

Morgan Cox

Case Study Number One:
Childhood Overweight

FCS 420 – Medical Nutrition
Therapy I

Dr. Goodwin

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Jacksonville State University

I. Understanding the Disease and Pathophysiology

1. Current research indicates that the cause of childhood obesity is multifactorial.

Briefly discuss how the following factors are thought to play a role in the development of childhood obesity: biological (genetics and pathophysiology); behavioral-environmental (sedentary lifestyle, socioeconomic status, modernization, culture, and dietary intake); and global (society, community, organizational, interpersonal, and individual).

McCance, Huether, Brashers, and Rote (2010), discuss that if the child's parents are obese, consequently, that child is at risk for becoming obese (McCance, Huether, Brashers, Rote, 2010). Rolfes, Pinna, and Whitney (2012) state that not only will parents' obesity possibly lead to obese children, but those same children will also become obese adults. This chance of becoming an obese adult grows as the child ages (Rolfes, Pinna, Whitney, 2012). According to Shils, Olson, Shike, and Ross (1999), obesity can be attributed to a glandular issue(s); however, it is a rare cause of obesity. Some of these glandular issues include an overactive adrenal gland that could ultimately lead to Cushing's syndrome, which triggers central obesity, hypothyroidism, which could increase fat mass, hypogonadism, which could be linked to mild obesity, and a hypothalamic lesion which is linked to the regulation of food intake. In children, obesity can also be linked particular congenital syndromes and, rarely, hormonal abnormalities or imbalances (Shils, Olson, Shike, Ross, 1999).

McCance et al. (2010) explain that an additional reason that children are obese is the lack of physical activity and the influence of a sedentary lifestyle thanks to television and computer use (McCance et al., 2010). Rolfes et al. (2012) make a valid point in that children are less active and more sedentary because of the decline in the recess and physical activity in the school systems (Rolfes et al., 2012). According to Ogden, Lamb, Carroll, and Flegal (2010), children who live in a low-income household are more likely to become obese. If the children live in households where at least one parent has a college degree or more, the prevalence of obesity declined. With this being said, the author's state, "Between 1988-1994 and 2005-2008 the prevalence of obesity increased in children at all levels of income and education except among girls in households where the head had at least a college degree" (Ogden, Lamb, Carroll, Flegal, 2010). The modernization of our culture has many positive points. A negative point is the increase in safety concerns. Parents are not allowing their children to play outdoors (with good reason, of course). This is causing them to remain indoors only to watch television and live a more sedentary life. Children of black and Mexican-American descent are at a higher risk for becoming obese (Mahan, Escott-Stump, 2008). A dramatic increase in dietary intake has significantly attributed to the increase in childhood obesity. There has been an increase in sugar consumption (soft drinks and high-fructose corn syrup), high-fat and highly-processed foods and snacks, and fast-food meals eaten outside of the home (Rolfes et al., 2012).

Lutz and Przytulski (2011), make a valid point when they explain that two-thirds of the time there is failure by the health professional or a miscommunication between the health care professional and the patient about the weight of the obese child. This could be a

difficult subject for the health professional to discuss with the patient's parents. Children are also making their own food choices, which can lead to childhood obesity because they simply do not know the difference in healthy food choices and not-so-healthy food choices. This is when a parent needs to step in and assist the child so they can learn and make healthier choices in the future. The food industry and marketing can be considered culprits in the increase in childhood obesity. Their television advertisements and other sources of advertisements encourage the consumption of unhealthy foods. This occurs because of the vivid pictures and marketing schemes that encourage children and parents to buy the product. An example would be high-sugar cereals. Some parents just do not see that their child is overweight, thus, intervention never occurs (Lutz, Przytulski, 2011).

2. Describe health consequences associated with an overweight condition. Describe how these health consequences differ for an overweight versus an obese condition.

Lutz and Przytulski (2011) explain that children who are overweight or obese are ten times more likely to develop hypertension (high blood pressure) as young adults, have a three to eight time greater risk for developing dyslipidemia (high blood cholesterol), and have two-time increased risk of developing diabetes (Lutz, Przytulski, 2011). Children who are overweight and obese can be discriminated against by others (bullied) and suffer from psychological issues such as a pessimistic self-image, depression, and a decline in socialization (Mahan, Escott- Stump, 2008). Rolfes et al (2012) state that overweight (above 85th percentile) children have an increased risk for developing high blood cholesterol (normal total cholesterol level is 120-199 mg/dL) and have an increased risk

for developing atherosclerosis (hardening of the arterial wall due to plaque buildup).

Risks for developing high blood pressure (hypertension), type 2 diabetes, and respiratory diseases (asthma) are also increased in the overweight child. The chronic diseases that could possibly develop in the obese (95th percentile) child include type 2 diabetes, fatty liver disease, and heart disease (atherosclerosis, high blood pressure, and high blood cholesterol) (Rolfes et al., 2012). Children who are overweight may hit puberty sooner than those of normal weight children (Nettina, 2006).

The terms overweight and obesity are sometimes used interchangeably. They are, of course different. The percentiles are stated in the above paragraphs. Both are extremely dangerous. The risk factors are quite similar for overweight and obese children. The severity of the risk factors (diseases) increase as the child gains the weight. For example, an overweight child may produce an elevated total blood cholesterol lab value. The term elevated refers to the child's lab value being on the high side of normal. If the child continues to gain weight and becomes obese, full-blown hypertension could develop (Mahan, Escott – Stump, 2008).

3. Missy has been diagnosed with obstructive sleep apnea. Define sleep apnea. Explain the relationship between sleep apnea and obesity.

According to Rolfes et al. (2012), sleep apnea is the cessation of breathing while one is sleeping). Excessive body fat could be the culprit of sleep apnea (Rolfes et al., 2012).

Nettina (2006) describes obstructive sleep apnea as adenotonsillar hypertrophy (enlargement of the tonsils and adenoids) that causes an airway obstruction while

sleeping. This could lead to chronic hypoventilation (reduction or decrease in the rate and depth of respiration which can cause an increase in the amount of carbon dioxide in the body) while sleeping (Nettina, 2006). McCance et al. (2010) explains that obstructive sleep apnea could be related to an upper airway obstruction. This could be caused by obesity. In Missy's case, her obstructive sleep apnea is probably caused by the collapse of the tongue and/or the soft palate against the pharyngeal walls. This collapse is caused from a decrease in muscle, particularly during the REM sleep cycle. Missy may snore or gasp while she sleeps. Obstructive sleep apnea is prevalent in obese individuals and children because of a short neck that has an increased amount of fat. This could decrease respiratory function and control, especially during sleep (McCance et al., 2010). Using my own knowledge, I believe there could be a correlation drawn between the relationship of her decreased amount of REM cycle sleep (related to the sleep apnea) and obesity. Because she is tired "sleepy" and cranky often, she might not have the energy necessary to be physically active, thus, causing her to gain weight.

II. Understanding the Nutrition Therapy

4. What are the goals for weight loss in the pediatric population? Under what circumstances might weight loss in overweight children not be appropriate?

Rolfes et al. (2012) explains that parents who encourage their overweight or obese children to lose weight should do so carefully under a physician or Registered Dietitian's order. The parents should avoid restricting food intake too drastically which could impair the child's nutritional status and cause unsuitable eating behaviors. Instead of weight loss, the initial

goal for the child is to reduce the rate at which weight is gained. What must be considered is that children are still growing and weight loss could hinder the growth and development of the child. Another reason as to why weight loss might not be appropriate in children is if their weight gain is due to a medical condition. Some of the medical conditions related to inappropriate weight gain in children were discussed in number one of this case study. These medical conditions might be known or might not be known and could be the underlying problem of the weight gain of the child (Rolfes et al., 2012). According to the Centers for Disease Control, weight maintenance is recommended for overweight children ages seven and up. In obese children ages seven and up, weight loss should not exceed one to two pounds a week (Centers for Disease Control, 2007).

5. What would you recommend as the current focus for nutritional treatment of Missy's obesity?

What I would recommend as a current focus for nutritional treatment for Missy would be decreasing her caloric intake and increasing the nutritional quality of her food choices. Her sedentary lifestyle and lack of physical activity should be addressed as well.

III. Nutrition Assessment

A. Evaluation of Weight/Body Composition

- 6. Overweight or obesity in adults is defined by BMI. Children and adolescents are often times classified as “overweight” or “at risk for overweight” based on their BMI percentiles, but the classification scheme is by no means universally accepted. Use three different professional resources and compare/contrast their definitions for overweight conditions among the pediatric population.**

According to the American Academy of Pediatrics (AAP), a child who has a body mass index (BMI) that is over the 85th percentile, but less than the 95th percentile on the growth charts is considered overweight. If the child falls in the 95th percentile or greater in his or her growth chart, they are considered obese (American Academy of Pediatrics: About Childhood Obesity, 2012). According to World Health Organization (WHO), a child who has a BMI over 25 is considered overweight. A child who has a BMI over 30 is considered obese (World Health Organization: Obesity and Overweight, 2012).

According to the Centers for Disease Control (CDC), a child who has a BMI that falls in the 85th percentile to less than the 95th percentile on their growth charts is considered overweight. If the child’s BMI is at the 95th percentile or greater on their growth chart, they are considered obese (Centers for Disease Control: About BMI for Children and Teens, 2011). The CDC and the AAP use the BMI in reference to growth charts and the WHO uses BMI alone to assess overweight and obesity in children.

- 7. Evaluate Missy's weight using the CDC growth charts provided. What is Missy's BMI percentile? How would her weight status be classified by each of the standards you identified in question 6?**

According to the growth chart provided, Missy falls above the 97th percentile for body mass index-for-age percentile for girls (Missy's BMI was calculated to be 25). This means that she is heavier than 97 percent of the population her age. In reference to the CDC, she would be classified as obese as she is above the 95th percentile. According to the WHO, she would be considered overweight because her BMI is 25. Her BMI would have to be above 30 in order to be considered obese according to the WHO. Because Missy is above the 97th percentile, according to the AAP, she is obese because her BMI is greater than the 95th percentile.

B. Calculation of Nutrient Requirements

- 8. If possible, RMR should be measured by indirect calorimeter. Identify two methods for determining Missy's energy requirements other than indirect calorimetry and then use them to calculate Missy's energy requirements.**

According to Insel, Ross, McMahon, and Bernstein (2013), the estimated energy requirement (EER) equation for children is as follows:

Females:

$$(1) \text{ EER} = 135.3 - 30.8 \times \text{age [y]} \text{ PA [physical activity]} \times (10.0 \times \text{weight [kg]} + 934 \times \text{height [m]}) \text{ (Insel, Ross, McMahon, Bernstein, 2013).}$$

$$\text{Missy's EER} = 1,703 \text{ calories}$$

According to Rolfes et al. (2012), another way to estimate energy needs is to calculate it by using the Harris – Benedict formula. The equation is as follows:

(2) $BEE = 655 + (9.6 \times w \text{ [kg]}) + (1.8 \times ht \text{ [cm]}) - (4.7 \times age \text{ [y]})$ (Rolfes et al., 2012).

Missy's EER = 1,371 calories

Multiple 1,371 by an activity factor of 1.4 to yield her total daily expenditure (TDE)

Missy's TDE = 1,919 calories

C. Intake Domain

- 9. Dietary factors associated with increased risk of overweight are increased dietary fat intake and increased kilocalorie-dense beverages. Identify foods from Missy's diet recall that fit these criteria. Calculate the percentage of kilocalories from each macronutrient and the percentage of kilocalories provided by fluids for Missy's 24-hour recall.**

The foods that Missy consumed that were high in fat included: two breakfast burritos, two slices of bologna, two slices of cheese, two tablespoons of mayonnaise, one package of Frito Corn Chips, two Twinkies, two fried chicken legs, one fried chicken thigh, one cup of fried okra, and one cup of mashed potatoes made with whole milk and butter.

The beverages that Missy consumed that were high in kilocalories included: 28 ounces (3.5 cups) of whole milk, coffee with $\frac{1}{4}$ cup of creamer and 2 teaspoons of sugar), 20 ounces (2.5 cups) of iced tea with sugar, and a 12 ounce Coke-a Cola.

According to the 24-hour recall provided by her parents, Missy consumed roughly 4,849.4 calories. Her fluid intake, according to her 24-hour recall, equaled to 1,035.4 calories.

With reference to the nutrition diagnostic terminology, Missy has excessive energy intake (NI – 1.5). I conclude this because she consumed 2,930 more calories than is needed to support her basal metabolic rate and activity factor. Missy has excessive oral food/beverage intake (NI – 2.2). I concluded this because of the sentence stated earlier concerning the calories she consumed and that she consumed 1,035 calories worth of beverages. As stated previously, Missy had an excessive fluid intake (NI – 3.2). Missy had an excessive fat intake (NI – 5.6.2). She had an inappropriate intake of food fats (NI – 5.7.3) as evidenced by 78 grams of saturated fat that was consumed. Missy had excessive protein intake (NI – 5.7.2) as evidenced by 308% of protein intake. She consumed 214 grams of protein and her calculated protein needs is 48 grams. She had an excessive carbohydrate intake (NI – 5.8.2) and an inappropriate intake of types of carbohydrate (NI – 5.8.3) which included refined grains and not whole grains. Missy had an inadequate vitamin intake of vitamin C and vitamin D (NI – 5.9.2). She had an inadequate mineral intake of potassium (NI – 5.10.1) and she had an excessive mineral intake of sodium (NI – 5.10.2).

10. Increased fruit and vegetable intake is associated with decreased risks of overweight. Using Missy's usual intake, is Missy's fruit and vegetable intake adequate?

Missy's fruit and vegetable intake are both inadequate. The important vitamins and minerals that are missing from her diet that would be supplied by the fruits and vegetables are listed in question nine.

According to the MyPlate Supertracker tool on choosemyplate.gov, Missy's intake of fruits is extremely low. The MyPlate recommends that two cups of fruit are consumed each day. Missy only consumed ½ cup and it was from the apple juice that she drank at breakfast time. There was no evidence of fresh fruit consumed in her 24-hour recall. Missy's vegetable intake is also very low. It is recommended by the MyPlate to consume 2.5 cups of vegetables each day. According to her 24-hour recall, she consumed on 1 ¾ cup of vegetables. Unfortunately, the vegetables that were consumed were either deep-fat fried (fried okra) or slathered in milk and butter (mashed potatoes).

- 11. Use the MyPlate online tool (available on <http://choosemyplate.gov> ; click on Supertracker) to generate a personalized MyPlate for Missy. Using this eating pattern, plan a 1-day menu for Missy.**

BREAKFAST

2 100% whole-grain waffles

2 Tablespoons maple syrup

1/2 banana

3/4 cup Apple Juice

SNACK

1 string cheese

1/2 cup fresh peaches

LUNCH

3 oz lean turkey

2 slices 100% whole-wheat bread

1 Tablespoon light mayonnaise

10 baby carrot sticks

1 apple

1 cup 2% (reduced fat) milk

SNACK

1/2 cup plain, fat-free yogurt

1 cup fresh strawberries berries

DINNER

1 1/2 cups 100% whole-wheat spaghetti (add very little for cooking and no fat)

1 cup tomato and meat sauce

2 cups tossed salad with 2 Tablespoons reduced-calorie Ranch salad dressing

1 oatmeal raisin cookie

1 cup 2% (reduced fat) milk

*consume water throughout the day, preferable at least cups

12. Now enter and assess the 1-day menu you planned for Missy using the MyPlate

Super-tracker online tool (<http://www.choosemyplate.gov>). Does your menu meet macro- and micronutrient recommendations for Missy?

The one-day menu that I prepared for Missy meets her macro- and micronutrient recommendations according to Boyle and Long (2012) for Missy:

Macronutrients

- Protein – 110 grams (22% of calories)
- Carbohydrate – 291 grams (58% of calories)

- Fat – 45 grams (20% of calories)

Micronutrients

- Vitamin A – 1350 µg
- Vitamin B6 – 2.3 mg
- Vitamin B12 – 6.6 µg
- Vitamin C – 174 mg
- Vitamin D – 6 µg
- Vitamin E – 8 AT
- Vitamin K – 89 µg
- Folate – 284 µg
- Thiamin - 1.4 mg
- Riboflavin - 2.7 mg
- Naicin – 21 mg
- Choline – 373 mg
- Calcium – 1685 mg
- Potassium – 9457 mg
- Sodium – 2200 mg
- Copper – 1416 µg
- Iron – 13 mg
- Magnesium – 404 mg
- Phosphorus – 1962 µg
- Selenium – 165 µg

- Zinc – 16 mg

(Boyle, Long, 2010).

D. Clinical Domain

13. Why did Dr. Null order a lipid profile and blood glucose test?

According to McCance et al. (2010), Dr. Null ordered a lipid profile and a blood glucose test because Missy is obese, or above the 95th percentile for her body-mass-index – for age. Children who are overweight or, in Missy’s case, obese are at a much higher risk for developing dangerous illnesses. These include asthma, sleep apnea (which she has), hypertension, type 2 diabetes, high blood cholesterol (dyslipidemia), and cardiovascular disease (McCance., 2010). Dr. Null also ordered the blood glucose test because Missy has a family history (mother and grandmother) of type 2 diabetes mellitus.

14. What lipid and glucose levels are considered to be abnormal for the pediatric population?

According to Van Leeuwen, Poelhuis-Leth, and Bladh (2011), glucose levels are considered to be abnormal in children if their blood glucose is greater than 200 mg/dL after two hours of eating a 75 mg glucose load. Glucose levels are also considered abnormal if their fasting blood glucose is greater than 126 mg/dL after at least an eight hour fast. The normal blood glucose level for children is 60-100 mg/dL. In children and adolescents that are less than 20 years, an abnormal lipid or total cholesterol reading of 170-199 mg/dL is considered borderline high. An abnormal lipid or total cholesterol reading of greater than 200 mg/dL is considered high. The target total cholesterol for children is less than 170 mg/dL (Van Leeuwen, Poelhuis-Leth, Bladh, 2011).

15. Evaluate Missy's lab results.

Missy's total CO₂ (carbon dioxide) is almost too high. The normal range is for total CO₂ is 23-30 mEq/L. Missy's lab value for total CO₂ was 29 mEq/L. This borderline high lab value could be due to Missy's sleep apnea. Nettina (2006) tells us that sleep apnea, which is explained in question number three, could lead to chronic hypoventilation (reduction or decrease in the rate and depth of respiration which can cause an increase in the amount of carbon dioxide in the body) while sleeping (Nettina, 2006).

Missy's glucose is borderline high. Her value is 108 mg/dL. The normal value for blood glucose level of children, as stated above in question 14, is 60-100 mg/dL. This slightly elevated glucose level could point to possible diabetes. Missy does not have full-blown diabetes, but this almost too high lab value could suggest that she may be predisposing herself to one day develop diabetes. She also has a family history of diabetes which only could increase her risk of developing diabetes as well (Van Leeuwen et al., 2011).

Stated in question 14 is extensive information regarding the lipid levels in children.

Missy's total cholesterol was found to be 190 mg/dL. According to Van Leeuwen (2011), Missy's total cholesterol is borderline high. The borderline high levels fall between 170 to 199 mg/dL. Missy could be predisposing herself to future heart disease and atherosclerosis (Van Leeuwen et al., 2011).

Missy's HDL is at an acceptable level being at 50 mg/dL, but the desired level is greater than 60 mg/dL (Van Leeuwen et al., 2011). The reason that Missy's HDL levels need to be increased is that high density lipoproteins deliver cholesterol to the liver to be synthesized. This is why it is referred to as the "good cholesterol" because it carries cholesterol away from the body tissues and cells. Having a desired level of HDL

cholesterol will keep the risk of developing heart disease to a minimum (Rolfes et al, 2012).

Missy's LDL, low density lipoprotein, is near optimal at 110 mg/dL. The optimal level is less than 100 mg/dL (Van Leeuwen et al., 2011). LDL is considered the "bad cholesterol" because it carried cholesterol away from the liver and to other body tissues and cell. This is why Missy wants to have an optimal level of low density lipoproteins in her blood stream (Rolfes et al, 2012).

The last lab value that stands out is Missy's Hemoglobin A_{1C}. According to Rolfes et al. (2012), glycerated hemoglobin (HbA_{1C}) exposes the hemoglobin's contact with glucose over a long period of time. This is an indirect assessment of blood glucose levels (Rolfes et al., 2012). Missy's HbA_{1C} lab value read 5.5%. The normal range is 3.9 – 5.2%. This is elevated. Missy could be predisposed to diabetes because this lab value informs of Missy's blood glucose control over a long period of time. It could be stated that Missy has prediabetes (Rolfes et al., 2012).

In conclusion, Missy has an altered nutrition-related laboratory values which includes a high HbA_{1C} (NC- 2.2). Missy is also obese, which could be one factor as to why her HbA_{1C} is elevated (NC – 3.3).

E. Behavioral- Environmental Domain

16. What behaviors associated with increased risk of overweight would you look for when assessing Missy's and her family diets?

The behaviors that I would look for when assessing Missy's and her family diets in conjunction with overweight/obesity would include the amount of food that is consumed,

what types of foods are consumed and their nutritive values, how the food is prepared and served, and the times at which the food is consumed. An important concept that must be addressed is the parents' knowledge related to food and nutrition choices (NB – 1.1). If the parents do not know the correct foods to eat, this could put the parents as well as the child(ren) at risk for being overweight or obese. Missy consumed roughly 4,800 calories. The foods that she consumed did not contain the necessary vitamins, minerals, etc that are needed to sustain a healthy, growing body of a ten-year-old (NB – 1.7). This would include the two Twinkies, coke, corn chips, etc. They types of food that were consumed were full of fat (example – the deep-fat fried chicken legs and thigh). It is appropriate that children consume snacks throughout the day. The problem with Missy's snack was that it could be considered a meal. For example, she consumed a peanut butter and jelly sandwich and whole milk as a snack. The amount and quality of food that her parents consume could also be a direct reflection on the amount of food that Missy consumes. The serving sizes and portions of food is not the same for children compared to adults'. A final question I would have to ask concerning her diet is where her meals are consumed? If children eat meals in front of the television or computer, they will consume more calories than if they sat and ate at the table without the electronic stimulation provided by computer and televisions (Boyle, Long, 2010).

17. What aspects of Missy's lifestyle place her at an increased risk of overweight?

Some aspects that have put Missy at an increased risk of overweight are her lack of diet regulation and undesirable food choices (NB – 1.7) (this is thoroughly explained in the above question) and her lack of physical activity (NB – 2.1). It is stated that her she enjoys reading and playing video games. These activities do not require physical activity.

It is a shame that she does not receive her physical activity at school because of the budget cuts that have removed physical education and other vital learning skill classes. According to choosemyplate.gov, children ages six to seventeen years old need at least sixty minutes or more of physical activity each day. Missy is not acquiring this recommended amount of physical activity daily (Physical Activity..., 2012).

18. You talk with Missy and her parents. They are all friendly and cooperative. Missy's mother asks if it would help for them to not let Missy snack between meals and to reward her with dessert when she exercises. What would you tell them?

First, I would I would thank Missy's parents for being so cooperative and friendly and that their cooperation would greatly impact Missy's health in a positive way.

I would then explain to Missy's parents that it is appropriate to allow Missy to snack between meals, but the snacks must be nutrient dense. Examples would include carrots sticks with low-fat ranch dressing, one cup of fruit yogurt, one cup of low-fat chocolate milk, or one medium apple with one tablespoon of peanut butter. Any one of these snacks would be an appropriate choice for Missy as they are all nutrient-dense and have a substantial amount of protein that would keep her appetite satisfied until her next meal.

As for rewarding her with dessert when she exercises, I feel as if this would ingrain the wrong message in Missy. The problem I see with individuals is they exercise and then feel that they've "deserved" a dessert. When they do consume their "treat for working out", what is not realized is that the food that they consume is higher in calories than what they suspect it has, thus, undoing all the work that was accomplished during exercise. I feel it would be beneficial for Missy's parents encourage Missy to only eat

when she feels hungry. If she feels hungry after exercising, then supply her with a snack (perhaps one listed above). I feel as if there is a knowledge deficit with Missy's mother because she is asking about giving Missy food as a reward (NB – 1.1).

19. Identify one specific physical activity recommendation for Missy.

A moderate physical activity Missy could perform is briskly walking about 3.5 miles per hour for fifteen minutes each day. She could start slow and gradually work her way up to walking faster and longer. What would benefit Missy greatly is if her mother, father, or other sibling/family member walks with her. This would encourage her and keep her safe as well.

If Missy likes to dance and enjoys music, a fun activity for her would be to play her favorite upbeat song and dance to it. This could be fun for the whole family!

IV. Nutrition Diagnosis

20. Select two high-priority nutrition problems and complete PES statements for each.

- (1) Obese related to excessive energy intake and lack of physical activity as evidenced by a BMI of 25 (>95 percentile).
- (2) Excessive oral food/beverage intake related to calorically dense foods and beverages such as fried foods, fatty/processed meats, sugary sodas and juices and whole milk as evidenced by a typical daily intake of approximately 4,800 kcalories compared to a recommended daily intake of 1,800 to 2,000 kcalorie.

V. Nutrition Intervention

21. For each PES statement written, establish an ideal goal (based on signs and symptoms) and an appropriate intervention (based on etiology).

- (1) An ideal goal for Missy would be to reduce the rate at which her weight is gained and ultimately reduce her BMI by increasing her physical activity to the recommended sixty minutes each day and reducing her energy intake to the recommended amount of 1,800 – 2,000 kcalories each day.
- (2) An ideal goal for Missy would be to cease eating foods that are calorically dense and sugar-filled. She should be placed on a diet that is roughly 1,800 to 2,000 kcalories. The calories consumed should come from foods that are nutrient and protein-dense to aid her growing and developing body and that will also keep her feeling full.

22. Mr. and Mrs. Bloyd ask about using over-the-counter diet aids, specifically Alli (orlistat). What would you tell them?

Over-the-counter diet aids, specifically Alli, should not be administered to children under the age of 18. This drug should also be taken only if the patient has a BMI of 30 or more. The prescribed Alli should not be given to a child unless it is prescribed by a doctor (What is Alli..., 2012).

In my opinion, I feel that Missy does not need the assistance of diet aids. Missy could easily lower her weight by diet and physical activity change. Diet aids have adverse side effects and the long-term effect of them is not necessarily known. Instead of teaching Missy that taking a pill or medication is the easiest way to lose weight, she needs to be

taught that a lifestyle change will ultimately be her ticket to a healthy life and that there is no “quick fix”. This idea could be applied in all aspects of Missy’s life.

23. Mr. and Mrs. Bloyd ask about gastric bypass surgery for Missy. What are the recommendations regarding gastric bypass surgery for the pediatric population?

According to Dr. Bradley C. Lindon of Children’s Hospital Boston, candidates for bypass surgery of the pediatric population must employ nonsurgical weight loss techniques first. In Missy’s case, the first step in battling her obesity is to begin a diet change and a physical activity change. Elements that are examined in bypass candidates are BMI, projected adult height, medical problems, home environment, and their ability to abide by diet recommendations. The first step would be monitoring Missy’s diet for six months. I would inform Missy’s parents that the number of candidates that are selected for bariatric surgery is small (Q & A Bariatric Surgery, 2012).

VI. Nutrition Monitoring and Evaluation

24. When should the next counseling session with Missy be scheduled?

I feel that the next counseling should be in 30 days. This would give Missy time to lose weight or reduce the rate at which weight is gained and for lab values to be reassessed. This would also give Missy and her parents time to adjust to this new lifestyle and it would be soon enough after the initial visit to ask any question that may arise in a month’s time. This would also allow me to judge how fast or slow Missy is losing weight or if she is only maintaining her current weight. I would encourage Missy’s parents to try and keep a food diary as this could give them valuable insight on Missy’s progress.

25. Should her parents be included? Why or why not?

Missy's parents should definitely be included! Because her parents more than likely prepare her food, they should hear about Missy's progress and what needs to be added or subtracted from her diet. This information could benefit them nutritionally as well. If children see their parents eating healthy foods and living an active lifestyle, they will more than likely follow in their path. Missy might not understand nutrition as well as her parents. For example, I could tell Missy: "You need to consume more Vitamin D. Vitamin D helps your bones stay strong! You should consume your Vitamin D from low-fat dairy foods such as low-fat milk, yogurt, and cheese. You need to eat at least three cups each day" (I would show her visuals of dairy products and the size of a cup). Now, this information is very specific and though I may have explained the information emphatically, Missy does not buy the groceries. She needs her parents with her so they are familiar of her nutrient needs so when they go to purchase groceries, they are just as informed as Missy.

26. What would you assess during this follow-up counseling session?

During the follow-up session, I would assess Missy's weight loss, or lack thereof, her BMI and its relation to the BMI – for – age percentile chart. I would also assess her food diary that I asked Missy's parents to try to keep. I would ask Missy if she liked eating more fruits and vegetables and which one her favorite is. I would ask Missy how she is feeling and if she has more energy. I would ask if she had any questions. I would analyze her lab values, especially her glucose levels. Her next appointment (besides this follow-up) should be within two months from her first initial visit as to analyze her long-

term control of her blood glucose (HbA_{1c}). I would ask Mr. and Mrs. Bloyd their thoughts on Missy's progress and ask them if they had any questions as well. I would provide her family with other tools that would make healthy eating and physical activity easier. I would encourage them to use the MyPlate Supertracker to keep up with the nutrients that she is consuming and I would direct them to new recipes and activities that would not only provide success for Missy, but for her whole family as well.

References

- Boyle, M., Long, S. (2010). *Personal Nutrition* (7th ed.). Belmont, CA: Cengage Learning.
- American Academy of Pediatrics. (2012). *Childhood Overweight and Obesity: About Childhood Obesity*. <http://www2.aap.org/obesity/about.html> . Accessed on October 5, 2012.
- Centers for Diseases Control (2011). *About BMI for Children and Teens*. http://www.cdc.gov/healthyweight/assessing/bmi/childrens_bmi/about_childrens_bmi.html#What%20is%20BMI . Accessed on October 5, 2012.
- Centers for Disease Control. (2007). *Overweight Children and Adolescents: Recommendations to Screen, Assess and Manage*. <http://www.cdc.gov/nccdphp/dnpa/growthcharts/training/modules/module3/text/page1b.htm> . Accessed on October 5, 2012.
- ChooseMyPlate.gov. (2012). *Physical Activity: How Much Physical Activity is Needed?*. <http://www.choosemyplate.gov/physical-activity/amount.html> . Accessed on October 10, 2012.
- ChooseMyPlate.gov. (2012). *Supertracker*. <https://www.supertracker.usda.gov/foodtracker.aspx> . Accessed October 5, 2012.
- Drugs.com. (2012). *Alli*. <http://www.drugs.com/alli.html> . Accessed on October 10, 2012.
- Insel, P., Ross, D., McMahon, K., Bernstein, M. (2013). *Nutrition: MyPlate Update* (4th ed.). Burlington, MA: Jones & Bartlett Learning.
- Lutz, C., Przytulski, K. (2011). *Nutrition and Diet Therapy* (5th ed.). Philadelphia, PA: F.A. Davis Company.
- Mahan, L., Escott-Stump, S. (2008). *Krause's Food & Nutrition Therapy* (12th ed.). St. Louis, MO: Elsevier.
- McCance, K., Huether, S., Brashers, V., Rote, N. (2010). *Pathophysiology: The Biologic Basis for Disease in Adults and Children* (6th ed.). Maryland Heights, MO: Elsevier.
- Nettina, S. (2006). *Lippincott Manual of Nursing Practice* (8th ed.). Ambler, PA: Lippincott Williams & Wilkins.
- Ogden, C., Lamb, M., Carroll, M., Flegal, K. (2010) *Obesity and Socioeconomic Status in Children and Adolescents: United States, 2005-2008*. NCHS data brief no 51. Hyattsville, MD: National Center for Health Statistics.
- Childrenshospital.org. 2012. Q & A Bariatric Surgery. http://www.childrenshospital.org/views/december11/bariatric_surgery.html . Accessed on October 10, 2012.

Rolfes, S., Pinna, K., & Whitney, E. (2012). *Understanding Normal and Clinical Nutrition* (9th ed.). Belmont, CA: Cengage Learning.

Shils, M., Olson, J., Shike, M., Ross, A. (1999). *Modern Nutrition in Health and Disease* (9th ed.). Baltimore, MD: Lippincott Williams & Wilkins.

Van Leeuwen, A., Poelhuis-Leth, D., Bladh, M. (2011). *Davis's Comprehensive Handbook of Laboratory Diagnostic Tests with Nursing Implications* (4th ed.). Philadelphia, PA: F.A Davis Company.

World Health Organization. (2012). *Obesity and Overweight*.

<http://www.who.int/mediacentre/factsheets/fs311/en/> . Accessed October 5, 2012.