Supplementary Materials

Table S1. Gas chromatograph oven temperature programme used for GC-MS analysis of fatty acid methyl esters.

Hold Time (min)	Temperature (°C)	Rate (°C·min^{-1})
—	100	—
0	120	15
0	140	7
2	180	13
3	185	1
7	190	1
1	195	2
2	200	1
2	240	14
2	250	13
2	260	13

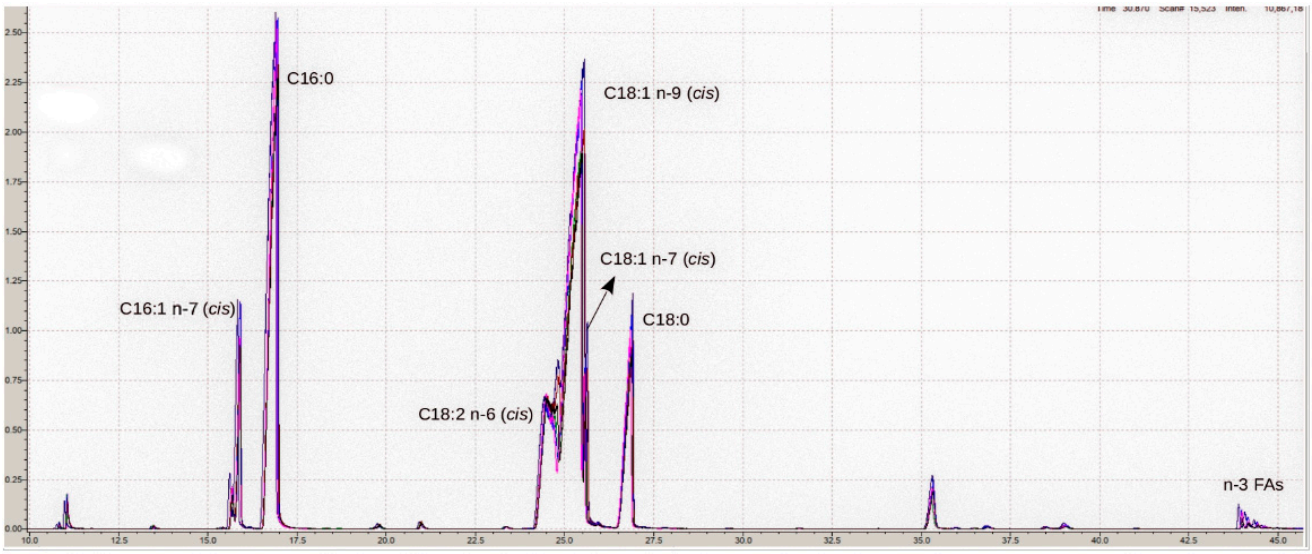


Figure S1. Major yolk fatty acids identified in overlaid chromatograms from the GC-MS analysis of the fatty acid methyl esters in the lipophilic extracts from representative samples of the different treatment groups (C, HD1, HD2, NG1, NG2 and VE) collected on W9 of the dietary intervention.

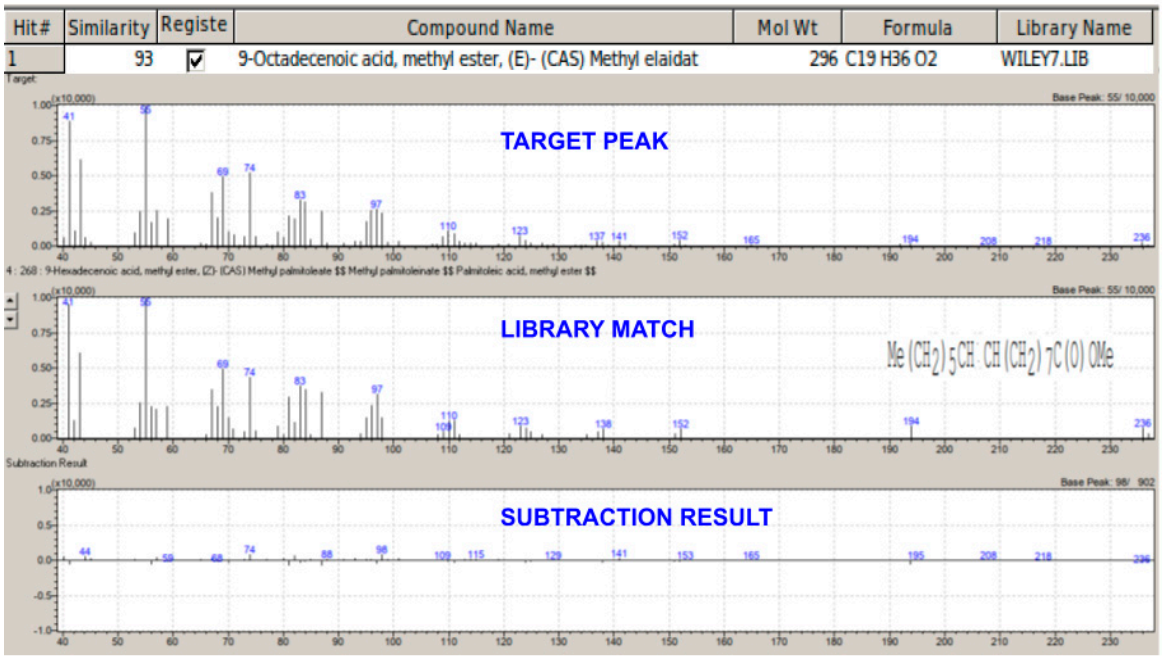


Figure S2. . Paradigm of mass spectrum peak investigation conducted for fatty acid methyl ester identification corresponding to GC-MS chromatograms of a representative derivatised lipophilic yolk extract. The identification process included a similarity search of the target peak using mass spectral libraries, which led to the library-matched spectrum, along with the sub-traction result of the recorded and referenced spectra used to confirm the fragmentation m/z (mass to charge ratio) profile. Based on the results, the target peak was assigned to the methyl ester of palmitoleic acid [C16:1 n-7 (cis)] with a similarity percentage of 93%

Equation S1: Atherogenic Index: AI = [C12:0 + (4 × C14:0) + C16:0] / (n-3PUFAs + n-6PUFAs + MUFAs)

Equation S2: Thrombogenic Index: TI = (C14:0 + C16:0 + C18:0) / [0.5 × MUFAs + 0.5 × n-6PUFAs + 3 × n-3PUFAs + (n-3PUFAs / n-6PUFAs)]

Equation S3: Peroxidisability Index: PI = 0.025 × monoenes + 1 × dienes + 2 × trienes + 4 × tetraenes + 6 × pentaenes + 8 × hexaenes

Equation S4: Hypocholesterolaemic Fatty Acids: h = C18:1n-9*cis* + C18:2n-6 + C20:4n-6*cis* + C18:3n-3*cis* + C20:5n-3*cis* + C22:5n-3*cis* + C22:6n-3*cis*

Equation S5: Hypercholesterolaemic Fatty Acids: H = C14:0 + C16:0

Equation S6: Ratio of Hypocholesterolaemic to Hypercholesterolaemic Fatty Acids: h / H = [(C18:1n-9cis + C18:2n-6 + C20:4n-6cis + C18:3n-3cis + C20:5n-3cis + C22:5n-3cis + C22:6n-3cis)] / (C14:0 + C16:0)

Table S2. Composition of the secondary (minor) fatty acids expressed as percentages (w/w) of total fatty acids in total lipids of lipophilic extracts of dry yolk samples. Results are presented as mean±SD (Standard Deviation) (Measurement repeats, N=3).

Sampling	Treatment Group[1]	C14:0[2,3]	C14:1[2,3]	C15:0[2,3]	Iso-C17:0[2,3]	Anteiso-C17:0[2,3]	Cyclo-C17:0[2,3]	C17:1 n-7[2,3]	C18:2 n-6[2,3]	C18:2 n-6 t9,t11[2,3]
D0	C	0.12±0.04^{a,A}	0.07±0.02^{a,A}	0.10±0.01^{a,B}	0.04±0.01^{b,A}	0.01±0.01^{a,A}	0.08±0.02^{a,A,B}	0.12±0.01^{a,A}	0.05±0.01^{b,A}	0.02±0.01^{a,A}
	HD1	0.10±0.04^{a,A}	0.06±0.02^{a,A}	0.09±0.02^{a,B}	0.13±0.14^{a,A}	0.04±0.08^{a,A}	0.07±0.02^{a,A,B}	0.12±0.01^{a,A}	0.14±0.18^{a,A}	0.05±0.09^{a,A}
	HD2	0.06±0.02^{a,A}	0.04±0.01^{a,B}	0.09±0.01^{a,B}	0.07±0.06^{a,b,A}	0.02±0.02^{a,A}	0.10±0.04^{a,A}	0.11±0.01^{a,A}	0.06±0.05^{a,b,A}	0.05±0.08^{a,A}
	NG1	0.09±0.03^{a,A}	0.06±0.02^{a,B}	0.10±0.03^{a,B}	0.05±0.02^{b,A}	0.01±0.01^{a,A}	0.08±0.02^{a,A}	0.11±0.01^{a,A}	0.06±0.07^{a,b,A}	0.02±0.03^{a,A}
	NG2	0.08±0.03^{a,A}	0.07±0.02^{a,B}	0.10±0.02^{a,A,B}	0.07±0.07^{a,b,A}	0.05±0.10^{a,A}	0.08±0.02^{a,A,B}	0.11±0.01^{a,A}	0.07±0.07^{a,b,A}	0.01±0.01^{a,A}
	VE	0.08±0.03^{a,A}	0.08±0.03^{a,A}	0.10±0.02^{a,B}	0.05±0.01^{b,A}	0.01±0.01^{a,A}	0.07±0.02^{a,A,B}	0.12±0.01^{a,A}	0.05±0.01^{b,A}	0.02±0.01^{a,A}
W1	C	0.12±0.04^{a,A}	0.09±0.04^{a,A}	0.14±0.04^{a,A}	0.04±0.01^{a,A}	0.01±0.01^{a,A}	0.08±0.02^{a,A}	0.12±0.00^{a,A}	0.04±0.01^{a,A}	0.01±0.01^{a,A}
	HD1	0.18±0.06^{a,A}	0.09±0.06^{a,A}	0.14±0.04^{a,A}	0.04±0.02^{a,B}	0.01±0.00^{a,A}	0.08±0.02^{a,A}	0.12±0.01^{a,A}	0.03±0.01^{a,B}	0.01±0.01^{a,A}
	HD2	0.07±0.03^{a,A}	0.07±0.04^{a,A,B}	0.15±0.04^{a,B}	0.03±0.02^{a,A}	0.01±0.00^{a,A}	0.09±0.02^{a,A}	0.11±0.01^{a,A}	0.03±0.02^{a,A}	0.01±0.01^{a,A}
	NG1	0.06±0.02^{a,A}	0.09±0.02^{a,A,B}	0.15±0.03^{a,B}	0.04±0.02^{a,A}	0.01±0.01^{a,A}	0.09±0.02^{a,A}	0.12±0.01^{a,A}	0.03±0.01^{a,A}	0.01±0.01^{a,A}
	NG2	0.08±0.03^{a,A}	0.08±0.03^{a,A,B}	0.13±0.02^{a,B}	0.04±0.01^{a,A}	0.01±0.01^{a,A}	0.09±0.01^{a,A}	0.12±0.01^{a,A}	0.03±0.01^{a,A}	0.01±0.01^{a,A}
	VE	0.16±0.06^{a,A}	0.11±0.07^{a,A}	0.15±0.03^{a,A}	0.05±0.02^{a,A}	0.01±0.01^{a,A}	0.09±0.01^{a,A}	0.13±0.01^{a,A}	0.03±0.02^{a,A}	0.01±0.01^{a,A}
W5	C	0.05±0.02^{a,A}	0.12±0.03^{a,A}	0.09±0.03^{a,B}	0.07±0.01^{a,A}	0.01±0.01^{a,A}	0.05±0.02^{a,B,C}	0.11±0.01^{a,A}	0.07±0.02^{a,A}	0.03±0.01^{a,A}
	HD1	0.05±0.02^{a,A}	0.11±0.02^{a,A}	0.08±0.02^{a,B}	0.06±0.01^{a,B}	0.01±0.00^{a,A}	0.04±0.02^{a,C}	0.10±0.01^{a,A}	0.07±0.01^{a,A,B}	0.04±0.02^{a,A}
	HD2	0.08±0.03^{a,A}	0.10±0.03^{a,A,B}	0.08±0.01^{a,B}	0.06±0.01^{a,A}	0.01±0.00^{a,A}	0.05±0.01^{a,B}	0.11±0.01^{a,A}	0.06±0.01^{a,A}	0.03±0.01^{a,A}
	NG1	0.04±0.02^{a,A}	0.10±0.02^{a,A,B}	0.08±0.01^{a,B}	0.06±0.01^{a,A}	0.01±0.01^{a,A}	0.04±0.01^{a,B}	0.11±0.01^{a,A}	0.07±0.01^{a,A}	0.03±0.01^{a,A}
	NG2	0.05±0.02^{a,A}	0.13±0.03^{a,A,B}	0.07±0.01^{a,B}	0.07±0.01^{a,A}	0.01±0.01^{a,A}	0.04±0.01^{a,B}	0.11±0.01^{a,A}	0.07±0.01^{a,A}	0.03±0.01^{a,A}
	VE	0.04±0.01^{a,A}	0.12±0.03^{a,A}	0.08±0.02^{a,B}	0.07±0.01^{a,A}	0.01±0.01^{a,A}	0.04±0.00^{a,B}	0.11±0.01^{a,A}	0.07±0.01^{a,A}	0.03±0.01^{a,A}
W9	C	0.14±0.05^{a,A}	0.14±0.06^{a,A}	0.09±0.01^{a,B}	0.06±0.03^{a,A}	0.01±0.01^{a,A}	0.04±0.02^{a,C}	0.12±0.00^{a,A}	0.06±0.03^{a,A}	0.02±0.02^{a,A}
	HD1	0.09±0.03^{a,A}	0.11±0.04^{a,A}	0.09±0.02^{a,B}	0.06±0.01^{a,B}	0.01±0.00^{a,A}	0.04±0.01^{a,B,C}	0.12±0.01^{a,A}	0.06±0.01^{a,B}	0.03±0.01^{a,A}
	HD2	0.09±0.03^{a,A}	0.13±0.04^{a,A}	0.08±0.01^{a,B}	0.07±0.01^{a,A}	0.01±0.02^{a,A}	0.04±0.02^{a,B}	0.11±0.01^{a,A}	0.08±0.04^{a,A}	0.03±0.01^{a,A}
	NG1	0.06±0.02^{a,A}	0.12±0.03^{a,A}	0.09±0.02^{a,B}	0.07±0.01^{a,A}	0.01±0.01^{a,A}	0.04±0.01^{a,B}	0.12±0.01^{a,A}	0.06±0.02^{a,A}	0.03±0.01^{a,A}
	NG2	0.10±0.03^{a,A}	0.14±0.05^{a,A}	0.09±0.02^{a,A,B}	0.07±0.01^{a,A}	0.01±0.01^{a,A}	0.04±0.01^{a,B}	0.11±0.01^{a,A}	0.07±0.01^{a,A}	0.03±0.01^{a,A}
	VE	0.07±0.02^{a,A}	0.11±0.03^{a,A}	0.09±0.02^{a,B}	0.07±0.01^{a,A}	0.01±0.00^{a,A}	0.04±0.02^{a,B}	0.12±0.01^{a,A}	0.06±0.01^{a,A}	0.03±0.01^{a,A}

Table S2. Continued.

Sampling	Treatment Group[1]	C18:3 n-6 (*cis*)[2]	C18:4 n-3 (*cis*)[2]	C19:0[2]	C20:1 n-9 (*cis*)[2]	C20:3 n-6 (*cis*)[2]	C20:4 n-6 (*cis*)[2]	C22:4 n-6 (*cis*)[2]	C24:0[2]
D0	C	0.14±0.01^{a,A}	0.02±0.01^{a,A}	0.04±0.01^{a,A}	0.18±0.03^{a,A}	0.19±0.03^{a,A}	0.12±0.01^{a,A}	0.13±0.04^{a,A}	0.09±0.03^{a,A}
	HD1	0.15±0.03^{a,A}	0.02±0.00^{a,A,B}	0.04±0.01^{a,A,B}	0.18±0.03^{a,A}	0.17±0.03^{a,A}	0.11±0.01^{a,A}	0.13±0.04^{a,A}	0.08±0.03^{a,A}
	HD2	0.16±0.04^{a,A,B}	0.02±0.01^{a,A,B}	0.03±0.01^{a,A,B}	0.18±0.03^{a,A}	0.18±0.04^{a,A}	0.12±0.01^{a,A}	0.14±0.03^{a,A}	0.11±0.03^{a,A}
	NG1	0.14±0.02^{a,A}	0.01±0.01^{a,B,C}	0.03±0.02^{a,A,B}	0.18±0.05^{a,A,B}	0.19±0.05^{a,A}	0.12±0.04^{a,A}	0.13±0.08^{a,A}	0.09±0.07^{a,A}
	NG2	0.15±0.02^{a,A,B}	0.02±0.01^{a,A,B}	0.03±0.02^{a,A}	0.17±0.04^{a,A}	0.19±0.06^{a,A}	0.13±0.02^{a,A}	0.12±0.05^{a,A}	0.08±0.05^{a,A}
	VE	0.14±0.01^{a,A}	0.02±0.01^{a,A,B}	0.03±0.01^{a,A,B}	0.18±0.02^{a,A}	0.18±0.02^{a,A}	0.11±0.01^{a,A}	0.14±0.03^{a,A}	0.09±0.02^{a,A}
W1	C	0.16±0.03^{a,A}	0.02±0.01^{a,A}	0.02±0.01^{a,A}	0.14±0.01^{a,A}	0.14±0.01^{a,A}	0.12±0.02^{a,A}	0.10±0.02^{a,A}	0.06±0.03^{a,A}
	HD1	0.17±0.03^{a,A}	0.01±0.01^{a,B}	0.01±0.01^{a,B}	0.13±0.03^{a,A}	0.13±0.03^{a,A}	0.11±0.03^{a,A}	0.09±0.05^{a,A}	0.04±0.04^{a,A}
	HD2	0.18±0.06^{a,A}	0.01±0.01^{a,B}	0.01±0.02^{a,B}	0.12±0.02^{a,A}	0.13±0.03^{a,A}	0.12±0.04^{a,A}	0.10±0.02^{a,A}	0.04±0.04^{a,B}
	NG1	0.16±0.03^{a,A}	0.01±0.01^{a,C}	0.01±0.02^{a,B}	0.13±0.02^{a,B}	0.14±0.02^{a,A,B}	0.12±0.02^{a,A}	0.08±0.03^{a,A}	0.04±0.03^{a,A}
	NG2	0.19±0.04^{a,A}	0.01±0.01^{a,B}	0.00±0.01^{a,B}	0.13±0.03^{a,A}	0.13±0.03^{a,A}	0.13±0.04^{a,A}	0.09±0.06^{a,A}	0.05±0.04^{a,A}
	VE	0.16±0.03^{a,A}	0.01±0.01^{a,B}	0.01±0.02^{a,B}	0.13±0.03^{a,A}	0.13±0.04^{a,A}	0.13±0.05^{a,A}	0.10±0.03^{a,A}	0.05±0.04^{a,A}
W5	C	0.12±0.03^{a,A}	0.04±0.02^{a,A}	0.04±0.02^{a,A}	0.18±0.03^{a,A}	0.15±0.02^{a,A}	0.12±0.02^{a,A}	0.13±0.03^{a,A}	0.06±0.03^{a,A}
	HD1	0.13±0.03^{a,A}	0.04±0.00^{a,A}	0.05±0.01^{a,A}	0.18±0.04^{a,A}	0.16±0.02^{a,A}	0.12±0.01^{a,A}	0.14±0.02^{a,A}	0.08±0.02^{a,A}
	HD2	0.12±0.01^{a,B}	0.04±0.01^{a,A}	0.05±0.01^{a,A}	0.18±0.03^{a,A}	0.15±0.02^{a,A}	0.11±0.01^{a,A}	0.12±0.03^{a,A}	0.07±0.01^{a,A,B}
	NG1	0.12±0.01^{a,A}	0.03±0.01^{a,A,B}	0.05±0.01^{a,A}	0.20±0.03^{a,A}	0.17±0.02^{a,A,B}	0.13±0.03^{a,A}	0.13±0.03^{a,A}	0.09±0.02^{a,A}
	NG2	0.12±0.01^{a,B}	0.04±0.01^{a,A}	0.05±0.01^{a,A}	0.19±0.02^{a,A}	0.16±0.02^{a,A}	0.11±0.02^{a,A}	0.12±0.03^{a,A}	0.07±0.02^{a,A}
	VE	0.14±0.05^{a,A}	0.04±0.01^{a,A}	0.05±0.01^{a,A}	0.18±0.02^{a,A}	0.16±0.04^{a,A}	0.12±0.02^{a,A}	0.15±0.04^{a,A}	0.08±0.03^{a,A}
W9	C	0.13±0.05^{a,A}	0.03±0.01^{a,A}	0.04±0.02^{a,A}	0.17±0.05^{a,A}	0.13±0.03^{a,B}	0.15±0.06^{a,A}	0.11±0.05^{a,A}	0.04±0.04^{a,A}
	HD1	0.13±0.01^{a,A}	0.03±0.00^{a,A}	0.03±0.02^{a,A,B}	0.15±0.02^{a,A}	0.12±0.01^{a,B}	0.13±0.06^{a,A}	0.09±0.01^{a,A}	0.05±0.02^{a,A}
	HD2	0.12±0.03^{a,B}	0.03±0.01^{a,A}	0.04±0.02^{a,A}	0.16±0.02^{a,A}	0.13±0.02^{a,B}	0.12±0.01^{a,A}	0.09±0.04^{a,A}	0.05±0.03^{a,A,B}
	NG1	0.13±0.03^{a,A}	0.03±0.01^{a,A}	0.05±0.01^{a,A}	0.16±0.02^{a,A,B}	0.13±0.03^{a,B}	0.13±0.01^{a,A}	0.09±0.03^{a,A}	0.05±0.03^{a,A}
	NG2	0.12±0.02^{a,B}	0.03±0.01^{a,A}	0.04±0.02^{a,A}	0.16±0.04^{a,A}	0.14±0.03^{a,B}	0.14±0.06^{a,A}	0.07±0.04^{a,A}	0.04±0.03^{a,A}
	VE	0.13±0.04^{a,A}	0.03±0.01^{a,A,B}	0.04±0.02^{a,A,B}	0.18±0.03^{a,A}	0.15±0.03^{a,B}	0.13±0.04^{a,A}	0.12±0.03^{a,A}	0.06±0.03^{a,A}

[1] C: control group offered a commercial basal diet; HD1: group offered the basal diet supplemented with 0.75 g hesperidin per kg feed; HD2: group offered the basal diet supplemented with 1.5 g hesperidin per kg feed; NG1: group offered the basal diet supplemented with 0.75 g naringin per kg feed; NG2: group offered the basal diet supplemented with 1.5 g naringin per kg feed; VE: group offered the basal diet supplemented with 0.20 g a-tocopheryl acetate per kg feed. [2] Lowercase superscript letters indicate comparisons among treatment groups within the same sampling time, whereas uppercase superscript letters indicate comparisons among sampling times within the same treatment group. Means sharing at least one common letter are not significantly different according to Tukey's HSD test at the 5% significance level.