

# Effects of Natural Nootropic Spearmint Extract on Physical Performance in Young, Healthy Individuals

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## Background

Previous studies have demonstrated that Neumentix™ Phenolic Complex K110-42 (NEU; Kemin Foods, L.C., Des Moines, IA), a natural spearmint extract containing 14.5% rosmarinic acid and 24% total phenolic content has benefits for cognition. Given the growing interest in connecting mental and physical performance, the current study examined whether the nootropic benefits of Neumentix supplementation translate into improvements in physical performance in young, healthy adults.

## Methods

In a double-blind, placebo-controlled, parallel design, 142 recreationally-active men and women (NEU: 27.2±0.9y; placebo [PLA]: 27.9±0.9y) were randomized to consume either 900 mg of NEU or a visually-identical PLA for 90 days. Choice reaction performance was measured as hits and average reaction time on a three-tower, novel testing device linking cognitive and physical performance (Makoto Arena II; Makoto USA Inc., Elk Grove Village, IL) via six tests: stationary (1-tower, limb movement while trunk remains stationary), lateral (2-tower), and multi-directional (3-tower, 360° movement), each administered with or without footplates. Measurements were taken at baseline and at 7, 30, and 90 days during supplementation. Data are shown as mean ±SEM.

## Results

A treatment effect ( $p=0.019$ ) was observed for the number of hits on the stationary test with footplates, and pairwise comparisons revealed significant differences at Day 30 (NEU: 28.96±0.275 hits vs. PLA: 28.09±0.256 hits;  $p=0.040$ ) and Day 90 (NEU: 28.42±0.352 hits vs. PLA: 27.02±0.487 hits;  $p=0.002$ ) compared to placebo. A treatment effect ( $p=0.036$ ) was observed for average reaction time on the stationary test with footplates and pairwise comparisons revealed significant differences at Day 7 (NEU: 0.5896±0.0074 sec vs. PLA: 0.6141±0.0096 sec;  $p=0.049$ ) and Day 30 (NEU: 0.5811±0.0090 sec vs. PLA: 0.6033±0.0074 sec;  $p=0.049$ ) compared to placebo. A treatment effect ( $p=0.020$ ) was observed for the number of hits on the multi-directional test with footplates, and pairwise comparisons revealed significant differences at Day 30 (NEU: 19.25±0.244 hits vs. PLA: 18.45±0.198 hits;  $p=0.007$ ) and Day 90 (NEU: 19.39±0.263 hits vs. PLA: 18.66±0.225 hits;  $p=0.026$ ) compared to placebo. There were no significant differences observed for the remaining Makoto tests used in the study.

## Conclusion

This study indicates that 900 mg of Neumentix improves reaction time in a stationary test of choice reaction performance as early as 7 days and enhances hit rate in both stationary and multi-directional choice reaction performance testing following 30 days of supplementation with the effect still present at 90 days in young, healthy individuals. The unique tool used in this study was specifically selected

because it links cognitive function to physical performance. These data confirm previous work, and show that Neumentix cognitive benefits are accompanied by improved physical performance thus providing further support for Neumentix as a safe and natural nootropic.

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