Challenging Stereotypes: What Should a Field Biologist Look Like?

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Campus Health
Winter 2023
Objectives

Nutrition foundations, sustainable energy
Hydration
Body diversity, body shame
Body acceptance and body neutrality
Macronutrients

Carbohydrates
Energy source (glucose) for the muscles and the brain, fiber, vitamins and minerals

- Grains: breads, pastas, rices
- Vegetables
- Legumes: beans, lentils
- Fruit
- Dairy products: milk, yogurt
- Candy, cookies, soda

Proteins
Built of amino acid building blocks found throughout the body. Essential for structure, function, and regulation of body’s tissues and organs.

- Animal: chicken, fish, beef, pork, turkey, eggs etc
- Plant: tofu, legumes, nuts/seeds, veg, grains
- Dairy: milk, yogurt, cheese

Fats
Energy, absorption of vitamins, organ cushion, satiety, hormone signaling, temperature regulation

- Unsaturated fats: olive oil, nuts, seeds, avocados, fish
- Saturated fats: cheese, meat products, butter, coconut oil
Eating for Satiety & Adequacy

HUNGER & SATISFACTION GUIDE
LET YOUR BODY BE YOUR GUIDE

Individual appetite cues can vary and these are just suggestions. Explore how your body informs you.

Simple CHO
Complex CHO
Lean Proteins
CCHO, proteins, fats
● Stable energy levels
● Diverse gut microbiome
● Decreased risk for heart disease, diabetes, etc
● Decreased risk for depression
● Consistent GI movement
● And more!
The Institute for Family Health (institute.org)
**Official USDA Food Plans: Cost of Food at Home at Three Levels, U.S. Average, November 2022**

<table>
<thead>
<tr>
<th>Age-sex groups</th>
<th>Weekly cost</th>
<th>Monthly cost</th>
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<tbody>
<tr>
<td></td>
<td>Low-cost plan</td>
<td>Moderate-cost plan</td>
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<tr>
<td><strong>Individuals</strong></td>
<td></td>
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<tr>
<td>Child:</td>
<td></td>
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<tr>
<td>1 year</td>
<td>$35.60</td>
<td>$40.50</td>
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<td>2-3 years</td>
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<td>4-5 years</td>
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<td>6-8 years</td>
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<td>9-11 years</td>
<td>$58.30</td>
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<tr>
<td><strong>Male:</strong></td>
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<tr>
<td>12-13 years</td>
<td>$67.70</td>
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<td>14-18 years</td>
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<td>19-50 years</td>
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<tr>
<td>51-70 years</td>
<td>$64.10</td>
<td>$80.50</td>
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<tr>
<td>71+ years</td>
<td>$63.20</td>
<td>$78.40</td>
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<tr>
<td><strong>Female:</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>12-13 years</td>
<td>$57.80</td>
<td>$69.60</td>
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<tr>
<td>14-18 years</td>
<td>$57.90</td>
<td>$68.90</td>
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<tr>
<td>19-50 years</td>
<td>$58.90</td>
<td>$72.00</td>
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<tr>
<td>51-70 years</td>
<td>$57.60</td>
<td>$71.40</td>
</tr>
<tr>
<td>71+ years</td>
<td>$57.10</td>
<td>$70.60</td>
</tr>
</tbody>
</table>
Food Unicorn

FAST

CHEAP

NUTRITIONALLY BALANCED
Feed your body.

Something.

Everyday.
Hydration

Start hydrated, stay hydrated (set an alarm reminder)

Needs depend on

• Activity performed
• Intensity level
• Duration
• Weather
• Age
  – Seniors are more vulnerable to dehydration
• Sweat rate

Ex. Hiking in hot/humid/altitude conditions = 1 L/hour

https://www.ncoa.org/article/how-to-stay-hydrated-for-better-health
Short intense jobs: drink roughly 8-10 oz water every 20 minutes while working in the heat (sips versus chugging)

Long jobs (> 2 hours): electrolyte-containing beverages such as sports drinks. Substantial loss of electrolytes can cause muscle cramps and other dangerous health problems.

Essentials: large brimmed hat, sunscreen, extra water (start with minimum 2L/day), water filter (if needed)

Signs of dehydration

**Dehydration**: dry lips and tongue, dizziness, lightheaded, infrequent urination, bright or dark-colored urine, low energy levels

**Heat illness**: chills, clammy skin, muscle pains or spasms, nausea

1% dehydration has been shown to have a slightly negative influence on mental function—slowed working memory, increased tension/anxiety and fatigue, and increased errors on visual vigilance. Dehydration can also affect physical work capabilities. And can reduce the body’s evaporative cooling abilities (sweating).

Electrolytes

1# of sweat contains:
400-700 mg sodium
80-100 mg potassium

Electrolyte powders (most lightweight)- pack a separate bottle to mix

Food options

- Soups
- Pickles
- Pretzels
- Salted peanuts
- Cheese
- Watermelon
- Celery
- Peppers
- Strawberries
- Cantaloupe
- Cucumbers
- Tomatoes
- Spinach
- Broccoli
Foods to pack (day trip)

• Eat a good breakfast as you head out (breakfast sandwich, oatmeal [prep the night before], breakfast burrito, etc)
• In a cooler
  – Frozen water bottles/sports drinks to act as ice packs
  – Fruit (grapes, watermelon, cantaloupe, etc)
  – Cheese sticks/pre sliced/babybel
  – Vegetables (cut up the night before): bell peppers, carrots, snap peas, celery, cucumber, cherry tomatoes
  – Hummus and/or Ranch dressing
  – Sandwich/wrap
• Fruit and veg squeeze pouches
• Anything from the next slide
Packing list (multi day)

- Carbohydrates/fiber
  - Fresh fruit (for the first 1-2 days): apples, bananas, oranges
  - Dried fruit: raisins, craisins, figs, dates, apricots, pineapple
  - Ready-to-eat cereal
  - Pretzels, crackers, chips
  - Granola and or granola bars
  - Gummy candy, jolly ranchers (non melting)

- Protein/fat
  - Nuts: almonds, cashews, pistachios, walnuts, etc
  - Seeds: sunflower, pumpkin
  - Peanuts/peanut butter (cheapest)
  - Jerky
  - Pre-flavored canned beans
  - Protein pouches (e.g. Starkist tuna, TastyBite madras lentils)
  - Shelf stable 8 oz milk (for granola or cereal)

- MREs

https://herpackinglist.com/female-packing-list-for-outdoor-field-work/
Body expectations, thin ideal/power
Statement of privilege

Cis-gendered, straight-sized, physically able-bodied, professional
Eating Disorder (ED) statistics

- BIPOC are significantly less likely than white people to have been asked by a doctor about ED symptoms.
- BIPOC with EDs are half as likely to be diagnosed or to receive treatment.
- Black people are less likely to be diagnosed with anorexia than white people but may experience the condition for a longer period of time.
- Gender dysphoria and body dissatisfaction in transgender people is often cited as a key link to EDs.
- Non-binary people may restrict their eating to appear thin, consistent with the common stereotype of androgynous people in popular culture.
- Gay men are seven times more likely to report binge-eating and twelve times more likely to report purging than heterosexual men.
- Women with physical disabilities are more likely to develop EDs.
- 20-30% of adults with EDs also have autism.
- Larger body size is both a risk factor for developing an ED and a common outcome for people who struggle with bulimia and binge eating disorder.
- People in larger bodies are half as likely as those at a “normal weight” or “underweight” to be diagnosed with an ED.

https://anad.org/eating-disorders-statistics/
Historical/cultural context of fatphobia

History
• Race- Triangle slave trade: racial inferiority (Strings 2019)
• Religion
  – Catholicism- gluttony
  – Protestantism: “temperance at the table”
• Class

Culture
• Villain, incompetent, idiot, loud, greedy, lazy
• Intersectionality (women, race)
Weight stigma

• Risk factor for
  – Depression
  – Body dissatisfaction
  – Low self-esteem

• Those who experience weight-stigma:
  – Engage in more frequent binge eating (self-regulation decreases)
  – Increased risk for ED sx
  – More likely to have a dx for BED
  – Higher cortisol levels

• Healthcare providers talking to larger bodied patients tend to
  – Provide them with less health information
  – Spend less time with them
  – View them as undisciplined, annoying and noncompliant with treatment
Size does not equal health

BMI between 25 and 37 = lowest incidence of early death (Hotchkiss and Leyland 2011)

Most cardiometabolic markers are improved with physical activity independent of weight loss (Gaesser and Angadi 2021)
Food Restriction

- Urges to binge
- Cravings for energy-dense foods
- Food obsession
- Depression
- Anxiety
- Social isolation
- OCD
- Apathy, tiredness, irritability, lack of concentration
<table>
<thead>
<tr>
<th>Health outcome</th>
<th>Citation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Increased all-cause mortality</td>
<td>Blair, Shaten, Brownell, Collins, and Lissner (1993); Bosomworth (2012); Díaz, Mainous, and Everett (2005); Hamm, Shekelle, and Stahler (1989); Lissner et al. (1991); Nguyen, Center, Eisman, and Nguyen (2007); Rzehak et al. (2007)</td>
</tr>
<tr>
<td>Increased CVD mortality</td>
<td>(Díaz et al., 2005); Hamm et al. (1989); Lissner et al. (1991); Montani, VECOLLI, PÉRÉZ, AND DULIO (2006); Rzehak et al. (2007)</td>
</tr>
<tr>
<td>Increased CHD mortality</td>
<td>Lissner et al. (1991)</td>
</tr>
<tr>
<td>Increased CHD morbidity</td>
<td>Lissner et al. (1991)</td>
</tr>
<tr>
<td>Increased myocardial infarction, stroke, and diabetes morbidity</td>
<td>French et al. (1997); Montani et al. (2006); Vergnaud et al. (2008)</td>
</tr>
<tr>
<td>Decreased levels of high density lipoprotein</td>
<td>Olson et al. (2000)</td>
</tr>
<tr>
<td>Increased hypertension</td>
<td>Guagnano et al. (2000); Kajioka et al. (2002)</td>
</tr>
<tr>
<td>Fluctuation of serum cholesterol, triglyceride, glucose, insulin, and glucagon, which contribute to metabolic and CVD processes</td>
<td>Montani et al. (2006)</td>
</tr>
<tr>
<td>Increased chronic inflammation</td>
<td>Strohacker and McFarlin (2010)</td>
</tr>
<tr>
<td>Decreased serum triiodothyronine (T3), serum total thyroxine (T4), and resting energy expenditure</td>
<td>Kajioka et al. (2002)</td>
</tr>
<tr>
<td>Decreased resting and endothelium-dependent myocardial blood flow, higher HbA1c, decreased adiponectin, increased C-reactive protein, and decreased telomere length</td>
<td>Gaesser (2010)</td>
</tr>
<tr>
<td>Suppression of immune function, particularly natural killer cell cytotoxicity</td>
<td>Shade et al. (2004)</td>
</tr>
<tr>
<td>Higher rates of renal carcinoma, endometrial, colorectal, and lymphohematopoietic cancer</td>
<td>Gaesser (2010)</td>
</tr>
<tr>
<td>Higher rates of gallstones</td>
<td>Syngal et al. (1999); Tsai, Leitzmann, Willett, and Giovannucci (2006)</td>
</tr>
<tr>
<td>Release of POP stored in fat cells</td>
<td>Lim, Son, Park, Jacobs, and Lee (2010)</td>
</tr>
<tr>
<td>Increased rates of POP-associated CVD</td>
<td>Lim et al. (2010)</td>
</tr>
<tr>
<td>Reduced bone mineral density in the lower spine and distal radius</td>
<td>Fogelholm et al. (1997)</td>
</tr>
<tr>
<td>Reduced bone mineral density in post-menopausal women</td>
<td>Villalón et al. (2011)</td>
</tr>
<tr>
<td>Increased hip fracture risk for women</td>
<td>French et al. (1997)</td>
</tr>
<tr>
<td>In rats, disturbance of whole body fatty acid balance</td>
<td>Sea, Fang, Huang, and Chen (2000)</td>
</tr>
<tr>
<td>In mice, decreased systemic glucose tolerance, impaired adipose tissue insulin sensitivity, and exaggerated adaptive immune response in adipose tissue</td>
<td>Anderson, Gutierrez, Kennedy, and Hasty (2013)</td>
</tr>
<tr>
<td>No mortality association</td>
<td>Field, Malspeis, and Willett (2009)</td>
</tr>
</tbody>
</table>

Note. CVD = cardiovascular disease; CHD = coronary heart disease; POP = persistent organic pesticides.
Health at Every Size® Principles

WEIGHT INCLUSIVITY
Accept and respect the inherent diversity of body shapes and sizes and reject the idealizing or pathologizing of specific weights.

HEALTH ENHANCEMENT
Support health policies that improve and equalize access to information and services, and personal practices that improve human well-being, including attention to individual physical, economic, social, spiritual, emotional and other needs.

EATING FOR WELL-BEING
Promote flexible, individualized eating based on hunger, satiety, nutritional needs, and pleasure, rather than any externally regulated eating plan focused on weight control.

RESPECTFUL CARE
Acknowledge our biases, and work to end weight discrimination, weight stigma, and weight bias. Provide information and services from an understanding that socio-economic status, race, gender, sexual orientation, age, and other identities impact weight stigma, and support environments that address these inequities.

LIFE-ENHANCING MOVEMENT
Support physical activities that allow people of all sizes, abilities, and interests to engage in enjoyable movement, to the degree that they choose.

https://asdah.org/health-at-every-size-haes-approach/
Body Positivity, Body Neutrality

**Body positivity**: self-acceptance, inner worth, and appreciation for a body’s abilities (challenge and break down diet culture)

**Body neutrality**: prioritizes functionality over appearance, but it also removes the expectation of specific feelings toward the body

- I accept my body as it is.
- My body helps me in many ways.
- How can I honor my body today?
- My body works hard and deserves kindness.
- I am thankful for my body because it does so much for me.
- All bodies are different and that’s totally fine.
How to put into practice

How do I best nourish my whole self (mental AND physical): e.g. challenging diet culture, food rules, body expectations

What do I need to be successful in my career? E.g. I engage in physical activity/movement in order to hike ___ miles for my field work (not to manipulate or “fix” my body)

What resources (time, money, mental space, etc) do I have available to me now?
Learn More

Podcasts: Food Psych, Maintenance Phase, Unpacking Weight Science, Body Kindness, Food Heaven, The Love Food Podcast