BIOGENA ERDENSALZ® BUSINESS PLUS:

More Resilience, Less Stress, and a Better Quality of Life

+ 15,3% Resilience

- 44,5% Stress sensitivity

+ 78,9% well-being

Summary

An individual's micronutrient status is closely related to psychological, immunological, and endocrinological processes that may affect resilience, perceived stress, and well-being. Resilience refers to mental toughness and the ability to cope with the negative consequences of stress and maintain good health despite high stress levels. Increased resilience leads to a decrease in both the perception and consequences of stress. This can result in a measurable increase in well-being and quality of life.

The objective of this intervention was to find out whether the regular intake of a specific combination of micronutrients has any measurable effects on resilience, stress, and well-being in healthy adults suffering from high levels of occupational stress. The results indicate that using the supplement for three months can increase resilience by 15.3% and well-being by 78.9%, and reduce perceived stress by 44.5%.

Conclusion: Targeted intervention with micronutrients is a simple, cost-effective, and effective way to maintain or restore the mental resilience of individuals in stressful situations. This may be an important factor for improving health, job performance, and job satisfaction.

What is resilience?

Resilience is an individual's ability to deal with the negative consequences of stress [1]. Stress resilience ensures that prolonged stress does not have a negative impact on physical or mental health. People who feel burdened by stress are more likely to have a worse state of health than those who do not [2]. High stress levels correlate with a number of physical symptoms such as back pain, muscle tension, burnout, nervousness, sleep disorders, depression, and tinnitus [2]. As this data shows, increasing resilience and reducing stress are important topics for employers and companies. A modern corporate health management system, one that takes care of employees' mental and physical health, may include various measures to reduce perceived stress and increase employee well-being [3]. Micronutrients can make an important contribution to this.

Micronutrients (e.g. vitamins and minerals) have a proven adaptogenic potential. This means that they support the body in adapting to increased physical and emotional stress. A meta-analysis of eight studies with 1,292 participants showed that micronutrient substitution improves stress perception and mood in healthy individuals [4]. A study involving 202 test subjects demonstrated that taking mineral supplements increases resilience levels by 11% [5]. In a further observational study, the intake of selected vitamins and plant substances was shown to increase well-being by 42.9%. Stress was reduced by 44.9% [6].

The objective

Investigation of the effect of a special micronutrient supplement (Biogena Erdensalz® Business Plus) used for three months on resilience, stress, and well-being of healthy adults who, according to their own assessment, had lowered resilience and heightened stress levels at the beginning of the study.

The method

Participants were recruited via social media and interviewed online. Their resilience status was ascertained using the RS-13 questionnaire (a shortened version of the resilience scale). Stress levels were determined using a DASS (depression, anxiety, and stress scale) questionnaire. The WHO 5 well-being index was used to measure well-being and quality of life. The statistical evaluation of the collected data was carried out using IBM SPSS 25.0 statistics software. The participants took two capsules of Biogena Erdensalz® Business Plus – a special combination of vitamins, minerals, trace elements, amino acids and plant extracts – every day for 12 weeks.

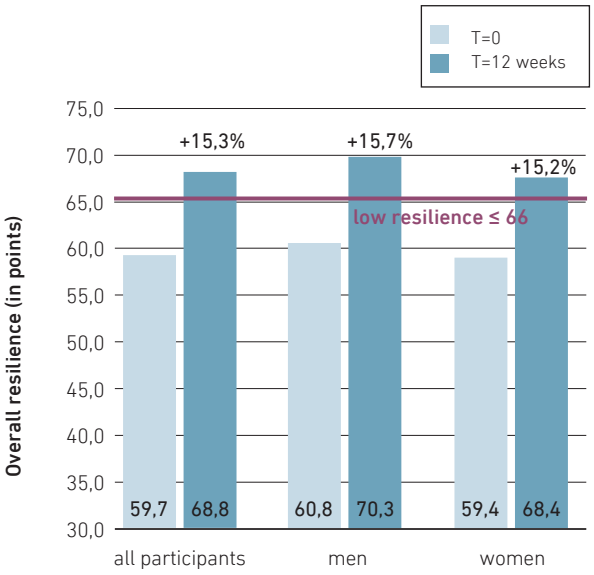
The results

Out of an initial pool of 231 interested parties, the full data of 145 study participants – 29 men (20%) and 116 women (80%) – was available at the end of the study. The average age of the participants was 42. There was no significant difference between the results for men and women.

Resilience

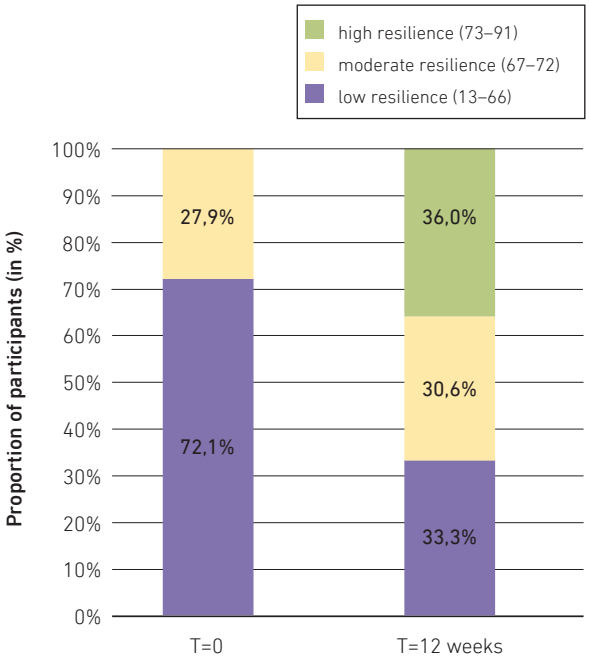
Resilience refers to the ability to cope with stressful life circumstances and the negative consequences of stress [1]. Individual resilience serves to preserve psychic homeostasis. It is expressed via emotional well-being and stands for reduced susceptibility to disruption and depression [7].
To evaluate the effect of the supplement on resilience, participants who had low or moderate resilience at the beginning of the study (T = 0) were selected (111 (76.6%) out of 145 participants). Of these, 80 participants displayed low resilience (13–66 points) on the resilience scale (RS-13), and 31 participants displayed moderate resilience (67–72 points).
At time T = 0, the participants had a low overall resilience (59.7 points on average). The intervention increased this by 15.3%. Men and women benefited equally. On average, taking the nutrient supplement resulted in moderate resilience (Fig. 1).

Fig 1: Average resilience levels in points at the beginning (T = 0) and end of the study (T = 12 weeks) for all participants (n = 111), men (n = 22) and women (n = 89), who had reduced (low or moderate) resilience levels at the beginning of the study (overall resilience: ≤72 points)



Approximately two thirds of the 111 participants with reduced resilience levels at the start of the study moved to a higher resilience category. At the beginning of the study, 72.1% were in the low resilience category (80 participants), and 27.9% were in the moderate resilience category (31 participants). At the end, 36% (40 participants) improved their resilience to high resilience (73–91 points) and 30.6% (34 individuals) to moderate resilience (67–72 points). Only 33.3% (37 individuals) remained in the low resilience category (16–66 points) (Fig. 2).

Fig. 2: Proportion of 111 participants (in %) who had reduced (low or moderate) resilience levels (≤72 points) at the start of the study in the individual resilience categories at the beginning of the study (T = 0) and after taking the supplement (T = 12 weeks)



Stress levels

Stress has been described as an imbalance between the perception of external demands and individual resources and personal abilities [8]. High tension, a low tolerance threshold, too many thoughts at once, and irritability and a lack of patience towards oneself and others are noticeable signs of stress [2]. Stress triggers physical reactions that can lead to health problems if they persist or recur [9] [2].
At the beginning of the study, most of the 145 participants displayed a high degree of stress. For example, only 16% displayed normal stress levels (0–14 points), while 84% displayed unusually high stress levels. 122 participants were approved for stress evaluation because, according to their DASS stress scores, their stress levels at the start of the study were mild (15–18), moderate (19–25 points), severe (26–33 points), or extremely severe (≥ 34 points) (Fig. 3).

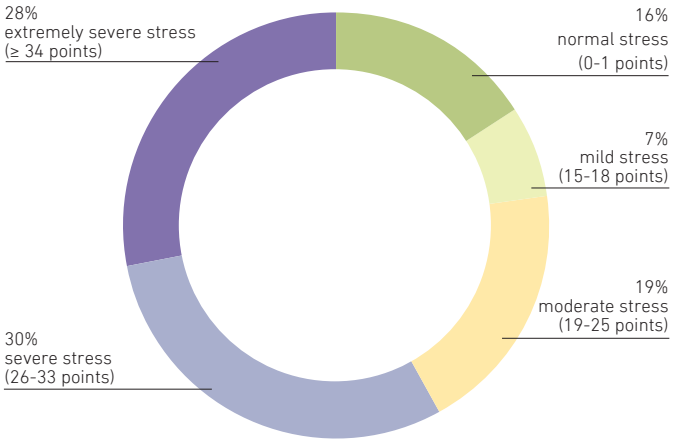


Fig. 3: Percentage of study participants (n = 145) in the respective stress categories according to DASS score at the start of the study

The 12-week use of the supplement reduced the participants' perceived stress levels by an average of 44.5% from 29.0 (severe stress) to 16.1 points (mild stress) on the DASS scale (Fig. 4). Overall, almost half of the individuals normalised their high stress levels by taking the supplement.
The proportion of participants with extremely severe stress levels decreased from 33.6% to 4.9% (Fig. 5).

Fig. 4: Average stress levels in points at beginning (T = 0) and end of the study (T = 12 weeks) for all participants (n = 122), men (n = 24), and women (n = 98) who displayed high stress levels at the beginning of the study (overall stress value: ≥15). The upper threshold for normal stress levels is 14 points.

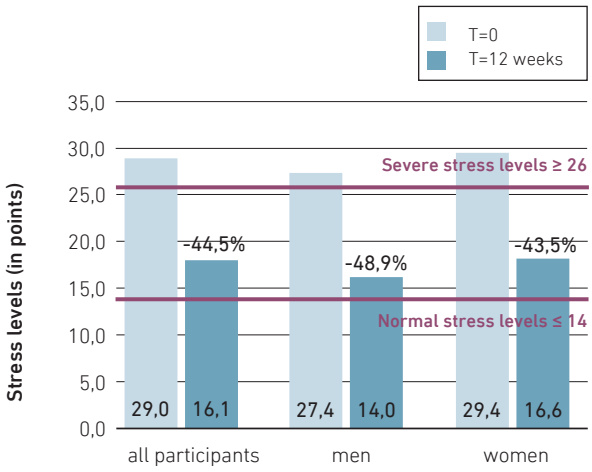
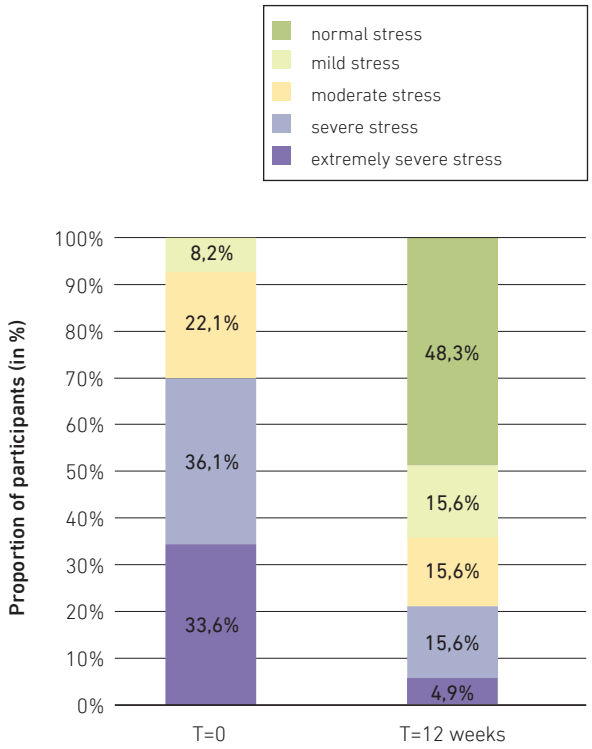


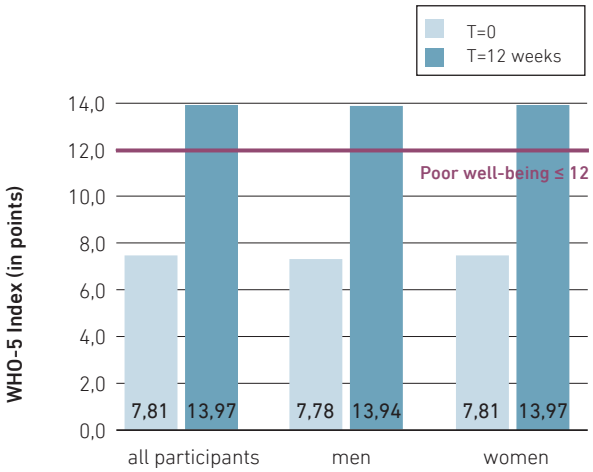
Abb. 5: Proportion of the 122 participants (in %) with high stress levels at the beginning of the study (overall stress value: ≥15) in the individual stress level categories (from normal to extremely severe) at the beginning of the study (T = 0) and after taking the supplement (T = 12 weeks)



Well-being and quality of life

Subjective well-being, as a psychological concept, refers to an individually perceived feeling of happiness and contentment. The terms well-being and quality of life are sometimes either used synonymously or quality of life is defined by the aspects of well-being [10].
The WHO-5 Well-being Index is used internationally to measure subjective quality of life. Values from 0 to 12 indicate poor well-being and low quality of life; values from 13 to 25 indicate good well-being and high quality of life. At the beginning of the study, 52 participants (35.9%) displayed a high level of well-being; 93 (64.1%) displayed a poor level of well-being. The latter were approved for evaluation. These individuals scored an average of 7.81 points on the WHO-5 index at time T = 0. By taking the supplement for 12 weeks, they were able to raise their levels to 13.97 points. This corresponds to an increase of 78.9%. At the end of the study, the participants were on average in the good well-being range (Fig. 6).

Abb. 6: Average score for well-being according to WHO-5 at the beginning (T = 0) and end of the study (T = 12 weeks) for all participants (n = 93), men (n = 18), and women (n = 75) who had a low well-being score at the beginning of the study. The threshold for good well-being for men and women is ≥ 13 points.



Discussion

In performance-related everyday life, constant stress is an obstacle to good well-being and a high quality of life. A lack of resilience to stress can contribute to disease, promote harmful behaviour, increase the risk of accidents, and reduce performance [2]. The individual perception of stress is therefore also an issue for companies.

There is no universal and simple formula for solving the problem of stress. However, micronutrients may be one factor in increasing resilience and well-being and reducing individually perceived stress levels. This observational study points in this direction. Further confirmation of the results by means of a placebo-controlled study would be desirable.

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