Metabolic Health: Nutrition, Body Composition, GLP-1s, and Risk Reduction

Presented by

Natalie Ledesma, MS, RDN, CSO, CLT

Today's Roadmap

1

Metabolic Health & Cancer

What it is and why it matters after a diagnosis

2

Body Composition

Muscle, fat, and why the scale isn't the whole story

3

Nutrition

Eating patterns that steady blood sugar and boost GLP-1 naturally

4

GLP-1 Medications

How they work, side effects & strategies; supplement alternatives

5

Risk Reduction

Your personal action plan

Metabolic Health & Cancer

What Is Metabolic Health?

Waist circumference	< 40 in (men) · < 35 in (women)
Blood pressure	< 130/85 mmHg
Fasting blood sugar	< 100 mg/dL
Triglycerides	< 150 mg/dL
HDL ("good") cholesterol	≥ 40 (men) · ≥ 50 (women) mg/dL

3 of 5

markers outside these ranges = metabolic syndrome

6.8%

of U.S. adults have optimal cardiometabolic health

Why It Matters After Cancer

13 cancers

are linked to excess body fat, including post-menopausal breast, ovarian, endometrial, colorectal, kidney, liver, and pancreatic cancers

11% of deaths

among people with cancer are from heart disease; risk is highest after breast, prostate, and endometrial cancer

Higher risk

of recurrence and death is associated with diabetes and metabolic syndrome in several cancers, including breast and colorectal

The good news: metabolic health is modifiable, at any weight and at any stage of survivorship.

How Metabolism Can Fuel Cancer



- ↑ **Insulin & IGF-1** — growth signals that can promote cell division
- **Chronic inflammation** — inflammatory messengers such as IL-6, TNF-α, and CRP
- ↑ **Estrogen** — fat tissue converts other hormones into estrogen
- **Adipokine imbalance** — more leptin, less protective adiponectin
- **Gut microbiome shifts** — less diversity, fewer beneficial fiber fermenters

Treatment Can Shift Metabolism

Steroids

Raise blood sugar and appetite; promote fluid and fat gain

Hormone therapies

Aromatase inhibitors, tamoxifen, and ADT can increase fat and reduce muscle

Treatment-induced menopause

Shifts fat storage toward the abdomen

Fatigue & less activity

Leads to muscle loss and a slower metabolism

Immunotherapy

Can affect the thyroid, adrenal glands, and, rarely, the pancreas

Stress, sleep & appetite

Poor sleep and stress raise cravings and blood sugar

Body Composition

Weight Isn't the Whole Story

What BMI tells you

Weight relative to height

Can't separate muscle from fat

Misses where fat is stored

What body composition tells you

Muscle mass and fat mass

Visceral (belly) fat

Measured by DEXA, BIA, or CT scans often already done for cancer care

Sarcopenic obesity = low muscle + high fat. It can be hidden at any weight and is linked to more treatment side effects and shorter survival.

Why Muscle Matters

Treatment tolerance
more muscle is linked to fewer side effects and dose reductions

Blood sugar control
muscle is the body's largest glucose "sink"

Strength & independence
balance, mobility, and fall prevention

Metabolism
supports the calories you burn at rest

Recovery reserve
for surgery, infections, and healing

~80%

of insulin-driven glucose uptake happens in skeletal muscle

Protecting & Building Muscle

1.2–1.6 g

protein per kg body weight per day

25–30 g

protein at each meal, spread through the day

3×

per week strength training, all major muscle groups

150+

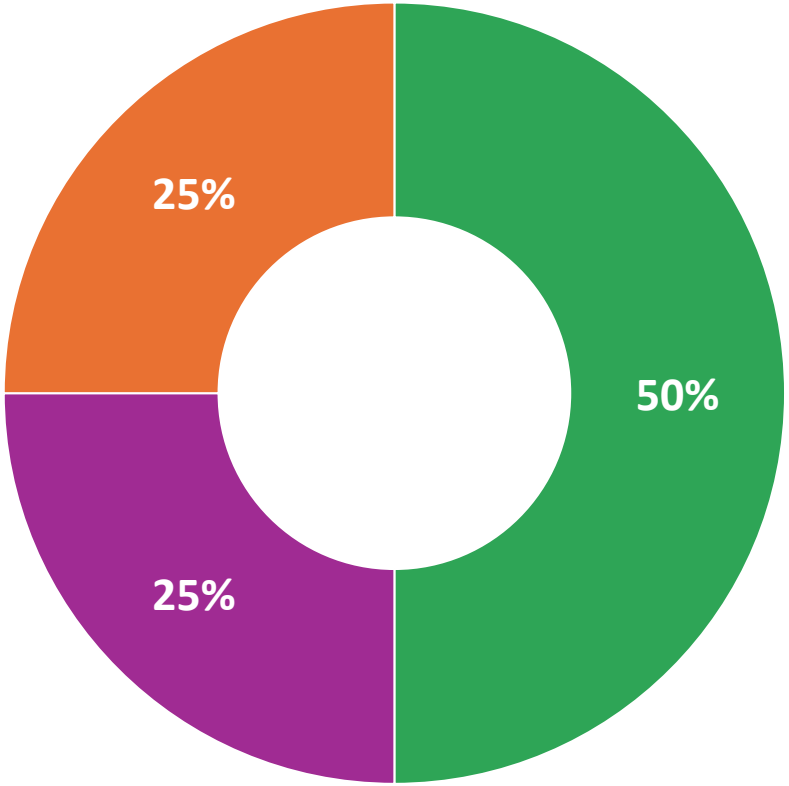
minutes per week of moderate activity

Example: 150 lb (68 kg) person → **about 82–109 g protein per day**

Ask your team: body composition testing (DEXA, BIA, CT) and grip strength

Nutrition for Metabolic Health

Build a Metabolic Health Plate



½ Non-starchy vegetables
leafy greens, broccoli, peppers, mushrooms

¼ Lean & plant protein
fish, poultry, eggs, tofu, beans, Greek yogurt

¼ High-fiber complex carbs
lentils, beans, quinoa, oats, sweet potato

+ Healthy fats
olive oil, nuts, seeds, avocado

AICR: aim for at least two-thirds of your plate from plant foods

Fiber: The Metabolic Multitasker

30+ g

fiber per day

Most Americans get about half that

Fiber
vegetables, fruit, beans, whole grains

→

Gut microbes
ferment fiber in the colon

→

Short-chain fatty acids
such as butyrate

→

↑ GLP-1 & PYY
fullness and steadier blood sugar

Slows sugar absorption

Lowers LDL cholesterol

Lower all-cause mortality after a breast cancer diagnosis

Foods to Limit & Smart Swaps

Sugary drinks

Try: sparkling water, unsweetened tea, infused water

Ultra-processed foods

Try: whole or minimally processed foods

Processed meats

Try: fish, poultry, beans, tofu, seeds

Red meat

Try: fish, poultry, beans, tofu, seeds

Refined grains & sweets

Try: whole grains, fruit, nuts

Alcohol

Try: Limit alcohol & consider avoiding altogether

Fasting & Metabolic Effects

IF and/or FMD have shown improvements in:

- **Blood lipids**
- **Glucose metabolism**
- **Insulin sensitivity**
- **Oxidative stress & inflammation**
- **Body weight**
- **Blood pressure**
- **Liver health**

Markers that improved

All moved in the healthy direction (lower)

- ↓ **CRP**
- ↓ **TNF**
- ↓ **IL-6**
- ↓ **LDL-C**
- ↓ **TC/HDL-C**
- ↓ **TG**
- ↓ **Fasting glucose**
- ↓ **Fasting insulin**

Metabolism didn’t slow: resting metabolic rate was unchanged with IF

Fasting Mimicking Diet (FMD)

What is an FMD?

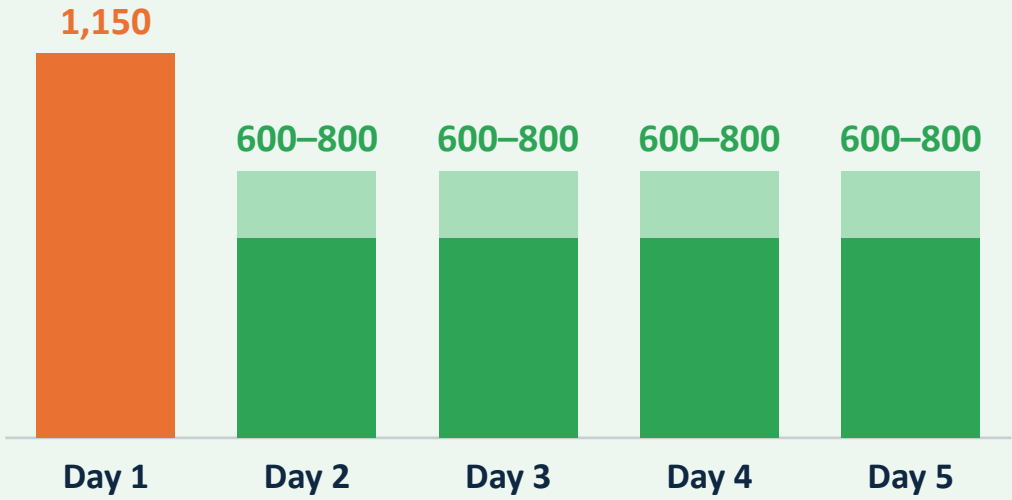
A temporary low-calorie diet where the body perceives it's in a fasting state, yet is still being nourished.

Prolon: the best-known FMD

A 5-day program. The published research repeats it once a month for three consecutive months.

One 5-day cycle: calories per day

Approximate; varies with body weight



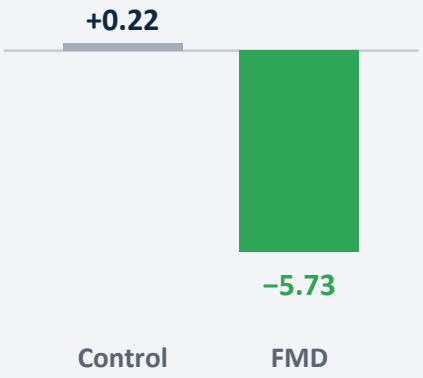
1 2 3 Repeated monthly for 3 months

Prolon Study: Results After 3 Cycles

−5.7 lb

Body weight

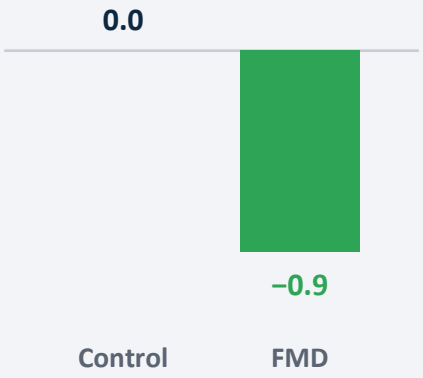
$p < 0.0001$



−0.9

BMI

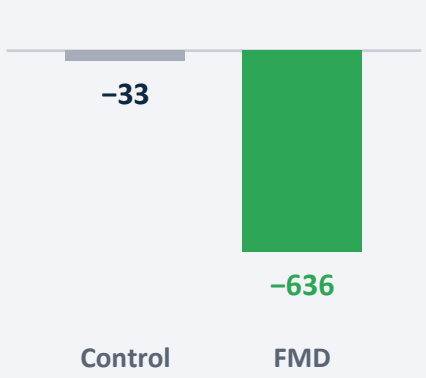
$p < 0.0001$



−636

Trunk fat

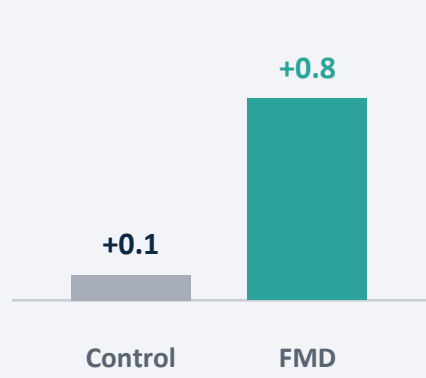
absolute volume · $p = 0.018$



+0.8%

Lean body mass

relative volume · $p = 0.07$



Takeaway: weight, BMI and trunk fat fell versus control, while lean body mass was preserved

Healthy adults; control n = 43, FMD n = 38–39. Change in lean body mass was not statistically significant (maintained). Source: Wei M, et al. Sci Transl Med. 2017;9(377):eaai8700.

GLP-1 Medications

GLP-1 Hormone



GLP-1 is an incretin hormone that is mainly synthesized in the intestinal mucosal L-cells, pancreatic islet α-cells, and neurons in the nucleus of the solitary tract.



GLP-1 delays gastric emptying; this effect, however, is transient



GLP-1 plays a crucial role in regulating blood sugar; stimulates insulin release, blocks glucagon secretion, slows digestion, and regulates appetite.



GLP-1 is released after a meal and alleviates hyperglycemia, increases B-cell survival, reduces body weight, and reduces inflammation.

GLP-1 Effects on the Body

Brain

- ↓ Food & water update
- ↑ Neuroprotection
- ↑ Neurogenesis

Cardiovascular System

- ↑ Glucose utilization
- ↑ Cardioprotection
- ↑ Cardiac output
- ↑ Vasodilation
- ↓ Fatty acid metabolism

Gut

- ↓ Gastric emptying
- ↓ Acid Secretion

Kidneys

- ↑ Diuresis
- ↑ Natriuresis

Intestines

- ↓ Motility
- ↓ Lipoprotein secretion

Potential Benefits of GLP-1s

- Blood sugar regulation
- Weight loss
- Lower blood pressure
- Improvement lipid disorders
- Improvement in fatty liver disease
- Neurodegenerative disease improvement
- Improvement in mental health

Nutritional & Lifestyle Strategies for GLP-1 Support

FOODS THAT SUPPORT GLP-1

Prebiotic fiber
legumes, flax, vegetables, PHGG

Fermented foods
kimchi, sauerkraut, yogurt, kefir, kombucha

Polyphenols
green tea, matcha, berries, pomegranate

Dietary magnesium
spinach, chard, hemp hearts, pumpkin seeds, sacha inchi seeds

Protein
fish, poultry, eggs, lean meats

LIFESTYLE HABITS

Time-restricted eating

Physical activity

Stress management techniques

Side Effects & Symptom Management

Common Side Effects of GLP-1s

- Loss of appetite
- Nausea – affects 50% of users
- Vomiting – affects 5-10% of users
- Diarrhea – affects 10-15% of users
- Constipation
- Abdominal pain/dyspepsia
- Hair loss

Drawbacks of GLP-1s

- Loss of muscle mass
- All weight regained once the medications are discontinued
- Less common side effects: pancreatitis, gastroparesis, bowel obstruction, gallstone attacks, thyroid cancer, vision loss

A small study found that up to 40% of weight loss from semaglutide comes from lean body mass. Alarmingly, those who consumed less protein saw even more muscle loss—potentially undermining improvements in blood sugar control.

Semaglutide melts fat—but may quietly strip away your strength

Date: July 15, 2025

Source: The Endocrine Society

Summary: Semaglutide, a popular anti-obesity drug, may come with a hidden cost: significant muscle loss, especially in women and older adults. A small study found that up to 40% of weight loss from semaglutide comes from lean body mass. Alarmingly, those who consumed less protein saw even more muscle loss—potentially undermining improvements in blood sugar control.

GLP-1 therapies, including both single and combination agents, have emerged as powerful tools in the management of obesity, demonstrating average placebo-adjusted weight reductions of 5–18% in clinical trials, along with improvements in metabolic, functional and cardiovascular outcomes. However, sustaining these benefits over time and maximizing patient outcomes require comprehensive care that integrates lifestyle intervention—particularly nutrition therapy—into the treatment plan.

Nutritional Priorities to Support GLP-1 Therapy for Obesity

May 30, 2025 by ASN Staff

Protecting Muscle on a GLP-1

Protein first
eat protein-rich foods first at each meal

Small, frequent meals
4–6 mini-meals when appetite is low

Liquid nutrition
shakes or smoothies when solid food is hard

Resistance training
2–3× per week, all major muscle groups

Hydrate
sip fluids between meals; add electrolytes

Track composition
monitor muscle and strength, not just weight

Nutrition priorities adapted from the 2025 ACLM/ASN/OMA/TOS joint advisory on GLP-1 therapy

GLP-1s During Cancer Care

- Coordinate with your oncology team before starting or stopping
- Not appropriate with unintended weight loss, poor appetite, or malnutrition
- Tell your team before surgery, endoscopy, or sedation (slowed stomach emptying)
- May change absorption of oral medications; tirzepatide can reduce oral contraceptive effect
- Not for people with a personal/family history of medullary thyroid cancer or MEN2

Supplement Alternatives

Alternative Supplemental Considerations

- Fermented hops extract
- GLP-1 probiotic
- Berberine
- Fenugreek
- Galactomannan fiber
- American ginseng
- Gymnema

Putting It All Together

Your Risk-Reduction Plan

1

Know your numbers

Waist, blood pressure, A1c/glucose, and lipids, checked yearly

2

Build muscle

Protein 1.2–1.6 g/kg plus strength training 3× per week

3

Plant-forward plate

Half vegetables; 30+ g fiber daily

4

Move every day

150+ minutes per week; break up long sitting

5

Sleep & stress

7–9 hours of sleep; a daily stress-relief practice

6

Limit alcohol & UPFs

Water first; whole foods most of the time

Key Takeaways Regarding the Use of GLP-1 Medications

1. **Ensure adequate protein intake** to preserve lean muscle mass. Aim for 1.5 gm/kg desired body weight.
2. **Symptom management** – yes, these meds come with common symptoms like nausea, constipation, and fatigue.
3. **Strength training is essential** to support metabolism and maintain muscle mass. Incorporate strength training 3-4 times weekly.
4. **Support your digestion –** focus on hydration and fiber to aid digestion
5. **Support detoxification –** Rapid weight loss may mobilize toxicity at a rate that overcomes the physiological threshold of the innate detoxification pathways in the liver, kidneys, and GI tract.
6. **Think long-term strategies for behavior change –** These strategies are always helpful, and become pivotal if ever to discontinue these medications. Address your relationship with food.

Questions?



Natalie Ledesma
Integrative & Functional Nutrition Consulting, LLC

www.natalieledesma.com

@natalieledesma_nutrition

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