

Erratum

Beneficial effects of enrichment of chicken meat with n-3 polyunsaturated fatty acids, vitamin E and selenium on health parameters: a study on male rats – ERRATUM

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During the production process the column headings of Tables 1–5 were omitted. The correct representation of Tables 1–5 are shown here.

Table 1 Composition of rat diets (g/kg of diet)

Ingredients	Dietary treatments ¹			
	L	RF	RFE	RFES
Wheat	180	180	180	180
Vitacel (cellulose)	60	60	60	60
Lyophilized BECC ²	240	240	240	240
Lard	34	37	39	40
Wheat starch	368	365	363	362
Saccharose	80	80	80	80
Mono-Ca-phosphate	10	10	10	10
Limestone	15	15	15	15
NaCl	3	3	3	3
Vitamin–mineral premix ³	10	10	10	10

¹Diets contained boiled edible components of chicken carcass (BECC) prepared from chickens fed between 22 and 35 days of life diets differing in composition of added fat, vitamin E (vE) and selenium (Se) content, as follows.

²L = lard, 80 mg vE and 0.3 mg Se/kg; RF = rape seeds and fish oil, 80 mg vE and 0.3 mg Se/kg; RFE = rape seeds and fish oil, 150 mg vE and 0.3 mg Se/kg; RFES = rape seeds and fish oil, 150 mg vE and 0.7 mg Se/kg.

³Provided per kg of diet: vitamin A, 15 000 IU; vitamin D₃, 1000 IU; vitamin E (α -tocopherol acetate), 30 mg; vitamin K₃, 5 mg; vitamin B₁, 12 mg; vitamin B₂, 12 mg; nicotinic acid, 40 mg; vitamin B₆, 10 mg; vitamin B₁₂, 0.05 mg; biotin, 0.2 mg; folic acid, 4 mg; choline, 1500 mg; Ca-pantothenate, 20 mg; Fe, 75 mg; Mn, 10 mg; Cu, 8 mg; Zn, 25 mg; I, 0.15 mg; Co, 0.15 mg; Se, 0.1 mg; inositol, 100 mg.

Table 2 Composition and fatty acid profile of boiled edible components of chicken carcass (BECC) and rat diets (g/kg)

Indices	BECC ¹				Rat diets ²			
	L	RF	RFE	RFES	L	RF	RFE	RFES
Dry matter (g/kg)	970.5	974.2	961.0	951.2	867.3	879.5	879.1	876.9
CP (g/kg)	729.4	742.5	736.9	740.6	180.5	192.5	186.9	185.6
Crude fat (g/kg)	194.7	180.0	175.4	167.0	78.9	76.6	77.7	78.0
Se (mg/kg)	0.90	0.96	1.19	1.36	0.19	0.31	0.23	0.30
Vitamin E ³ (mg/kg)	73.0	73.6	93.3	100.9	50.2 ⁴	50.4 ⁴	55.1 ⁴	56.9 ⁴
Fatty acid profile (g/100 g total fatty acids)								
C14:0	0.5	0.6	0.4	0.4	0.7	0.7	0.7	0.8
C16:0	24.0	20.8	19.2	19.9	23.6	26.3	22.8	22.4
C18:0	7.8	7.4	6.5	6.2	6.7	8.6	8.1	6.6
SFA ⁵	32.5	28.8	26.2	26.6	31.1	35.7	31.7	29.9
C16:1	7.2	5.1	5.0	5.0	0.9	1.1	0.6	0.9
C18:1	44.2	42.1	47.7	47.3	50.6	50.4	49.5	53.0
MUFA ⁶	51.7	48.0	53.5	53.1	51.6	51.7	50.4	54.2
C18:2n-6 (LA)	14.3	19.1	17.1	17.2	12.2	7.1	12.5	10.4
C20:4n-6 (AA)	0.8	0.9	0.8	0.8	0.3	0.2	0.3	0.2
PUFAn-6 ⁷	15.2	20.1	18.1	18.1	12.6	7.4	12.8	10.6
C18:3n-3 (ALA)	0.5	2.5	1.7	1.8	0.4	0.7	1.0	0.9
C22:5n-3 (DPA)	0.06	0.19	0.20	0.19	0.04	0.08	0.07	0.07
∑EPA and DHA	0.1	0.4	0.3	0.3	0.03	0.11	0.08	0.13
PUFAn-3 ⁸	0.6	3.0	2.2	2.3	0.5	0.9	1.1	1.1
PUFAn-6/n-3	24.1	6.6	8.0	7.9	31.5	7.9	11.3	9.6

SFA = saturated fatty acid; MUFA = monounsaturated fatty acid; PUFA = polyunsaturated fatty acid; ALA = α -linolenic acid; DPA = docosapentaenoic acid; DHA = docosahexaenoic acid; EPA = eicosapentaenoic acid.

All values for unsaturated fatty acids represent a mix of isomers.

¹Chickens were fed diets differing in composition of added fat, vitamin E (vE) and selenium (Se) content as follows: L = lard, 80 mg vE and 0.3 mg Se/kg; RF = rape seeds and fish oil, 80 mg vE and 0.3 mg Se/kg; RFE = rape seeds and fish oil, 150 mg vE and 0.3 mg Se/kg; RFES = rape seeds and fish oil, 150 mg vE and 0.7 mg Se/kg.

²Diets contained BECC from respective groups of chickens (240 g/kg).

³Sum of δ -, γ -, α -tocopherol and α -tocopherol acetate.

⁴Calculated.

⁵SFA = C14:0 + C16:0 + C18:0 + C20:0 + C22:0 + C24:0.

⁶MUFA = C16:1 + C17:1 + C18:1 + C20:1 + C21:1 + C22:1.

⁷PUFAn-6 = C18:2n-6 + C18:3n-6 + C20:2n-6 + C20:3n-6 + C20:4n-6 + C22:4n-6.

⁸PUFAn-3 = C18:3n-3 + C20:5n-3 + C22:5n-3 + C22:6n-3.

Table 3 Effect of feeding diets containing boiled edible components of chicken carcass (BECC) on the lipid profile in the brain and liver of rats

FA (% of total FA)	Dietary treatments ¹					Contrasts (P-value)		
	L	RF	RFE	RFES	SEM	Animal fat v. other lipids ²	vE basal v. increased ³	Se basal v. increased ⁴
Liver lipids								
SFA	49.60	46.59	45.22	50.35	1.611	Ns	Ns	Ns
MUFA	31.22	33.74	33.01	29.21	1.674	Ns	Ns	Ns
PUFA	19.18	19.67	21.77	20.43	1.014	Ns	Ns	Ns
C18:2n-6 (LA)	5.05 ^a	8.49 ^b	11.10 ^b	8.79 ^b	0.660	>0.05	>0.05	>0.05
C20:4n-6 (AA)	8.45	5.35	6.49	8.84	0.969	Ns	Ns	Ns
PUFAn-6	13.69 ^a	14.08 ^{ab}	17.87 ^b	18.76 ^b	1.195	>0.05	>0.01	>0.05
C18:3n-3 (ALA)	trace	0.52 ^b	0.40 ^b	0.52 ^b	0.031	Ns	>0.01	>0.01
C20:5n-3 (EPA)	trace	0.15 ^b	0.16 ^b	0.19 ^b	0.014	>0.01	>0.01	>0.01
C22:5n-3 (DPA)	0.30 ^{ab}	0.30 ^{ab}	0.27 ^a	0.42 ^b	0.036	Ns	Ns	Ns
C22:6n-3 (DHA)	0.78	0.81	0.79	1.00	0.094	Ns	Ns	Ns
PUFAn-3	0.94 ^a	1.76 ^b	1.62 ^b	2.09 ^b	0.140	>0.01	>0.01	>0.01
∑EPA and DHA	0.78 ^a	0.96 ^{ab}	0.95 ^a	1.19 ^b	0.092	>0.01	>0.05	>0.01
PUFAn-6/n-3	9.34 ^b	4.01 ^a	3.88 ^a	3.99 ^a	0.980	>0.01	>0.01	>0.01
Brain lipids								
SFA	58.21 ^a	57.69 ^a	60.07 ^b	57.78 ^a	0.645	Ns	Ns	Ns
MUFA	30.85	30.32	28.56	30.43	0.687	Ns	Ns	Ns
PUFA	10.93 ^a	11.99 ^b	11.37 ^{ab}	11.79 ^{ab}	0.240	>0.01	Ns	Ns
C18:2n-6 (LA)	0.14 ^a	0.26 ^b	0.20 ^{ab}	0.20 ^{ab}	0.029	>0.05	Ns	Ns
C20:4n-6 (AA)	6.14	5.99	5.76	5.71	0.127	>0.05	>0.05	Ns
PUFAn-6	6.40	6.37	6.09	6.06	0.139	Ns	>0.05	Ns
C18:3n-3 (ALA)	Trace	Trace	Trace	Trace				
C20:5n-3 (EPA)	Trace	Trace	Trace	Trace				
C22:5n-3 (DPA)	0.06	0.05	0.05	0.08	0.013	Ns	Ns	Ns
C22:6n-3 (DHA)	3.92 ^a	4.96 ^b	4.75 ^{ab}	5.05 ^b	0.224	>0.01	Ns	Ns
PUFAn-3	4.43 ^a	4.99 ^b	4.78 ^b	5.01 ^b	0.219	>0.01	Ns	>0.05
∑EPA and DHA	3.98 ^a	4.96 ^b	4.75 ^{ab}	4.99 ^b	0.216	>0.01	Ns	Ns
PUFAn-6/n-3	1.46 ^a	1.30 ^b	1.27 ^b	1.21 ^b	0.029	>0.01	>0.01	Ns

FA = fatty acid; vE = vitamin E; Se = selenium; SFA = saturated fatty acid; MUFA = monounsaturated fatty acid; PUFA = polyunsaturated fatty acid; ALA = α-linolenic acid; DPA = docosapentaenoic acid; DHA = docosahexaenoic acid; EPA = eicosapentaenoic acid.

All values for unsaturated fatty acids represent a mix of isomers.

^{a,b}Means with different letters within rows differ significantly ($P < 0.05$).

¹Diets contained BECC (240 g/kg) from chickens fed diets differing in composition of added fat, vE and Se content as follows: L = lard, 80 mg vE and 0.3 mg Se/kg; RF = rape seeds and fish oil, 80 mg vE and 0.3 mg Se/kg; RFE = rape seeds and fish oil, 150 mg vE and 0.3 mg Se/kg; RFES = rape seeds and fish oil, 150 mg vE and 0.7 mg Se/kg.

²L v. RF, RFE, RFES.

³L, RF v. RFE, RFES.

⁴L, RF, RFE v. RFES; SFA = C14:0 + C16:0 + C18:0 + C20:0 + C22:0 + C24:0; MUFA = C16:1 + C17:1 + C18:1 + C20:1 + C21:1 + C22:1; PUFAn-6 = C18:2n-6 + C18:3n-6 + C20:2n-6 + C20:3n-6 + C20:4n-6 + C22:4n-6; PUFAn-3 = C18:3n-3 + C20:5n-3 + C22:5n-3 + C22:6n-3.

Table 4 Effect of feeding diets containing boiled edible components of chicken carcass (BECC) on concentrations of tocopherols (µg/g) and cholesterol (100 mg/g) in the liver of rats (n = 10)

Indices	Dietary treatments ¹					Contrasts (P-value)		
	L	RF	RFE	RFES	SEM	Animal fat v. other lipids ²	vE basal v. increased ³	Se basal v. increased ⁴
δ-Tocopherol	5.47 ^a	7.77 ^b	7.77 ^b	6.96 ^{ab}	0.463	>0.01	Ns	>0.01
γ-Tocopherol	0.16 ^a	0.24 ^b	0.26 ^b	0.26 ^b	0.437	>0.01	>0.05	>0.01
α-Tocopherol	20.43	23.92	22.35	29.92	2.992	Ns	Ns	Ns
α-Tocopherol acetate	39.53 ^a	59.35 ^{ab}	78.31 ^b	66.25 ^b	5.740	>0.01	>0.01	>0.01
Total cholesterol	137.5	160.5	162.1	142.4	10.57	Ns	Ns	Ns

vE = vitamin E; Se = selenium.

^{a,b}Means with different letters within rows differ significantly at $P \leq 0.05$.

¹Diets contained BECC (240 g/kg) from chickens fed diets differing in composition of added fat, vE and Se content as follows: L = lard, 80 mg vE and 0.3 mg Se/kg; RF = rape seeds and fish oil, 80 mg vE and 0.3 mg Se/kg; RFE = rape seeds and fish oil, 150 mg vE and 0.3 mg Se/kg; RFES = rape seeds and fish oil, 150 mg vE and 0.7 mg Se/kg.

²L v. RF, RFE, RFES.

³L, RF v. RFE, RFES.

⁴L, RF, RFE v. RFES.

Table 5 Effect of feeding diets containing boiled edible components of chicken carcass (BECC) on biochemical and haematology markers in rats (n = 10)

Indices	Dietary treatments ¹					Contrasts (P-value)			
	L	RF	RFE	RFES	SEM	Animal fat v. other lipids ²	vE basal v. increased ³	Se basal v. increased ⁴	
Biochemical markers	Range ⁵								
Triglycerides (mmol/l)	0.56 to 2.23	4.10	3.16	4.32	4.10	0.329	Ns	Ns	
Total cholesterol (mmol/l)	0.51 to 2.85	2.26 ^{ab}	2.04 ^a	2.37 ^{ab}	2.61 ^b	0.126	Ns	>0.05	
HDL cholesterol (mmol/l)	nf	0.80 ^a	0.80 ^a	0.79 ^a	0.98 ^b	0.040	Ns	Ns	
ALT (U/l)	10 to 80	33.6	36.0	35.8	37.6	1.85	Ns	Ns	
AST (U/l)	20 to 100	57.1 ^{ab}	55.6 ^a	64.4 ^{ab}	69.5 ^b	3.24	Ns	>0.01	
Albumin (g/l)	30 to 50	39.6 ^a	39.8 ^a	40.2 ^{ab}	41.3 ^b	0.38	Ns	>0.05	
Total protein (g/dl)	5.0 to 80	76.0 ^a	75.5 ^a	77.8 ^{ab}	82.5 ^b	1.29	Ns	>0.01	
Cholinesterase (U/l)	nf	326.8 ^a	365.5 ^{ab}	326.2 ^a	410.8 ^b	15.57	Ns	Ns	
Haematology markers	Range ⁶								
WBC (10 ³ /mm ³)	3.0 to 15.0	6.0 ^b	6.9 ^b	1.1 ^a	1.9 ^a	1.02	Ns	>0.01	
RBC (10 ⁶ /mm ³)	5.0 to 12.0	9.4 ^a	10.2 ^{ab}	10.6 ^b	10.7 ^b	0.30	>0.01	>0.01	
HGB (g/dl)	11.1 to 18.0	15.3 ^a	15.5 ^{ab}	17.0 ^b	17.1 ^b	0.46	>0.05	>0.01	
HCT (%)	36.0 to 52.0	47.3 ^a	50.5 ^{ab}	55.1 ^b	55.3 ^b	1.63	>0.01	>0.01	
MCV (fl(μm ³))	46.3 to 56.2	50.4 ^{ab}	49.5 ^a	51.7 ^b	51.8 ^b	0.39	Ns	>0.01	
MCH (pg)	12.0 to 24.5	16.3 ^b	15.2 ^a	16.0 ^b	16.0 ^b	0.19	>0.05	Ns	
MCHC (g/dl)	21.6 to 42.0	32.3 ^b	30.7 ^a	30.8 ^a	31.0 ^a	0.31	>0.01	Ns	
PLT (10 ³ /mm ³)	574 to 1253	341.8 ^a	406.9 ^a	644.8 ^b	593.7 ^b	41.38	>0.01	>0.01	

vE = vitamin E; Se = selenium; HDL = high-density lipoprotein; ALT = alanine aminotransferase; AST = aspartate aminotransferase; WBC = white blood cells; RBC = red blood cells; HGB = haemoglobin; HCT = haematocrit; MCV = mean corpuscular volume; MCH = mean corpuscular haemoglobin; MCHC = mean corpuscular haemoglobin concentration; PLT = platelet count; nf = not found.

^{a,b}Means with different letters within rows differ significantly ($P < 0.05$).

¹Diets contained BECC (240 g/kg) from chickens fed diets differing in composition of added fat, vE and Se content as follows: L = lard, 80 mg vE and 0.3 mg Se/kg; RF = rape seeds and fish oil, 80 mg vE and 0.3 mg Se/kg; RFE = rape seeds and fish oil, 150 mg vE and 0.3 mg Se/kg; RFES = rape seeds and fish oil, 150 mg vE and 0.7 mg Se/kg.

²L v. RF, RFE, RFES.

³L, RF v. RFE, RFES.

⁴L, RF, RFE v. RFES.

⁵For Wistar rats aged 6 to 12 weeks (Evans, 2009).

⁶For Wistar male rats aged 8 to 16 weeks (Giknis and Clifford, 2008).

The Publisher apologises for the error.

Reference

Konieczka P, Rozbicka-Wieczorek AJ, Czauderna M and Smulikowska S 2016. Beneficial effects of enrichment of chicken meat with n-3 polyunsaturated fatty acids, vitamin E and selenium on health parameters: a study on male rats. *Animal*, first published online 20 December 2016, doi:10.1017/S1751731116002652.