

Changes in human serum lipid profile with regular consumption of omega-3 fatty acid enriched eggs vs. regular consumption of standard hen eggs.



Summary & Conclusions

Introduction

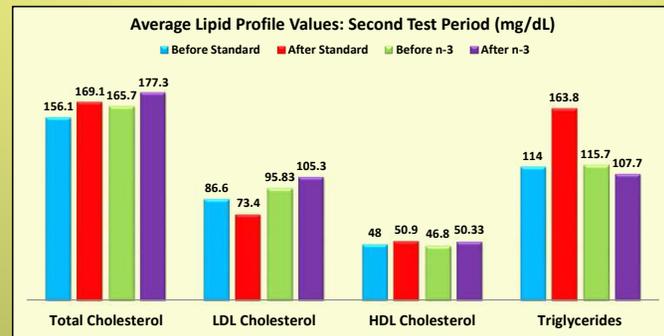
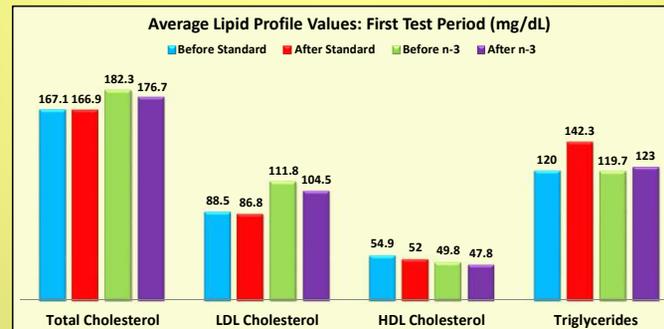
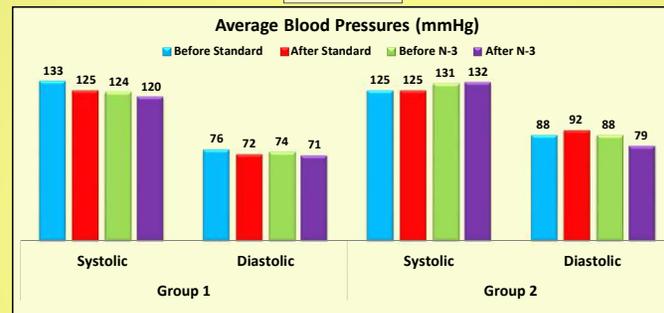


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Purpose

The purpose of this study was to compare the effects on blood lipid profile and blood pressure when two omega-3 fatty acid enriched eggs or two standard eggs are added to the usual daily dietary intake of college students.

Results



- Diets were not significantly different among groups, and each individual kept a consistent diet throughout.
- No significant changes in lipoprotein levels occurred between treatment groups.
- Egg consumption did not significantly impact blood pressure, although a change from standard egg consumption to omega-3 egg consumption lowered average diastolic blood pressure by 9 mm HG.
- Trends suggest subjects experienced lower LDL cholesterol and less of an increase in serum triglycerides while consuming omega-3 enriched eggs.
- Individual variance is important to note. Some subjects were hyper-responders to omega-3 egg treatment.
- Eggs seem to be a neutral food that does not adversely effect serum cholesterol in populations. Individuals show significant variability in response.
- Due to small sample size data are not significant, however important trends should be recognized.
- Incorporating omega-3 enriched eggs into the diet of individuals who consume eggs regularly may have potential cardioprotective benefits in lowering LDL cholesterol and blood pressure.

Materials & Methods

- The study included 6 males and 8 females aged 19-22.
- Subjects were randomly divided into 2 groups, ½ receiving standard hen eggs, the other ½ receiving omega-3 enriched eggs.
- Subjects were asked to consume two eggs daily at a meal time of their choice for three weeks.
- After the first three-week test period a five-day washout period followed, then subjects received the opposite egg type and consumed two eggs daily for the next three weeks.
- Four fasting capillary blood samples were collected (at the beginning, after first test period, after washout period, and after the second test period) and analyzed using the Cholestech LDX System. Blood pressure was measured using an automatic blood pressure cuff.
- Each subject kept two, 3- day diet records during each test period, and a 1-day diet record during the washout period.
- Diet records were analyzed using Diet Analysis Plus 9.0.
- Lipid and blood pressure values were analyzed using ANOVA and paired t-tests.

Table 1: Mean Lipid Profile with SD (mg/dL)

	Group 1: n-3 (n=6)		Group 2: Conventional (n=8)	
	Before Trial	After Trial	Before Trial	After Trial
Total Cholesterol	182.3 ± 38.5	176.7 ± 30.3	167.1 ± 31.2	166.9 ± 31.2
LDL Cholesterol	111.8 ± 45.2	104.5 ± 38.5	88.5 ± 37.4	86.8 ± 44.2
HDL Cholesterol	49.8 ± 15.96	47.8 ± 12.2	54.9 ± 18.0	52.0 ± 23.0
Triglycerides	119.7 ± 68.6	123.0 ± 79.4	120.0 ± 76.4	142.3 ± 92.1

	Group 1: Conventional (n=8)		Group 2: n-3 (n=6)	
	Before Trial	After Trial	Before Trial	After Trial
Total Cholesterol	165.67 ± 20.43	177.3 ± 37.1	156.1 ± 32.7	169.1 ± 29.9
LDL Cholesterol	95.83 ± 21.89	105.3 ± 33.3	86.6 ± 28.6	73.4 ± 50.6
HDL Cholesterol	46.8 ± 13.3	50.33 ± 13.7	48 ± 18.7	50.9 ± 17.0
Triglycerides	115.7 ± 50.6	107.7 ± 33.3	114.0 ± 43.0	163.8 ± 139.8

Acknowledgements

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