Min Vitamix – External Validation Study

Personalised Micronutrient Supplementation for Enhanced Wellbeing

Glykeria Karadimou, PhD[1] and Ana Silva, PhD[2]
[1]Internship; [2] MedTech Consultant

Micronutrient supplementation is widely recognised for its potential to promote health and wellbeing. Traditional supplement strategies often rely on generalised assumptions, which means some people receive what they do not need while others miss what they require.

1. Summary

In this validation study personalised nutrition is addressed by integrating biomarker data with lifestyle information, tailoring supplementation to individuals for efficacy, safety and relevance. The study, conducted in collaboration with Saluto™ (salute.ai), evaluated whether personalised Min Vitamix formulations guided by each participant's biological and lifestyle profile could enhance nutrient status and perceived wellbeing in already healthy individuals.

Over a three-month period, sixteen participants received Min Vitamix personalised micronutrient formulations based on individual blood biomarkers, lifestyle questionnaire data and lifestyle and health goals. Blood tests and questionnaires showed that most participants improved key vitamin levels and low-density lipoprotein cholesterol, while other parameters remained stable. These results are preliminary but they point towards the promise of precision supplementation.

Eleven participants completed the full protocol, and the main outcomes were as follows:

- Vitamin D and folate increased significantly in 93% of participants.
- 73% of participants improved their vitamin B_{12} levels with a positive overall trend.
- Low density lipoprotein cholesterol was reduced in 73% of participants.
- Participants reported improvements in energy, recovery time, skin hair and nail health, and sleep.
- All other physiological parameters measured, including liver and thyroid function, immune system and glucose metabolism, remained stable.

2. Study Design & Methodology

This 3-month validation study was conducted by two external people, a MedTech consultant responsible for planning and reviewing the data, and an internship that supported the study and data analysis. The study included 16 healthy women aged 17–36 years who exercised at least twice per week and maintained consistent considered healthy lifestyle habits. Eleven participants completed the full protocol.

2.1 Participant Criteria

Exclusion criteria included chronic illness, pregnancy or breastfeeding, dietary supplement or medication use, smoking, substance use, and known allergies to supplement ingredients. All participants provided written informed consent in accordance according to the Declaration of Helsinki and data collection fulfilled GDPR requirements.

2.2 Personalization Process

Each participant completed Min Vitamix online lifestyle questionnaire covering diet, sleep, stress, and activity, and underwent blood biomarker testing provide by our parter Saluto™. The combination of these data allowed formulation of individualized micronutrient profiles, addressing specific deficiencies or imbalances.

2.3 Study Phases

1. **Onboarding** – Consent, baseline blood sampling, and lifestyle questionnaire.
2. **Intervention** – 90 days of Personalised daily supplementation, with monthly feedback questionnaires.
3. **Follow-Up** – Monthly check-ins to monitor adherence, usability, and perceived effects.
4. **Final Evaluation** – Repeat blood testing and wellness and usability questionnaire.

2.4 Statistical Analysis

Paired comparisons between baseline and post-intervention data were analysed using the Wilcoxon signed-rank test, appropriate for small sample sizes. A p-value < 0.05 was considered statistically significant.

3. Results & Insights

3.1 Enhanced Nutrient Status

After three months of supplementation, participants showed measurable improvements in key vitamin biomarkers:

- **Vitamin D** increased significantly ($p = 0.0087$).
- **Folate** increased significantly ($p = 0.0073$).
- **Vitamin B_{12}** showed a positive upward trend, 73% of participants improved their vitamin B_{12} levels.

91% of participants increased their Vitamin D and Folate levels, while 73% improved their Vitamin B_{12} status. These results confirm that Personalised micronutrient formulations effectively correct subtle nutrient insufficiencies, supporting optimal cellular and metabolic function (Fig 1).

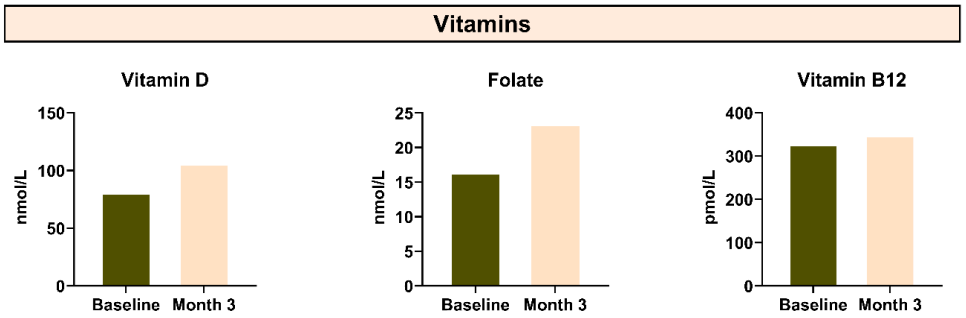


Figure 1. Significant Increases in Folate & Vitamin D With Personalised Supplementation. *Serum folate and vitamin D levels significantly increased, and 73% of participants improved their vitamin B_{12} levels. These enhancements reflect effective correction of sub-optimal nutrient status through tailored formulations. (n=11)*

3.2 Improved Lipid Metabolism

A significant reduction in LDL cholesterol was observed (p = 0.024), with 73% of participants showing decreased levels (Fig 2). This finding highlights the potential link between improved micronutrient balance, particularly Vitamin D, Folate, and B_{12}, and enhanced lipid metabolism, contributing to long-term cardiovascular health.

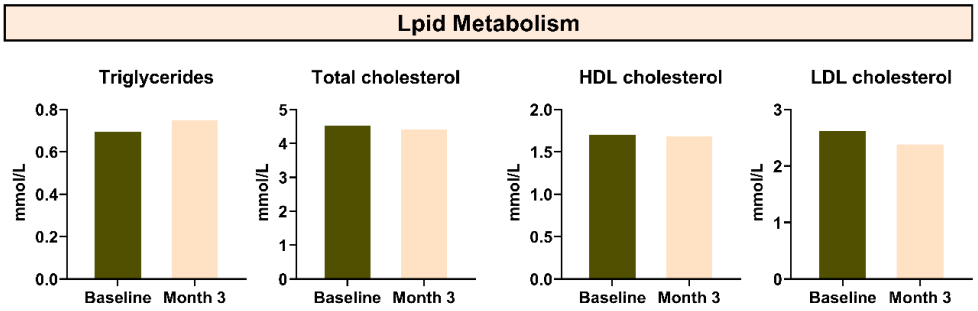


Figure 2. Improved Cholesterol Balance with Personalised Supplementation. *While triglycerides, total cholesterol, and HDL remained stable, LDL cholesterol significantly decreased over 3 months, with 73% of participants showing improvement. This suggests a positive cardiometabolic effect without adverse lipid shifts. (n=11)*

3.3 Physiological Stability and Safety

Across all other measured biomarkers, including haematological, liver, thyroid, glucose, and immune parameters, no adverse changes were observed. All remained within healthy reference ranges, underscoring the safety and tolerability of the Personalised approach (Fig 3).

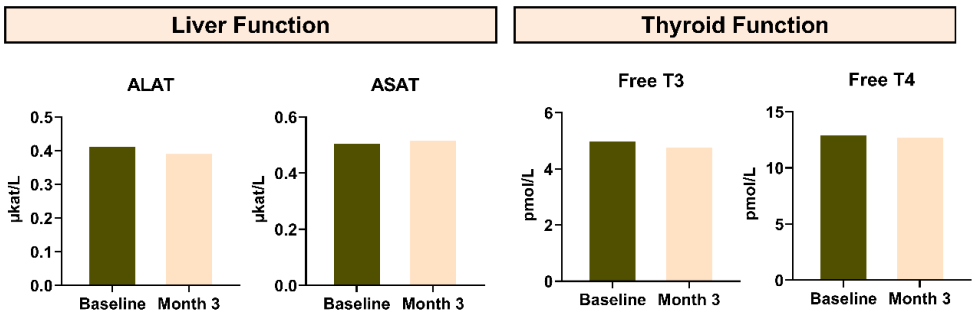


Figure 3. Stable Liver and Thyroid Function During Personalised Supplementation. *Liver (ALAT, ASAT) and thyroid hormones (Free T3, Free T4) remained within healthy ranges and showed no significant changes from baseline to Month 3. These results confirm that Personalised micronutrient supplementation supported metabolic balance without impacting liver or thyroid health, demonstrating strong safety and physiological tolerance over the intervention period. (n=11)*

3.4 Self-Perceived Wellbeing

Participants reported meaningful improvements in multiple wellness domains (Fig 4):

- **63%** improved sleep quality.
- **56%** noticed better skin, hair, and nail condition.
- **56%** improved their physical performance during exercise.
- **56%** experienced enhanced mood and stress resilience.

These perceived effects reflect the holistic benefits of optimized micronutrient status, bridging the gap between measurable health and lived experience.

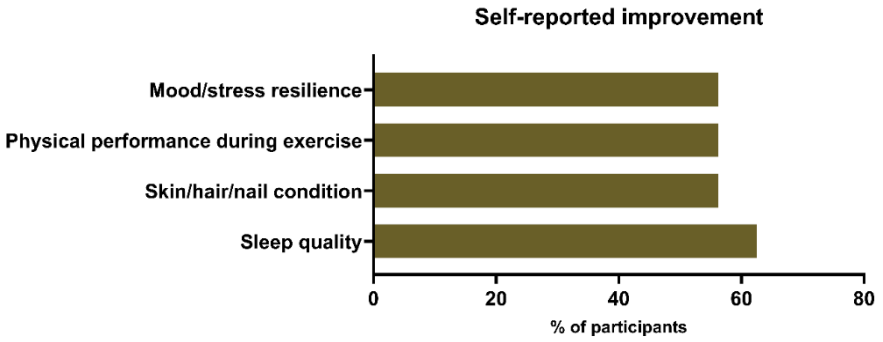


Figure 4. Personalised supplementation enhances daily well-being and performance. *Participants reported notable improvements across key lifestyle and wellness domains after 3 months of Personalised micronutrient supplementation. The most frequent benefits included better sleep quality, improved skin/hair/nail condition, enhanced mood and stress resilience, and greater physical performance during exercise. (n=11-16)*

4. Discussion

The findings suggest that Min Vitamix personalised micronutrient supplementation can deliver measurable benefits for healthy and active adults. The significant rises in vitamin D and folate, together with reductions in low density lipoprotein cholesterol, point towards improvements in metabolic and cardiovascular balance. Vitamin D is implicated in lipid regulation and immune modulation, while folate and vitamin B_{12} support homocysteine metabolism, mechanisms linked to cardiovascular and cognitive health. Seasonal sun exposure during summer months may have contributed to some of the observed vitamin D increases. However, the consistency of biomarker improvements across participants indicates added benefit from tailored supplementation.

Subjective reports indicated better sleep, mood and stress resilience, physical performance, and skin hair and nail health, suggesting gains in energy balance, recovery and vitality. These occurred alongside stable clinical biomarkers for liver and thyroid function, supporting the intervention's tolerability and physiological safety in this cohort.

Despite a small sample and short study period, the findings are promising and are best considered early evidence with limited generalisability.

5. Conclusion

This external validation study supports that Min Vitamix personalised micronutrient supplementation is safe and effective in this cohort for improving nutrient balance, lowering low density lipoprotein cholesterol and enhancing self-perceived wellbeing while maintaining stability of other physiological systems. By integrating blood biomarkers with lifestyle profiling, individualised supplementation can bridge subtle nutritional gaps and promote vitality, recovery and performance without compromising physiological stability.

6. Ethics, independence and data integrity

Independence was ensured because the study was designed, managed and analysed by external researchers, a MedTech consultant and an intern, with blood testing performed by Saluto. The authors report no financial incentives tied to outcomes. Participant data were managed in accordance with the General Data Protection Regulation (GPDR). All statistical thresholds, outcomes and percentages are reported as provided in the source analysis and no results or dates have been altered.

7. Funding

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8. Reference

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