# 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.

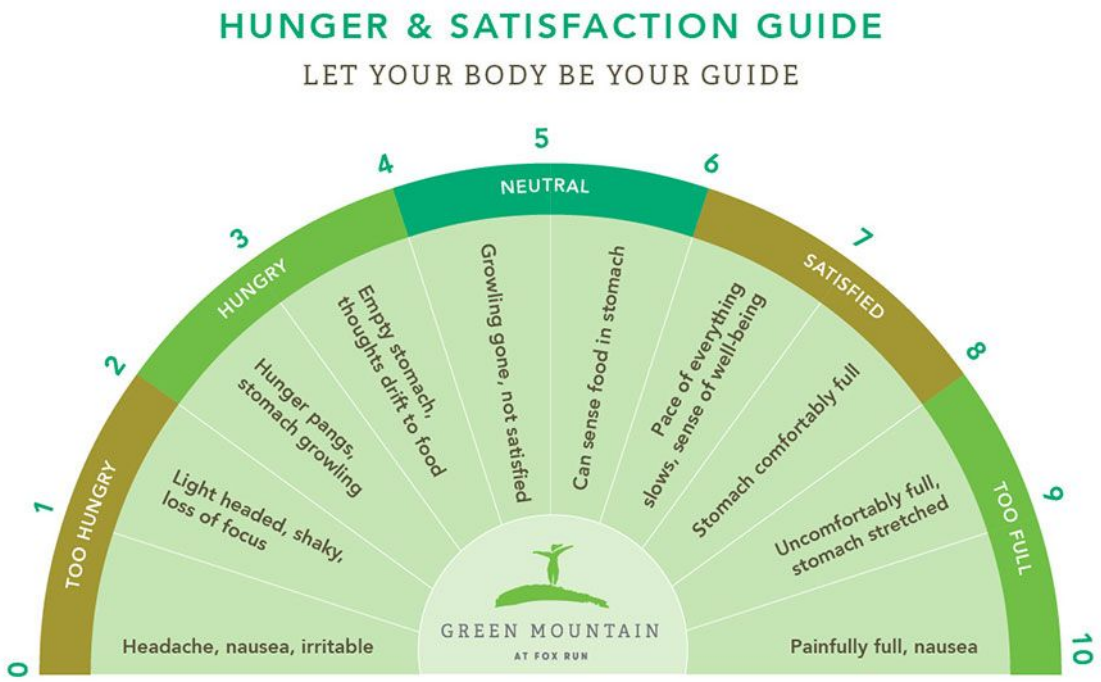
- Animal: chicken, fish, beef, pork, turkey, eggs etc
- Plant: tofu, legumes, nuts/seeds, veg, grains
- Dairy: milk, yogurt, cheese

## Fats

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

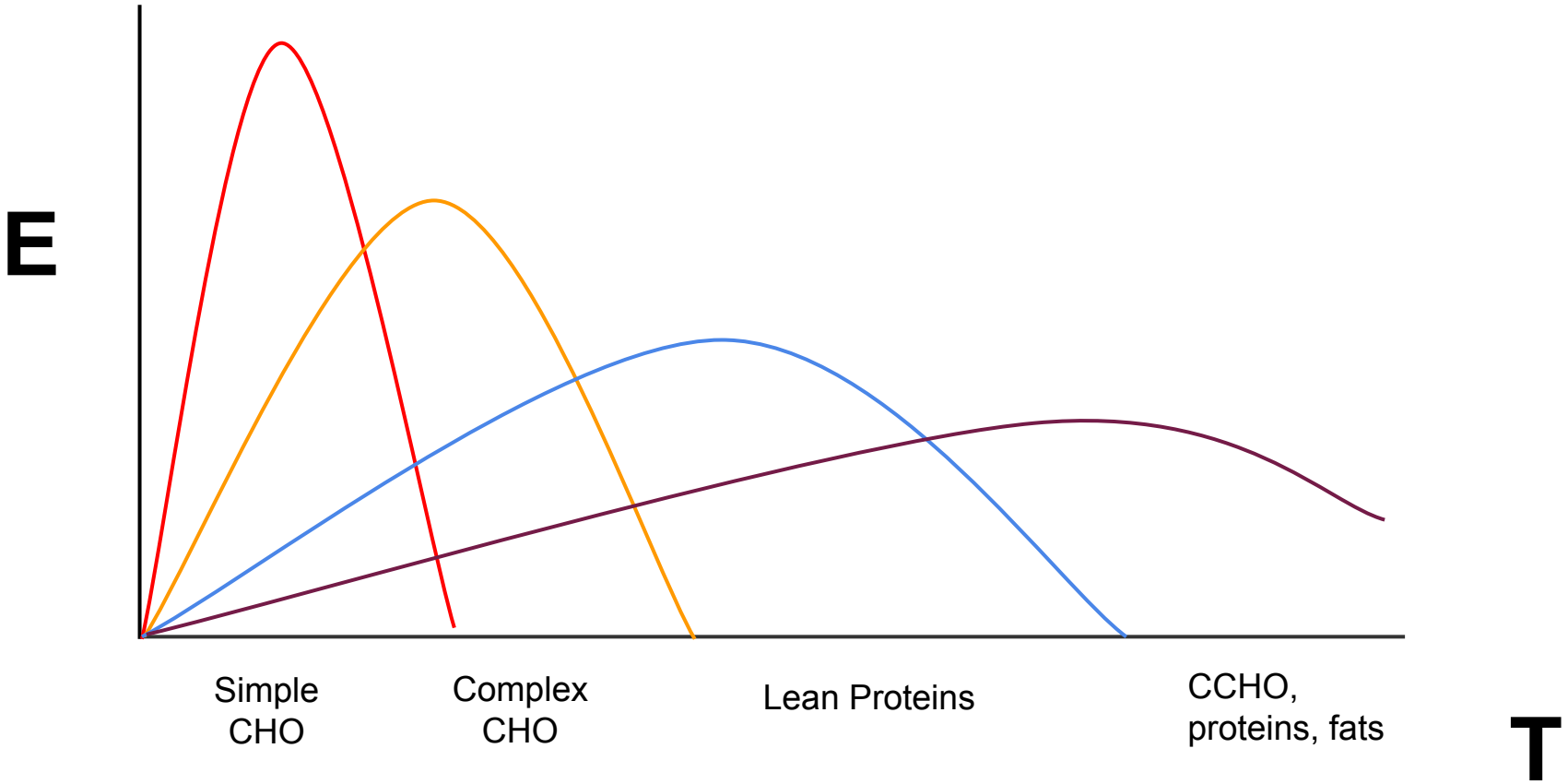
- Unsaturated fats: olive oil, nuts, seeds, avocados, fish
- Saturated fats: cheese, meat products, butter, coconut oil

# Eating for Satiety & Adequacy




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

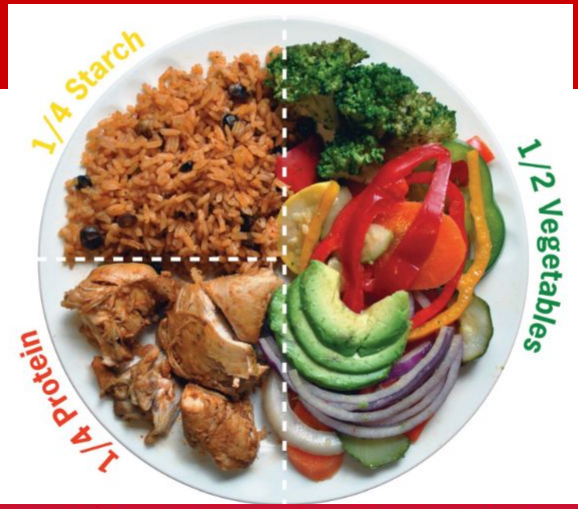
Concept adapted from Learning/Teaching Handout Series CD on Eating Disorders. Sondra Kronberg, MS, RD, CEDRD. Wellness Publishing. 2001.

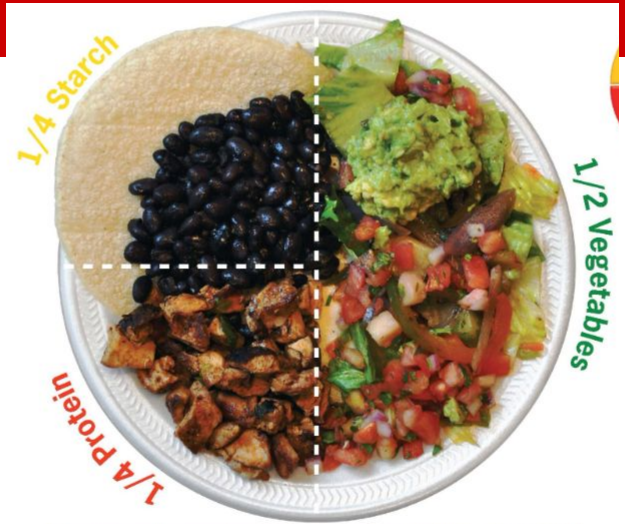

E
Simple CHO
Complex CHO
Lean Proteins
CCHO, proteins, fats
T

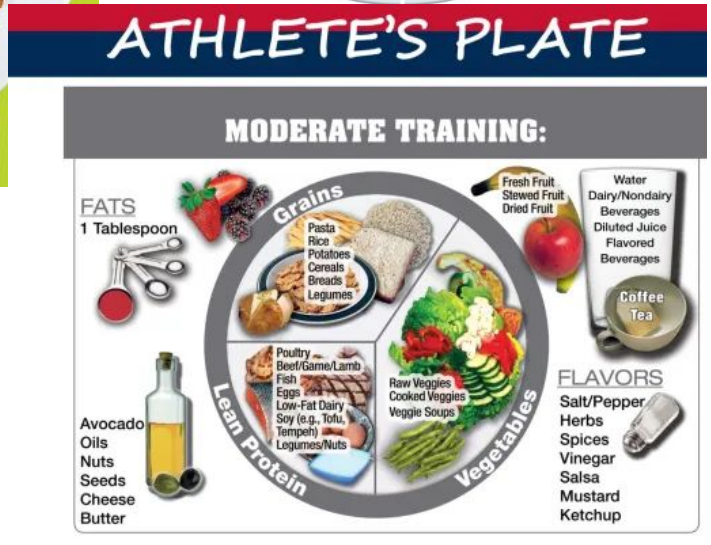

Eating like this

Feels like this

- 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)

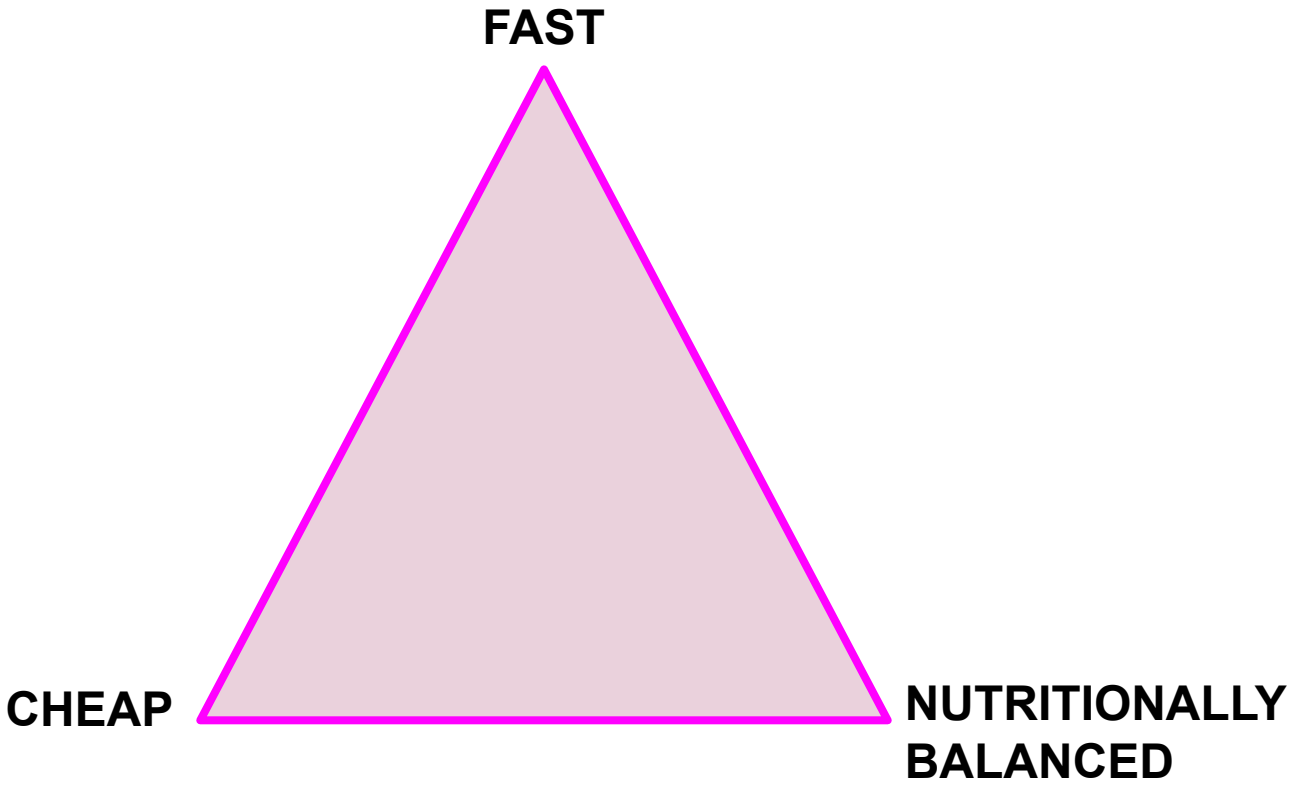
USDA U.S. DEPARTMENT OF AGRICULTURE

https://www.fns.usda.gov/cnpp/usda-food-plans-cost-food-reports-monthly-reports

# Official USDA Food Plans: Cost of Food at Home at Three Levels, U.S. Average, November 2022[1]

| Age-sex groups | Weekly cost [2] | | | Monthly cost [2] | | |
|---|---|---|---|---|---|---|
| | Low-cost plan | Moderate-cost plan | Liberal plan | Low-cost plan | Moderate-cost plan | Liberal plan |
| **Individuals [3]** | | | | | | |
| **Child:** | | | | | | |
| 1 year | $35.60 | $40.50 | $48.90 | $154.30 | $175.30 | $211.80 |
| 2-3 years | $37.60 | $45.10 | $54.80 | $162.70 | $195.50 | $237.50 |
| 4-5 years | $38.70 | $47.90 | $57.80 | $167.60 | $207.70 | $250.70 |
| 6-8 years | $54.40 | $65.70 | $76.80 | $235.50 | $284.80 | $333.00 |
| 9-11 years | $58.30 | $75.80 | $88.00 | $252.40 | $328.20 | $381.30 |
| **Male:** | | | | | | |
| 12-13 years | $67.70 | $84.30 | $98.90 | $293.20 | $365.20 | $428.40 |
| 14-18 years | $68.60 | $86.40 | $99.70 | $297.10 | $374.40 | $432.10 |
| 19-50 years | $68.00 | $85.40 | $103.80 | $294.50 | $370.00 | $449.70 |
| 51-70 years | $64.10 | $80.50 | $96.40 | $277.70 | $348.90 | $417.60 |
| 71+ years | $63.20 | $78.40 | $96.00 | $273.80 | $339.60 | $416.20 |
| **Female:** | | | | | | |
| 12-13 years | $57.80 | $69.60 | $85.70 | $250.60 | $301.70 | $371.30 |
| 14-18 years | $57.90 | $68.90 | $85.40 | $250.70 | $298.40 | $369.90 |
| 19-50 years | $58.90 | $72.00 | $92.10 | $255.40 | $312.20 | $399.20 |
| 51-70 years | $57.60 | $71.40 | $85.90 | $249.40 | $309.50 | $372.10 |
| 71+ years | $57.10 | $70.60 | $84.80 | $247.50 | $306.00 | $367.20 |

# Food Unicorn



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.rei.com/learn/expert-advice/hydrate.html
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)

https://www.osha.gov/heat-exposure/water-rest-shade

# 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).*

https://p3.amedd.army.mil/performance-learning-center/nutrition/hydration

# 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)

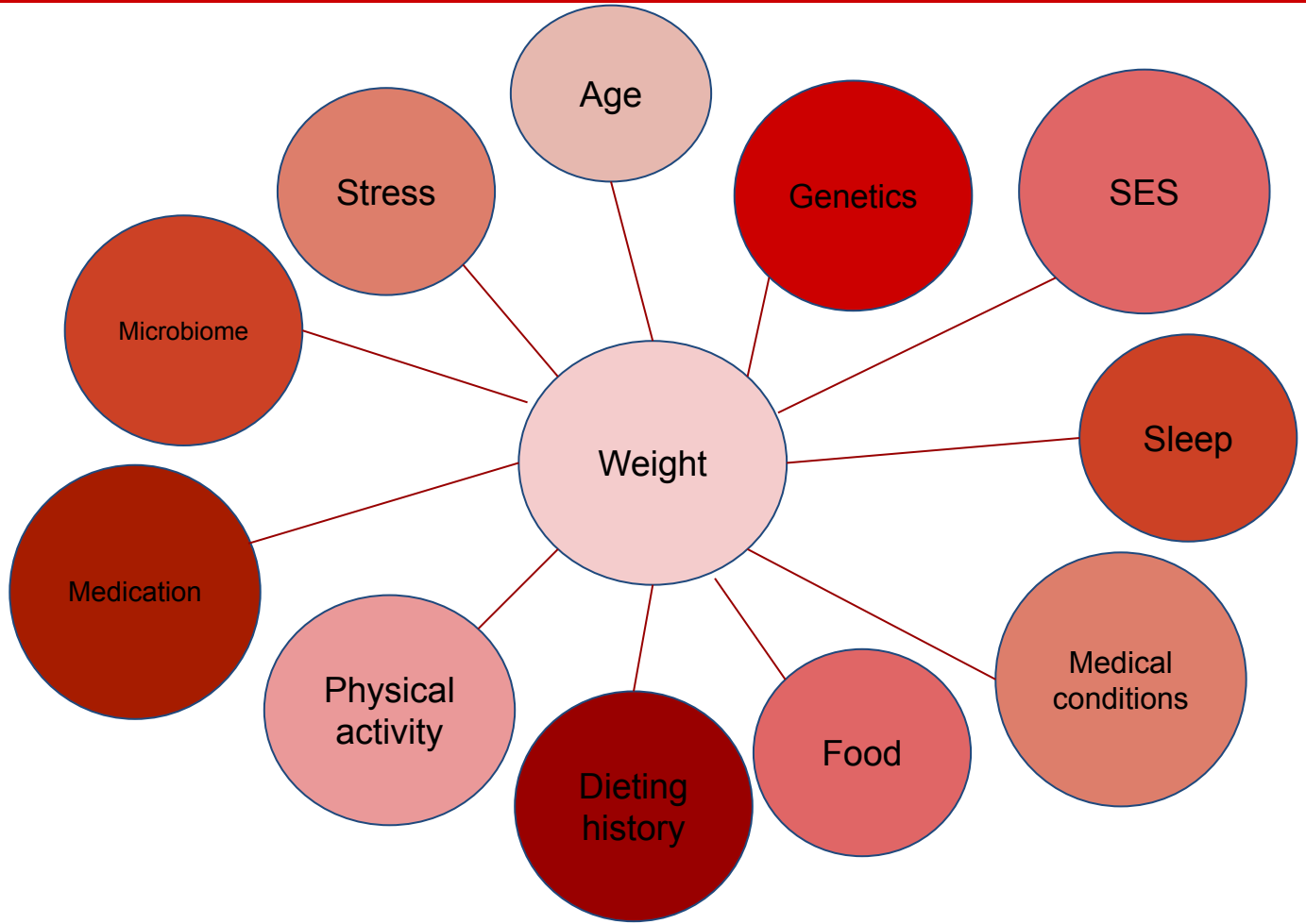
- Carbohydrates/fiber
  - Fresh fruit (for the first 1-2 days): apples, bananas, oranges
  - Dried fruit: raisins, craisins, figs, dates, apricots, pineapple
  - Ready-to-eat cereal
  - Pretzels, crackers, chips
  - Granola and or granola bars
  - Gummy candy, jolly ranchers (non melting)
- Protein/fat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


Age
Stress
Genetics
SES
Microbiome
Weight
Sleep
Medication
Physical activity
Dieting history
Food
Medical conditions

# 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/

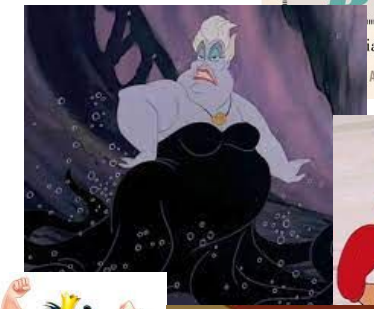
# Historical/cultural context of fatphobia

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

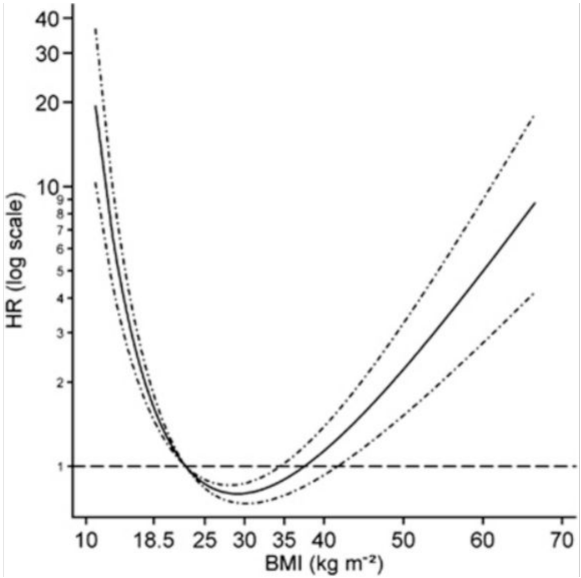
Mirna Valerio, Runner's World

- 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)




Hotchkiss JW, Leyland AH. The relationship between body size and mortality in the linked Scottish Health Surveys: cross-sectional surveys with follow-up. Int J Obes (Lond). 2011 Jun;35(6):838-51. doi: 10.1038/ijo.2010.207. Epub 2010 Oct 5. PMID: 20921963; PMCID: PMC3117149.
Gaesser GA, Angadi SS. Obesity treatment: Weight loss versus increasing fitness and physical activity for reducing health risks. iScience. 2021 Oct; 24(10), doi: https://doi.org/10.1016/j.isci.2021.102995.

# Food Restriction

- Urges to binge
- Cravings for energy-dense foods
- Food obsession
- Depression
- Anxiety
- Social isolation
- OCD
- Apathy, tiredness, irritability, lack of concentration

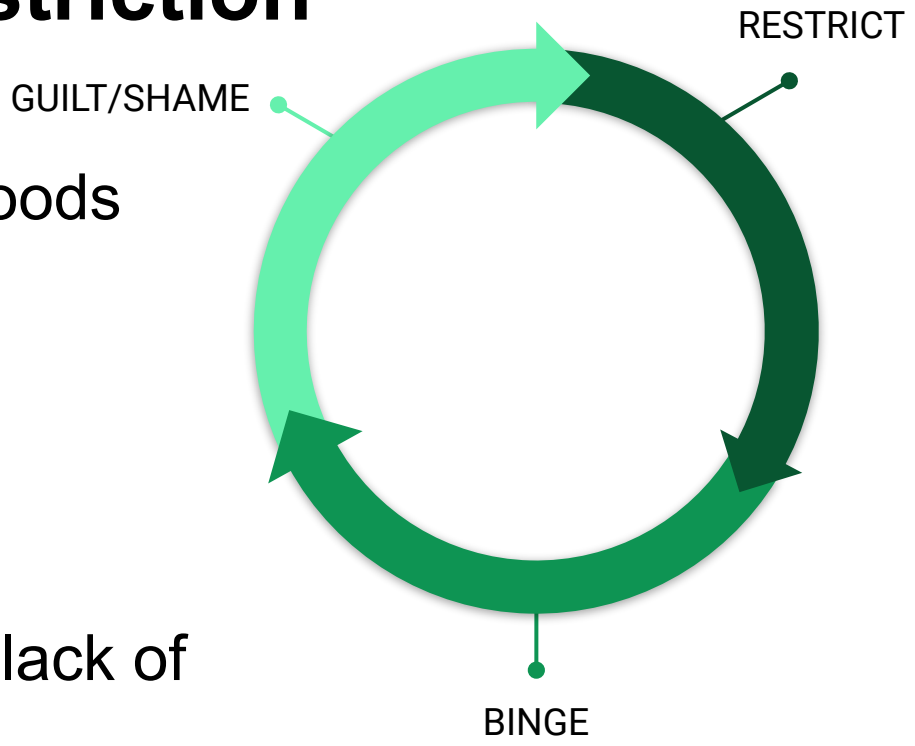


**Table 5.** Relationship Between Weight Cycling and Various Health Outcomes.

| Health outcome | Citation |
|---|---|
| Increased all-cause mortality | Blair, Shaten, Brownell, Collins, and Lissner (1993); Bosomworth (2012); Diaz, Mainous, and Everett (2005); Hamm, Shekelle, and Stamler (1989); Lissner et al. (1991); Nguyen, Center, Eisman, and Nguyen (2007); Rzehak et al. (2007) |
| Increased CVD mortality | (Diaz et al., 2005); Hamm et al. (1989); Lissner et al. (1991); Montani, Viecelli, Prévot, and Dulloo (2006); Rzehak et al. (2007) |
| Increased CHD mortality | Lissner et al. (1991) |
| Increased CHD morbidity | Lissner et al. (1991) |
| Increased myocardial infarction, stroke, and diabetes morbidity | French et al. (1997); Montani et al. (2006); Vergnaud et al. (2008) |
| Decreased levels of high density lipoprotein | Olson et al. (2000) |
| Higher triglycerides | Kajioka, Tsuzuku, Shimokata, and Sato (2002) |
| Increased hypertension | Guagnano et al. (2000); Kajioka et al. (2002) |
| Fluctuation of serum cholesterol, triglyceride, glucose, insulin, and glucagon, which contribute to metabolic and CVD processes | Montani et al. (2006) |
| Increased chronic inflammation | Strohacker and McFarlin (2010) |
| Decreased serum triiodothyronine (T3), serum total thyroxine (T4), and resting energy expenditure | Kajioka et al. (2002) |
| Decreased resting and endothelium-dependent myocardial blood flow, higher HbA1c, decreased adiponectin, increased C-reactive protein, and decreased telomere length | Gaesser (2010) |
| Suppression of immune function, particularly natural killer cell cytotoxicity | Shade et al. (2004) |
| Higher rates of renal carcinoma, endometrial, colorectal, and lymphohematopoietic cancer | Gaesser (2010) |
| Higher rates of gallstones | Syngal et al. (1999); Tsai, Leitzmann, Willett, and Giovannucci (2006) |
| Release of POP stored in fat cells | Lim, Son, Park, Jacobs, and Lee (2010) |
| Increased rates of POP-associated CVD | Lim et al. (2010) |
| Increased POP-associated insulin resistance, metabolic syndrome, and T2DM | Airaksinen et al. (2011); Ha, Lee, and Jacobs (2007); D.-H. Lee, Lee, Porta, Steffes, and Jacobs (2007) |
| Reduced bone mineral density in the lower spine and distal radius | Fogelholm et al. (1997) |
| Reduced bone mineral density in post-menopausal women | Villalon et al. (2011) |
| Increased hip fracture risk for women | French et al. (1997) |
| Increased forearm fracture risk for men | Sogaard, Meyer, Tonstad, Haheim, and Holme (2008) |
| In rats, disturbance of whole body fatty acid balance | Sea, Fong, Huang, and Chen (2000) |
| In mice, decreased systemic glucose tolerance, impaired adipose tissue insulin sensitivity, and exaggerated adaptive immune response in adipose tissue | Anderson, Gutierrez, Kennedy, and Hasty (2013) |
| No mortality association | Field, Malspeis, and Willett (2009) |

Note. CVD = cardiovascular disease; CHD = coronary heart disease; POP = persistent organic pesticides.

O'Hara, L., & Taylor, J. (2018). What's Wrong With the 'War on Obesity?' A Narrative Review of the Weight-Centered Health Paradigm and Development of the 3C Framework to Build Critical Competency for a Paradigm Shift. *SAGE Open*, *8*(2). https://doi.org/10.1177/2158244018772888

# 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.

clevelandclinic.org

# 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

Books: *Intuitive Eating*- Evelyn Tribole & Elyse Resch, *Anti-Diet* by Christy Harrison, *A Beautiful Work in Progress*- Mirna Valerio, *Body Kindness*- Rebecca Scritchfield, *Your Fat Friend*- Aubrey Gordon, *Sick Enough*- Dr Jennifer Guadiani, *The Body is Not an Apology*- Sonya Renee Taylor, *Fearing the Black Body*- Sabrina Strings, *The Wellness Trap* - Christy Harrison (2023)