

Tailoring eggs for health benefits: the challenge of eggs more compatible with CVD and possibly egg-associated diabetes risks

N. Shapira

Tel Aviv University, Stanley Steyer School of Health Professionals, Israel

nivnet@inter.net.il

Summary

Despite flexibility of egg composition and respective health benefits, epidemiological studies lack qualitative information. Potential modifications for CVD and recently suggested egg-associated diabetes risks were discussed.

Antioxidative egg with n-6 PUFA reduced 40%, PUFA:MUFA ratio 50%, and antioxidants vitamin E and carotenoids increased >200% compared to western 'generic' high n-6 PUFA egg, consumed twice/day resulted in 30% reduced LDL oxidizability, 14.9% reduced glycemic response, and restored HDL ($p<0.01$), comparable to low-egg intake (2-4 eggs/week).

N-3 PUFA/LCPUFA egg enhancement by extruded linseed (5%) yielded higher total n-3 PUFA (2.4-fold) and DHA (3.8-fold), 3.6-fold lower n-6:n-3 PUFA ratio ($p\leq 0.0005$), contributing 10-20% total n-3 PUFA DRI, $\geq 40\%$ DHA DRI. High n-3 PUFA eggs were recently found to significantly reduce blood glucose. Further, fortified egg's capacity for attaining significant %DRI for vitamins A and E and selenium are relevant for reducing CVD risks particularly enhanced in diabetics, including endothelial dysfunction, dyslipidemia, inflammatory processes, and oxidative stress.

Because egg composition is highly feed-dependent and closely affects plasma nutrients and lipids, including LDL composition, carefully tailored eggs for specific risks – especially those related to diabetes – warrant research for differential effects, quantitative implications, and maximizing preventive benefits for what may be key factors limiting egg consumption.