

PART 2 OF A 2-PART WEBINAR SERIES

PLANT-BASED JUNIORS

Strategies for Meeting the Needs of Vegan & Vegetarian Children

February 12, 2020, 2-3 PM EST

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Learning Library
TODAY'S DIETITIAN

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Learning Objectives

- 1 Identify **5 nutrients of concern** and list specific ways to include them in a plant-based diet.
- 2 List **3 meal ideas** that incorporate each nutrient of concern.
- 3 Discuss **4 ways to add more plant-based foods** to kid-friendly meals.
- 4 List and discuss **supplement considerations** for plant-based infants and children.

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Benefits of Plant-Based Diets

- Decreased risk of heart disease
- Decreased risk of type 2 diabetes
- Decreased risk of some cancers
- Lower blood pressure
- Healthier BMI
- Possibly longevity-enhancing

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Benefits of Plant-Based Diets for Children

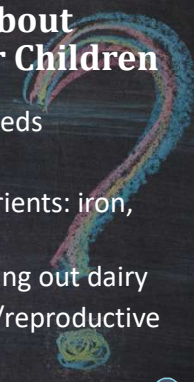
- Higher fruit/vegetable intake than non-vegetarian peers
- Lower intakes of cholesterol and fat
- Lower cholesterol levels
- Lower BMIs
- Positive lifelong dietary habits



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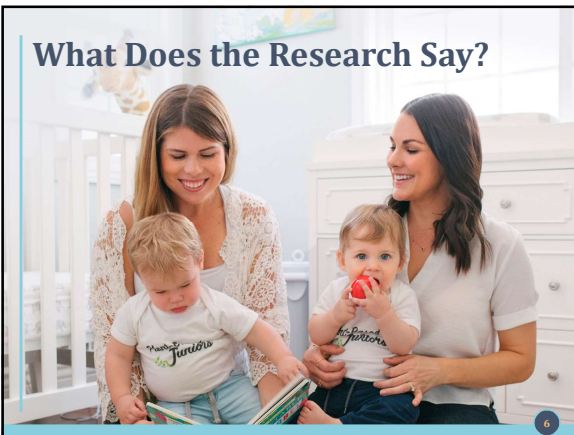
Common Concerns About Plant-Based Diets for Children

- Inability to meet protein needs
- Reduced caloric density
- Low in important micronutrients: iron, zinc, calcium
- Deficiencies caused by cutting out dairy
- Safety of soy for endocrine/reproductive outcomes



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What Does the Research Say?



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Vegetarian Diets in Children: A Systemic Review



Objective

- To evaluate studies on the dietary intake and the nutritional or health status of vegetarian infants, children, and adolescents

Results

- The majority of the studies indicated that body weight, body height, and other anthropometric measures of infants, children, and adolescents on vegan or vegetarian diets were in the range of or slightly below the references, or similar to omnivorous control groups

Conclusions

- The existing data does not allow us to draw firm conclusions on health benefits or risks of present-day vegetarian-type diets on the nutritional or health status of children and adolescents in industrialized countries

Schumann, 2017

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Iron Status of Vegetarian Children: A Review of Literature

Objective

- To review published studies that reported the iron status among vegetarian children and adolescents

Results

- In all of the studies, vegetarian children's mean or median Hb level was above the deficiency criteria
- In 5 of these 8 studies, vegetarian participants had higher iron deficiency prevalence

Conclusions

- Inadequate iron status is a common nutritional problem among both children who follow a vegetarian diet and those consuming non-vegetarian diets, although the problem seems to be considerably more prevalent among vegetarians



Pawlak, et. al. 2017

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Association: Non-Cow Milk Consumption and Childhood Height

Objective

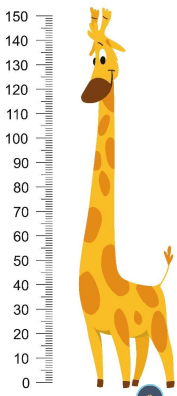
- To determine whether there is an association between non-cow milk consumption and lower height in childhood

Results

- There was a dose-dependent association between higher non-cow milk consumption and lower height. For each daily cup of non-cow milk consumed, children were 0.4cm shorter

Limitations

- We were unable to account for other dietary factors that may contribute to height because of data limitations. Non-cow milk beverages vary in nutritional content, and we could not evaluate which non-cow milk beverages most influenced the observed relationship



Morency, et. al. 2017

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Association: Soy-Based Formula in Infancy vs Endocrinological/ Reproductive Outcomes in Young Adulthood

Objective


- To examine the association between infant exposure to soy formula and health in young adulthood, with an emphasis on reproductive health

Results

- No statistically significant differences were observed between groups in either women or men for more than 30 outcomes

Conclusions

- Exposure to soy formula does not appear to lead to different general health or reproductive outcomes than exposure to cow milk formula



Strom, et. al. 2003

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Is It Protective? Childhood Soy Intake & Breast Cancer Risk in Asian American Women

Objective

- To characterize the relative contributions of soy intake during childhood, adolescence, and adulthood and to evaluate whether soy is itself protective or merely an indicator of other Asian lifestyles that reduce breast cancer risk

Results

- Comparing highest with lowest tertiles, the multivariate relative risks for childhood intake were noted in all three races, all three study sites, and women born in Asia and the United States

Conclusions

- Soy intake during childhood, adolescence, and adult life was associated with decreased breast cancer risk, with the strongest, most consistent effect for childhood intake

Korde, et. al. 2009

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“It is the position of the Academy of Nutrition and Dietetics that appropriately planned vegetarian, including vegan, diets are helpful, nutritionally adequate, and may provide health benefits for the prevention and treatment of certain diseases...for all stages of the cycle, including pregnancy, lactation, infancy, childhood, adolescence, older adulthood...”

Position of the Academy of Nutrition and Dietetics: Vegetarian Diets. 2016 December.

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Nutritional Considerations for Plant-Based Juniors

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The PB3 Plate

Balance Plate

- Fruits and vegetables
- Nuts, seeds, legumes
- Grains and starches

Energy Density

- Only 1/3 plate F/V
- Focus on fat
- Soy milk with meals

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Meeting Protein Needs

- ~1g/kg
- The myth of “incomplete proteins”
- RD’s role: education around protein sources and kid-friendly ideas
- Sources: legumes, nuts, seeds, grains
 - 1 cup soy milk (8g)
 - ½ cup rolled oats (6g)
 - 1 tablespoon hemp seeds (3g)

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Getting Enough Fat

- WHO recommendations:
 - 0-2 years: 35-40% of intake
 - 2+ years: 25-35% of intake
- Focus on essential fatty acids LA + ALA
- Discourage oil-free, low-fat diets



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High-Fat Ideas for Baby

- Curried Tempeh Triangles: cooked in coconut milk-curry sauce
- Avocado Toast fingers
- Omega-3 meatballs made with ground walnuts
- Cinnamon sweet potatoes cooked in coconut oil
- Pesto with variety of plant-oils
- Chia popsicles
- Sunflower seed butter on toast fingers
- Oatmeal-Nut Butter Squares




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What about DHA?

- "Very long-chain" omega-3 fatty acid
- Essential for baby's brain and eye development
- Accumulation in brain continues through first 2 years
- Sources: fish and eggs
- 1-10% conversion rate from ALA
- Low DHA in breast milk of vegan mothers
- Microalgae supplements




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Meeting Iron Requirements

- RDA:
 - 1-3yo: 7 mg/day
 - 4-8yo: 10 mg/day
 - 9-13yo: 8mg/day
- ~8% of all children and infants are iron-deficient
- Heme vs. non-heme iron
- Sources: legumes, nuts, seeds, grains, leafy green vegetables
- Potential increased need by 1.8x
- Vitamin C increases absorption by 4-6x



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Iron-Rich Foods for Baby

- Tofu Frittata Cups with added chickpea flour for iron boost and red bell peppers for extra vitamin C
- Iron-fortified cereal with canned pumpkin, breastmilk/formula, pumpkin pie spice, and orange juice
- Chickpea Pumpkin Pancakes with chickpea flour and served with vitamin C-rich fruit
- Hummus: use steamed vegetables or toast as dippers
- Quinoa snack bars made with toasted quinoa and molasses, cut into finger-shapes for baby
- Red lentils cooked in tomato and coconut milk, seasoned with curry powder
- Chickpea socca sticks



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Iron + Vitamin C: Easy Combinations for Plant-Based Juniors

- Hummus mixed with sweet bell peppers
- Black beans tacos with salsa
- Bran flake cereal with frozen raspberries
- Wheat bread with almond butter and raspberry jam
- Spaghetti sauce with spinach and enriched pasta
- Avocado rolled in wheat germ (for baby-led weaners)
- Sautéed Swiss chard and tomatoes
- Tofu and green bell pepper stir-fry
- Edamame and orange slices for snack
- Lentil soup with tomatoes
- Dark chocolate and berries



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What About Zinc?

- RDA:
 - 1-3yo: 3 mg/day
 - 4-8yo: 5 mg/day
 - 9-13yo: 8 mg/day
- Vegan/vegetarian needs may be increased by 50%
- Sources: legumes, nuts, seeds, whole grains
- Focus on increasing bioavailability

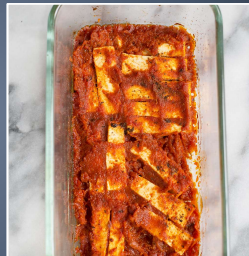


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Zinc-Rich Foods for Baby

- Muffins made with wheat-germ
- Tofu Parmesan: tofu sticks baked in spaghetti sauce, topped with nutritional yeast
- Hemp-seed pesto tossed with pasta
- Pumpkin seed pesto
- Add pumpkin seeds to smoothies
- Quinoa meatballs
- Black Beans: smashed for 8+, hummus
- Spinach Breastmilk popsicles
- Chia seed pudding



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Calcium without the Cow

- RDA:
 - 1-3yo: 700 mg/day
 - 4-8yo: 1000 mg/day
 - 9-13yo: 1300 mg/day
- Bioavailability of plant-based foods compared to dairy
- Sources: legumes, soy foods, fortified products, cruciferous vegetables
- Other factors for healthy bones



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Meeting Vitamin D Needs

- RDA:
 - <12mo: 400 IU/day (10 ug)
 - 1-3yr: 600 IU/day (15 ug)
- Common reasons for deficiency
- Sources: salmon, eggs, some specially grown mushrooms
- Breastfed babies: 400 IU/day
- Continued supplementation for strict vegans




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B12 Through Supplementation

- RDA:
 - 6-12mo: 0.5 µg/day
 - 1-3yr: 0.9 µg/day
 - 4-8yo: 1.2 µg/day
 - 9-13yo: 1.8 µg/day
- B12 is the only nutrient that cannot be adequately obtained from a whole food, plant-based diet
- Absorption rates: need more than RDA for supplements or 2 doses
- Supplementation is recommended over fortified foods

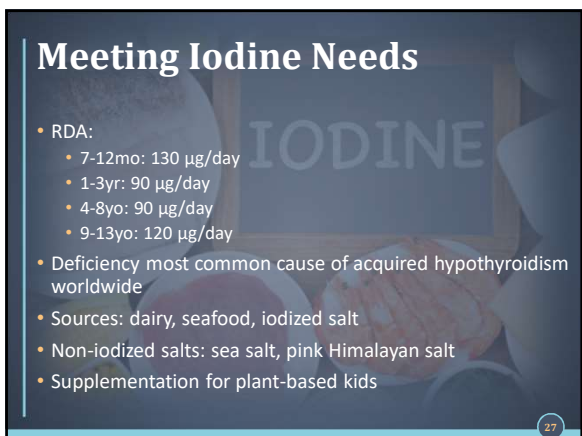


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Meeting Iodine Needs

- RDA:
 - 7-12mo: 130 µg/day
 - 1-3yr: 90 µg/day
 - 4-8yo: 90 µg/day
 - 9-13yo: 120 µg/day
- Deficiency most common cause of acquired hypothyroidism worldwide
- Sources: dairy, seafood, iodized salt
- Non-iodized salts: sea salt, pink Himalayan salt
- Supplementation for plant-based kids



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What About Choline?

- AI:
 - 6-12mo: 150 mg/day
 - 1-3yo: 200 mg/day
 - 4-8yo: 250 mg/day
 - 9-13yo: 375 mg/day
- Suboptimal intake in all populations
- Sources: eggs/animal products, wheat germ, quinoa, soy, broccoli
- Choline during pregnancy



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Supplements Overview

- **B12** for all vegan and vegetarian children
 - Spray, sublingual tablets
 - 6-11mo: 5-20 mcg/d
 - 1-3yr: 10-40 mcg/d
 - 4-8yr: 13-50 mcg/d
 - 9-13yr: 20-75 mcg/d
- **Vitamin D**
 - Drops for infants – 400 IU/day
 - D2 vs D3
- **Iodine**
 - ½ the RDA for vegan + dairy-free children
- **DHA/EPA** potentially beneficial
 - Drops added to bottles/beverages
- **Multivitamin** (optional) for predominantly plant-based kids

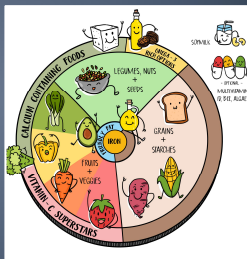


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Nutritional Considerations for Plant-Based Juniors

- Putting it all together:
- Balance Plate
 - 1/3 plate fruits and vegetables
 - 2-3 servings legumes, nuts, seeds/day
 - Focus on fat
 - Pair iron rich foods w/ vitamin C to maximize absorption
 - Supplement when needed
 - B12, DHA/EPA, Vitamin D




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Plant-Forward Eating

- Heavy on fruits, vegetables, whole grains, and legumes
- Seeds and nuts
- Minimally-processed foods
- Low use of animal foods
- High in the “good:” fiber, vitamins, minerals, phytochemicals, healthy fats
- Low in “bad:” saturated fat, cholesterol, sodium, toxins formed in cooking, curing, and processing meats



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Non-Dairy Milk: *All Are NOT Created Equal*

- Fortified vs. unfortified
- Almond, cashew, and other nut milks
 - Low in protein and fat
- Coconut
 - Low in protein, high in saturated fat
- Soy and pea milk
 - Best option to replace cow's milk!
 - Similar amount of protein (8 grams), calories, fat



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Get Clients to Eat More Plant-Based Foods

- Create simple plant-based family recipes, especially ones that can naturally be vegan
- Help educate on using legumes, soy goods and whole grains
- Focus on addition, not subtraction
- Encourage one-meal-a-day plant-based eating
- Encourage meatless meals a few times a week
- Shop for plants first
- Plan your menu around plants instead of meat
- Find out what motivates them!



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Roadmap to More Plants

Step 1: Enjoy

- Prepare plant-based meals you already know and like
- Pasta primavera, tofu and vegetable stir-fry, bean and vegetable burritos, vegetable soup

Step 2: Adapt

- Choose a favorite recipe and give it a plant-based makeover

Step 3: Explore

- Add in new plant-based foods and recipes
- Try tempeh, explore new plant-based recipes and cookbooks, try nutritional yeast on pizza, pasta instead of parmesan cheese



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Plant-Based Cooking Tips and Tricks

- Encourage kids to get in the kitchen with you
- Lead by example
- Try batch cooking
- Roast, broil, grill your veggies
- Explore international foods
- Use herbs and spices
- Enroll in a plant-based cooking class
- Umami mimics the mouth feel of meat and cheese



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Questions?

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- **Part 1:** Primed to Thrive: Guidelines for a Plant-Based Pregnancy
- **Part 2:** Plant-Based Juniors: Strategies for Meeting the Needs of Vegan and Vegetarian Children

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