METABOLISM REPAIR FOR WOMEN

A compassionate, science-based guide to **balancing insulin, losing weight,** and **improving health**

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A troubleshooting approach

1. In Chapter 4, we'll look at how a healthy metabolism should work.
2. Then, in Chapters 5 to 9, I'll describe various *metabolic obstacles*—all the possible signals of danger and hunger. For each obstacle, I'll indicate whether it's a high or medium priority and if it's easy or difficult to fix.
3. At that point, I suggest you pull out a notebook and list the metabolic obstacles that apply to you. You can expect to list four or five items and maybe more.
4. When you get to the end of Chapter 9, choose one or two obstacles to tackle first. I recommend starting with any that have the magic combination of high priority + easy to fix. They're the easy wins that can set you up for future wins. This is because pulling one lever (addressing one obstacle) can have the knock-on effect of automatically moving other levers (improving other obstacles).
5. Make a plan using your notebook. For example, you may decide to try my metabolic supplements combo (Chapter 7) or avoid foods that can cause sensitivities (Chapter 10)—two examples of high priority + easy-to-fix factors.
6. Implement your new strategy while you enjoy your life.
7. Persist for a reasonable amount of time—at least several weeks—and then assess. Do you feel improved satiety, energy, and zest?
8. If yes, then yay! Appreciate your gains, and either hold the course to maintain your progress or get ready to tackle the next obstacle and strategy, knowing that each step will get easier.
9. If you feel *no* improved satiety, energy, or zest, be a *curious observer* or scientist and think: "Oh, that's interesting. Why didn't that work? What did I miss?" For example, maybe you're low in iron (see Chapter 8), or you have something going on with your thyroid gland (see Chapter 9). Or maybe you need more sheltering from sugar (see Chapter 7) than you realized.
10. Don't make the mistake of thinking, "Oh, so that failed," and throwing in the towel. See "You are not going to fail" in Chapter 2 and bookmark it so you can reread it whenever you need a reminder.

Cheat sheet

This cheat sheet to hunger and satiety includes physiological mechanisms; properties of food; and external, social, and medical factors. You might want to bookmark it so you can refer to it later.

> tip While satiety can't be achieved without food, satiety is not *only* about food.

Physiological mechanisms of hunger and satiety

- **Digestive system mechanisms that promote hunger** include the mechanical emptiness of the stomach; a faster rate of stomach emptying; a rise in ghrelin; a drop in GLP-1, CCK, and PYY; and gut bacteria (which release or stimulate dopamine, endorphins, and endocannabinoids).
- **Digestive system mechanisms that promote satiety** include mechanical fullness of the stomach; a slower rate of stomach emptying; chewing; a drop in ghrelin; an increase in GLP-1, CCK, and PYY; stimulation of the enteric nervous system; activation of the vagus nerves and acetylcholine; and gut bacteria producing serotonin, GABA and short-chain fatty acids.
- **Hormones that promote hunger** include glucagon, ghrelin, prolactin, progesterone, and cortisol. Long-term hunger is also promoted by resistance to insulin and leptin (often as a result of hypertrophied visceral fat)
- **Hormones that promote satiety** include the digestive hormones (GLP-1, CCK, and PYY), insulin, leptin, adiponectin, growth hormone, thyroid hormone, adrenaline, estrogen, and myokines from muscle and exercise.
- **Nervous system mechanisms that promote hunger** include the enteric nervous system, autonomic nervous system, vagus nerves, HPA axis, hypothalamus, circadian misalignment, inadequate sleep, chronic stress, glutamate, and a hijacked reward system (dopamine, endorphins, and endocannabinoids).
- **Nervous system mechanisms that promote satiety** include the enteric nervous system, autonomic nervous system, vagus nerves, HPA axis, hypothalamus, circadian alignment, adequate sleep, acetylcholine, serotonin, histamine, GABA, and oxytocin.

Of all the mechanisms just listed, those involving the hormonal and nervous systems are probably the most important.

Properties of food

- **Properties of food that promote hunger in the short term** include attractive labeling or presentation; aroma; hyperpalatability (e.g., high-dose salt or the heady combination of fat plus sugar); sensory properties (e.g., velvety texture); soft texture; pulverization (e.g., to produce the refined starches and protein isolates of ultra-processed food); food-derived opioid peptides (see Chapters 9 and 10); higher glycemic load; alcohol; warm temperature; conditioned food preferences; social cues (e.g., birthday cake); and larger portion size (because people tend to clean their plate).
- **Properties of food that promote hunger in the long term** include high-dose fructose, high-dose salt, and high-dose glutamate (the three substances that trigger Johnson's survival switch); ultra-processed food; high intake of omega-6 fatty acids; food-derived opioid peptides; food sensitivities; trigger foods; and habituated foods, or the foods you and/or your bacteria are used

to having, especially in certain settings.

- **Properties of food that promote satiety in the short term** (satiation) include high protein, fiber, and water content; bitter taste; moderate-dose salt; being solid (as opposed to liquid, because solid food requires chewing); lower energy density (i.e., fewer calories per gram); vinegar; lower glycemic load; and smaller portion size.
- **Properties of food that promote satiety in the long term** include higher-quality animal protein that promotes muscle growth; high micronutrient density; monounsaturated fatty acids (e.g., olive oil); magnesium, taurine, choline, inositol, and glycine; vegetables for polyphenols and prebiotics to support healthy gut bacteria; and aligning meals with circadian rhythm.

External, social, and medical factors

- **External, social, and medical factors that promote hunger** include social setting (i.e., eating with others can make people eat more); eating quickly; food advertising; peer pressure; cultural customs; past eating habits; eating while watching TV; social isolation; poverty; loneliness; past trauma including adverse childhood experiences (see Chapter 8); lack of time spent outdoors; lack of regular physical movement; night shifts; chronic stress; withdrawal from nicotine; digestive problems, especially SIBO; hypertrophied visceral fat and fatty liver; impaired mitochondrial function, metabolic inflexibility, and insulin resistance; hypoglycemia; medications (see Chapter 9) including antihistamines and hormonal birth control; the luteal phase of the menstrual cycle, especially the late luteal phase (see Chapter 11); perimenopause and menopause; PCOS; food sensitivities; eating disorders; ADHD; and food addiction (see Chapter 12).
- **External, social, and medical factors that promote satiety** include social setting (i.e., eating with others can make people eat less); eating slowly; cultural customs; past eating habits; regular physical movement; nicotine; spending time outdoors; a healthy digestive system; healthy nervous and lymphatic systems; and the follicular phase of the menstrual cycle.

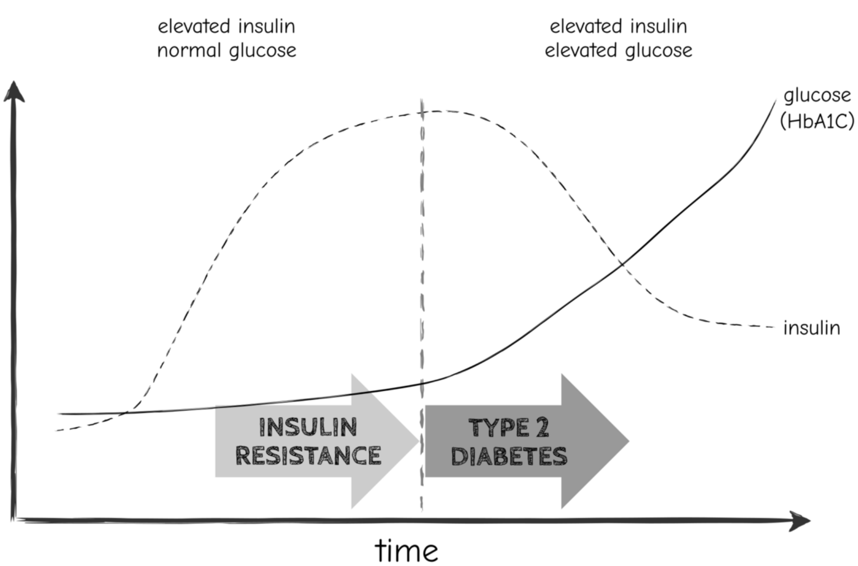

image 17 — Insulin versus glucose over years and decades—original by Dr. Benjamin Bikman

Metabolic obstacles from Chapters 6 and 7	Priority	Difficulty
Not getting what you need: living	high	variable
Not getting what you need: nourishment	high	variable

Metabolic obstacles from Chapter 8	Priority	Difficulty
Chronic stress	high	difficult
Circadian misalignment	high	easy
Not getting enough sleep	high	depends
Not moving enough or building muscle	high	easy if you start slow
Dehydration	high	easy
Cut off from home-cooked meals	highest	difficult
Need more protein	high	easy
Deficiency of iron, vitamin B12, or vitamin D	high	easy
Hypoglycemia or sugar crashes	high	easy
Alcohol	high	depends
Smoking or vaping	highest	difficult
Too much sugar	highest	depends
Too much ultra-processed food	highest	difficult
Industrially processed vegetable oil	high	depends

Metabolic obstacles from Chapter 9	Priority	Difficulty
Food sensitivities	high	usually easy
Digestion problem	medium	difficult
Thyroid problem	medium	difficult
Female hormone problem	medium	depends
Medication	high	depends
Food addiction	high	difficult
A long history of dieting	medium	difficult

Perceived Stress Scale

The Perceived Stress Scale has been clinically verified and proven to predict objective biological markers of stress, such as cortisol levels and depression risk.[200][201]

For each of the following questions, choose from the following alternatives:

0: never, 1: almost never, 2: sometimes, 3: fairly often, 4: very often.

1. In the last month, how often have you been upset because of something that happened unexpectedly?
2. In the last month, how often have you felt that you were unable to control the important things in your life?
3. In the last month, how often have you felt nervous and stressed?
4. In the last month, how often have you felt confident about your ability to handle your personal problems?
5. In the last month, how often have you felt that things were going your way?
6. In the last month, how often have you found that you could not cope with all the things that you had to do?
7. In the last month, how often have you been able to control irritations in your life?
8. In the last month, how often have you felt that you were on top of things?
9. In the last month, how often have you been angered because of things that happened that were outside of your control?
10. In the last month, how often have you felt difficulties were piling up so high that you could not overcome them?

To determine your stress score, first, reverse your scores for questions 4, 5, 7, and 8. For those questions, change the scores like this: 0 = 4, 1 = 3, 2 = 2, 3 = 1, 4 = 0. Then, add up your scores for each item to get a total.

- A score of 0–13 is low stress.
- A score of 14–26 is moderate stress.
- A score of 27–40 is high perceived stress.

Pathology test	Healthy reference range
ALT	< 19 IU/L
CRP (C-reactive protein)	< 1 mg/L
insulin, fasting	4 - 8 mIU/L (25 - 55 pmol/L)
insulin, 1- or 2-hour	< 60 mIU/mL (410 pmol/L)
HDL	> 1.0 mmol/L (40 mg/dL)
HOMA-IR score	< 1.0
leptin	< 40 ng/mL
prolactin	< 300 mIU/L (14 ng/mL)
serum ferritin (iron)	50 - 150 ng/mL
serum vitamin B12	> 400 pg/mL
thyroid antibodies (TPOAb or TPO)	negative
triglycerides	< 1.7 mmol/L (150 mg/dL)
TSH	0.5 - 4 mIU/L.
urate (uric acid)	< 1.7 mmol/L (150 mg/dL)
vitamin D	29 - 60 ng/mL (72.5 - 150 nmol/L)

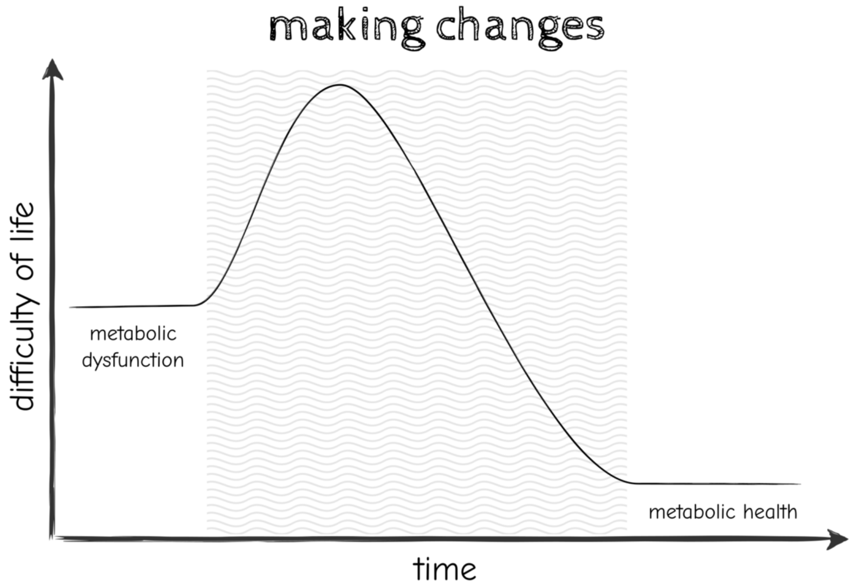

image 21 — Change is hard—original image by Nick Norwitz, PhD

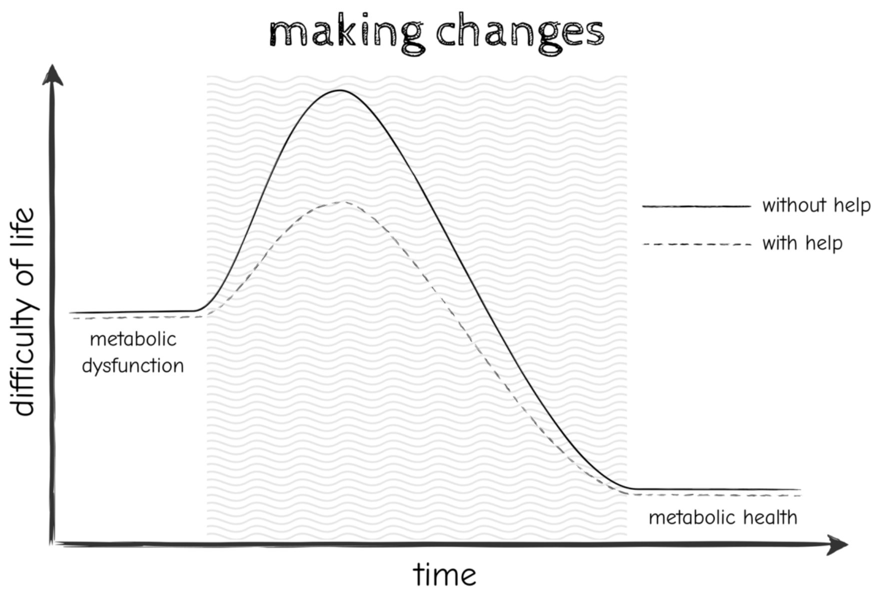

image 22 — Change is easier with help—original image by Nick Norwitz, PhD

Resources

Author's blog and social media

- Lara Briden—The Period Revolutionary: larabriden.com
- Instagram, Facebook, X, and YouTube: @larabriden

Author's books on periods and perimenopause

- *Period Repair Manual: Every Woman's Guide to Better Periods*. Pan Macmillan Australia, 2018.
- *Hormone Repair Manual: Every Woman's Guide to Healthy Hormones After 40*. Australia, Pan Macmillan Australia, 2021.

Author's metabolic health practitioner training courses

- www.kirasutherland.com.au/larabriden

Eating disorders organizations

- USA: National Eating Disorders Association (NEDA): www.nationaleatingdisorders.org/
- Canada: National Eating Disorder Information Centre (NEDIC): nedic.ca/
- UK: Beat Eating Disorders: www.beateatingdisorders.org.uk/

Assessment resources

- Lumen device for assessing metabolic flexibility: www.lumen.me
- PH360/Shae® program (for individuals): ph360.me
- Precision Health Alliance (for health professionals): www.precisionhealthalliance.org
- Adverse childhood experiences (ACEs) information: www.cdc.gov/violenceprevention/aces/index.html
- Heart rate variability: Polar H10 Heart Rate Sensor; 4iiii Viiiiva Heart Rate Monitor

Menstrual cycle tracking and fitness:

- Weschler, Toni. *Taking Charge of Your Fertility: The Definitive Guide to Natural Birth Control, Pregnancy Achievement, and Reproductive Health*. United States, HarperCollins, 2015.
- The Justisse Method: justisse.ca
- Ava Fertility Tracker: www.avawomen.com
- Tempdrop: www.tempdrop.com
- Daysy: daysy.me

Movement and strength training programs

This is a small selection of the many available online resources. You could also choose an in-person option, such as your local gym, personal trainer, swimming pool, beach, or hiking trail. If you do turn to one of these sites or apps for movement training, be cautious with any accompanying dietary information. For example, avoid advice centered around calorie counting or an "everything in moderation" approach.

- Yoga Download: yogadownload.com
- Yoga with Adriene: yogawithadriene.com
- PH360/Shae® program: ph360.me
- Alo Moves: alomoves.com
- B The Method: bthemethod.com
- LesMills+: try.lesmillsondemand.com
- Nike Training Club (free, but they collect data): nike.com/ntc-app
- 7-Minute Workout (HIIT): 7minuteworkoutapp.com
- Girls Gone Strong: girlsgonestrong.com
- Playbook App: joinplaybook.com

Recipes and cooking skills

Again, this is a starting place. Please select and modify recipes according to your needs, preferences, and the advice in this book. For example, you'll probably want to avoid high-dose fructose, vegetable oil, and food sensitivities (if you have food sensitivities).

- Allrecipes: allrecipes.com
- BBC Good Food: bbcgoodfood.com
- The Kitchn: thekitchn.com
- Cooked and Loved: cookedandloved.com
- Mikki Williden recipe portal: portal.mikkiwilliden.com/recipes
- YouTube channels: @nomnompaleo, @Paleohacks1
- Noakes, Manny, and Noakes, Manila. *The CSIRO Total Wellbeing Diet Complete Recipe Collection: More Than 400 Delicious Recipes*. United Kingdom, Penguin Random House, 2015.

Food addiction support groups, websites, and books

- Dr. Jen Unwin's Resources page: forkintheroad.co.uk/resources/
- Dr. Tro Small Group: Accountability & Support with health coach Amy Eiges: doctortro.com/community/
- Bright Line Eating: brightlineeating.com
- Dr. Joan Ifland: drjoanifland.com
- The Bitten Jonsson Method: bittensaddiction.com
- SUGARx Global: sugarxglobal.com
- Karen Faisandier, PhD: theintegrativepractice.com/articles
- Unwin, Dr. Jen. *Fork in the Road: A Hopeful Guide to Food Freedom*. United Kingdom. 2021
- Tarman, Vera. *Food Junkies: The Truth About Food Addiction*. Canada, Dundurn Press, 2014.
- Schwartz, Richard C. *No Bad Parts: Healing Trauma and Restoring Wholeness with the Internal Family Systems Model*. United States, Sounds True, 2021.
- Safer, Debra L., et al. *The DBT Solution for Emotional Eating: A Proven Program to Break the Cycle of Bingeing and Out-of-Control Eating*. United States, Guilford Publications, 2018.

Low-carb and keto support groups, websites, and books:

- Brinkworth, Professor Grant, and Taylor, Pennie. *The CSIRO Low-Carb Diet*. Australia, Pan Macmillan Australia, 2017.
- Brinkworth, Professor Grant, and Taylor, Pennie. *The CSIRO Low-carb Diet Easy 100*. Australia, Pan Macmillan Australia, 2022.
- Slajerova, Martina, et al. *The New Mediterranean Diet Cookbook: The Optimal Keto-Friendly Diet that Burns Fat, Promotes Longevity, and Prevents Chronic Disease*. United States, Fair Winds Press, 2021.
- Schofield, G., Zinn, C., Rodger, C. (2019). *What the Fat? How to Live the Ultimate Low-carb, Healthy-fat Lifestyle*. Australia: Murdoch Books.
- Westman, Eric, and Berger, Amy. *End Your Carb Confusion: A Simple Guide to Customize Your Carb Intake for Optimal Health*. United States, Victory Belt Publishing, 2020.
- Taubes, Gary. *The Case for Keto: Rethinking Weight Control and the Science and Practice of Low-Carb/High-Fat Eating*. United States, Knopf Doubleday Publishing Group, 2020.
- Fung, Dr. Jason. *The Diabetes Code: Prevent and Reverse Type 2 Diabetes Naturally*. Australia, Scribe Publications Pty Limited, 2018.
- Dr. Jaime Seeman: doctorfitandfabulous.com
- Dr. Tro: doctortro.com
- Cliff Harvey: holisticperformance.institute
- Adapt Your Life Academy with Dr. Eric Westman: adaptyourlifeacademy.com/keto-made-simple-masterclass
- The Good Kitchen Table: thegoodkitchentable.com/science/what-is-a-low-carb-lifestyle/
- Mikki Williden, PhD: mikkiwilliden.com/mondays-matter and Instagram @mikkiwilliden
- Nick Norwitz, PhD—metabolic health researcher: On X (formerly Twitter) @nicknorwitz and YouTube @nicknorwitzPhD

Lipedema:

- The lipedema project: the disease they call fat: lipedemaproject.org

Time-restricted eating:

- Panda, Dr. Satchin. *The Circadian Code: Lose Weight, Supercharge Your Energy, and Sleep Well Every Night*. United Kingdom, Ebury Publishing, 2018.

Additional resources and reading

- Johnson, Richard. *Nature Wants Us to Be Fat: The Surprising Science Behind Why We Gain Weight and How We Can Prevent—and Reverse—It*. United Kingdom, BenBella Books, 2022.
- van Tulleken, Chris. *Ultra-Processed People: The Science Behind Food That Isn't Food*. United States, W. W. Norton, 2023.
- Bikman, B. *Why We Get Sick: The Hidden Epidemic at the Root of Most Chronic Disease—and How to Fight It*. United States: BenBella Books. 2020.
- Sims, Stacy, and Yeager, Selene. *ROAR: How to Match Your Food and Fitness to Your Unique Female Physiology for Optimum Performance, Great Health, and a Strong, Lean Body for Life*. United States, Harmony/Rodale, 2016.
- Keay, Nicky. *Hormones, Health and Human Potential: A Guide to Understanding Your Hormones to Optimise Your Health and Performance*. United States, Sequoia Books, 2022.

- Dr. Gabrielle Lyon: drgabriellelyon.com

Supplements

Here are some suggested brands as a starting point, not as an exhaustive list; other similar brands may be equally suitable. Except where indicated, all the products are available without a prescription.

I ask that you speak with your doctor or pharmacist about possible interactions with your medical conditions or medications or if you are pregnant or breastfeeding. Always cross-check the labels or packaging for precautions and dosage instructions.

> *How to speak with your doctor or pharmacist about supplements*
>
> Try saying:
>
> "I want to try this supplement for my [condition]. Are you aware of any interactions with my medication?"
>
> "I want to try this supplement for my [condition]. Are you aware of any reason that it would not be suitable for me?"
>
> The goal is not necessarily to convince your doctor or pharmacist that the supplement could be helpful for your condition, only that it is safe to try.

Alpha-lipoic acid (ALA)

When it's helpful: For more severe insulin resistance or PCOS, once my metabolic supplements combo is already in place.

Daily dose: 300–600 mg

Suggested brand(s): Doctor's Best Alpha-Lipoic Acid 300, NOW Foods Alpha Lipoic Acid, Thorne Alpha-Lipoic Acid

What else you need to know: R-alpha-lipoic acid (R-ALA) rather than S-alpha-lipoic acid (S-ALA) is the naturally occurring form of ALA and is more effective.

Berberine

When it's helpful: For SIBO and more severe insulin resistance, once my metabolic supplements combo is already in place.

Daily dose: 350–500 mg twice daily or a larger dose of a berberine-containing herb such as phellodendron

Suggested brand(s): Thorne Research Berberine 500, Now Foods Berberine Glucose Support

What else you need to know: Berberine has several contraindications, so review Chapter 10 and seek medical advice.

Choline

When it's helpful: Component of my metabolic supplements combo. Specifically helpful for fatty liver.

Daily dose: 300–500 mg of activated choline (Alpha-GPC or CDP-citicoline) or 1000 mg phosphatidylcholine

Suggested brand(s): NOW Foods Alpha GPC, Jarrow Formulas Alpha GPC, EVLution Nutrition, Alpha GPC

What else you need to know: Choline also supports brain health and cognition.

Estrogen (prescription-only)

When it's helpful: Optional treatment for the menopause transition, it may also help with insulin sensitivity.

Daily dose: 10–50 mcg transdermal dose

Body-identical brands: Climara, Estradot, Estraderm, Estrogel, and others

What else you need to know: Estrogen is prescription-only, so speak to your doctor. It should usually be combined with progesterone.

Glycine

When it's helpful: Component of my metabolic supplements combo. Specifically helpful for sleep and salicylate sensitivity.

Daily dose: 3 grams

Suggested brand(s): Now Foods Glycine Pure Powder, Carlson Labs Glycine Amino Acid Powder, or any brand

What else you need to know: A small amount of glycine is present in magnesium glycinate formulas.

Inositol

When it's helpful: Component of my metabolic supplements combo. Specifically helpful for sleep and PCOS.

Daily dose: 2–6 grams taken as a split dose (twice daily)

Suggested brand(s): NOW Supplements Inositol Powder, Jarrow Formulas Inositol Powder, Protocol for Life Balance, Myo-Inositol Powder, or any brand

What else you need to know: The listed brands provide myo-inositol, which is the best type.

Iron

When it's helpful: For iron deficiency, see Chapter 8.

Daily dose: 15-50 mg

Suggested brand(s): Thorne Research Iron Bisglycinate or NOW Foods Iron

What else you need to know: Do not take an iron supplement unless you have confirmed iron deficiency with a blood test. If iron deficiency is the result of gluten sensitivity or heavy periods, also treat those conditions.

Magnesium

When it's helpful: Component of my metabolic supplements combo and nervous system starter pack. Specifically helpful for stress relief and sleep.

Daily dose: 300–350 m elemental magnesium

Suggested brand(s): Now Foods Magnesium Bisglycinate powder, Natural Factors, Magnesium Bisglycinate powder, Thorne Research Magnesium Bisglycinate powder, Codeage Liposomal Magnesium Taurate+ (two capsules provide ~ 1.2 grams of taurine)

What else you need to know: The therapeutic dose is 300 mg of elemental magnesium, which might be labeled as a larger dose (e.g., 2.6 grams) of magnesium glycinate.

Melatonin

When it's helpful: For sleep and gastroesophageal reflux disease (GERD) or gastric reflux.

Daily dose: 0.5 to 3 mg

Suggested brand: Any brand

What else you need to know: Although melatonin is available over-the-counter in many countries, I recommend speaking with your doctor or pharmacist about its use. Do not exceed 3 mg except under medical advice.

Milk thistle (*Silybum marianum*) or silymarin

When it's helpful: For fatty liver, once my metabolic supplements combo is already in place.

Daily dose: 140–600 mg of silymarin twice daily

Suggested brand(s): NOW Foods, Milk Thistle Extract Double Strength, Thorne Siliphos, Metabolic Maintenance Silymarin Standardized Milk Thistle Extract

What else you need to know: Silymarin is the active ingredient of the herbal medicine milk thistle. The exact dose of an extract will depend on how much silymarin it's standardized to contain.

N-acetyl cysteine

When it's helpful: To soothe the nervous system and support metabolic health.

Daily dose: 500-2000 mg

Suggested brand(s): Any brand, preferably powder

What else you need to know: Take care if you have gastritis because high-dose NAC can thin the stomach lining.

Omega-3 (fish oil)

When it's helpful: For insulin resistance if the diet is low in EPA and DHA (such as on a plant-based diet).

Daily dose: Enough oil to provide at least 720 mg of EPA, which usually equates to 2000 mg of fish oil

Suggested brand(s): Thorne Research Super EPA, Nordic Naturals Omega-3, NOW Foods, Super Omega EPA Fish Oil

What else you need to know: Avoiding excess omega-6 (see Chapter 7) is also important for a healthy omega-6 to omega-3 ratio.

Progesterone (may be prescription)

When it's helpful: For PCOS and perimenopause.

Daily dose: 20-300 mg

Bioidentical brands: Prescription: Prometrium, Utrogestan, Teva, Reddy, and Famenita, depending on your country. OTC creams: Now Foods Natural Progesterone or any brand

What else you need to know: Remember that the progestins of hormonal birth control are not progesterone.

S-adenosylmethionine (SAM-e)

When it's helpful: To support mood and reduce histamine.

Daily dose: 100-200 mg

Suggested brand(s): Now Foods SAMe 200 mg, Jarrow Formulas Natural SAM-e (S-Adenosyl-L-Methionine) 200 mg, or any brand

What else you need to know: Do not combine with other antidepressants except under medical advice.

Selenium

When it's helpful: Autoimmune thyroid disease

Daily dose: up to 150 mcg

Suggested brand(s): Thorne Research Selenomethionine or any brand

What else you need to know: Higher doses can be toxic, so don't exceed 200 mcg per day from all sources, including high-selenium foods such as Brazil nuts.

Taurine

When it's helpful: Component of my metabolic supplements combo and nervous system starter pack. Specifically helpful for stress relief and anti-aging.

Daily dose: 3 grams

Suggested brand(s): Now Foods Taurine Pure Powder, Life Extension Taurine Powder, or any brand of powder. Codeage Liposomal Magnesium Taurate+ (two capsules provide ~ 1.2 grams of taurine).

What else you need to know: Mix with a magnesium powder in the afternoon.

Vitamin B-complex

When it's helpful: Component of my nervous system starter pack.

Daily dose: varies

Suggested brand(s): Thorne Basic B Complex, Thorne Stress B-Complex, NOW Foods B-50

What else you need to know: Take one every second morning.

Vitamin B12 (methylcobalamin or cyanocobalamin)

When it's helpful: To correct vitamin B12 deficiency.

Daily dose: 500-1000 mcg

Suggested brand(s): Now Foods B-12 Liposomal Spray, NOW Foods Methyl B-12 Lozenges

What else you need to know: Sprays, lozenges, or sublingual drops provide B12 that is easier to absorb than capsules. Another option is to speak to your doctor or pharmacist about a B12 injection.

Vitamin D3

When it's helpful: To correct vitamin D deficiency.

Daily dose: 1000-3000 IU

Suggested brand(s): Any brand

What else you need to know: For maximum benefit, D3 should be combined with vitamin K2. Vitamins D3 + K2 combinations are also available from overseas dispensaries. If your serum levels of vitamin D do not increase with supplementation, remember that low serum D can be a symptom of insulin resistance and hypertrophied visceral fat. Review Chapter 7.

Zinc

When it's helpful: Component of my nervous system starter pack. Also helpful for PCOS and anti-androgen effects. Crucial on a plant-based diet, which is low in zinc.

Daily dose: 20-50 mg

Suggested brand(s): Thorne Research Zinc Picolinate, Now Foods Zinc Glycinate Softgels, or a similar brand

What else you need to know: Don't take zinc on an empty stomach, or it could cause nausea.

Glossary

A1 casein

A1 beta-casein is the dairy protein that the body can metabolize to the inflammatory opioid peptide beta-casomorphin 7 (BCM7). It's found only in milk from Holstein or Friesian cows. Other types of dairy are usually fine. See "A1 versus A2 dairy" in Chapter 10.

androgen

An androgen is a hormone, such as testosterone, that promotes male characteristics.

autoimmune disease

An autoimmune condition or autoimmune disease is the situation of the immune system attacking the body's own tissues.

body-identical hormone therapy

Body-identical hormone therapy uses hormones, such as estradiol and progesterone, that are molecularly identical to human estradiol or progesterone. Body-identical is synonymous with bioidentical.

endocannabinoids

Endocannabinoids are signaling molecules that regulate hunger, mood, and metabolism.

FODMAPs

FODMAPs are a group of fermentable carbohydrates (termed FODMAPs for fermentable oligo-, di-, monosaccharides, and polyols) that can cause digestive bloating and increase the risk of SIBO and intestinal permeability.

food addiction

Food addiction is a controversial term that describes the compulsive and uncontrollable eating of certain foods (usually ultra-processed foods) despite negative consequences, with an inability to reduce consumption despite the desire to do so, and withdrawal symptoms when the foods are stopped. It's linked to the reward system.

glycogen

Glycogen is a glucose storage molecule that is deposited in the liver and muscles after a carbohydrate meal. Glucose can then be released as needed.

HIIT classes

High-intensity interval training (HIIT) is a training protocol with short periods of intense or explosive anaerobic exercise (until the point of exhaustion) alternating with periods of recovery.

hypothalamus

The hypothalamus is the part of the brain that directs most hormonal processes and maintains the internal "set point" for body chemistry, temperature, thirst, hunger, satiety, and energy expenditure.

insulin resistance

Insulin resistance is the condition of reduced sensitivity to the hormone insulin (see Chapter 4), leading to chronically elevated insulin. It's also called hyperinsulinemia, metabolic syndrome, or prediabetes and is typically associated with (and to a large extent causes) abnormally increased hunger and fat gain.

ketosis

Nutritional ketosis is the alternative (but still healthy) metabolic state in which glycogen is entirely depleted, so the body relies mostly on ketones. (Nutritional ketosis is different from diabetic ketoacidosis, which is a dangerous complication of type 1 diabetes.)

macronutrients

Macronutrients or macros are the nutrients protein, fat, and carbohydrates.

microbiome or gut microbiome

The gut microbiome is the combined genetic material of the gut microbiota, which are the microorganisms (bacteria, viruses, and fungi) that live in the digestive tract (see Chapter 4).

PCOS (polycystic ovary syndrome)

PCOS is a common endocrine (hormonal) condition characterized by androgen excess

perimenopause

Perimenopause is the two to ten years before the final period or menopause. It can start as young as a woman's late thirties to early forties.

pituitary gland

The pituitary gland is a pea-sized gland at the base of the brain. It produces several hormones, including growth hormone, prolactin, oxytocin, and thyroid-stimulating hormone (TSH).

reward system

The reward system, also called the dopamine and opioid reward system, is a brain network that controls motivation, pleasure, and reinforcement. It is one of several parts of the metabolic nervous system that we'll meet in Chapter 4. Its primary neurotransmitters (messengers between nerve cells) are dopamine, opioids (i.e., endorphins), and endocannabinoids.

satiety

Satiety is the physiological and psychological experience of not feeling hungry or needing to eat between meals. It's slightly different from satiation, which is the short-term feeling of fullness and desire to stop eating at the end of a meal.

SIBO (small intestinal bacterial overgrowth)

SIBO is the presence of too many gut bacteria in the small intestine and one of the main causes of IBS.

ultra-processed food

Ultra-processed food or highly processed food are food-like substances that are manufactured from extracts or synthesized ingredients according to industrial methods not available to a home cook.

vagus nerves

The vagus nerves are a pair of cranial nerves that directly connect the brain to the internal organs. They both send and receive signals and essentially function like antennae to scan the body (including the digestion) for signs of distress.

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