



# Daily intake of *Panax ginseng* extract (G115®) supplemented with vitamins and minerals reduces self-perception of mental and physical fatigue

Anne-Laure Tardy, PhD, and Lionel Noah, PhD

Fatigue negatively impacts quality of life even in otherwise healthy individuals. Recent systematic reviews provide mechanistic plausibility for these effects. In addition, a recent study demonstrates that a combination of vitamins, minerals and *Panax ginseng* root dry extract (G115®) improves various domains of fatigue in real life.

Fatigue is a common presenting complaint in primary care, which negatively impacts work performance, family life, and social relationships [1]. Alleviation of fatigue and maintenance of good health has been reported as the most common motivation for taking nutritional supplements in the general public. After having eliminated underlying diseases causing fatigue, physicians usually promote a healthy lifestyle, including a balanced diet and sufficient sleep. However, they are looking for recommendations and means to alleviate fatigue and its consequences beyond those general measures [1, 2].

The body needs vitamins and minerals to work properly. They play an important role in the cellular energy-production,

the regulation of oxygen in the body, the immune function as well as the structure and function of brain cells [3]. An inadequate status of vitamins (particularly B and C vitamins) and minerals (iron, magnesium, zinc) is associated with physical fatigue and impaired cognitive functions [3]. A systematic review and meta-analysis suggests that iron deficiency is a potential cause of fatigue and shows that iron supplementation improves fatigue even in non-anemic patients [4].

Thus, supplementing individuals with vitamins and minerals is highly likely to result in health benefits in the areas of mental and physical fatigue, as well as cognitive and psychological functions, especially in a context where food

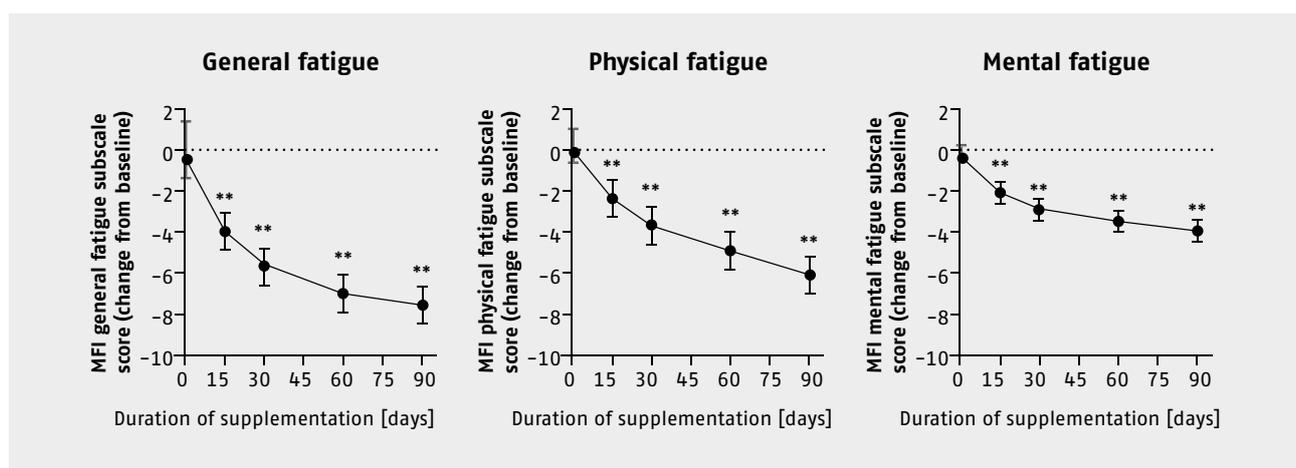


Fig. 1. Effects of supplementation with a combination of vitamins, minerals and *Panax ginseng* root dry extract in 103 healthy subjects presenting fatigue. Data are means with their 95% confidence intervals of general, mental and physical fatigue subscales of MFI questionnaire. \*\*:  $p < 0.0001$  vs. baseline after Dunnett correction.

choice or availability do not provide a nutrient-dense food such as fruit, vegetable, and dairy products [3].

Extracts of Chinese/Korean ginseng (*Panax ginseng* C. A. Meyer) root have been used for centuries in traditional medicine for general weakness. In addition, various preclinical (in vitro and animal) and randomized controlled clinical studies demonstrated the benefit of supplementation with Panax ginseng on various parameters related to fatigue [5]. In particular, a specific standardized ginseng extract containing 4% of ginsenosides (G115®) formulated or not with vitamins and minerals was studied over the last 40 years [6, 7].

Recently, a 3-months open-label study was performed in healthy subjects who were suffering from non-disease-related fatigue for more than two weeks. Daily supplementation with a combination of vitamins, minerals and G115® led to a consistent and meaningful decrease ( $p < 0.0001$ ) of self-perception of fatigue compared to the beginning of the study. Fatigue was evaluated at baseline and after 15, 30, 60 and 90 days of supplementation, using the validated Multidimensional Fatigue Inventory (MFI) questionnaire [8]. Compared with baseline values, mean self-perception of general fatigue was reduced by  $-7.55$  units [95% CI:  $-8.44$ ;  $-6.66$ ] ( $-41.8\%$ ,  $p < 0.0001$ ) at 90 days. All assessed perception ratings (including mental and physical fatigue) were significantly and steadily improved from two weeks after supplementation up to study's end (Fig. 1). It was concluded that daily intake of *Panax ginseng* G115® extract formulated with vitamins and minerals improves self-perception of fatigue and energy in a fatigued adult population.

## Literature

1. Rosenthal TC, Majeroni BA, Pretorius R, Malik K. Fatigue: an overview. *Am Fam Physician* 2008;78:1173–9.
2. Guessous I, Favrat B., Cornuz J., Verdon F. Fatigue: review and systematic approach to potential causes. *Rev Med Suisse* 2006;2(89):2725–31.
3. Tardy AL, Pouteau E, Marquez D, Yilmaz C, Scholey A. Vitamins and minerals for energy, fatigue and cognition: a narrative review of the biochemical and clinical evidence. *Nutrients* 2020;12:228.
4. Yokoi K, Konomi A. Iron deficiency without anaemia is a potential cause of fatigue: meta-analyses of randomised controlled trials and cross-sectional studies. *Br J Nutr* 2017;117:1422–31.
5. Jin T-Y, Rong P-Q, Liang H-Y, Zhang P-P, et al. Clinical and preclinical systematic review of Panax ginseng C. A. Mey and Its compounds for fatigue. *Front Pharmacol* 2020;11:1031.
6. Bilia AR, Bergonzi MC. The G115 standardized ginseng extract: an example for safety, efficacy, and quality of an herbal medicine. *J Ginseng Res* 2020; 44(2):179–93; doi: 10.1016/j.jgr.2019.06.003.
7. Scaglione F, Pannaci M, Petrini O. The Standardised G115® Panax ginseng C.A. Meyer Extract. A Review of its Properties and Usage. *Evid Based Integr Med* 2005;2:195–206.
8. Tardy AL, Bois De Fer B, Cañigueral S, Kennedy D, et al. Reduced self-perception of fatigue after intake of Panax ginseng root extract (G115®) formulated with vitamins and minerals – an open-label study. *Int J Environ Res Public Health* 2021;18:6257.

Conflict of interest: A.-L. Tardy and L. Noah are employees of Sanofi.

Disclosure: Medical writing and publication funded by Sanofi.

## Information regarding manuscript

Submitted on: 15.11.2021

Accepted on: 23.05.2022

Published on: 24.06.2022