

METHOD

Statistical data processing.

For all the values obtained, which represent the sum of the results by subscales and the total sum in accordance with the instructions (Manual), the basic descriptive statistics are calculated at all four time points. On the sums obtained this way, a deviation from the normal (Gaussian) distribution was tested, which did not in any part indicate a statistically significant deviation, and prompting the application of some parametric statistical techniques. In order to determine the differences between the four time points, an analysis of repeat measurements (Repeated measures ANOVA) was applied. The level of statistical conclusion was determined at $p \leq 0.05$. All calculations were performed in the statistical program SPSS ver. 20, and the graphical representation of the data in was done in the program "R".

RESULTS

Table 1 shows the basic descriptive statistics as well as the results obtained by applying the variance analysis for repeated measurements.

Table 1. Differences between the four monthly points

Variable	1 st month (N = 12)	2 nd month (N = 12)	3 rd month (N = 12)	4 th month (N = 12)
	Mean \pm SD	Mean \pm SD	Mean \pm SD	Mean \pm SD
Physical Subscale	32.42 \pm 10.19	27.08 \pm 9.95 ^a	29.00 \pm 11.73	27.58 \pm 11.05
CognitiveSubscale	24.42 \pm 8.03	19.92 \pm 6.52 ^a	22.00 \pm 9.60	18.92 \pm 6.97
PsychosocialSubscale	7.25 \pm 2.73	6.33 \pm 2.27	6.42 \pm 2.57	6.00 \pm 2.63
Total MFIS Score	64.08 \pm 19.12	53.33 \pm 16.18 ^a	57.42 \pm 21.60	52.50 \pm 19.06

Legend:SD – standard deviation; ^a – statistically significant difference between the first and second points on the level of $p \leq 0.05$

By analyzing the results obtained using the variance analysis for repeated measurements, it is possible to see that the differences occurred only after the first month of supplementation with the KarnozinExtra supplement. Statistically significant differences were found in three variables: PhysicalSubscale, CognitiveSubscale and Total MFIS Score, and in all three variables there was a decrease in the average values estimated by the questionnaires, and then scaled according to the issuer's questionnaire. The average value for the first variable was corrected from 32.42 to 27.08, the second one was corrected from 24.42 to 19.92, while the total value (Total MFIS Score) was reduced from 64.08 to 53.33. An analysis of these differences is also graphically presented in Charts 1 to 4.

Figure 1. The effect of Karnozin Extra supplementation on MS patients - Physical subscale

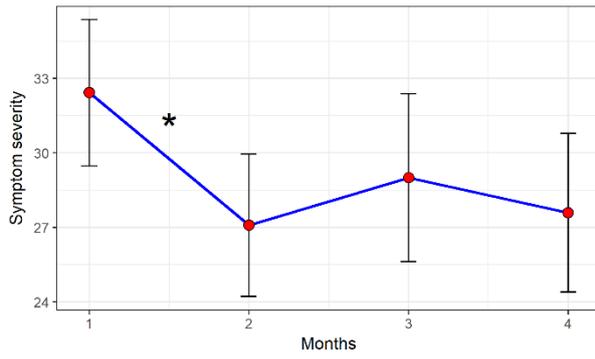


Figure 3. The effect of Karnozin Extra supplementation on MS patients - Psychosocial subscale

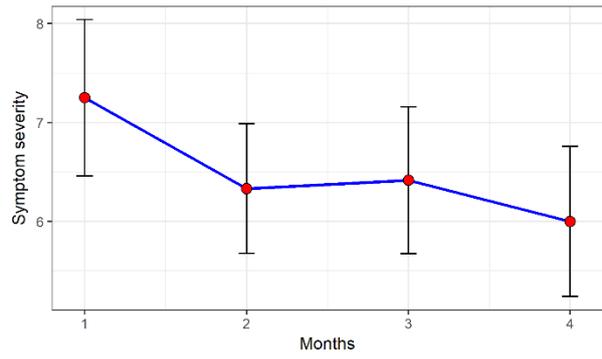


Figure 2. The effect of Karnozin Extra supplementation on MS patients - Cognitive subscale

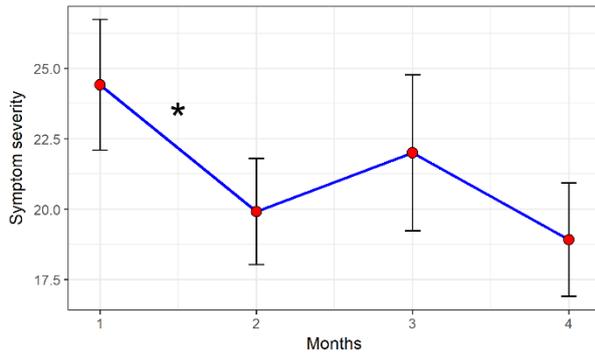
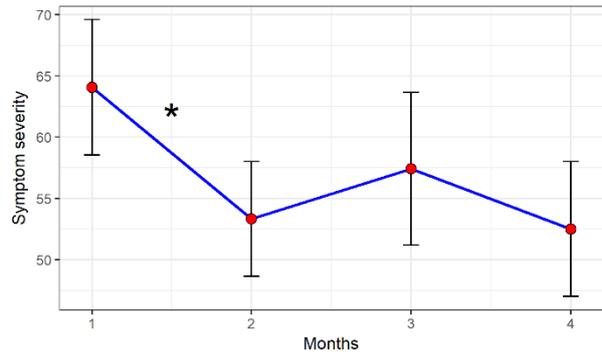


Figure 4. The effect of Karnozin Extra supplementation on MS patients - Total MFIS score



Legend: * - statistically significant on the level of $p \leq 0.05$