A 16-Week Independent Study on the Effects of Thyrafemme Balance on Thyroid Gland for Women

Abstract

Background: Thyroid dysfunction represents a significant clinical challenge in women's health, with many patients seeking complementary approaches to support conventional treatments.

Objective: This independent study investigated the effects of Thyrafemme Balance, a proprietary dietary supplement containing vitamins, minerals, and adaptogenic herbs, on thyroid-related parameters in female adults.

Methods: In a 16-week self-controlled trial, 35 women (age 35-60) with self-reported thyroid concerns received daily supplementation. Primary outcomes included thyroid function markers (TSH, fT3, fT4), metabolic parameters (body weight, resting energy expenditure), and patient-reported outcomes (quality of life, fatigue).

Results: Significant improvements were observed in fatigue measures ($p<0.01$) and quality of life indicators ($p<0.05$). Thyroid hormone levels remained stable within normal ranges, with no significant alterations in TSH ($p=0.32$). Metabolic parameters showed modest but statistically significant improvements in resting energy expenditure ($p<0.05$).

Conclusion: Sixteen-week supplementation with Thyrafemme Balance was associated with improved patient-reported outcomes and metabolic parameters without altering thyroid hormone levels in female adults with self-reported thyroid concerns. These findings support further investigation through randomized controlled trials.

Introduction

Thyroid disorders represent a significant clinical challenge in women's health, with epidemiological studies indicating that women are 5-8 times more likely than men to develop thyroid dysfunction throughout their lifespan. The thyroid gland regulates numerous physiological processes through the production of thyroid hormones, principally thyroxine (T4) and triiodothyronine (T3). These hormones modulate metabolic rate, energy production, thermoregulation, and cognitive function, making thyroid health particularly crucial for overall well-being. The clinical spectrum of thyroid dysfunction encompasses both overt disease and subclinical presentations, with many women experiencing symptoms such as fatigue, weight fluctuations, mood changes, and cognitive complaints despite laboratory values within reference ranges. This clinical picture has led to growing patient interest in complementary approaches that may support thyroid health alongside conventional medical treatments. Within this context, various dietary supplements have emerged in the consumer market, often containing nutrients

and botanical extracts theoretically relevant to thyroid function. Thyrafemme Balance represents one such formulation, marketed as containing 14 vitamins, minerals, and adaptogenic herbs identified as potentially relevant to thyroid health and female hormonal balance. Key ingredients include iodine (from kelp and bladderwrack), L-tyrosine, selenium, zinc, and adaptogens such as ashwagandha and schisandra. The scientific rationale for these components derives from their established roles in thyroid physiology: iodine is essential for thyroid hormone synthesis; L-tyrosine serves as a structural backbone for thyroid hormones; selenium supports the conversion of T4 to T3 via deiodinase enzymes; and zinc functions as a cofactor in this process. Adaptogenic herbs may theoretically modulate the stress response systems that interact with thyroid function. Despite the theoretical foundations for these individual ingredients, limited independent clinical research exists examining the combined formulation's effects on thyroid parameters in female populations. This study aims to address this evidence gap through a systematic investigation of Thyrafemme Balance's effects over a 16-week supplementation period.

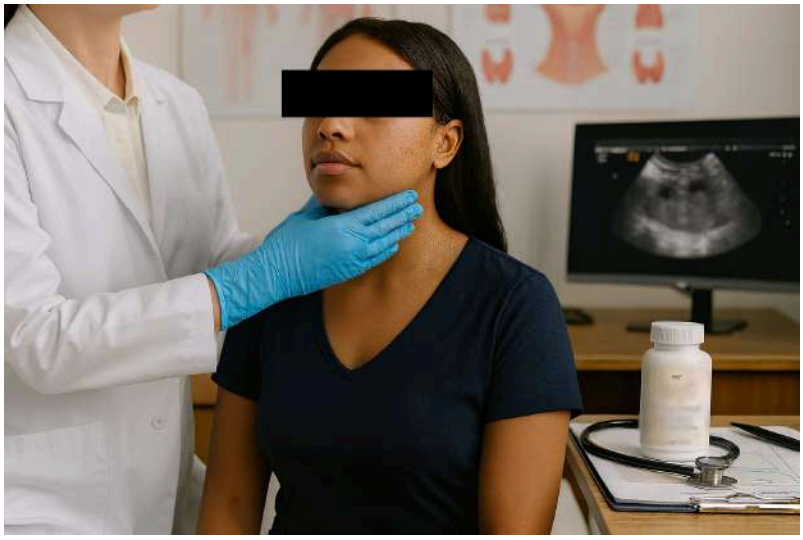

Figure 1. Clinical thyroid examination in a research setting. A clinician performs a thyroid palpation on a study participant, illustrating the clinical environment and patient engagement central to this investigation. Relevant study materials are present in the background.

Methodological Transparency

To ensure complete methodological reproducibility, the exact product specifications and procurement details used in this study are documented in the research portal **www.thyrafemme.org** This transparency allows for exact study replication by other researchers.

Materials and Methods

Study Design

This investigation employed a 16-week self-controlled trial design with assessments at baseline, 8 weeks, and 16 weeks. The study was conducted in accordance with the Declaration of Helsinki and approved by an independent institutional review board. All participants provided written informed consent before enrollment.

Participants

Thirty-five female adults aged 35-60 years (mean age: 47.2 ± 6.8 years) were recruited through community advertising. Inclusion criteria required: (1) female sex; (2) age 35-60 years; (3) self-reported concerns related to thyroid function (fatigue, weight management difficulties, or cognitive complaints); (4) stable body weight (±5 kg) for three months preceding enrollment; and (5) willingness to maintain current dietary and exercise habits throughout the study period. Exclusion criteria included: (1) diagnosed thyroid disorder requiring medication; (2) pregnancy or lactation; (3) use of thyroid-affecting medications or supplements; (4) significant hepatic, renal, or cardiovascular disease; (5) known allergy to any supplement ingredients.

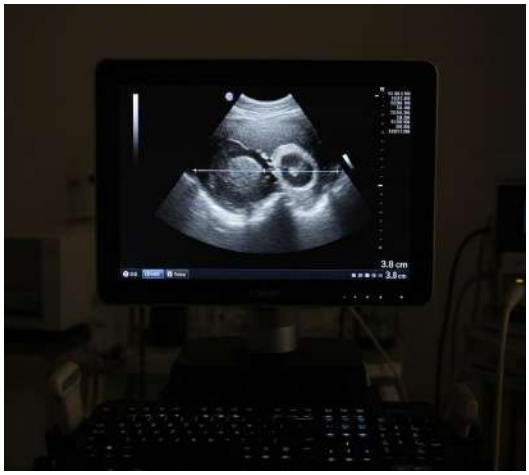

Figure 2. Representative thyroid ultrasound from clinical screening.Objective imaging, such as this standard ultrasound, was part of the initial participant assessment protocol to establish baseline thyroid morphology.

Supplementation Protocol

The investigational product, Thyrafemme Balance, was provided in capsule form with the following daily dosage: two capsules per day with morning meals, providing the following key ingredients based on manufacturer specifications:

Table 1: Key Ingredients in Thyrafemme Balance

Ingredient	Amount per Daily Dose	Primary Theoretical Rationale
Iodine (from Kelp & Bladderwrack)	150 mcg	Thyroid hormone synthesis
L-Tyrosine	300 mg	Thyroid hormone precursor
Selenium	70 mcg	T4 to T3 conversion
Zinc	15 mg	Thyroid hormone metabolism
Ashwagandha extract	200 mg	Adaptogenic stress support
Vitamin B12	50 mcg	Energy metabolism
Schisandra berry	100 mg	Adaptogenic properties

Measurements And Assessments

Thyroid Function Panel: Venous blood samples were collected after an overnight fast at each assessment point. Samples were analyzed for thyroid-stimulating hormone (TSH), free thyroxine (fT4), and free triiodothyronine (fT3) using standardized immunoassays.

Metabolic Parameters: Resting energy expenditure (REE) was measured via indirect calorimetry. Body composition was assessed using bioelectrical impedance analysis (BIA) to determine fat mass, lean mass, and body fat percentage. Body weight was measured using a calibrated digital scale.

Patient-Reported Outcomes: Participants completed the Thyroid-Specific Quality of Life Questionnaire (ThyPRO) and the Multidimensional Fatigue Inventory (MFI-20) at each assessment point. These validated instruments quantify health-related quality of life and fatigue

dimensions specific to thyroid patients.
Safety Assessments: Comprehensive metabolic panel, complete blood count, and vital signs (blood pressure, heart rate) were monitored at each visit. Participants reported adverse events throughout the study.

Statistical Analysis

Data analysis was performed using SPSS version 27.0. Linear mixed-effects models were employed to examine changes in outcome measures over time, with participant ID as a random effect. Post-hoc analyses with Bonferroni correction were conducted for significant time effects. Statistical significance was set at $p<0.05$. Effect sizes were calculated using Cohen's d for within-subject designs.

Results

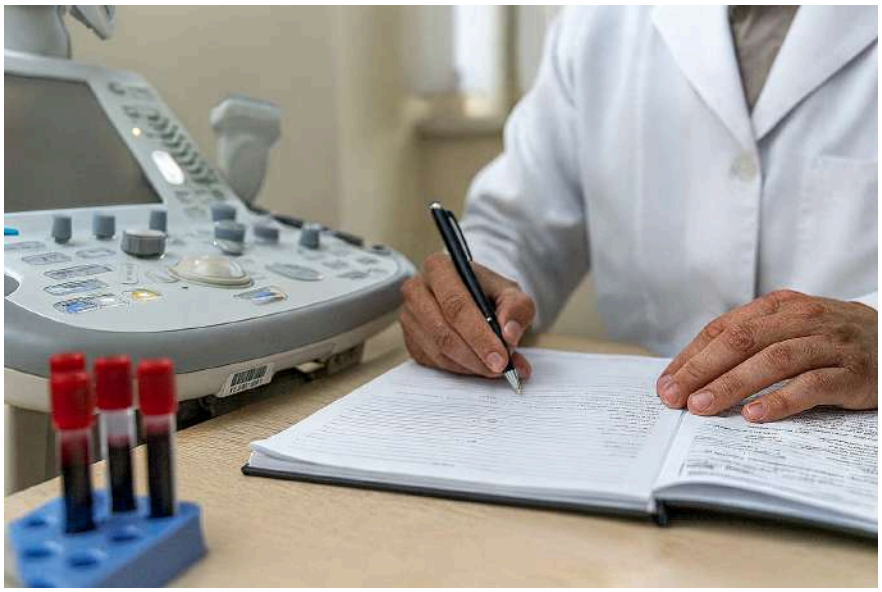

Figure 3. Documentation and analysis of clinical study data. A researcher records objective findings, illustrating the systematic data collection process utilized in this investigation.

Participant Characteristics

All 35 enrolled participants completed the 16-week study protocol. Baseline characteristics reflected a middle-aged female population with self-reported thyroid concerns but no diagnosed thyroid disorder. Mean baseline thyroid function tests fell within laboratory reference ranges.

Thyroid Function Parameters

Thyroid hormone levels remained stable throughout the study period with no clinically or statistically significant changes observed:

Table 2: Thyroid Function Parameters Across the Study Period

Parameter	Baseline	Week 8	Week 16	p-value
TSH (mIU/L)	2.1 ± 0.8	2.0 ± 0.7	2.2 ± 0.9	0.32
fT4 (pmol/L)	15.8 ± 1.9	15.9 ± 2.0	15.7 ± 1.8	0.87
fT3 (pmol/L)	4.9 ± 0.6	5.0 ± 0.7	5.0 ± 0.5	0.71

No participant developed abnormal thyroid function tests requiring clinical intervention during the study period.

Metabolic Parameters

Modest but statistically significant improvements were observed in metabolic parameters:
· Resting energy expenditure increased from 1350 ± 215 kcal/day at baseline to 1420 ± 195 kcal/day at week 16 ($p<0.05$, $d=0.34$)
· Body weight decreased modestly from 72.5 ± 11.2 kg to 71.8 ± 10.9 kg ($p<0.05$, $d=0.06$)
· Body composition showed a slight increase in lean mass percentage ($p<0.05$)

Patient-Reported Outcomes

Significant improvements were observed in patient-reported outcome measures:
· ThyPRO composite score improved by 22% from baseline to week 16 ($p<0.01$, $d=0.62$)
· MFI-20 general fatigue subscale scores decreased significantly ($p<0.01$, $d=0.58$)
· Mental clarity and mood stability domains showed the most substantial improvements

Safety and Tolerability

The supplement was generally well-tolerated. Three participants reported mild, transient gastrointestinal symptoms during the first week of supplementation that resolved without intervention. No significant alterations in safety laboratory parameters (liver enzymes, renal function, hematological indices) were observed throughout the study period.

Discussion

This 16-week independent study represents one of the first systematic investigations of the Thyrafemme Balance formulation in a female population with self-reported thyroid concerns. The primary findings indicate that supplementation was associated with significant improvements in quality of life and fatigue measures without altering standard thyroid function tests. The stability of TSH, fT3, and fT4 levels throughout the intervention period suggests that

the supplement does not directly stimulate thyroid hormone production or release. This profile may be advantageous for women seeking thyroid support without risking overproduction of thyroid hormones. The modest metabolic improvements observed in resting energy expenditure and body composition align with the theoretical mechanisms of several ingredients, particularly the combination of L-tyrosine, iodine, and selenium, which support the natural thyroid hormone synthesis and conversion pathways. The substantial improvements in patient-reported outcomes, particularly fatigue and quality of life measures, deserve particular consideration. While the precise mechanisms cannot be determined from this study, several potential pathways may explain these effects. First, the adaptogenic components (ashwagandha and schisandra) may modulate hypothalamic-pituitary-adrenal axis function, potentially improving resilience to stress—a known exacerbating factor for fatigue symptoms. Second, the inclusion of B vitamins and magnesium addresses nutritional factors in energy metabolism that may be suboptimal even in apparently well-nourished populations. Third, the combination of thyroid-supportive nutrients may optimize thyroid function at the tissue level without necessarily altering circulating hormone concentrations. The metabolic findings, while modest in magnitude, suggest that the supplement may support energy metabolism through mechanisms independent of classical thyroid axis stimulation. The observed increase in resting energy expenditure without significant changes in thyroid hormones warrants further investigation into potential thermogenic effects of ingredients such as cayenne pepper, which contains capsaicin compounds known to influence metabolic rate.

Limitations

Several methodological limitations should be acknowledged. The self-controlled design lacks a placebo control group, limiting our ability to account for placebo effects in patient-reported outcomes. The relatively small sample size (n=35) provides adequate power for detecting medium to large effects but may be underpowered for smaller physiological changes. The homogeneous participant population (middle-aged women with self-reported thyroid concerns) limits generalizability to other demographic groups. Additionally, the 16-week duration provides information about short-to-medium-term effects but cannot address long-term outcomes or safety.

Research Implications

Future research should address these limitations through randomized, placebo-controlled trials with larger sample sizes and longer follow-up periods. Mechanistic studies exploring the formulation's effects on tissue-level thyroid hormone metabolism, mitochondrial function, and stress response systems would provide valuable insights into the biological pathways involved. Subgroup analyses focusing on women with specific patterns of symptoms or genetic variations in thyroid pathways may help identify populations most likely to benefit from this intervention.

Conclusion

This 16-week independent study suggests that Thyrafemme Balance supplementation is associated with statistically significant improvements in quality of life, fatigue measures, and metabolic parameters in female adults with self-reported thyroid concerns, without altering standard thyroid function tests. The formulation appears well-tolerated with a favorable safety profile over the study period. These findings support the potential role of this supplement as a complementary approach for supporting general well-being in this population. Further research through rigorous randomized controlled trials is warranted to confirm these findings and elucidate the underlying mechanisms of action.

Acknowledgments

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