary caretakers (parent(s)/guardian(s)) of the child/teen**

- This appointment should be for 45-90 minutes
- Provide Weight Loss Questionnaire to Parent(s) (See Appendix B)
- Obtain Medical History of Child utilizing the Medical Information Form (See Appendix C)
- Anthropometric Measurements
    - Height
    - Weight
    - Calculate BMI (See Appendix A)
    - Plot BMI %tile (See Appendix D)
    - Measure or estimate RMR and calculate daily caloric needs based on physical activity level (See Appendix A)

- Biochemical Data[2]

| **Tests** | **Recommendations/Guidelines** |
|---|---|
| Fasting Lipid Profile (Cholesterol, Triglycerides, LDL-C, HDL-C) | Total Chol <170 mg/dL<br>LDL-C <110 mg/dL<br>HDL-C > 35mg/dL<br>Trig <150 md/dL |
| Fasting Glucose | 2-12 years of age 80-180 mg/dL<br>13-19 years of age 70-150 mg/dL |
| AST & ALT Liver Enzymes | AST 0-60 IU/L<br>ALT 0-50 IU/L |
| Blood Pressure (Appendix E) | 2-12 years of age – *see Appendix E*<br>13-18 years of age <120/<80 mm Hg |

- Discuss foods associated with an increased risk of obesity (Appendix F)
- Discuss sedentary behaviors associated with an increased risk of obesity (Appendix G)
- Discuss family dynamics associated with an increased risk of obesity (Appendix H)
- Provide Starting Tips for Good Lifestyle Behaviors (Appendix I) as the first week's assignment. Allow parent(s)/guardians(s) and child/adolescent set their own goals.
- Set up follow-up appointment and write on the bottom of the goal sheet.

**Follow-up Visits (should include primary caretakers (parent(s)/guardian(s)) of the child/teen**

- These appointments should be weekly and be for 30-60 minutes; once past 6 weeks of weekly follow-ups, frequency can change to bi-weekly or monthly based on progress of patient/client. Once BMI is within a healthy range for age, appointments can be changed to quarterly or bi-annual to check in on weight maintenance and healthy lifestyle habits.
- Anthropometric Measurements
    - Height
    - Weight
    - Calculate BMI (See Appendix A)
    - Plot BMI %tile (See Appendix D)
    - Reassess Parent's/Guardian's Readiness to change (using the same information found on the Follow Up Visit Form – Appendix J)

- Biochemical Data[2] (can be done monthly, bi-monthly or at physician's discretion)

| **Tests** | **Recommendations/Guidelines** |
|---|---|
| Fasting Lipid Profile (Cholesterol, Triglycerides, LDL-C, HDL-C) | Total Chol <170 mg/dL<br>LDL-C <110 mg/dL<br>HDL-C > 35mg/dL<br>Trig <150 md/dL |
| Fasting Glucose | 2-12 years of age 80-180 mg/dL<br>13-19 years of age 70-150 mg/dL |
| AST & ALT Liver Enzymes | AST 0-60 IU/L<br>ALT 0-50 IU/L |
| Blood Pressure (Appendix E) | 2-12 years of age – *see Appendix E*<br>13-18 years of age <120/<80 mm Hg |

- Use Follow Up Form for visits (Appendix J)
- Review/discuss the past weeks Healthy Eating Goals and adherence to meeting them. Use open ended questions to discuss successes and challenges. (Appendix K)
- Review/discuss the past weeks Physical Activity Goals and adherence to meeting them. Use open ended questions to discuss successes and challenges. (Appendix K)
- Review/discuss family dynamics experienced through the week. Use open ended questions to discuss successes and challenges/barriers. (Appendix K)
- Allow parent(s)/guardians(s) and child/adolescent to set their next week's goals. (Appendix L)
- Set follow up appointment and write on the bottom of goal sheet.

As follow up appointments occur, discussions around reward systems can be implemented. A reward system is used to award successful behavior change. Rewards should not be food-based and should build upon small goals obtained. Below is an example of a reward system:

- 1 star for each goal successfully obtained weekly
- 1 star for drinking at least 6-8 cups of water daily
- 1 star for going to follow-up appointments
- 1 stars for increasing physical activity frequency or duration

12 stars obtained = 1 reward (for children – log stickers on a calendar for each star received)

25 stars obtained = 1 reward (for adolescents)

*Examples of rewards:*

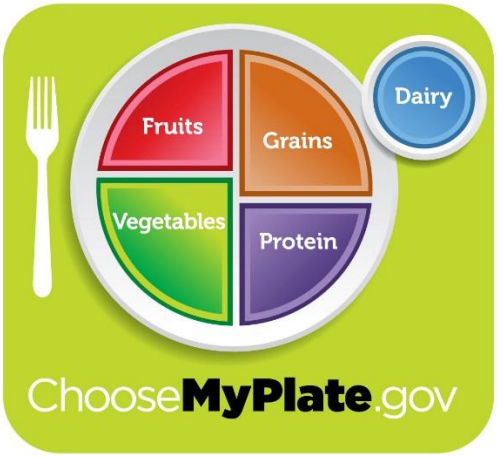
- Purchase of a new toy/game
- Download or purchase music (i.e. i-Tunes®)
- Purchase a new piece of sports equipment or new sneakers/tennis shoes
- Have a sleep over with friends
- Take a bubble bath
- Gift card to a jump house/play house
- Go play putt-putt golf as a family or with friends
- Go to a zoo
- Go to a museum
- See a movie (but pack healthy snacks and stay away from the concession stand)
- Take the child/adolescent to a department store, provide them a budget (dollar amount to spend) and let them pick their own reward. Maybe keep a reloadable card for these rewards.
- Enjoy a trip to the spa to get nails done
- Purchase a new book or make a trip to the library and loan books to read
- Purchase a new coloring book and crayons
- Go to a new/different playground
- Purchase new headphones
- Purchase new age-appropriate apps for smart phones
- Revise the child's bedroom (i.e new paint, new bedding, new area rugs, new wall art, etc.)

Reward systems are a great way to keep children/adolescents engaged in the program and focused on obtaining goals.

# Pediatric Weight Management Meal Planning

Although there is no formal meal plan for youth to follow, there are guidelines in place for portion sizes and meal spacing. Youth should eat 3 meals a day and incorporate 1-3 healthy nutritive snacks per day as their appetite dictates. The HealthWise products work well for youth as healthy snacks as they are mobile, easy to prepare or ready to eat and come in great flavors and textures youth like (i.e. Peanut Butter & Jelly Bars; BBQ, Pizza, Ranch, Sea Salt & Vinegar Protein Chips; Fruit flavored Protein Shots, Shakes, Chocolate & Vanilla Puddings, Hot Chocolate, Chicken w/ Pasta Soups, etc.).

The following are examples of portion sizes for various food groups and an example of meal spacing. Each meal should include protein, fruits and/or vegetables, dairy and starch foods. Following the "Choose My Plate" method suggested by the USDA Food and Nutrition Department of the US Government for children and adolescents is an easy way to have them visually see what should be on their plates during meals.




For meal spacing, the following is suggested:

- Breakfast
- Mid-Morning Snack (i.e. HealthWise product)
- Lunch
- Mid-Afternoon Snack (i.e. HealthWise product)
- Dinner
- Evening Snack (if needed based on appetite; suggest use of a HealthWise product as they are low in calories and provide good sources of protein)

# Pediatric Weight Management Summary

The approach to obtaining healthy weight in the youth population is very different than traditional methods found in adult populations. The approach must be family-oriented to support the child/adolescent and lifestyle changes should be incorporated so the entire family unit participates. The focus is weight management in youth that are overweight and a slow weight loss for those youth that are obese. Once an obese youth has lost weight and is now in the overweight category, the goal should be then to focus on weight management and not weight loss.

Allowing the family unit to set weekly goals is important as they will be more engaged in their behavior change and more likely to set goals that are obtainable with guidance from the weight loss professional. Small or large goals obtained it is important to set the goals using the S.M.A.R.T. method.

**S** - specific goal (i.e. I will eat 2 fruit servings per day)

**M** – Measurable (i.e. can the goal be easily measured)

**A** – Achievable (i.e. is the goal within reason the family's ability)

**R** - Relevant (i.e. smaller goals leading to a larger goal)

**T** – Time bound (i.e. by setting weekly goals, this ensures they are time-bound)

Using open-ended questions allow for the family and youth to give you answers that are not yes or no answers. Using the open-ended questions allows for greater dialogue about what the family is experiencing through this journey of change.

The role of the Weight Loss Professional is one of support and guidance and should never dictate the goals and weight loss expectations. The goal in pediatric weight management is assisting the entire family with changing lifestyle behaviors to support the child/adolescent.

## Resources


*1. NCHS Data Brief, No. 219, November 2015. The Prevelence of Obesity Amongst Adults and Youth: United States, 2011-2014.*

*2. American Dietetic Association, Pediatric Weight Management Toolkit; 2010.*

*3. www.WebMD.com , Weight Loss Strategies for Overweight Kids; Sharon Liao; 2017.*

*4. www.Healthychildren.org ; American Academy of Pediatrics; 2017.*

*5. Journal of the Academy of Nutrition and Dietetics., 2014 October; 114 (10): 1601-1610. Parent Readiness to Change Differs for Overweight Child Dietary and Physical Activity Behaviors.*

*6. www.obesityaction.org ; Obesity: The Link Between Your Weight and Your Family. Sarah Earhardt, MS, RD, LD, CDE, 2017.*

*7. Academy of Nutrition and Dietetics, Are You Involved In Family Dinner? Why Closeness Matters in Reducing Childhood Obesity. Reviewed by Wendy Marcason, RDN Sept. 2017.*

*8. Pediatrics Volume 134; No. 5, Nov. 2014. Childhood Obesity and Interpersonal Dynamics During Family Meals; Jerica M. Berge PhD, MPH, LMFT, CFLE et. al.*

*9.* www.choosemyplate.org

# Appendices

Appendix A – How to Calculate BMI and RMR

Appendix B – Weight Loss Questionnaire for Parent(s)/Guardian(s)

Appendix C – Medical Information Form

Appendix D – Body Mass Index-for-Age Percentile Charts (boys and girls)

Appendix E – Blood Pressure Levels for Girls and Boys

Appendix F – Foods Associated with an Increased Risk of Obesity

Appendix G – Sedentary Behaviors Associated with an Increased Risk of Obesity

Appendix H – Family Climate Factors

Appendix I – First Week Assignment for Starting a Healthier Lifestyle

Appendix J – Follow-up Visit Form

Appendix K – Weekly Goal Setting Form

Appendix L – Choose My Plate Graphic Handout