

THRIVE & SHINE

Nutrition

Appreciating hormones, metabolism and health

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OAKDALE OBGYN

PREMIER WOMEN'S
OF MINNESOTA HEALTH

Create Harmony with your Plate



HORMONES
GUT
BRAIN



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OF MINNESOTA

WOMEN'S
HEALTH

Create Harmony with your Plate

- Symphony of hormones

- Key "instruments"

- Estrogen
 - Insulin
 - Cortisol
 - Appetite hormones



- The interplay with our mind and digestive system

- Appreciating your melody



Create Harmony with your Plate

Hormones, metabolism & health

- Build & Fuel
- Balance Matters
- Timing is Key
- Habits Train



Estrogen

Key Metabolic Roles



- Keeps metabolism steady
 - Protects muscle that burns calories efficiently
- Protects metabolic health
 - Impacts body fat distribution
- Optimizes energy use
 - Improves insulin sensitivity
 - Supports cholesterol metabolism



Estrogen

Protect your muscle

- Protect protein intake & spacing
- Choose strategic sources
- Don't cut calories too aggressively
- Align your movement with hormonal rhythms



Estrogen

Protect your muscle

- Protect protein intake & spacing
 - Ensures adequacy
 - Aim for every ~3-5 hours
 - Portion cues
 - ¼ plate
 - Palm of hand
 - ~0.11-0.18 g/lb



Estrogen

Protect your muscle

- Choose strategic sources
 - Informed by health goals
- Focus on whole foods
 - Fish
 - Legumes: beans, chickpeas, lentils, soy
 - Nuts & seeds
 - Dairy, notably fermented
 - Eggs, poultry and lean meat



Estrogen

Protect your muscle

- Don't cut calories too aggressively
 - Slow and steady
 - ~0.7% weight loss per week
 - Preserve strength
 - Consider leucine sources
 - Resistance exercise



Estrogen

Protect your muscle

- Low estrogen?

- Vary your muscle stimulus with strength activities

- CDC recommends 2 or more days a week

- Involve all major muscle groups

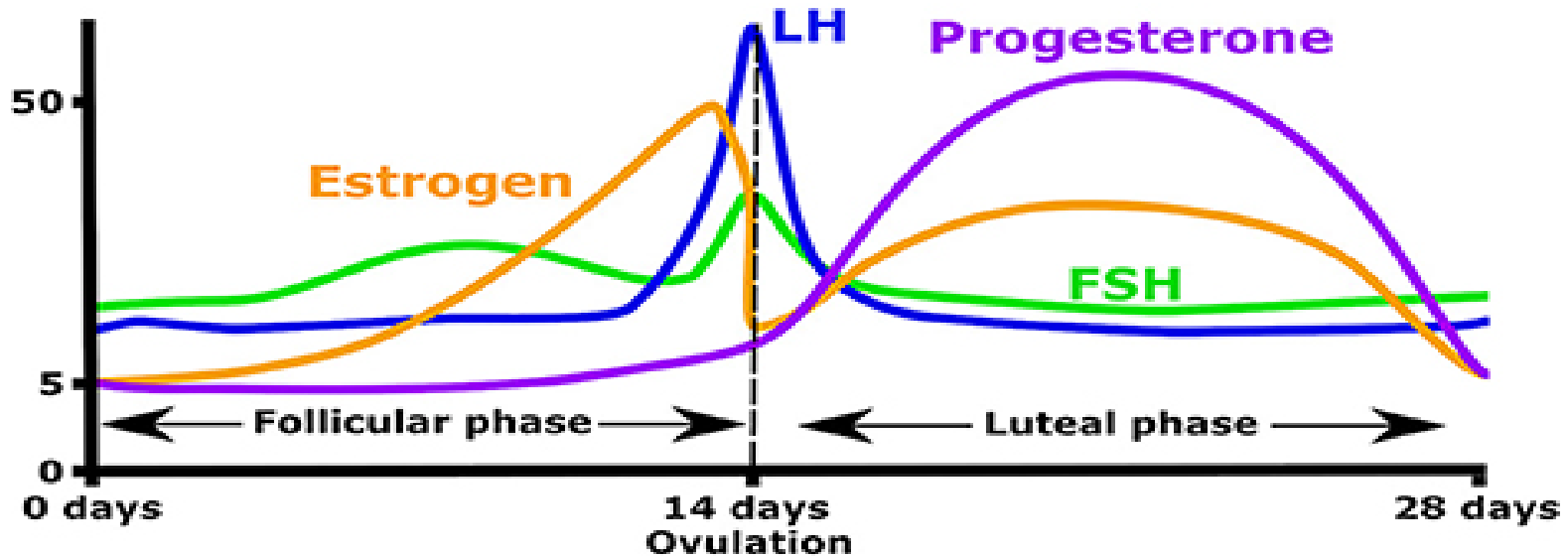
- Legs, hips, back abdomen, chest, shoulders & arms

- Prioritize recovery and rest



Estrogen

Protect metabolic health in pre-menopause



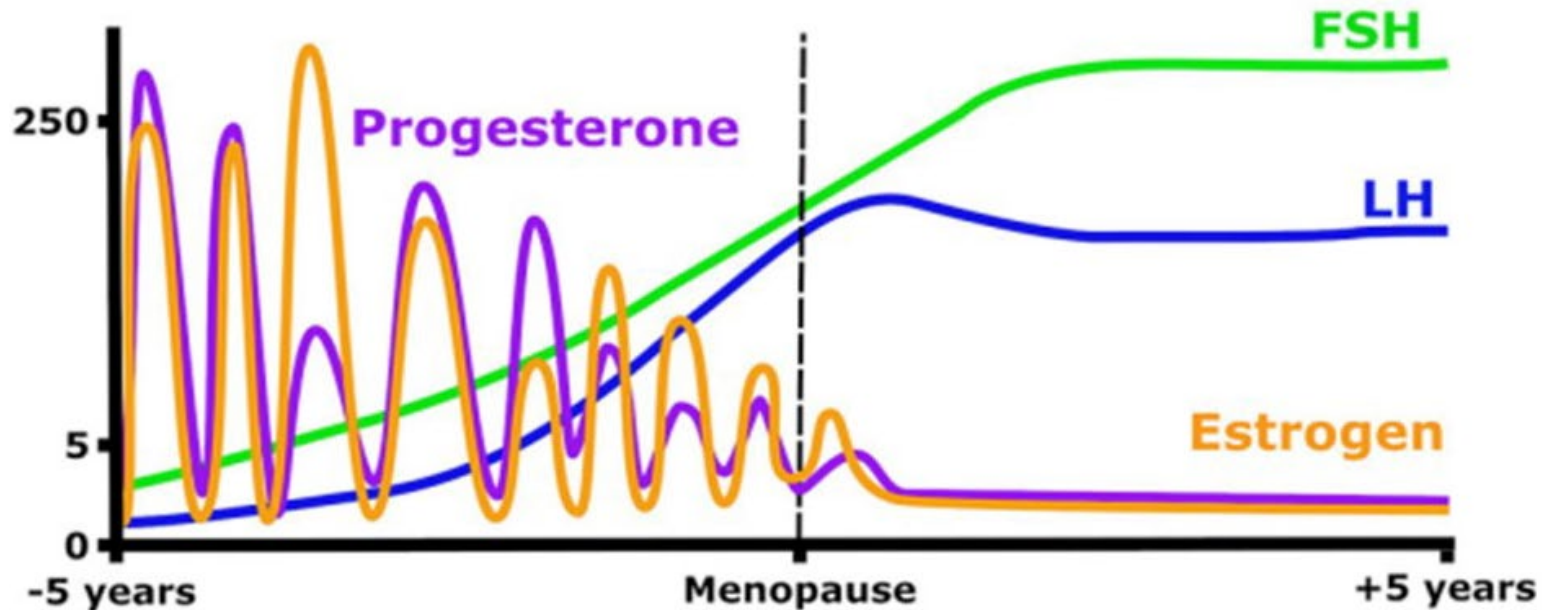
Use high intensity cardio
Maximize strength training

Use moderate-intensity exercise
Protect rest and recovery
Increase protein
Prioritize hydration and electrolytes



Estrogen

Protect metabolic health in peri-menopause



Establish consistent physical activity patterns

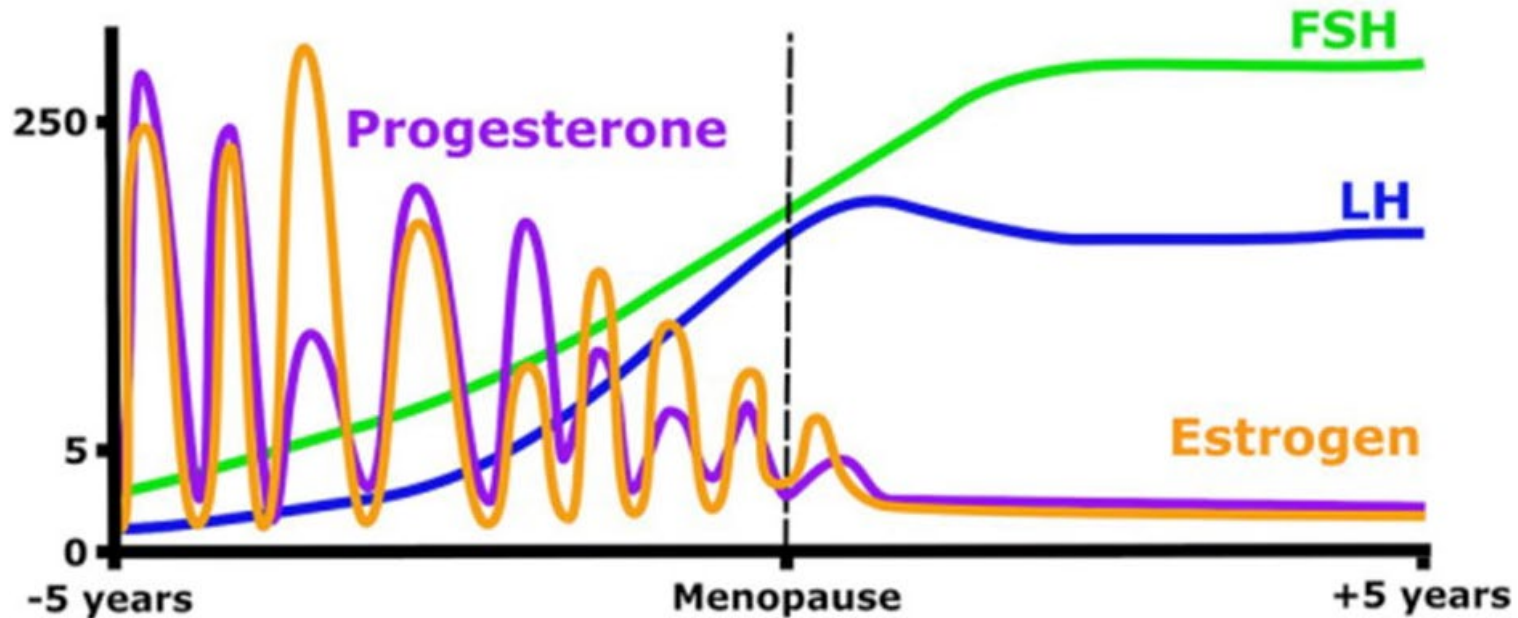
Protect lean muscle mass

Explore VO₂, heart rate and higher intensity cardio



Estrogen

Protect metabolic health in menopause



Keep strength training 2+ days/week
Continue higher intensity cardio (1-2 d/week)
Modify & protect recovery



Insulin

Key Metabolic Roles

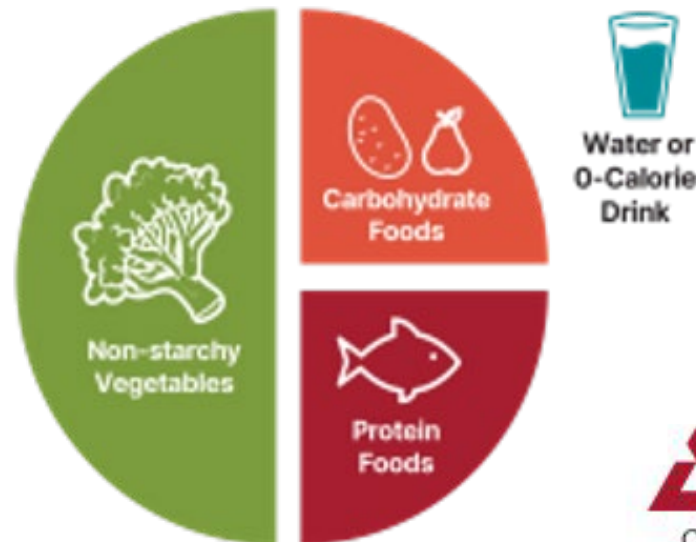
- Controls blood sugar
 - The "key" to move glucose into cells
- Coordinates with other hormones
 - Estrogen & Cortisol
- Regulates appetite
- Manages energy
 - Use or store fuel



Insulin

Nutrition strategies

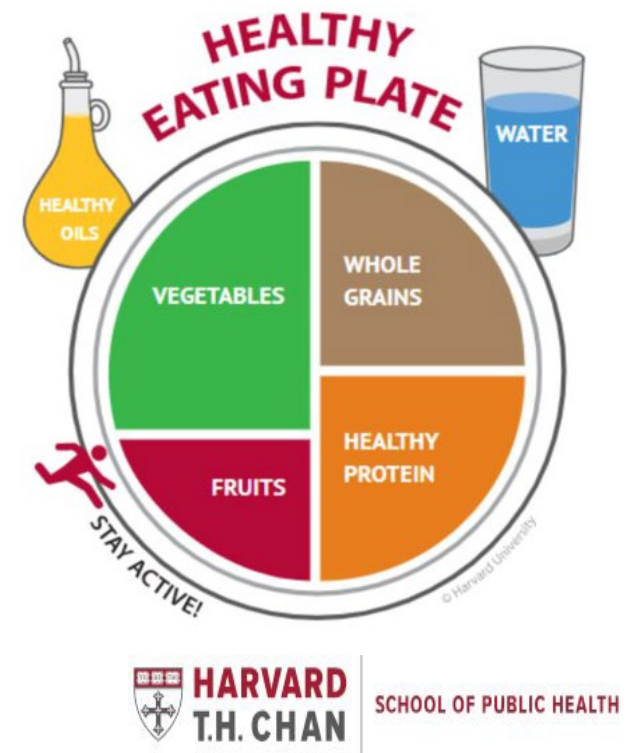
- Non-starchy vegetables (aka fiber)
 - Fill half your plate with non-starchy vegetables
 - Start meals with vegetable fiber



Insulin

Nutrition strategies

- Add Mediterranean fats to reduce starches
 - Olives, oil, vinaigrette
 - Avocado, oil, guacamole
 - Nuts
 - Seeds
 - Mediterranean sauces & dips

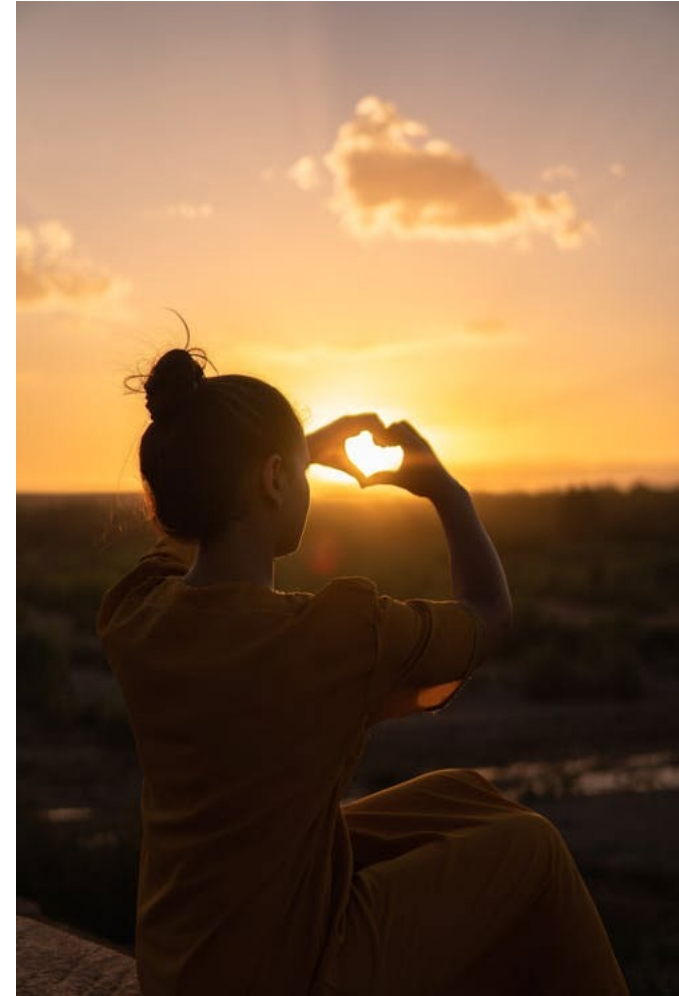


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Insulin

Timing matters

- Chrono-nutrition
 - Consistent meal timing
 - Carb spacing
 - Time restrictive eating
 - Reduce vulnerability at night



Insulin

Nutrition strategies

- Focus on whole plants
 - Legumes
 - Lentils, chickpeas, kidney beans, black beans
 - Fruit
 - Temperate fruits: berries, apples, pears, cherries, plums
 - Root vegetables
 - Yams, sweet potato
 - Whole, intact grains
 - Steel cut oats, quinoa, barley, bulgur



Insulin

Cooking strategies

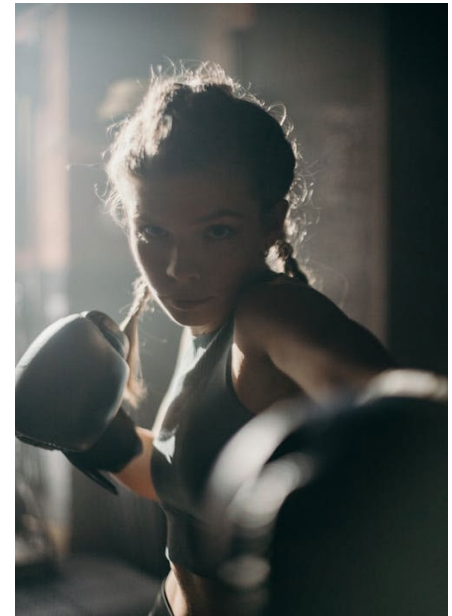
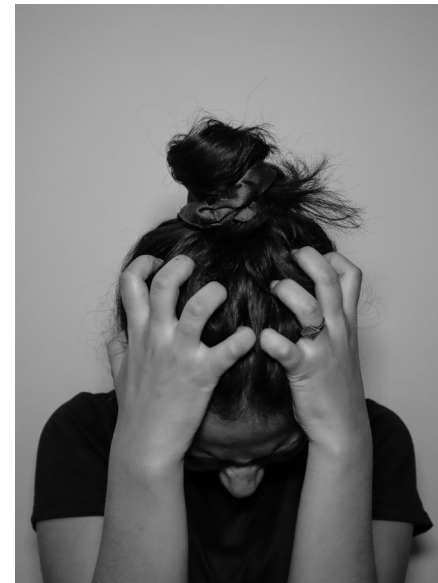
- Add vinegar or acidic dressings
- Use dry-heat cooking methods
 - Bake or grill (versus boil or steam)
- Cool starchy vegetables after cooking
- Combine your starches with protein or fats
 - Minimize "naked" carbs



Cortisol

Key Metabolic Roles

- Helps you cope with acute **stress**
 - Increases alertness
 - Increases energy availability
 - Regulates blood pressure
 - Suppresses excessive inflammation



Cortisol

Comfort Food Effect

- Comfort Food Effect

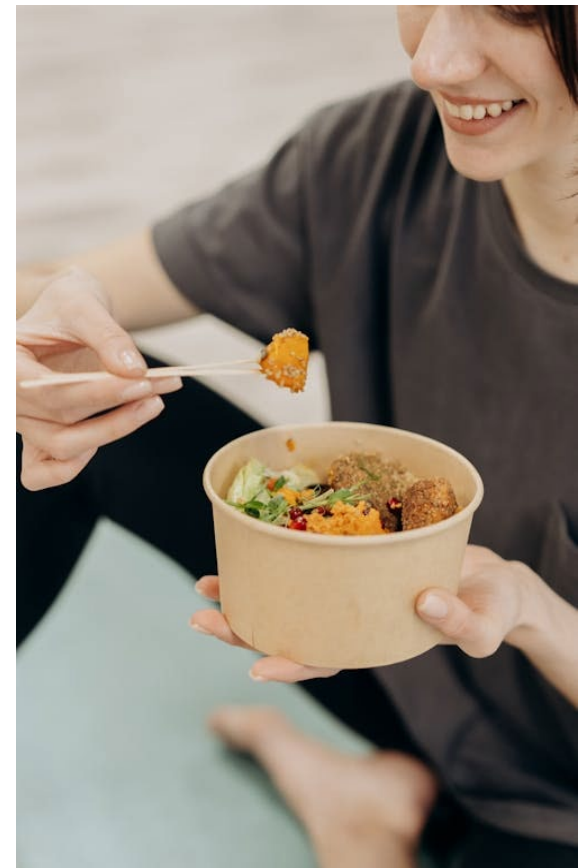
- High carb foods lower cortisol temporarily
- Activates brain reward centers that calm stress
- Short term comfort; frequent use disrupts metabolism



Cortisol

Strategies

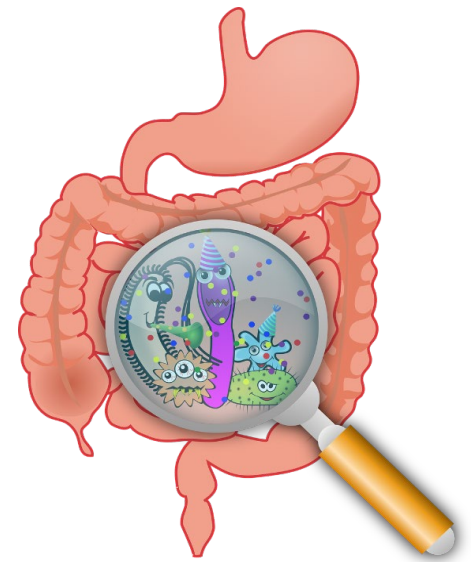
- Consistent eating patterns
 - Supports healthy cortisol rhythms
 - Linked to lower overall cortisol
- Time restricted eating (vs fasting)
 - Impacts morning & evening cortisol
 - Severe restriction raises cortisol
- Limit triggers
 - Caffeine increases cortisol & heightens reactivity to stress
 - Alcohol increases vulnerability



Cortisol

Nutrition strategies

- Nourish "synergistic" microbiome
 - Produces metabolites that dampen stress activation
 - Reduces inflammation
 - Strengthens gut integrity, protecting immune system
 - Helps regulate circadian rhythm
 - cortisol & melatonin



Cortisol

Nutrition strategies

- Nourish your gut microbiome
 - Enjoy whole, natural foods
 - Aim for a variety of plants
 - Be colorful
 - Look for 5+ grams of fiber per serving (or 20% DV)
 - Explore fermented foods and prebiotic-rich plants



Cortisol

Nutrition strategies

- Fermented foods

- yogurt
- kefir
- sauerkraut
- kimchi
- pickles
- other fermented vegetables
- miso
- tempeh

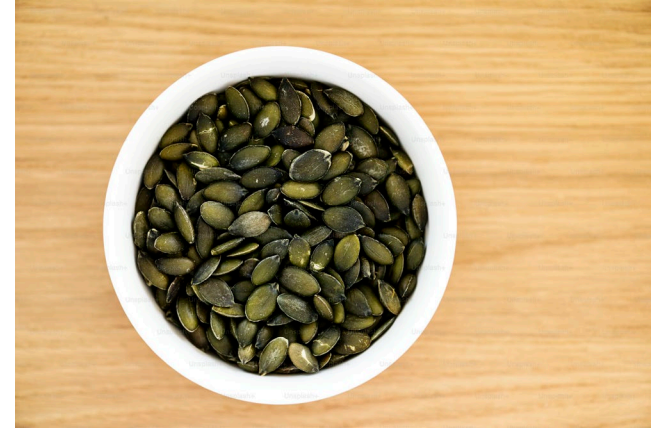
- Prebiotics

- legumes
- chia, flax
- almonds, walnuts
- leafy greens
- artichoke, asparagus
- garlic, onions & leeks
- green banana, raspberries
- oats, barley, wheat bran, rye



Cortisol

Key nutrients



- Magnesium
 - Supports calm
 - Dampens stress responses
 - Lowers systemic cortisol
- Food sources
 - Seeds, nuts, dark leafy greens, legumes & whole grains
- Supplement
 - ~350 mg/day; 24 weeks; bisglycinate
 - Consumer Lab approves Deva Vegan & Pure Encapsulations



Cortisol

Key Nutrients



- Vitamin C
 - May reduce plasma cortisol in women
 - 1000 mg/day for 8 weeks; do not exceed 2000 mg/day
 - Consumer Lab approves Now, Kirkland, Swanson & Ester-C
- Ashwagandha
 - May reduce morning cortisol and improve stress response
 - 125-500 mg/day for 8 weeks
 - Possibly safe for up to 6 months; risk of liver injury
 - Consumer Lab approves Now; Herb Pharm



Cortisol

Nutrition strategies

- Build calming food habits

- Diaphragmatic breathing

- Associated with significant reductions in cortisol

- Mindfulness

- Lowers perceived stress
 - Improves emotional regulation



Sources: Warren & Frame 2025; Rogerson et al 2024; Torske et al 2024; Obaya et al 2023; Fincham et al 2023; Aguilar-Raab et al 2021; Ma et al 2017; Perciavalle et al 2017; Engert et al 2017



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Cortisol

Physical activity strategies

- Physical activity
 - Teaches stress resiliency
- Fuel before early morning cardio and/or strength
 - Carbohydrate with protein reduces cortisol



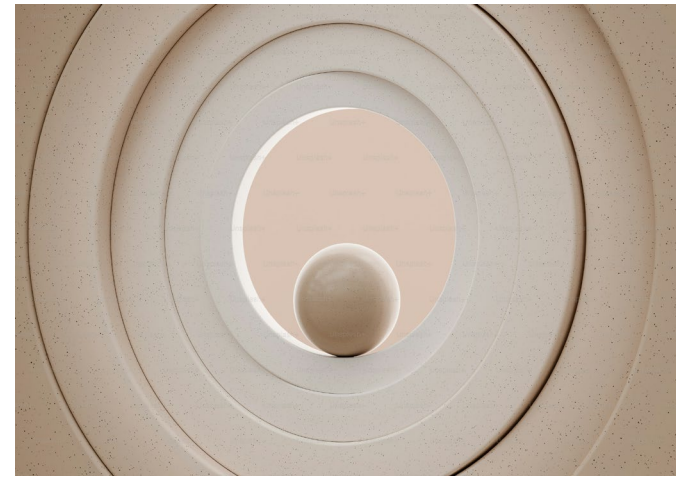
Sources: Sim et al 2023; Obaya et al 2023; Nowacka-Chmielewska et al 2022; Neumann et al 2022; Mucke et al 2018; Smith et al 2018; McAllister et al 2016; Ihalaenen et al 2014; Bird et al 2006



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OF MINNESOTA

Broad Hormonal Picture

Impact on Appetite



- Estrogen
 - Preserves muscle & metabolism
- Insulin
 - Manages blood sugar and energy storage
- Cortisol
 - Regulates energy availability



Broad Hormonal Picture

Visual summaries

[The Physiology of Hunger | New England Journal of Medicine](#)

Source: Fasano A. [The Physiology of Hunger](#). N Engl J Med. January 22, 2025.



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Novel strategies

Regulating appetite

- Microbiome support
 - Prebiotic with inulin or oligofructose (FOS)
 - Resistant starch with green banana, maize, potato or legumes
- Plant compounds
 - Green tea
 - Curcumin
 - Capsaicin
 - Cinnamon
 - Ginger



Creating Harmony

- Build & Fuel
 - Power metabolism with protein
- Balance Matters
 - Nourish your gut microbiome
- Timing is Key
 - Align with your circadian rhythm
- Habits Train
 - Move, sleep & practice mindfulness



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A morning created with **you** in mind.

Thank you!

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