Weight Loss and Weight Management: Current Theories and Best Practices

Presented by the
Western Region Public Health Training Center &
the Southwest Telehealth Resource Center
Welcome

WRPHTC region – Arizona, California, Hawai‘i, Nevada, and the US Affiliated Pacific Island
SWTRC region – Arizona, Colorado, New Mexico, Nevada, and Utah
Fellow HRSA grantees
All other participants from the US & abroad
The purpose of the Weight Loss and Weight Management: Current Theories & Best Practices series is to explore and describe the components of a successful weight loss and management program for children and adults in family and community practice settings.
Continuing Nursing Education Information

Learning Objectives

Upon completion of this presentation, the participants will be able to:

1. Identify how pediatric obesity is measured and assessed.

2. Describe pediatric obesity treatment options.
Continuing Nursing Education Information

Nursing Evaluations & Disclosures

Criteria for successful completion:
• Attendance requirements
  • You must be present and logged into the webinar by 12:10 PM (Arizona time)
• Complete an online NURSING evaluation
  • Available online at: cne.nursing.arizona.edu/evaluations
• Wendy Scinta has declared a financial relationship with Takeda, Eisai, Covidian, and 3 Pound Health. All other planners and presenters have no relevant financial relationships to declare.
Webinar Series

**Weight Loss and Weight Management: Current Theories & Best Practices**

This four session, interactive webinar series brings together national leaders in nutrition, exercise and bariatric medicine who will address what is needed to have a successful weight loss and management program for children and adults in family and community practice settings. The series will start with a presentation and discussion on dynamic energy balance, an important new perspective on what metabolic changes occur during weight loss and how these changes have to be taken into account as part of a weight loss program. The second session will focus specifically on exercise and energy expenditure and weight loss. The final two sessions will present pediatric and adult case studies to highlight the promoters and challenges that lead to successful patient care, in regards to weight loss and maintaining weight loss.
Webinar Tips & Notes

• Mute your phone &/or computer microphone
• Time is reserved at the end for Q&A
• Please fill out the post-webinar survey
• Webinar is being recorded

• Recordings will be posted on the SWTRC website (http://www.southwesttrc.org) and the WRPHTC YouTube channel (https://www.youtube.com/user/azphtc)
“The Treatment of Pediatric and Adolescent Obesity”

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Diplomate, American Board of Family Medicine
Medical Director, Medical Weight Loss of New York
Founder, BOUNCE Weight Loss Program for Kids
Chief Medical Officer, Three Pound Health
Disclosures

Eisai- speaker
Takeda- speaker
Covidien- speaker
3 Pound Health – CMO
1. Stats/General Facts
2. Evaluation of an overweight or obese child
3. Treatment
   - Dietary considerations
   - Behavioral Modification
   - Exercise
   - Medications
4. Case studies
Stats and Facts
• 35% of American children are overweight and 17% of are obese.

• Overall, there have been no significant changes in obesity prevalence in youth between 2003-4 and 2011-12.”

NHANES 2011-2012 reported in JAMA: 311 (8) Feb 2014
Figure 1. Trends in obesity among children and adolescents: United States, 1963-2012

NHANES 2011-2012 reported in JAMA: 311 (8) Feb 2014
# NHANES National Obesity Data

(Obesity = BMI ≥ 95th percentile)

<table>
<thead>
<tr>
<th></th>
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</thead>
<tbody>
<tr>
<td>2-5 years</td>
<td>&lt;5%</td>
<td>10.4 %</td>
<td>12.1%</td>
<td>8.4%</td>
</tr>
<tr>
<td>6-11 years</td>
<td>4.2%</td>
<td>19.6 %</td>
<td>18.0 %</td>
<td>17.7%</td>
</tr>
<tr>
<td>12-19 years</td>
<td>4.6%</td>
<td>18.1%</td>
<td>18.4 %</td>
<td>20.5%</td>
</tr>
<tr>
<td>Total</td>
<td>&lt;5%</td>
<td>16.9 %</td>
<td>16.9%</td>
<td>16.9%</td>
</tr>
</tbody>
</table>

The big kids are getting bigger

Growth in Childhood Obesity Rates

JAMA Pediatrics- 2014; 168 (6) June.
Cost of Childhood Obesity

Incremental direct medical costs are $19,000 per obese child (when compared to a normal weight child who remains normal for the rest of his or her life.)

Source: Pediatrics 2014;133:1–9
Evaluation
BOYS
2 to 20 years: Boys
Body mass index-for-age percentiles

Girls
2 to 20 years: Girls
Body mass index-for-age percentiles

CDC. Determining % BMI. Accessed 2015.
Childhood “Overweight” and “Obese”

<table>
<thead>
<tr>
<th>Percentile Range (% BMI)</th>
<th>Weight Status Category *</th>
</tr>
</thead>
<tbody>
<tr>
<td>Less that 5%</td>
<td>Underweight</td>
</tr>
<tr>
<td>5 % to &lt; 85 %</td>
<td>Healthy Weight</td>
</tr>
<tr>
<td>85 % to &lt; 95 %</td>
<td>Overweight</td>
</tr>
<tr>
<td>95 % to &lt; 99 %</td>
<td>Obese</td>
</tr>
<tr>
<td>&gt;= 99 %</td>
<td>Severely Obese</td>
</tr>
</tbody>
</table>
Body mass index-for-age percentiles: Boys, 2 to 20 years

A 10-year-old boy with a BMI of 23 would be in the obese category (95th percentile or greater).

A 10-year-old boy with a BMI of 21 would be in the overweight category (85th to less than 95th percentile).

A 10-year-old boy with a BMI of 18 would be in the healthy weight category (5th percentile to less than 85th percentile).

A 10-year-old boy with a BMI of 13 would be in the underweight category (less than 5th percentile).

CDC. Determining % BMI. Accessed 2015.
Focused Family History

• Obesity
• Diabetes Mellitus
• Cardiovascular disease including cardiac events, hypertension, dyslipidemia
• Hypothyroidism

Focused Social History

• Get a sense of family dynamics
• Progress in school/ feedback from teachers
• Who else feeds child besides parents and school?
• Events such as a divorce, death, move, school change and other life changing events
Focused Birth and PMHx

**Pregnancy and Birth History**

- Weight of Mother and Father of baby at conception
- Pregnancy complications (e.g. Gestational Diabetes)
- Maternal weight gain (especially third trimester)
- Birth weight: Small or Large for gestational age.
- Breastfed or formula fed

**Past Medical History**

- Rapid rise in weight
- Absence of rebound adiposity in toddlers
- Use of steroids or weight-gaining meds
- Previously diagnosed co-morbidities
- Genetic disorders (Prader-Willi, congenital hypothyroidism, Bardet-Biedl, Cohen, Alstroms)
# Weight Gaining Medications

## Antidepressants
- Paroxetine
- Sertraline
- Citalopram
- Escitalopram

## Antipsychotics / Mood Stabilizers
- Aripiprazole
- Risperidone
- Quetiapine
- Lithium carbonate
- Divalproex sodium
- Olanzapine

## Hormones / Steroids
- OCPs
- Medroxyprogesterone
- Prednisone (+ other steroids)

## Other Medications
- Insulin
- Gabapentin
- Beta Blockers
Dietary History

What, where, when and with whom?

EATING BEHAVIORS OF SCHOOL-AGED KIDS

1. Too much sugar.
2. Too much fat.
3. Not enough whole grains.
4. Not enough fruits and vegetables.
5. Skipping breakfast.
6. Too much fast food.
7. Drinking the wrong fluids (SSB).
8. Not enough protein.

Exercise History

- Is the child exercising at all?
- Does he have PE at his school?
- What does she enjoy doing?
- How often is he/she gaming or watching TV?
  - There is a significant association between high screen time and prevalence of childhood obesity.¹
  - The response, in all age groups, seems to be dose dependent.²,³

# Focused Review of Systems

<table>
<thead>
<tr>
<th>Symptoms</th>
<th>Related Co-morbidity</th>
</tr>
</thead>
<tbody>
<tr>
<td>Nervousness, school avoidance, social inhibitions</td>
<td>Depression, anxiety, bullying</td>
</tr>
<tr>
<td>Fatigue, Muscle Aches</td>
<td>Vit D deficiency</td>
</tr>
<tr>
<td>Polyuria Polydipsia, fatigue</td>
<td>Type 2 Diabetes</td>
</tr>
<tr>
<td>Headaches, facial numbness</td>
<td>Pseudotumor cerebri</td>
</tr>
<tr>
<td>Skin pigmentation, skin tags, increased hunger</td>
<td>Insulin resistance</td>
</tr>
<tr>
<td>Daytime somnolence, loud snoring, witnessed apnea</td>
<td>Sleep apnea</td>
</tr>
<tr>
<td>Abdominal Pain, Indigestion</td>
<td>GERD, Gall bladder dz, Constipation</td>
</tr>
<tr>
<td>Hip or Knee pain</td>
<td>SCFE, early osteoarthritis</td>
</tr>
<tr>
<td>In-toeing, leg bowing, mild knee pain</td>
<td>Blount’s Disease</td>
</tr>
</tbody>
</table>
Physical Exam - Skin

- Acanthosis Nigricans
- Hirsutism
- Striae
- Intertrigo
Mouth and Neck

Tonsillar Hypertrophy

- 30% of severely obese children have sleep apnea - sleep study may be needed

Goiter

- 10-23% of all obese children have an $\uparrow$TSH (4-10 iu/l) and nl T4 and nl to slightly $\uparrow$ fT3, f T4.
- Believed to be due to low grade inflammation of thyroid tissue, and Leptin mediated production of pro-TRH. ( incr leptin $\rightarrow$ incr TSH).


Abdominal Exam

- 1/3 of obese children have fatty liver disease ¹
- Severely obese children have 40% higher risk of GERD than normal weight peers ²
- Obese children are up to eight times more likely to be diagnosed with gallstones than normal weight peers ³

Orthopedic Exam

Blount’s Disease

Slipped Capital Femoral Epiphysis
Laboratory Evaluation Recommendations Per 2007 Expert Committee (E.B.P): ¹

- **BMI 85%ile to 94%ile WITHOUT risk factors:**
  - Fasting Lipids Profile

- **BMI 85%ile to 94%ile ages 10 & older WITH risk factors:**
  - Fasting Lipids Profile and Glucose
  - ALT/AST

- **BMI ≥ 95th%ile Age 10 years and older:**
  - Fasting Lipids Profile and Glucose
  - ALT/AST
  - Other tests as indicated by health risk such as TFTs.

**Consider:**

Fasting insulin, lipid profile, CBC, CMP, CPK, HbA1C, 25 Vit D OH, U. Acid, TSH, Free T4, Free T3, Urine dip, Other per family Hx or CPE findings

Treatment
Elements of A Childhood Obesity Program

- Nutritional Planning Exercise
- Behavioral Modification
- Medications (when indicated)
- Exercise
- Nutrition
- Medical Monitoring
- Behavioral Family
- Behavioral Child
Nutrition
<table>
<thead>
<tr>
<th>Number</th>
<th>Type of Food</th>
<th>Mean kcal/day (total 2,027)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Grain-based desserts (cake, cookies, doughnuts,)</td>
<td>138</td>
</tr>
<tr>
<td>2</td>
<td>Pizza</td>
<td>136</td>
</tr>
<tr>
<td>3</td>
<td>Soda/energy/sports drinks</td>
<td>118</td>
</tr>
<tr>
<td>4</td>
<td>Yeast breads (white, mixed-grain, rolls, bagels)</td>
<td>114</td>
</tr>
<tr>
<td>5</td>
<td>Chicken and chicken mixed dishes (fried, baked)</td>
<td>113</td>
</tr>
<tr>
<td>6</td>
<td>Pasta and pasta dishes (mac and cheese, spaghetti)</td>
<td>91</td>
</tr>
<tr>
<td>7</td>
<td>Reduced-fat milk</td>
<td>86</td>
</tr>
<tr>
<td>8</td>
<td>Dairy desserts (ice cream, frozen yogurt, milkshakes)</td>
<td>76</td>
</tr>
<tr>
<td>9</td>
<td>Potato/corn/other chips</td>
<td>70</td>
</tr>
<tr>
<td>10</td>
<td>Ready-to-eat cereals</td>
<td>65</td>
</tr>
<tr>
<td>11</td>
<td>Tortillas, burritos, tacos</td>
<td>63</td>
</tr>
<tr>
<td>12</td>
<td>Whole milk</td>
<td>60</td>
</tr>
<tr>
<td>13</td>
<td>Candy</td>
<td>56</td>
</tr>
<tr>
<td>14</td>
<td>Fruit drinks (fruit juice drinks, punch, flavored drinks)</td>
<td>55</td>
</tr>
<tr>
<td>15</td>
<td>Burgers</td>
<td>55</td>
</tr>
<tr>
<td>16</td>
<td>French fries</td>
<td>52</td>
</tr>
<tr>
<td>17</td>
<td>Sausage, hot dogs, bacon, ribs</td>
<td>47</td>
</tr>
<tr>
<td>18</td>
<td>Regular cheese</td>
<td>43</td>
</tr>
<tr>
<td>19</td>
<td>Beef and beef dishes (steak, meatloaf, stew)</td>
<td>43</td>
</tr>
<tr>
<td>20</td>
<td>100-percent fruit juice (not orange or grapefruit)</td>
<td>35</td>
</tr>
<tr>
<td>21</td>
<td>Eggs/egg dishes (scrambled, fried, breakfast sandwich)</td>
<td>30</td>
</tr>
<tr>
<td>22</td>
<td>Waffles, pancakes, French toast</td>
<td>29</td>
</tr>
<tr>
<td>23</td>
<td>Crackers</td>
<td>28</td>
</tr>
<tr>
<td>24</td>
<td>Nuts/nut mixes/seeds (peanut butter, peanuts,</td>
<td>27</td>
</tr>
</tbody>
</table>
Low Carb Plans:

• Rationale: reducing carbohydrate intake significantly can lead to state of ketosis, which causes decrease in appetite and subsequent decreased caloric intake.

• Trials vary in level of carb restriction, fat composition, calorie restriction, age of patients, duration of intervention, post-treatment follow up, and comparison groups.

• All studies included interdisciplinary team including RD who assessed adherence to diet.

• Compared to baseline, all studies reported a significant improvement in weight status at the completion of the intervention. 1-4

Reduced Glycemic Load:

• Rationale: High glycemic-index foods are associated with an increase in BS, followed by an insulin response leading to a rapid decrease and increased hunger leading to increase caloric increase.

• Four trials vary in study design, age of patients, duration of intervention, size of intervention group, treatment duration, program intensity and post-treatment follow up.

• All studies included interdisciplinary team including R.D.

• Compared to baseline, all studies reported a significant improvement in weight status at the completion of the intervention. 1-4

• 2 studies with post treatment follow up reported that improvements in weight status were maintained. 2,4

Modified Stop Light Diet:

• Rationale: less restrictive approach, increased emphasis on eating healthy foods (fruits, veggies, low-fat dairy), decreased intake of high-energy dense foods.)

- GREEN : low cal, high nutrient- eat often
- YELLOW : moderate cal, mostly grains- eat in moderation
- RED : High cal, low nutrient- eat sparingly

• Two randomized clinical trials vary on size of intervention group, duration of intervention, post-treatment follow up. Age of children 8-12 years.

• Compared to baseline, all studies reported a significant improvement in weight status which was sustained long term. 2,3

Very Low Calorie Diet (VLCD):

- Diets ≤ 1,000 kcal/day.
  - Protein Sparing Modified Fast (PSMF) - 600-800Kcal diet high in lean protein (1.5-2 gram/Kg IBW/day) and low carb (20-25gm/day).
  - Hypocaloric balanced diet (800-1,000 kcal/day).

- Both interventions used as part of a comprehensive weight management programs to induce rapid weight loss (10-20 wks) follow by nutritionally balanced diets (1,000-2,000 kcal/day).

- Clinical outcome studies showed significant weight loss short-term (6-12 mos). Did not examine long term effects.¹⁻⁴ Concerns of slower growth velocity for stature but findings inconsistent.

- Recommended short term use 10-12 weeks by pediatric weight loss experts.

Meal Replacements:

- Rationale: high protein shakes and bars should produce satiety, cause stimuli narrowing, and greatly reduce caloric intake due to decreased personal decision making.

- There is consistent evidence with obese adults that meal replacements are an effective and safe strategy to produce significant, sustainable weight loss.

- The one RCT of MRs in children showed that meal replacements significantly increased weight loss during the first 4 months but did not facilitate the maintenance of lost weight at month 12.¹

Meal Replacements (con’t)

Berkowitz 2011 study- randomized to conventional diet (CD-Circle), or meal replacements (MR-Square) for 4 months then either continued on CD, MRs. or switched from MR to CD. At 12 wks, MR-MR group gained more weight back than MR-CD.

In a 2001 study, Wadden showed that combining MRs with medication and behavioral modification produced superior weight loss that was maintained at 12 mos.
Elimination diets have been used extensively to determine food allergies, but can also be useful for childhood obesity- especially for engaged families with younger children.

BOUNCE™ Elimination diet: (Each step is performed for a couple of weeks until the family has comfortably incorporated the change.)

Step 1: Eliminate SSBs and switch to water and low fat milk only

Step 2: Replace high fat junk food with healthy alternatives

Step 3: Increase protein, fruits and vegetables

Step 4: Substitute Healthier carbohydrates

Step 5: Minimize saturated fat. Eliminate trans fat.
Behavioral Modification
In 1999–2000, 41% of US adults reported eating away-from-home foods at least weekly \(^3\) and 25% of adults and 30% of children 4–19 years old reported eating fast food at least daily. \(^1\)

Frequent consumption of fast food, in particular, is associated with poorer diet quality and risk for obesity for both children \(^1\) and adults \(^2\).

The benefits of sharing 3 or more family mealtimes per week included a reduction in the odds for overweight (12%), eating unhealthy foods (20%), and disordered eating (35%) and an increase in the odds for eating healthy foods (24%).

*Pediatrics 2011;127:e1565–e1574*
What is the best way to deliver behavioral intervention?

1. CONTRACTING
2. SELF-MONITORING
3. CONTINGENCY MANAGEMENT
4. SOCIAL REINFORCEMENT AND MODELLING

* FAMILY BASED THERAPY DELIVERED BETWEEN 6 AND 12 YEARS OF AGE CAN LAST INTO ADULTHOOD.

Exercise
Exercise- younger children (<12 yrs)

• Depending on degree of obesity, expert panel recommends at least an hour of physical activity per day.\(^1\) **GET THEM MOVING!**

• For younger children, it should be about play. (Between 1981 and 1997, children’s play time dropped by 25%. Play time was replaced by structured sports, and unstructured time by screen time).\(^2\)

• Walking is always a good idea. Consider using pedometers, *Fit Bit* etc. to make it competitive.\(^3\)

• *Wii* Fit or *X-box Kinect* are good indoor choices.

• Bike riding, hiking, obstacle courses, dancing -playing as a family

• Swimming or aquatherapy for heavier kids.

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Exercise- adolescents (>12 yrs)

- Depending on degree of obesity, expert panel recommends at least an hour of physical activity per day.\(^1\) **GET THEM MOVING.**

- Consider a strength/cardio program at a local YMCA

- If children are not part of an organized team sport, consider club/intermural team or gaining access to school gym/weights.

- *Wii Fit* or *X-box Kinect* are good indoor choices for this population

- Bike riding, hiking, obstacle courses, dancing, swimming - playing as a family.

- If you have home equipment (such as a treadmill)- start with 20 minute walk and increase from there.
Medications
The ideal medication for children is one that is safe, effective, daily dosed, and does not affect growth or development.
Orlistat

- Inhibits gastrointestinal lipases, reducing approximately 30% of ingested dietary fat.

- Orlistat 120mg tid approved by FDA in 2003 for management of obesity in adolescents (12-16 years old).

- Largest trial of 539 adolescents for 52 weeks showed modest weight loss, with BMI decrease of 0.55kg/m² vs +.31 kg/m² with placebo. ¹

- 35% drop out (tid dosing, oily stools, need to take fat soluble vitamins.)

¹ Chanoine JP et al JAMA 2005;
Off label Use

- Definition: A drug that is prescribed for uses, periods of time, or a dosages that are not FDA-approved.

- In March 2009, researchers reported in *Academic Pediatrics* that 62% of outpatient pediatric visits resulted in an off-label prescription.

- According to the FDA, if a physician uses a product off-label, he or she has the responsibility to be well informed about the product, to base its use on firm scientific rationale, and to maintain records of the product's use and effects.

- Off-label use of medications has the potential to significantly affect the childhood obesity epidemic and prevent unnecessary surgical intervention.
Metformin

- Metformin is a Biguanide that inhibits intestinal glucose absorption, reduces hepatic glucose production, and increases insulin sensitivity in peripheral insulin-targeted tissues.

- FDA approved for the treatment of diabetes in children 10 and older

- More than 20 studies: Metformin therapy has been shown to improve body composition, fasting insulin, Body Mass Index, cardiovascular control and fatty liver disease in obese children/adolescents.

- Start at 500 mg po bid with food and titrate to 1000 mg po bid. Extend release forms (qd dosing) tend to be better tolerated, better compliance. Aim for 2 grams/day.
Topiramate

- GABA-ergic anticonvulsant drug approved for seizure disorders in children over age 2.

- Use in children with epilepsy\(^1\) and migraines\(^2\), shows a 1-2kg decrease in body weight vs placebo.

- Improvement in body weight in children with antipsychotic weight gain. \(^3-5\)

- Effective in adults with Binge Eating Disorder in doses of 50 mg q pm to 100mg bid \(^6,7\)

- Consider 25mg to 50mg q pm for carb sensitive patients or those with BED.

- Teratogenic risks should be explained to sexually active patients.
Phentermine

• Long acting sympathomimetic used to decrease food intake, and increase energy expenditures.

• Two short term trials on children in 1965\(^1\) and 1966 \(^2\) showed significant weight loss (5.2 kg of weight loss in 3 months) \(^2\) with excellent side effect profile.

• Medications FDA approved for adults are assumed to be safe for children 16 years and older.

• Long term data now exists for Phentermine for adults.

• Comparable sympathetic load to drugs used for ADD
Diethylpropion

• Short acting sympathomimetic used to decrease food intake, and increase energy expenditures.

• Two short term trials on children in 1967\(^1\) and 1970\(^2\) showed moderate weight loss.

• Medications FDA approved for adults are assumed to be safe for children 16 years and older.

• Comparable sympathetic load to drugs used for ADD
Pulling it all together.....
Behavior / Biguanide

Optimizing Metabolism (3 meals/2 snacks)

United as a family

Notation of food (food journal)

Count your steps (Pedometer)

Elimination Diet
Behavior/Biguanide

1. Treat underlying pathology if present

2. Offer 1 on 1 or group counseling (peers, family)

1. Limit electronics time- make them “work out” for it.

2. No food in front of the t.v. except water
Optimize Metabolism

3 meals, 2 snacks (3-4 hours apart) all with protein
United As A Family

Everyone participates. Everyone makes changes.
R.D. teaches children how to read food labels and take note of ingredients. Calories and protein are recorded but not tightly monitored.
Count Your Steps

Pedometer:
- Every child receives a pedometer before leaving our office
- Goal = 10,000 steps/day

Moves App.
- Free at Apps store
- Non-gadget activity tracker
Elimination Diet

- Minimize fast foods and eating out to no more than 1/week.
- Try to sit down to a meal at home together at least 1/wk.

Elimination diet with child:

- Start replacing soda and juice with water
- Wean off processed foods
- Replace starchy carbs with whole grains.
- Increase protein, fruits and vegetables.
BOUNCE - Initial analysis

Drop-outs vs. Completers & Continuing Patients

Compared change in BMI by regression analysis completers and ongoing participants {1} vs. drop-outs {0} each program component that subjects completed (1,0) time-in-program, participant age, and gender covariates

Cohort: N=25, Mean age 13.55 years, 63% female

Program participants saw a significant reduction in BMI, by over 3 points ($\beta = -3.351$, $p=.006$, 95% CI 5.630 - 1.071).

Case Studies
Aiden:

Age: 8
Height: 4’ 2”
Weight: 88 #

BMI = 24.75

1. What is percent BMI? What class of obesity is he?
2. What questions should we focus on?
3. What should our initial treatment be?
4. If he doesn’t succeed, what are next steps?
Aiden is in the > 95% = obese

Physical: As per protocol

Bloodwork:
- Fasting Lipids Profile   - Glucose
- ALT/AST
- Other (eg. TFTs )
Diamond:

Age: 12
Height: 5'1"
Weight: 130#

BMI = 24.5
BP = 106/70

1. What is Percent BMI? What class of obesity?
2. What blood work should you order?
3. What should our initial treatment be?
Diamond is in the 93% = overweight

Physical: As per protocol

Blood work: Fasting lipids only

(which are normal)
In Summary:

- The childhood obesity epidemic remains a serious threat to the long term health of our children, and the fiscal health of our country.

- Many forces are at play negatively impacting efforts to reverse this trend. They are powerful and well funded. (i.e. food industry)

- Childhood obesity can not only be contained but reversed medically if treatment is multidisciplinary and gives the family a central role in the process.

- Medications (such as metformin) are often needed to control appetite in insulin resistant children.

- Behavioral modification (with parents/caregivers with or without the child) is the most effective way to help a child maintain weight loss. Technology, if utilized appropriately, can maximize patient and family engagement.

- The successful reversal of childhood obesity must involve a wide array of public and private partners working together in concert. Grassroots efforts are included, and we can all play a role by using our talents within our own communities.
THANK YOU!
Weight Loss and Weight Management Webinar Series

Next Webinar, Tuesday, January 12, 2016:

Adult Bariatric Case Study
Dr. Myra Muramoto
Family and Community Medicine, University of Arizona College of Medicine

Please check our website
http://www.telemedicine.arizona.edu/app/distant-education/upcoming-workshops
Your opinion is valuable to us.
Please participate in this brief survey:

https://www.surveymonkey.com/r/WRPHTCwebinar

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