Collaborate ➢ Cultivate ➢Educate

PENS 2015 National Conference

Cleveland Clinic Children's

Nutritional Strategies for Overweight/Obese Pediatric Patients

PENS Conference
May 9th, 2015
Jennifer Willoughby, RD, LD
Cleveland Clinic Children's

Conflict of Interest Disclosure

- Conflicts of Interest
  - None
    - Jennifer Willoughby

A conflict of interest exists when an individual is in a position to profit directly or indirectly through application of authority, influence, or knowledge in relation to the affairs of PENS. A conflict of interest also exists if a relative benefits or when the organization is adversely affected in any way.

Objectives

- Audience will be able to describe the prevalence of pediatric obesity and related risks
- Identify the methods and results of traditional weight loss approaches
- Identify the methods and results of emerging mainstream diets in America
- Identify the methods and results of non-traditional Medical Nutrition Therapy
- Decode the new FDA proposed food labels

Cleveland Clinic Children's

Prevalence and Trends of Obesity

- 1/3 of children and adolescents in the US are either overweight or obese
- Body Mass Index (BMI) is the accepted standard measure for children 2 and older
  - Adults: BMI 25-30 kg/m2 overweight; BMI ≥30 kg/m^2 obese
  - Children: growing in height as well as weight. Body fat and muscle mass changes
- Gold standard for assessment – growth charts
  - Clinical definition of **overweight**: BMI between 85-95th%ile on CDC growth charts
  - Clinic definition of **obesity**: BMI >95th%ile on CDC growth charts
  - **Severe obesity** – BMI ≥120 % of the 95th percentile values, **or** a BMI ≥35 kg/m^2 (whichever is lower)
    - 5% of children and adolescents in US

Cleveland Clinic Children's

Etiology of Obesity Epidemic

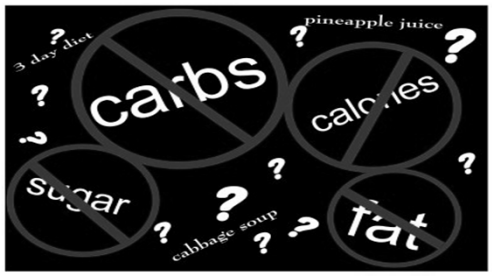
- Environmental factors
  - Food sources particularly sugar sweetened beverages
  - Screen time
  - Sleep
  - Medications
  - Virus
  - Gut microbiota
  - Toxins
- Genetic Factors
  - Responsible for 30 to 50 percent of the variation in adiposity
- Endocrine Disease
  - Identified in less than 1% of children and adolescents with obesity
- Metabolic Programming
  - Maternal nutrition and endocrine profile

Cleveland Clinic Children's

Comorbidities Associated with Childhood Obesity

- Abnormalities in the endocrine, cardiovascular, gastrointestinal, pulmonary, orthopedic, neurologic, dermatologic, and psychosocial systems
- Persistence into adulthood
- Lower health related quality of life
  - Psychological and behavioral factors

Cleveland Clinic Children's



Cleveland Clinic Children's

Traditional Diets	Emerging Diets	Medical Nutrition Therapy
USDA MyPlate	Gluten Free diet	PSMF diet
Mediterranean Diet	Paleo diet	Multidisciplinary
DASH Diet	Intermittent Fasting	
Caloric Restriction	Detox diets	
Low Carbohydrate	Liquid Shake diets	
Low Fat		
Vegetarian Diet		
Vegan/Plant Based Diet		

Expectations:
Explanation of Diet
Advantages/Disadvantages
Utilization in practice

Cleveland Clinic Children's

Traditional Weight Loss Approaches

USDA MyPlate

KIDS eat right.
Academy of Nutrition and Dietetics
Academy of Nutrition and Dietetics Foundation

- Replaced food pyramid in 2011
- Created as a new generation icon with the intent to prompt consumers to think about building a healthy plate at meal times
- Consistent with 2010 Dietary Guidelines for Americans
- Illustrates the 5 food groups as a building block for healthy lifestyle

Cleveland Clinic Children's

Traditional Weight Loss Approaches

Mediterranean Diet

Heart-healthy eating plan based on typical foods and recipes of Mediterranean-style cooking

- Eating primarily plant-based foods, such as fruits and vegetables, whole grains, legumes and nuts – eat these multiple times every day!
- Eat fish and poultry at least twice a week
- Limit red meat to no more than a few times a month
- Replacing butter with healthy fats, primarily olive oil
- Using herbs and spices instead of salt to flavor foods
- Diet also promotes being physically active and enjoying meals with family

Cleveland Clinic Children's

Traditional Weight Loss Approaches

Mediterranean Diet

- Reduce risk of metabolic syndrome and reduce metabolic syndrome parameters
- Associated with a significant decrease in BMI, lean body mass, fat mass, glucose, insulin resistance, TG and LDL-C
- Superior in reducing dyslipidemias, plasma glucose, CRP and markers of oxidative stress when compared to low fat
- Diet compliance increased consumption of omega 9 fatty acids, zinc, vitamin E, selenium, and decreased consumption of saturated fatty acids

Cleveland Clinic Children's

Traditional Weight Loss Approaches

DASH Diet (Dietary Approach to Stop Hypertension)

- Emphasizes increased intakes of low-fat dairy products; fish, chicken and lean meats; nuts, fruits, whole grains, vegetables and legumes
- Low in fat and sodium; high in calcium, potassium, magnesium and dietary fiber
- Has been shown to prevent excess weight gain during adolescence
- Cardiovascular benefits
- May be beneficial for patients with metabolic syndrome
  - Improved glycemic control and liver enzymes in type 2 diabetic patients
- Meets all nutritional requirements - no need for supplements

Cleveland Clinic Children's

Traditional Weight Loss Approaches

Caloric Restriction

- Hypo-caloric diet defined as 500 calories/day from baseline
  - No fewer than 900 kcal/day for children aged 6 to 12 years and 1,200 kcal/day for adolescents aged 13 to 18 years
- Caloric deficit, different for variety of weight loss
  - Weight loss guidelines to be set by RD, based on age and linear growth expectations
- All diets that work include some version of caloric restriction
- Balanced macronutrient intake

Cleveland Clinic Children's

Traditional Weight Loss Approaches

Low Carbohydrate Diet

- Diet limits carbohydrates found in grains, fruit, dairy and starchy vegetables; emphasizes foods high in protein and fat
- Complex v simple carbs
- Premise: decreasing carbs lowers insulin levels, which causes the body to burn stored fat for energy and ultimately leads to weight loss
- Various definitions
  - 60-130 grams/day typical definition
  - <60 grams/day or 20% of total calories
  - <20 grams/day to enter ketosis = medically supervised diet

Cleveland Clinic Children's

Traditional Weight Loss Approaches

Low Carbohydrate Diet

- Limitation of carbs typically leads to lower calorie, higher protein intake
- Whole grain intake promotes greater decrease in waist circumference and CRP as opposed to refined grain group
- Low carb diets may improve HDL cholesterol and triglyceride levels more than moderate carbohydrate intake
  - Shown to be more effective in reducing triglycerides than caloric restriction in subjects with NAFLD
  - Depends on quality of other foods consumed
- Carbohydrate restricted diet superior for short term weight loss
  - Follow-up at 2 years showed no difference as compared to low-fat

Cleveland Clinic Children's

Traditional Weight Loss Approaches

Low-Fat Diet

- Guidelines first published in 1977
- USDA Dietary Guidelines for Americans 2005. 2010
  - Consume <30% of total calories from fat
    - <10% of calories from saturated fatty acids
  - Avoid trans fats
  - Promotes fat free dairy products and lean meats
  - Limit eggs and cholesterol intake
  - Use oils to replace solid fats
- All fats are not created equal

Cleveland Clinic Children's

Traditional Weight Loss Approaches

Low-Fat Diet

- Adverse events more often in low-carb diet than low-fat
- Fat is calorically dense
- Evidence in adult trials that lower fat intake leads to small, but statistically significant reductions in body weight when baseline fat intakes were 28-43%
  - Evidence less strong in children
- Globally less effective at decreasing biomarkers for metabolic syndrome when compared to low carb diet or Mediterranean diet
- Difficult to maintain
- Dietary fat and cholesterol intake no longer associated with increased risk of cardiovascular disease
- Dietary fat ⍰ body fat directly

Cleveland Clinic Children's

Traditional Weight Loss Approaches

Vegetarian Diet

- Types of vegetarians
  - Lacto-ovo: still consume milk and eggs
  - Pescatarian: include fish
  - Flexitarian: flexible version of vegetarian diet, consuming meat on occasion. Research shows high weight loss success
  - Vegan: full animal product restriction
- Diets low in energy density and high in complex carbs, fiber and water
- Epidemiological studies consistently show that vegetarians are leaner than comparable non-vegetarians
- Consider type of vegetarian diet and execution
- Results in weight loss… if following diet correctly

Cleveland Clinic Children's

Traditional Weight Loss Approaches

Vegan/Plant Based Diet

- "Vegan" – full animal product restriction- primary intake from grains, beans, legumes, vegetables and fruits
- "Whole food-plant based" – whole, unrefined or minimally refined plants
  - Excludes meat, dairy, eggs, highly refined foods like bleached flour, sugar and oil
  - Starch based foods and fruit form the basis; vegetables are complementary foods
  - Contains all essential nutrients, B12 exception

Cleveland Clinic Children's

Traditional Diets
USDA MyPlate
Mediterranean Diet
DASH Diet
Caloric Restriction
Low Carbohydrate
Low Fat
Vegetarian Diet
Vegan/Plant Based Diet

- USDA MyPlate appropriate tool for generalization, appropriate for children
- Mediterranean and DASH have proven to be effective
- Caloric restriction has merits, multitude of factors to consider
- Low carb superior to low fat
- Vegetarian/Vegan

Cleveland Clinic Children's

Emerging Weight Loss Trends

Cleveland Clinic Children's

Emerging Dietary Approaches

Gluten Free Diet

Certified GF™ Gluten-Free

- Gluten is a protein composite consisting of gliadins and glutenins
  - Wheat, rye, barley
- In 2010 the US market for gluten-free foods and beverages was estimated at 2.6 billion dollars
  - By end of 2015 expected to exceed 5 billion dollars
- Number one motivation for buying gluten-free food products is that they are "considered healthier than their conventional counterparts"

Cleveland Clinic Children's

Emerging Dietary Approaches

Gluten Free Diet

Perceived advantages:
- not necessarily scientifically backed

- Eating wheat stimulates your body to produce very high levels of insulin, which causes the body to accumulate fat around abdomen
- Gluten free leads to improved insulin sensitivity and reduced inflammation
- Eating wheat leads to feelings of low blood sugar, which increases hunger cues
- Going gluten free decreases cravings and overall appetite, therefore decreasing total calories consumed

Cleveland Clinic Children's

Emerging Dietary Approaches

Gluten Free Diet

Disadvantages/Risk Factors

- Gluten free = carb free?
  - Often replaced with processed gluten free foods
  - Regular pretzels: 108 calories and 1 gram of fat
  - Gluten free pretzels: 140 calories and 6 grams of fat
- Research has shown that adherence to the gluten-free dietary pattern may actually result in a diet that is low in carbohydrates, iron, folate, niacin, zinc, and fiber
- Evidence suggests that a gluten-free diet may lead to reductions in beneficial gut bacteria

Cleveland Clinic Children's

Emerging Dietary Approaches

Paleo Diet "Caveman diet"

- Based on everyday foods that mimic the diet of our pre-agricultural, hunter-gatherer ancestors who were virtually free of diseases of civilization
- 7 fundamental characteristics marketed to minimize risk of chronic disease and result in weight loss
  - Higher protein intake: 19-35% of calories
  - Low carb and low glycemic index
  - High fiber (not from whole grains): fruits and vegetables
  - Moderate to high fat intake: mono and polyunsaturated fats, remove trans fats
  - High potassium and low sodium: unprocessed fresh foods
  - Net dietary alkaline load that balances dietary acid
  - Higher intake of vitamins, minerals, antioxidants and plant phytochemicals

Cleveland Clinic Children's

Emerging Dietary Approaches

Paleo Diet

- So what can you eat?
  - Grass produced meats; fish/seafood
  - Fresh fruits and veggies
  - Eggs
  - Nuts and seeds
  - Healthy oils (olive, walnut, flaxseed, macadamia, avocado, coconut)
- Don't eat...
  - Cereal grains
  - Legumes (including peanuts)
  - Dairy
  - Refined sugar
  - Potatoes
  - Processed foods
  - Salt
  - Refined vegetable oils
- 85:15 rule: allows you to consume three non-paleo meals per week

Cleveland Clinic Children's

Emerging Dietary Approaches

Paleo Diet

- Perceived advantages
  - Diet rich in lean protein and plant-based foods can make you feel fuller, control blood sugar levels, and help you lose weight
  - Promotes certain healthy habits that are worth keeping such as limiting processed foods, eating fruits and vegetables, healthy fats and lean meats
- Additional considerations/risk factors
  - Not evidenced-based. Studies are few, small, short and do not include children or adolescents
  - Not suitable for vegetarians or vegans
  - Restricted diet is nutritionally inadequate: safe and maintainable?
  - Concept is poorly based
  - Why don't people lose weight?

Cleveland Clinic Children's

Emerging Dietary Approaches

Intermittent Fasting

An umbrella term for various diets that cycle between a period of fasting and non-fasting, typically going 14-36 hours without sustenance

- Alternate Day Fasting- 24 hours of eating followed by 24 hours of fasting, repeated. Closer to 12:36 hours
- Modified Fasting (Caloric Restriction)- limited caloric intake (ie 10-20%) on fasting days rather than none at all
- 5:2 diet- two non-consecutive days of fasting, consuming ~500 calories/day during this time
- Multiple other "fasting" philosophies

Cleveland Clinic Children's

Emerging Dietary Approaches

Intermittent Fasting

Advantages

- Small sample of studies found reduction in weight over a 2-4 week period of intermittent fasting- no consensus as to what degree
- ADF may encourage fat oxidation. Weight loss positively correlated with increased fat oxidation.
- ADF may reduce body weight, LDL and TG levels to the same degree regardless of maintenance of low fat or high fat diet on the feeding day
- ADF may effectively modulate metabolic and functional risk factors, thereby preventing or delaying chronic diseases

Cleveland Clinic Children's

Emerging Dietary Approaches

Intermittent Fasting

Disadvantages/Risk Factors

- No evidence-based practice recommendations. Majority of research thus far has been done on animals
- Results may be genotype dependent
- Comparison isn't exactly fasting vs. non-fasting. It's more like a comparison between under-eating and over-eating.
- Starvation diets linked to medical complications including ventricular fibrillation, lactic acidosis, vitamin and electrolyte deficiencies. impact on reproduction and bone health
- Psychological/behavioral factors

Cleveland Clinic Children's

Emerging Dietary Approaches

Detox Diets

- Cleanses which promise to rid your body of all toxins
  - Various marketed cleanses
  - Ex: 3 day juice cleanse to week long "clean eating" and supplement plan
- Juices tend to be pure sugar – no fat, fiber or protein
- Unnecessary practice
- Symptoms include hunger, weakness, fatigue
  - Not maintainable
- Dangerous for Type 1 diabetics – hypoglycemia

Cleveland Clinic Children's

Emerging Dietary Approaches

Liquid Shake Diets

- Often internet or TV advertised diets
  - Cost $$
- Usually extremely low calorie
  - Medically supervised for quick and necessary weight loss
- Potential risks
  - Affect metabolism
  - Low in fiber and various vitamins/minerals
  - Often low in protein- decrease in lean body mass

Cleveland Clinic Children's

Emerging Dietary Approaches

"Partial Liquid Shake Diet"

- Consists of 2 meal replacements + fruit serving
- One ~500 calorie dinner utilizing MyPlate method
- Includes 1-2 moderate calorie snacks
- Purpose: portion and calorie control
  - Convenience
  - Continues to teach lifestyle modifications while on diet
- Diets that include both solid food and liquids can help overweight people control the number of calories they eat and help keep the weight off for several years.

Cleveland Clinic Children's

- Commonality between all successful "fad diets"
  - Decrease in overall energy intake
- Long term maintenance?

Emerging Diets
Gluten Free diet
Paleo diet
Intermittent Fasting
Detox diets
Liquid Shake diets

Cleveland Clinic Children's

Medical Nutrition Therapy

- A therapeutic approach to treating medical conditions and their associated symptoms via the use of a specifically tailored diet devised and monitored by a registered dietitian
- Utilization of the nutrition care process to individualize care, taking into account the patient's medical history, anthropometrics, needs and values and using the best evidence available to make decisions

Cleveland Clinic Children's

Medical Nutrition Therapy

Cleveland Clinic's Protein Sparing Modified Fast diet program

- The PSMF diet is designed for rapid weight loss and incorporates medical, nutritional, and behavioral components. The goal is to reach an appropriate body weight as determined by the medical team.

- General criteria for entry into the PSMF diet program include:
  - Patient has a BMI > 28 or >95th%ile on growth charts
  - Pubertal status of Tanner Stage 5 or bone age indicating growth has ceased
  - Clearance from a supervising physician after a complete history, physical, and assessment
    - This physician accepts responsibility for review of lab work, change in medications and follow up visits as needed
  - Registered Dietitian will assess behavior compliance and appropriateness of diet

Cleveland Clinic Children's

Medical Nutrition Therapy

Protein Sparing Modified Fast

- **Principles of Diet:**
  - High protein, Low-fat, Low carbohydrate – inducing ketosis
  - Exercise – goals must be set
  - Behavior modification
  - Expected rate of weight loss
    - 3-4 lbs/week for females
    - 4-5 lbs/week for males
- **Ketosis:**
  - Carbohydrate intake will be minimal (<20 grams a day) with limited added fats
  - Fat breakdown produces ketones which spill into the urine
  - Ketones can be measured and monitored throughout diet to assess compliance
  - While in ketosis, appetite is often reduced, making the diet easier to follow.

Cleveland Clinic Children's

Medical Nutrition Therapy

Protein Sparing Modified Fast

Benefits of PSMF:
- Rapid weight loss
- Decreased appetite
- Decrease in cholesterol and triglycerides
- Improved glucose levels
- Improved blood pressure
- Improved breathing and sleep
- Reduction in medications and risk for disease

Possible side effects of diet:
- Weakness, headache, dizziness
- Cold intolerance
- Constipation
- Muscle cramping
- Bad or "fruity" breath
- Menstrual changes
- Hair thinning
- Rapid or irregular heartbeat (call physician immediately)
- Gout
- Gallstones
- Fatigue

Cleveland Clinic Children's

Medical Nutrition Therapy

Protein Sparing Modified Fast

Required Supplements:

- Potassium (20 mEq/d) unless otherwise directed by physician
  - Must be prescribed
- Magnesium (400 mg/day)
  - To be taken in divided doses of 200 mg BID
- Calcium (1000-1200 mg/day)
  - To be taken in divided doses of 500- 600 mg BID
- Multivitamin/mineral to meet RDA
- Sodium (1500-2000 mg/day)
  - Use ¾ teaspoon of table salt or 3-4 bouillon cubes (read label)

Cleveland Clinic Children's

Medical Nutrition Therapy

Protein Sparing Modified Fast

- **Additional Components:**
  - Fluid goals: 64 ounces of calorie free fluids per day
  - Ketone strips: must check for ketosis each morning after day 3
  - Monthly lab work including CMP and uric acid while on diet
- **Refeeding Phase:** once patient has achieved weight loss goal or no longer wishes to be on diet
  - Slowly add carbohydrates back into diet, while decreasing the amount of protein and weaning off supplements
  - Stress importance of continued behavior modification and exercise. Patient must have an exercise plan!
  - Typically takes 6 weeks

Cleveland Clinic Children's

Medical Nutrition Therapy

Protein Sparing Modified Fast

- **Cleveland Clinic Success**

- **Considerations:**
  - Safety and efficacy
  - Have patients tried diet and exercise without success
  - Is weight loss medically necessary?
  - Alternative to weight loss surgery
  - Insurance coverage

Cleveland Clinic Children's

Medical Nutrition Therapy

Medically Supervised, Multidisciplinary Programs

- Team approach utilizing physician/nurse practitioner, registered dietitian, psychologist, exercise physiologist, other medical practitioners as needed
- Goal: facilitate family involvement and change behaviors associated with eating and physical activity while monitoring medical complications of obesity
- Integrated multidisciplinary approaches that address psychiatric needs and provide behavioral support for weight loss may help patients to sustain lifestyle changes
- The integration of a multidisciplinary team to provide guideline-based nonpharmacologic counseling may be beneficial in improving outcomes in the management of prediabetes.
- Cleveland Clinic Programs
  - BeWell
  - FitYouth

Cleveland Clinic Children's

Traditional Diets	Emerging Diets	Medical Nutrition Therapy
USDA MyPlate	Gluten Free diet	PSMF diet
Mediterranean Diet	Paleo diet	Multidisciplinary
DASH Diet	Intermittent Fasting	
Caloric Restriction	Detox diets	
Low Carbohydrate	Liquid Shake diets	
Low Fat		
Vegetarian Diet		
Vegan/Plant Based Diet		

Cleveland Clinic Children's

Which Diet is Best…

- Patient specific based on medical condition, family support, compliance, financial considerations
- Research supports the practice of recommending any diet that a patient will adhere to in order to lose weight
- Behavior adherence is more important than diet composition regardless of chosen weight loss method
- Caloric restriction shown to be overall beneficial, however irrespective of the macronutrient restriction

Cleveland Clinic Children's

Key to Obesity = Prevention

- Close monitoring of growth charts and weight velocity trends starting at a young age

- Education and early intervention
  - Avoidance of overfeeding at all stages of life
  - Awareness of portion sizes
  - Food label reading
  - "Healthy choices"
- Behavioral Strategies
  - Self monitoring
  - Stimulus control: to reduce environmental cues for unhealthy behavior
  - Goal setting: for healthy behaviors (rather than weight loss)
  - Contracting: reward for the achievement of a specific goal
  - Positive reinforcement

Cleveland Clinic Children's

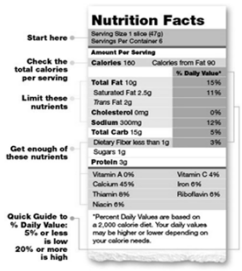
Decoding the New FDA Proposed Food Labels

- Goal:
  - Improve public health
  - Reduce the risk of chronic diseases
  - Encourage an adequate intake of essential nutrients
- Proposed rules reflect the new dietary recommendations, consensus reports and national survey data
  - 2010 dietary guidelines for Americans
  - Nutrient intake recommendations from IOM
  - Data from NHANES

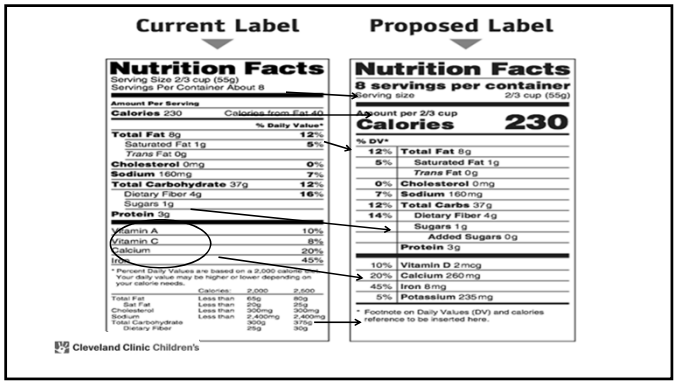
Cleveland Clinic Children's

Current Nutrition Facts Label

- 20 years old
- 2003- 2007: FDA sought public comment on the following issues: trans fat, prominence of calories, revision of reference values and mandatory nutrients and serving sizes
- 2006: addition of trans fats to the food label



Cleveland Clinic Children's



Greater Understanding of Nutrition Science

- Require information about "added sugars."
  - Americans on average eat 16% of their total calories from added sugars
  - Recommended by the IOM, American Heart Association, the American Academy of Pediatrics and the World Health Organization
  - No specific recommendation for added sugars
- Update daily values for nutrients like sodium, dietary fiber and Vitamin D
  - Changing units of measurement
- Require manufacturers to declare the amount of potassium and Vitamin D on the label
  - "Nutrients of public health significance"
    - Potassium- beneficial in lowering blood pressure
    - Vitamin D- bone development and general health
  - Calcium and iron would continue to be required
  - Vitamins A and C voluntary

Cleveland Clinic Children's

- Fat content of foods
  - While continuing to require "Total Fat," "Saturated Fat," and "Trans Fat" on the label, "Calories from Fat" would be removed because research shows the type of fat is more important than the amount

Cleveland Clinic Children's

Updated Serving Size and New Labeling Requirements

- Change the serving size requirements to reflect how people eat and drink today
  - The serving sizes listed on the Nutrition Facts label are <u>not</u> recommended serving sizes. By law, serving sizes must be based on how much food people actually consume, and not on what they should eat.

Cleveland Clinic Children's

Updated Serving Size and new labeling Requirements

- Require that packaged foods, including drinks, that are typically eaten in one sitting be labeled as a single serving
- For certain packages that are larger and could be consumed in one sitting or multiple sittings
  - "Dual column" labels to indicate both "per serving" and "per package" calories and nutrient information

Dual Column Format

Nutrition Facts

2 servings per container

Serving size 1 cup (255g)

	Per 1 cup	Per container
Calories	**220**	**440**
	% DV*	% DV*
Total Fat	8% 5g	15% 10g
Saturated Fat	10% 2g	20% 4g
Trans Fat	0g	0g
Cholesterol	5% 15mg	10% 30mg
Sodium	10% 240mg	21% 480mg
Total Carbs	12% 35g	23% 70g
Dietary Fiber	21% 6g	43% 12g
Sugars	7g	14g
Added Sugars	4g	8g
Protein	9g	18g
Vitamin D	25% 5mcg	50% 10mcg
Calcium	15% 200mg	30% 400mg
Iron	6% 1mg	10% 2mg
Potassium	10% 470mg	20% 940mg

* Footnote on Daily Values (DV) and calories reference to be inserted here.

Cleveland Clinic Children's

Refreshed design

- Make calories and serving sizes more prominent
  - Changing "Amount Per Serving" to "Amount per ___", with the blank filled in with the serving size in common household measures, such as "Amount per 1 cup.
  - Reversing the order of "Serving Size" and "Servings Per Container" declarations
- Shift the Percent Daily Value to the left of the label, so it would come first
  - 5% or less is low; 20% or more is high
- Change the footnote to more clearly explain the meaning of the Percent Daily Value.

Servings: larger, bolder type

Nutrition Facts

8 servings per container

Serving size 2/3 cup (55g)

Amount per 2/3 cup

Calories 230

Serving sizes updated

Calories: larger type

Cleveland Clinic Children's

References

- "Academy of Nutrition and Dietetics" *http://www.eatright.org/ Web. 15 Jan 2015*
- Alkhouri, N., Rumschlag, A. "The Efficacy of Low-Fat Vegan, Protein-Sparing Modified Fast, or USDA Diets in Treating Adolescent Obesity and Its Complications: A Six-month Randomized Trial." 2014. Web.
- Alqahtani, A.R, Elahmedi, M.O. "Pediatric Bariatric Surgery: The Clinical Pathway." Obes Surg. (2015)
- American Dietetic Association Evidence Analysis Library. Evidence-Based Pediatric Weight Management Nutrition Practice Guideline. May 2007. Accessed through AND Pediatric Nutrition Care Manual, 2015.
- Andersen, C.J, Fernandez, M.L. "Dietary Strategies to Reduce Metabolic Syndrome." Reviews in Endocrine and Metabolic Disorders (2013); 14 (3): 241-54. Web.
- Anderson Z.L, Scopelliti E.M, Trompeter J.M. «Management of prediabetes: a comparison of the treatment approaches utilized by a family practice clinic and an internal medicine/endocrinology practice." J Pharm Practice. Feb (2015); 28(1):86-92
- Anderson, J. "Gluten-Free Weight Loss." About.com. 26 Feb. (2015). Web. 27 Mar. 2015.
- Bazzano, L.A, Hu, T, Reynolds, K, et al. "Effects of Low-Carbohydrate and Low-Fat Diets." Annals of Internal Medicine. (2014); 161: 309-318
- Berz, J. P. B, Singer, M.R, Guo, X. "Use of a DASH Food Group Score to Predict Excess Weight Gain in Adolescent Girls in the National Growth and Health Study." Archives of Pediatrics and Adolescent Medicine 165.6 (2011): 540-46. Web. 19 Mar. 2015.
- Brinkworth, GD, Noakes, M, Buckley, J.D, et al. "Long-term Effects of a Very-low-carbohydrate Weight Loss Diet Compared with an Isocaloric Low-fat Diet after 12 Mo." American Journal of Clinical Nutrition (2009): 23-32. American Journal of Clinical Nutrition. U.S. National Library of Medicine. Web. 1 Mar. 2015.

- Cadario, F, Prodam, F, Pasqualicchio, S, et al. "Lipid profile and nutritional intake in children and adolescents with Type 1 diabetes improve after a structured dietician training to a Mediterranean-style diet." J. Endocrinology Invest. (2010); 35: 160-168
- "ChooseMyPlate.gov." *ChooseMyPlate.gov*. N.p., n.d. Web. 29 Jan. 2015.
- Cordain, Loren, PhD. "The Paleo Diet™ - Live Well, Live Longer." The Paleo Diet. Web. 01 Apr. 2015.
- De Miguel-Etayo P, Bueno G, Gargorri JM. "Interventions for treating obesity in children." World Review of Nutrition and Dietetics. (2013); 108:98-106.
- Dietary Guidelines for Americans 2010. U.S. Department of Agriculture. U.S. Department of Health and Human Services. www.dietaryguildelines.gov
- "Dietary Recommendations for Children and Adolescents: A Guide for Practitioners." American Academy of Pediatrics 117.2 (2006): 544-59. Web. 26 Mar. 2015.
- Dorighello, G.G, Rovani J.C, Luhman, C.J.F, et al. "Food restriction by intermittent fasting induces diabetes and obesity and aggravates spontaneous atherosclerosis development in hypercholesterolemic mice." British Journal of Nutrition (2014); 111: 979-986
- "Find the Best Diet for You." *US News*. U.S.News & World Report, n.d. Web. 10 Oct. 2014.
- Gaesser, G.A, Siddhartha S.A. "Gluten-Free Diet: Imprudent Dietary Advice for the General Population?" Journal of the Academy of Nutrition and Dietetics 112.9 (2012): 1330-333. Web.
- Gow, M. L, Ho, M, Burrows, T.L, et al. "Impact of dietary macronutrient distribution on BMI and cardiometabolic outcomes in overweight and obese children and adolescents: a systematic review." Nutrition Reviews. 72(7): 453-470
- "Healthychildren.org." Obesity. *American Academy of Pediatrics*. Web. 2015. Accessed Mar 10 2015. http://www.healthychildren.org/English/health-issues/conditions/obesity/Pages/default.aspx
- Heilbronn, L.K, Smith, S.R, Martin C, K, et al. "Alternate-day fasting in nonobese subjects: effects on body weight, body composition and energy metabolism." American Journal of Clinical Nutrition (2005); 81: 69-73.
- Hooper, L, Abdelhamid, A, Moore, H.J, et al. "Effect of Reducing Total Fat Intake on Body Weight: Systematic Review and Meta-analysis of Randomized Controlled Trials and Cohort Studies." BMJ 345.Dec06 1 (2012): 1-15. Web.
- Johnstone, A. "Fasting for Weight Loss: An Effective Strategy or Latest Dieting Trend?" International Journal of Obesity (2015). 1-7.
- Johnston, B.C, Kanters, S, Bandayrel, K, et al. "Comparison of Weight Loss Among Named Diet Programs in Overweight and Obese Adults: A Meta-analysis" JAMA. Sept3 (2014); 312 (9): 923-933

- Kirk, S, Brehm, B, Saelens, B.E, et al. "Role of Carbohydrate Modifications in Weight Management among Obese Children: A Randomized Clinical Trial." Journal of Pediatrics. Aug (2012); 161 (2): 320-327
- Kleinman, Ronald E. *Pediatric Nutrition Handbook*. 7th ed. Elk Grove Village, IL: American Academy of Pediatrics, 2013. Print
- Klish, William, MD. "Definition; Epidemiology; and Etiology of Obesity in Children and Adolescents." Definition; Epidemiology; and Etiology of Obesity in Children and Adolescents. UpToDate, Mar-Apr (2015). Web. 20 Mar. 2015.
- Krebs, N.F, Gao, D, Gralla, J, et al. "Efficacy and Safety of a High Protein, Low Carbohydrate Diet for Weight Loss in Severely Obese Adolescents." Journal of Pediatrics. Aug (2010); 157 (2): 252-258
- Mangels, R, Driggers, J. "The Youngest Vegetarians: Vegetarian Infants and Toddlers." *ICAN: Infant, Child, & Adolescent Nutrition* 4.1 (2012): 8-20. Web.
- "Mediterranean Diet." Mayo Clinic, n.d. Web. 20 Mar. 2015.
- "Nutrition." *Centers for Disease Control and Prevention*. Centers for Disease Control and Prevention, 12 Nov. 2014. Web. 8 Dec. 2014.
- "Nutrition Center." *Nutrition Center*. American Heart Association, n.d. Web. 30 Jan. 2015.
- Ornstein, R.M, Cooperman, N.M, Jacobson, M.S. "Effect of Weight Loss on Menstrual Function in Adolescents with Polycystic Ovary Syndrome." Journal of Pediatric and Adolescent Gynecology 24.3 (2011): 161-65. Web.
- Pagoto, S.L, Appelhans, B.M. "A Call for an End to the Diet Debates." JAMA. Aug21 (2013); 310 (7).: 687-688
- Pastors, J.G, Warshaw, H, Daly, A, et al. "The Evidence for the Effectiveness of Medical Nutrition Therapy in Diabetes Management." Diabetes Care. Mar (2002);25 (3): 608-613
- Robson, J. "An Ounce of Prevention is Worth a Pound of Cure: Evolving Strategies to Prevent Childhood Obesity." Weight Management Matters. Winter (2015); 13(3): 12-14.
- Sabate, J, Wien, M. "Vegetarian Diets and Childhood Obesity Prevention." American Journal of Clinical Nutrition 91.5 (2010): 1525S-529S. Web.
- Sacks, F.M, Carey, V.J, Anderson, C.A, et al. "Effects of high vs low glycemic index of dietary carbohydrate on cardiovascular disease risk factors and insulin sensitivity: the OmniCarb randomized clinical trial." JAMA. Dec17 (2014); 312(23):2531-41

- Saneei, P, Hashemipour, M, Kelishadi, R, et al. "Effects of recommendations to follow the Dietary Approaches to stop Hypertension (DASH) diet v. usual dietary advice on childhood metabolic syndrome: a randomized cross-over clinical trial." British Journal of Nutrition. (2013); 110: 2250-2259
- Sciamanna, C.N, Kiernan, M, Rolls, B.J, et al. "Practices Associated with Weight Loss Versus Weight-Loss Maintenance." American Journal of Preventative Medicine. (2011); 41 (2): 15-166
- Siri-Tarino, P.W, Sun, Q., Hu, F.B, et al. "Meta-analysis of Prospective Cohort Studies Evaluating the Association of Saturated Fat with Cardiovascular Disease." American Journal of Clinical Nutrition 91.3 (2010): 535-46. Web.
- Skaznik-Wikiel M.E, Polotsky, A.J. "The health pros and cons of continuous versus intermittent calorie restriction: More questions than answers." Elsevier Journal. Aug9 (2014). 275-278.
- Skelton, J.A, MD. "Management of Childhood Obesity in the Primary Care Setting." Uptodate. Jan9 (2015). Web 20 Mar 2015 . http://www.uptodate.com/contents/management-of-childhood-obesity-in-the-primary-care-setting?source=search_result&search=pediatric+obesity&selectedTitle=4%7E150
- Soares, Fabiola Lacerda Pires, Rafael De Oliveira Matoso, and Lilian Gonçalves Teixeira. "Gluten-free Diet Reduces Adiposity, Inflammation and Insulin Resistance Associated with the Induction of PPAR-alpha and PPAR-gamma Expression." The Journal of Nutritional Biochemistry 24.6 (2013): 1105-111. Web.
- Suez, J, Korem, T, Zeevi, D, et al. "Artificial sweeteners induce glucose intolerance by altering the gutmicrobiota." Nature. Oct9 (2014); 514: 181-198
- Taveras, E.M, Rifas-Shiman, S.L, Sherry, B, et al. "Crossing Growth Percentiles in Infancy and Risk of Obesity in Childhood." Arch Pediatr Adolesc Med. (2011); 165 (11): 993-998
- Truby, H, Baxter, K.A, Barrett, P, et al. "The Eat Smart Study: A randomised controlled trial of a reduced carbohydrate versus low fat diet for weight loss in obese adolescents." BMC Public Health. (2010); 10:
- "U.S. Food and Drug Administration." *Factsheet on the New Proposed Nutrition Facts Label*. FDA, 23 Dec. 23. Web. 01 Jan. 2015.
- Walters, J.K, Hoogwerf, B.J, Sethu, S, et al. "The Protein-sparing Modified Fast for Obesity-related Medical Problems." *Cleveland Clinic Journal of Medicine* 64.5 (1997): 242-43. Web.
- Velázquez-López, Lubia, Gerardo Santiago-Díaz, Julia Nava-Hernández, et al. "Mediterranean-style Diet Reduces Metabolic Syndrome Components in Obese Children and Adolescents with Obesity." BMC Pediatrics. BioMed Central, 5 July (2014). Web. 20 Mar. 2015.