# Effects of a 3-Month Gluten- and Casein-Free Diet in Hashimoto's Thyroiditis

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**Abstract:**

**Background:** Hashimoto's thyroiditis (HT) is a chronic autoimmune thyroid disorder in which thyroid autoimmunity may coexist with metabolic and body-composition abnormalities. Evidence regarding combined gluten- and casein-free dietary interventions in HT remains limited.

**Objective:** To evaluate changes in body composition, thyroid function tests, and thyroid autoantibodies after a 3-month gluten- and casein-free dietary intervention.

**Methods:** This non-randomized pre–post intervention study included 65 adults with HT (58 women and 7 men; mean age 39.06±10.82 years). Participants excluded gluten- and casein-containing foods for 3 months without prescribed calorie, portion-size, or meal-timing restrictions. Body composition was assessed by bioelectrical impedance analysis. TSH, free T3, free T4, anti-TPO, and anti-TG were obtained from clinical blood analyses. Analyses were performed using SPSS 27.0.

**Results:** Body weight, body-fat percentage, muscle mass, and BMI decreased significantly (all $p<0.001$). Anti-TPO decreased from 320.75±349.83 to 137.40±141.83 IU/mL ($p<0.001$), and anti-TG decreased from 68.36±87.55 to 36.29±48.73 IU/mL ($p<0.001$). Free T4 increased from 1.28±1.02 to 1.43±0.92 ng/dL ($p=0.007$). TSH decreased from 6.03±12.71 to 3.76±3.42 µIU/mL but did not reach statistical significance ($p=0.061$), while free T3 did not change significantly ($p=0.592$).

**Conclusion:** The intervention was associated with improvements in body composition and reductions in thyroid autoantibodies. Because the study lacked a randomized control group and objective dietary-adherence assessment, causal interpretation is limited. Controlled, multicenter studies with longer follow-up are warranted.

**Keywords:**
Hashimoto's thyroiditis, gluten-free diet, casein-free diet, body composition, thyroid autoantibodies, nutrition intervention.