



Dr. Sarah Solinger, PhD, ND, MSc, FCN
Naturopathic Doctor | Functional Clinical Nutritionist | Master Herbalist
Root Health L.L.C.

Autophagy & Fasting for Insulin Resistance and Hashimoto's Disease

1. What is Autophagy?

Autophagy (literally “self-eating”) is the body's way of cleaning out damaged cells, misfolded proteins, and dysfunctional mitochondria. It's a cellular housekeeping system that's critical for reducing inflammation, improving insulin sensitivity, and restoring immune balance making it incredibly relevant for both insulin resistance and Hashimoto's.

Autophagy is:

- **Activated by fasting**, caloric restriction, ketosis, and exercise.
- **Inhibited by insulin, high glucose**, and nutrient excess.



THE
SOLINGER METHOD

by Root Health L.L.C.



Dr. Sarah Solinger, PhD, ND, MSc, FCN
Naturopathic Doctor | Functional Clinical Nutritionist | Master Herbalist
Root Health L.L.C.

2. Fasting, Insulin Resistance, and Autophagy

How fasting helps:

- **Improves insulin sensitivity** by reducing circulating insulin levels and enhancing receptor responsiveness.
- **Promotes autophagy**—particularly in liver and muscle cells—leading to improved glucose and fat metabolism.
- **Lowers inflammation** and oxidative stress—drivers of both insulin resistance and autoimmunity.
- Helps reset **leptin** and **ghrelin**, which are often dysregulated in insulin-resistant patients.



THE
SOLINGER METHOD

by Root Health L.L.C.



Dr. Sarah Solinger, PhD, ND, MSc, FCN
Naturopathic Doctor | Functional Clinical Nutritionist | Master Herbalist
Root Health L.L.C.

Strategies:

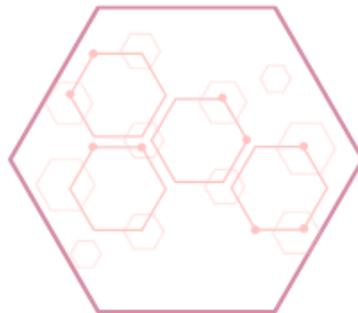
- **Intermittent Fasting (IF):** 14–16 hour fasts daily are sustainable and effective.
- **Time-Restricted Eating (TRE):** Eating within a 6–8 hour window.
- **5:2 Fasting:** Two non-consecutive days per week of ~500–600 kcal intake.

Caution: Over-

fasting can become a stressor, especially for women with adrenal dysregulation or thyroid disorders. Clinical context is key.

3. Fasting and Hashimoto's Thyroiditis

Hashimoto's is an **autoimmune thyroid disease** driven by immune dysregulation, chronic inflammation, and leaky gut. Autophagy and fasting may support Hashimoto's by:



THE
SOLINGER METHOD

by Root Health L.L.C.

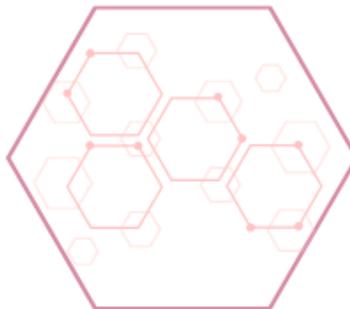


Dr. Sarah Solinger, PhD, ND, MSc, FCN
Naturopathic Doctor | Functional Clinical Nutritionist | Master Herbalist
Root Health L.L.C.

- **Modulating immune responses**—reducing T-cell activation and inflammatory cytokines (like IL-6 and TNF- α).
- **Improving gut barrier integrity**, reducing antigen exposure and subsequent immune activation.
- **Enhancing mitochondrial function**, often impaired in thyroid autoimmunity. Supporting **Treg (regulatory T-cell)** activity, helping calm the autoimmune cascade.

However, fasting in Hashimoto's must be **tailored carefully**:

- Avoid aggressive fasts that spike cortisol.
- Ensure adequate **protein and micronutrient intake** to support thyroid hormone synthesis and conversion.
- Monitor thyroid labs regularly (especially T3, which can drop during prolonged fasting or caloric restriction).



THE
SOLINGER METHOD
by Root Health L.L.C.



Dr. Sarah Solinger, PhD, ND, MSc, FCN
 Naturopathic Doctor | FunctionalClinical Nutritionist | MasterHerbalist
 Root Health L.L.C.

4. Clinical Benefits of Autophagy Activation

Mechanism	Insulin Resistance	Hashimoto's
Reduces systemic inflammation	✓	✓
Enhances insulin receptor sensitivity	✓	—
Decreases oxidative stress		✓ ✓
Modulates immune overactivity	—	✓
Supports mitochondrial renewal	✓	✓
Detoxifies damaged proteins and cells	✓	



THE
 SOLINGER METHOD

by Root Health L.L.C.



Dr. Sarah Solinger, PhD, ND, MSc, FCN
Naturopathic Doctor | Functional Clinical Nutritionist | Master Herbalist
Root Health L.L.C.

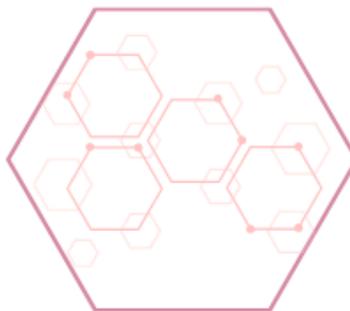
5. How to Support Autophagy Safely

Lifestyle & Nutrition Approaches:

- **Time-restricted eating**
 - **Low-glycemic, anti-inflammatory diet** (rich in cruciferous vegetables, omega-3s, and polyphenols)
 - **Regular movement and strength training**
- Supplements that support autophagy** (like berberine, spermidine, resveratrol, curcumin, green tea catechins)

Herbal Allies:

- **Gymnema and berberine:** Support blood sugar and autophagy
- **Ashwagandha:** Supports adrenal-thyroid axis



THE
SOLINGER METHOD

by Root Health L.L.C.



Dr. Sarah Solinger, PhD, ND, MSc, FCN
Naturopathic Doctor | Functional Clinical Nutritionist | Master Herbalist
Root Health L.L.C.

- **Turmeric and green tea:** Anti-inflammatory, autophagy-activating
-

6. Clinical Pearl

Autophagy is a powerful tool when used **strategically**. For Hashimoto's patients with insulin resistance, the goal is to **gently activate autophagy** through dietary timing, anti-inflammatory nutrients, and mitochondrial support—**without over-restricting** or taxing an already stressed system.



THE
SOLINGER METHOD

by Root Health L.L.C.