CORRECTION

Correction: Diets Containing Sea Cucumber (*Isostichopus badiionotus*) Meals Are Hypocholesterolemic in Young Rats

The PLOS ONE Staff

There are errors in the title and legend of [Fig. 1](#). The title should read “Weight gain in rats during dietary supplementation period.” In the legend, “(63 ± 4 g initial weight)” should read “(140 ± 11.35 g initial weight).” Please view the correct [Fig. 1](#) title and legend here.

Additionally, the following information is missing in the legend for [Fig. 2](#): Lowercase “a” with an arrow indicates example of steatosis. Please view the complete, correct [Fig. 2](#) legend here.

There are two errors in the footnotes for [Table 3](#). For footnote 2, “CC = Control with 1% cholesterol” should read “CC = Control with 2% cholesterol.” For footnote 4, “Initial weight = 140±1135 g wet weight” should read “Initial weight = 140±11.35 g wet weight.” Please view the corrected [Table 3](#) here.

Additionally, there is an error in the footnotes of Tables [4](#), [5](#), [7](#), and [8](#). “CC = Control with 1% cholesterol” should read “CC = Control with 2% cholesterol.” Please view the corrected Tables [4](#), [5](#), [7](#), and [8](#) here.

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Fig 1. Weight gain in rats during dietary supplementation period. Growth during a 16-day period in rats (140 ± 11.35 g initial weight) fed equivalent daily amounts of a lactalbumin control diet with no added cholesterol (CNC); a lactalbumin control diet with 2% added cholesterol (CC); a diet containing 50% protein from cooked sea cucumber meal (CS50); one containing 50% protein from oven-cooked sea cucumber (OS50); or one containing 50% protein from lyophilized washed sea cucumber meal (LWS50). Values are means $\pm$ SD, N = 5.

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Fig 2. Photomicrographs (A–O) of livers from rats fed control cholesterol-free [CNC] or cholesterol supplemented [CC] diets or cholesterol supplemented experimental diets containing sea cucumber (*I. badionotus*) meal [LWS50, CS50, OS50] for 16 days. Sections A, D, G, J and M were stained with hematoxylin / eosin (H&E); B, E, H, K and N were stained with periodic acid-Schiff stain (PAS) and C, F, I, L and O were stained with Oil Red O. Magnification was 40X for H&E and PAS and 10X for Oil Red O. Consumption of sea cucumber limited the effects of dietary cholesterol on liver lipid deposition. CNC (A, B & C), no steatosis; CC (D, E & F), severe microvesicular steatosis; LWS50 (G, H & I), minor steatosis; CS50 (J, K & L) severe microvesicular steatosis; OS50 (M, N & O) minor steatosis with scattered lipid microvesicles. Lowercase "a" with an arrow indicates example of steatosis.

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Table 3. Growth performance in rats fed diets containing sea cucumber meals during a 16-day experimental period.

Parameters ¹	Diets ²				
	CNC	CC	LWS50	CS50	OS50
DM Intake <i>g/d</i> ³	12.58±0.47 ^b	13.06±0.37 ^{ab}	12.60±24 ^b	13.58±0.39 ^a	12.45±0.59 ^b
N Intake <i>g/d</i>	0.24±0.009 ^c	0.29±0.001 ^a	0.28±0.005 ^{ab}	0.29±0.008 ^{ab}	0.27±0.008 ^b
Lipid intake <i>g/d</i>	0.69±0.02 ^c	0.72±0.02 ^a	0.69±0.01 ^{ab}	0.74±0.02 ^{ab}	0.68±0.03 ^b
DM feces <i>g/d</i>	0.61±0.11 ^c	1.12±0.3 ^b	1.02±0.27 ^{bc}	1.98±0.5 ^a	1.14±0.1 ^b
Wet weight gain <i>g/d</i> ⁴	4.20±0.23 ^a	3.88±0.39 ^b	3.64±1.6 ^{bc}	3.17±0.23 ^{bc}	2.54±0.71 ^c
PER <i>g/g</i> ⁵	3.18±0.79 ^a	2.54±0.21 ^{ab}	2.33 ±0.92 ^{ab}	1.95±0.31 ^b	1.69±0.41 ^b

^{abc}Different letter superscripts in the same row indicate significant difference (p0.05).

¹Values = mean ± SD (n = 4).

²Diets: CNC = control with no added cholesterol; CC = Control with 2% cholesterol; LWS50 = 50% lyophilized washed sea cucumber + CC; CS50 = 50% cooked sea cucumber + CC; OS50 = 50% oven-cooked sea cucumber + CC.

³DM = Dry matter (grams per day).

⁴Initial weight = 140±11.35 g wet weight.

⁵Protein Efficiency Ratio = wet weight gain in grams / protein intake in grams.

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Table 4. Serum total triglycerides (Tg), total cholesterol (TC) and lipoproteins (LDL and HDL) levels, and the atherogenic index (AI) in rats fed a control or experimental diet containing sea cucumber (*I. badionotus*) meal.

Parameters ¹	Diets ²				
	CNC	CC	LWS50	CS50	OS50
Tg <i>mg/dl</i>	38.19 ± 20.32 ^c	83.98 ± 15.82 ^a	78.37 ± 22.43 ^{ab}	53.73 ± 18.70 ^b	43.16 ± 10.57 ^c
TC <i>mg/dl</i>	45.66 ± 6.58 ^d	84.81 ± 10.0 ^a	62.41 ± 5.0 ^{bc}	55.19 ± 3.49 ^{cd}	68.41 ± 6.52 ^b
HDL <i>mg/dl</i>	50.94 ± 6.37 ^a	50.54 ± 6.17 ^a	43.81 ± 3.67 ^{ab}	41.38± 2.25 ^b	44.62 ± 4.96 ^{ab}
LDL <i>mg/dl</i>	8.89 ± 3.98 ^d	49.55 ± 9.40 ^a	23.17 ± 4.79 ^c	20.89 ± 2.87 ^c	33.11 ± 5.71 ^b
AI ³ LDL/HDL	0.17 ± 0.06 ^d	0.98 ± 0.09 ^a	0.52 ± 0.04 ^c	0.50 ± 0.02 ^c	0.74 ± 0.04 ^b

¹Values = means (n = 4) ± SD, in milligrams / deciliter;

^{abcd}Different letter superscripts in the same row indicate statistical difference (p<0.05).

²CNC = control no added cholesterol; CC = Control with 2% cholesterol; LWS50 = 50% lyophilized washed sea cucumber + CC; CS50 = 50% cooked sea cucumber + CC; OS50 = 50% oven-cooked sea cucumber + CC;

³Atherogenic index.

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Table 5. Liver total triglycerides (Tg), total cholesterol (TC) and total lipids (TL) levels in rats fed a control or experimental diet containing sea cucumber (*I. badionotus*) meal.

Parameters ¹	Diets ²				
	CNC	CC	LWS50	CS50	OS50
Tg mg/g dry liv	46.81± 4.74 ^c	89.97± 5.5 ^a	60.22± 7.96 ^b	47.59±6.17 ^c	65.95±7.94 ^b
TC mg/g dry liv	3.07 ± 0.23 ^b	13.78 ± 4.29 ^a	4.50 ± 1.25 ^b	12.01 ± 1.75 ^a	10.89 ± 1.7 ^a
TL mg/g dry liv	177.36± 41.5 ^c	328.61 ± 35 ^{ab}	196.79± 17 ^c	378.82±70 ^a	272.31 ± 35 ^b

¹Values = means (n = 4) ± SD, in milligrams / gram dry liver;

^{abc}Different letter superscripts in the same row indicate statistical difference (p<0.05).

²CNC = control no added cholesterol; CC = Control with 2% cholesterol; LWS50 = 50% lyophilized washed sea cucumber + CC; CS50 = 50% cooked sea cucumber + CC; OS50 = 50% oven-cooked sea cucumber + CC.

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Table 7. Fatty acid methyl ether (FAME) concentration in livers from rats fed control and experimental diets.

Fatty acids ¹	Diets ²				
	CNC	CC	LWS50	CS50	OS50
C14:0	0.19± 0.05 ^c	1.11±0.12 ^a	0.23 ± 0.004 ^{bc}	ND	0.33 ± 0.003 ^b
C15:0	ND	ND	0.29± 0.09 ^a	ND	0.32± 0.039 ^a
C16:0	20.42 ± 3.4 ^d	36.13 ± 3.13 ^a	17.614± 6.88 ^{cd}	33.0± 5.67 ^{ab}	27.71 ± 6.43 ^{bc}
C16:1n-9	1.70 ± 0.20 ^b	10.35 ± 1.22 ^a	4.08 ± 0.82 ^b	8.68 ± 1.01 ^a	10.43 ± 4.2 ^a
C17:0	ND	ND	ND	ND	0.49± 0.091
C18:0	14.48 ± 2.85 ^a	11.36 ± 2.79 ^a	8.96 ± 2.36 ^c	15.02 ± 1.2 ^{ab}	12.24 ± 3.39 ^c
C18:1n-9	11.39± 3.04 ^c	47.43 ±10.56 ^b	8.96 ± 2.36 ^d	24.99 ± 5.19 ^b	15.20 ± 7.8 ^c
C18:2n-6	18.02 ±6.19 ^b	33.49± 13.8 ^a	18.04 ± 8.70 ^b	46.15 ± 6.49 ^a	41.59 ± 5.57 ^a
C18:3n-6	ND	ND	0.278± 0.07	0.278± 0.07	1.18± 0.71
C20:0	ND	2.21± 0.50 ^a	ND	ND	1.05± 0.71 ^b
C20:1	ND	ND	ND	ND	0.25± 0.03 ^b
C20:2	ND	ND	0.82± 0.3 ^a	ND	0.87± 0.23 ^a
C20:3	ND	ND	1.30± 0.06 ^b	ND	2.33± 0.31 ^a
C20:4n-3	8.96± 1.25 ^a	7.04 ±0.05 ^a	4.60± 0.71 ^b	ND	7.53 ± 1.86 ^a
C24:0	ND	ND	ND	ND	0.33± 0.03
C24:1	ND	ND	ND	ND	0.48± 0.11
C22:6n-3	2.37± 0.35 ^{ab}	1.53±0.089 ^{bc}	0.90± 0.17 ^c	ND	2.09± 0.55 ^{bc}
Σ Fatty acids³	77.29	150.65	94.78	128.118	83.73
Σ SFA	35.09	51.57	24.55	61.88	44.43
Σ MUFA	13.09	58.17	18.81	62.38	30.62
Σ PUFA	31.22	39.41	23.07	55.68	23.98
Σ PUFA/ Σ SFA	0.88	0.76	0.93	0.89	0.54
Σ PUFA/ Σ MUFA	2.38	0.68	1.23	0.89	0.78

¹Concentration in g FAME/100 g sample; values = mean (n = 4)± standard deviation

^{abcd}Different letter superscripts in the same row indicate statistical difference (p<0.05).

²CNC = control no added cholesterol; CC = Control with 2% cholesterol; LWS50 = 50% lyophilized washed sea cucumber + CC; CS50 = 50% cooked sea cucumber + CC; OS50 = 50% oven-cooked sea cucumber + CC.

³SFA: saturated fatty acids; MUFA: monounsaturated fatty acids; PUFA: polyunsaturated fatty acids; ΣFatty acid = ΣSFA + ΣMUFA + ΣPUFA; ΣSFA = C14:0 + C16:0 + C18:0 + C20:0 + C22:0 + C24:0; ΣMUFA = C16:1 + C18:1n9t + C20:1 + C24:1; ΣPUFA = C18:2n6t + C18:3n-6 + C20:3 + C20:4n6 + C22:6n3.

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Table 8. Degree of steatosis in the livers of rats fed a control or experimental diet containing sea cucumber (*I. badionotus*) meal.

Diets ¹	Normal (%)	Degree of Steatosis ²			
		< 5%	5–33%	33–66%	> 66%
CNC	100	-	-	-	-
CC		40	-	20	40
LWS50	100	-	-	-	-
CS50	20	-	-	-	80
OS50	60	20	-	-	20

Values are the average of five replicates.

¹CNC = control with no added cholesterol; CC = Control with 2% cholesterol; LWS50 = 50% lyophilized washed sea cucumber + CC; CS50 = 50% cooked sea cucumber + CC; OS50 = 50% oven-cooked sea cucumber + CC.

²Degree of steatosis diagnosis score: < 5%: minimal steatosis; 5–33%: moderate steatosis; 33–66%: high steatosis. > 66%: severe steatosis [21].

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Reference

1. Olivera-Castillo L, Davalos A, Grant G, Valadez-Gonzalez N, Montero J, Barrera-Perez HAM, et al. (2013) Diets Containing Sea Cucumber (*Isostichopus badionotus*) Meals Are Hypocholesterolemic in Young Rats. PLoS ONE 8(11): e79446. doi:10.1371/journal.pone.0079446 PMID: 24260223