A plant-based fatty acid food supplement can increase erythrocytes´ omega-3-index

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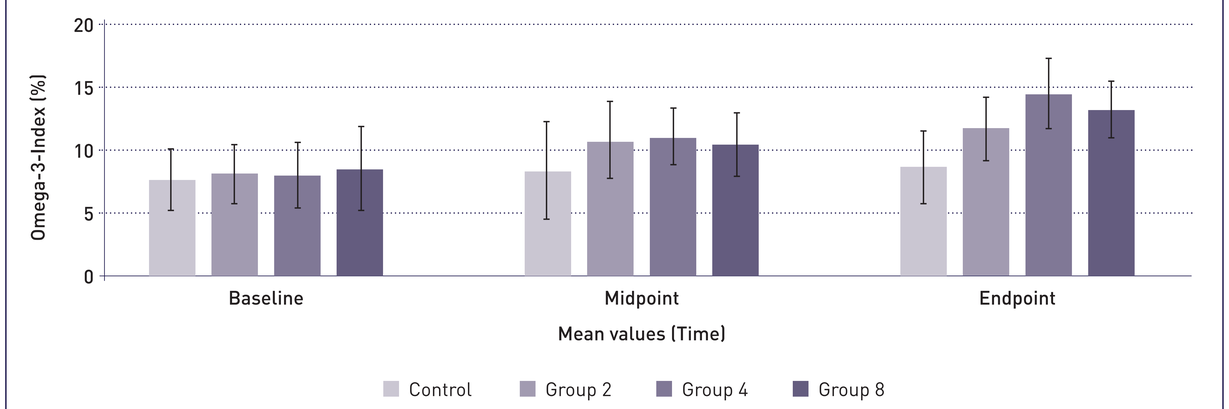
FIGURE 1: OMEGA-3-INDEX



Midpoint = after 8 weeks, endpoint = after 16 weeks of intervention

TABLE 1: MEAN VALUES ± STANDARD DEVIATIONS (SD) AND P-VALUES OF THE Ω-3-INDEX IN %

	Control	Group 2	Group 4	Group 8
Baseline	7.69 ± 2.44	8.18 ± 2.32	8.05 ± 2.63	8.50 ± 3.31
Midpoint	8.38 ± 3.89	10.76 ± 2.99	11.05 ± 2.17	10.44 ± 2.47
Endpoint	8.67 ± 2.84	11.71 ± 2.46	14.42 ± 2.73	13.22 ± 2.23

P-Group (0 vs 2)	0.000
P-Group (0 vs 4)	0.000
P-Group (0 vs 8)	0.000
P-Group (2 vs 4)	0.044
P-Group (2 vs 8)	0.109
P-Group (4 vs 8)	0.727
P-Group tot	0.000

P-Time (0 vs 1)	0.000
P-Time (0 vs 2)	0.000
P-Time (1 vs 2)	0.000
P-Time tot	0.000
P-Gender	0.001

Control = control group; Group 2 = 2 capsules/day of Omega Blend; Group 4 = 4 capsules/day of Omega Blend; Group 8 = 2 capsules/day of Omega Blend + 6 capsules/day of JP+® Premium
P-Group = comparison between groups (ANOVA + post-hoc), all 4 groups and total (tot)
P-Time = comparison between time points: baseline, midpoint/ 8 weeks, endpoint/16weeks (ANOVA + post-hoc), all 3 time points and total (tot)
P-Gender = comparison between male and female (m vs f); Gender comparison (mean values); MV male: 9.41 % / MV female: 10.77 %

Objectives: Many studies found that high blood levels of omega-3 (ω-3) fatty acids lower the risk of dying from heart attack. Similar health effects are reported for plant-derived oils, such as the prevention of cardiovascular diseases, anti-atherogenic and anti-diabetic effects, anti-coagulant effects, anti-oxidant and immune-modulatory effects, or beneficial effects on lipid metabolism. The product investigated in this study solely contains plant-derived fatty acids, and additionally contains phytonutrients from many different seeds such as blackberries, raspberries, cranberries, pomegranate, tomatoes, and sea buckthorn. Via a randomized controlled clinical trial we evaluated whether ~0.5 g or ~1 g of ω-3 fatty acids from this plant-based food supplement (Juice Plus+® OMEGA Blend) could increase erythrocytes' ω-3-index in healthy adult subjects.

Methods: After a 4-week wash-out from food supplements and a 4-week run-in to harmonize intake of dietary ω-3 fatty acids, we conducted a controlled, randomized, open-labelled, parallel-grouped, clinical trial. 80 healthy adults from Austria, Europe, were randomized to four groups: a) control group, just adhering to the habitual diet; b) two capsules/day of the plant-based fatty acid supplement matching 0.5 g of ω-3 fatty acids; c) four capsules/day of the plant-based fatty acid supplement matching 1 g of ω-3 fatty acids; and d) two capsules of the plant-based fatty acid supplement and 6 capsules/day of a powdered, encapsulated, fruit, berry and vegetable juice concentrate (Juice Plus+® PREMIUM). Blood samples were collected at baseline, after 8 weeks, and after 16 weeks intervention with the food supplement(s).

Results: 68 subjects (39.43 ± 12.28 years, 33 female, 35 male) completed the intervention. Baseline data on ω-3-index revealed that the average ω-3-index of the investigated groups was already higher than expected (mean value: 7.9%). We observed a difference in ω-3-index between genders: women showed higher values compared to men throughout the observation period. The intervention with the commercially available and plant-based fatty acid food supplement increased erythrocytes´ ω-3-index significantly in all intervention groups ($p<0.001$), after 8 weeks as well as after 16 weeks (Figure 1). In all intervention groups the ω-3-index was also significantly different from control ($p<0.001$), after 8 weeks as well as after 16 weeks. There was also a significant difference between Group 2 and Group 4 to higher values in Group 4, indicating that 4 capsules affected individual´s ω-3-index stronger than 2 capsules per day. Interestingly, although „Group 8" also ingested only 2 capsules per day, such a difference was not observed between Group 4 compared to Group 8 (Table 1).

Conclusion: These data demonstrate that the intake of only 0.5 g/day of a plant-based ω-3 fatty acid food supplement from algae and berry seeds is able to increase the ω-3-index of a well-nourished, healthy cohort significantly only after 8 weeks.

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