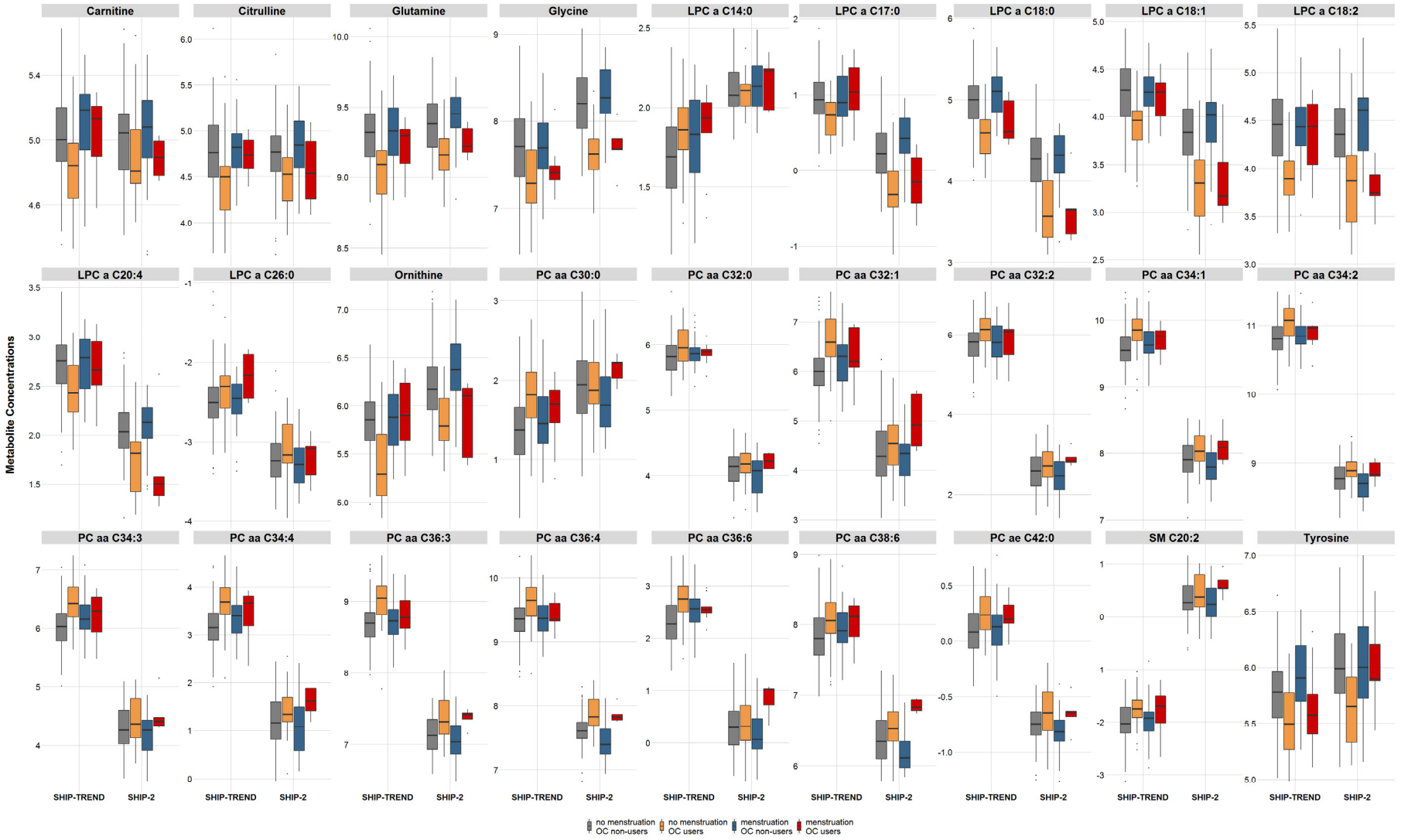
Carnitine
Citrulline
Glutamine
Glycine
LPC a C14:0
LPC a C17:0
LPC a C18:0
LPC a C18:1
LPC a C18:2
LPC a C20:4
LPC a C26:0
Ornithine
PC aa C30:0
PC aa C32:0
PC aa C32:1
PC aa C32:2
PC aa C34:1
PC aa C34:2
PC aa C34:3
PC aa C34:4
PC aa C36:3
PC aa C36:4
PC aa C36:6
PC aa C38:6
PC ae C42:0
SM C20:2
Tyrosine
Metabolite Concentrations
SHIP-TREND
SHIP-2
no menstruation OC non-users
no menstruation OC users
menstruation OC non-users
menstruation OC users

Figure S1. Boxplots are presented with the bold line symbolizing median serum cortisol concentrations and boxes summarizing the interquartile range. Whiskers are presenting concentrations lower than 25% and higher than 75%, respectively. Dots are representing statistical outliers (M±3SD). Metabolite concentrations dependent on menstrual bleeding at the time of assessment and OC use are presented in both cohorts. Metabolites are presented if the effect of OC use was Bonferroni-corrected significant (171 tests: $p < 2.924x10^{-4}$) in SHIP-TREND.

Table S1: Distribution of the oral contraceptive compounds in SHIP-TREND.

Active Ingredient		Dosage (mg)		N	%
		Ethinylestradiol	Progesterone		
SINGLE COMPOUND					
	Desogestrel		0.075	3	4.1
COMBINED COMPOUND					
Monophasic					
Ethinylestradiol	**Norgestimate**	0.035	0.25	3	4.1
	Drospirenone	0.02	3	4	5.5
		0.03	3	3	4.1
	Dienogest	0.03	2	15	20.5
	Levonorgestrel	0.02	0.1	4	5.5
		0.03	0.125	8	11.0
		0.03	0.15	4	5.5
		0.05	0.125	2	2.7
	Desogestrel	0.02	0.15	10	13.7
		0.03	0.15	2	2.7
	Chlormadinonaceta	0.03	2	3	4.1
Triphasic					
Ethinylestradiol	**Levonorgestrel**	0.03	0.125	11	15.1
	Desogestrel	0.035	0.05	1	1.4

*as specified in column three

Table S2: Distribution of the oral contraceptive compounds in SHIP-2.

Active Ingredient		Dosage (mg)		N	%
		Ethinylestradio	Progesterone		
SINGLE COMPOUND					
	Desogestrel		0.075	1	2.3
COMBINED COMPOUND					
Monophasic					
Ethinylestradiol	**Drospirenone**	0.02	3	1	5
		0.03	3	3	7.0
	Dienogest	0.03	2	5	11.6
	Levonorgestrel	0.02	0.1	1	2.3
		0.03	0.125	8	18.6
		0.03	0.15	6	14.0
	Desogestrel	0.02	0.15	6	14.0
		0.03	0.15	2	4.7
	Chlormadinonaceta	0.03	2	1	2.3
Step-up-pill					
Ethinylestradiol	**Chlormadininacetat**	0.05	1	2	4.7
Triphasic					
Ethinylestradiol	**Levonorgestrel**	0.03	0.05	5	11.6
	Norethisteron	0.035	1	1	2.3

	Norgestimat	0.035	0.18	1	2.3

*as specified in column three

Table S3: Technical descriptive statistics for the analyzed metabolites in SHIP-TREND and SHIP-2.

		SHIP-TREND		SHIP-2		
		% above LOD	p-value fasting	CV	% above LOD	p-value fasting
Acylcarnitines	**Carnitine**	99.14	0.950	6.55	100.00	0.950
	Propionylcarnitine	98.28	0.995	5.92	100.00	0.995
	Hydroxybutyrylcarnitine	98.71	0.147	15.58	98.11	0.147
	Hydroxypropionylcarnitine	98.71	0.476	15.13	98.74	0.476
	Propenoylcarnitine	99.57	0.691	15.29	98.74	0.691
	Butyrylcarnitine	99.14	0.268	8.01	99.37	0.268
	Butenylcarnitine	99.14	0.748	16.70	99.37	0.748
	Glutarylcarnitine	99.14	0.296	21.14	99.37	0.296
	Methylglutarylcarnitine	99.14	0.898	11.23	99.37	0.898
	Hydroxyvalerylcarnitine	97.84	0.936	9.38	98.74	0.936
	Tiglylcarnitine	99.57	0.898	8.96	96.86	0.898
	Glutaconylcarnitine	99.14	0.650	13.67	99.37	0.650
	Pimelylcarnitine	100.00	0.252	11.04	100.00	0.252
	Octanoylcarnitine	98.71	0.743	10.56	100.00	0.743
	Nonaylcarnitine	99.14	0.945	9.66	99.37	0.945
	Decanoylcarnitine	99.57	0.311	14.77	100.00	0.311
	Decenoylcarnitine	99.57	0.499	8.62	98.74	0.499
	Decadienylcarnitine	99.14	0.667	8.88	100.00	0.667
	Dodecanoylcarnitine	98.71	0.256	9.19	100.00	0.256
	Dodecanedioylcarnitine	99.14	0.809	7.74	99.37	0.809
	Dodecenoylcarnitine	99.57	0.060	6.59	100.00	0.060
	Tetradecanoylcarnitine	98.28	0.170	22.48	99.37	0.170
	Tetradecenoylcarnitine	99.57	0.047	15.53	99.37	0.047
	Hydroxytetradecenoylcarnitine	99.57	0.861	18.33	98.74	0.861
	Tetradecadienylcarnitine	100.00	0.081	15.21	99.37	0.081
	Hydroxytetradecadienylcarnitine	99.57	0.747	24.66	100.00	0.747
	Hexadecanoylcarnitine	98.71	0.155	9.02	99.37	0.155
	Hydroxyhexadecanoylcarnitine	98.71	0.174	19.69	100.00	0.174
	Hexadecenoylcarnitine	100.00	0.059	14.71	100.00	0.059
	Hydroxyhexadecenoylcarnitine	99.57	0.946	22.46	97.48	0.946
	Hexadecadienylcarnitine	99.14	0.504	23.66	98.74	0.504
	Octadecanoylcarnitine	98.71	0.278	16.95	100.00	0.278
	Octadecenoylcarnitine	99.14	0.004	9.43	100.00	0.004
	Hydroxyoctadecenoylcarnitine	99.14	0.402	18.59	100.00	0.402
	Octadecadienylcarnitine	100.00	0.047	18.16	98.74	0.047

% above LOD = % above limit of detection, fasting = p-value of non-linear associations with fasting time (restricted cubic splines); CV = coefficient of variance

Note: CVs were not available for SHIP-TREND as no technical samples were measured for replication.

Table S1 - continued: Technical descriptive statistics for the analyzed metabolites in SHIP-TREND and SHIP-2

		SHIP-TREND		SHIP-2		
		% above LOD	p-value fasting	CV	% above LOD	p-value fasting
Amino Acids	**Alanine**	99.14	0.648	5.13	100.00	0.648
	Arginine	97.84	0.336	6.65	100.00	0.336
	Asparagine	97.41	0.829	4.48	100.00	0.829
	Aspartate	98.28	0.312	11.92	94.97	0.312
	Citrulline	97.84	0.040	4.14	100.00	0.040
	Glutamine	98.28	0.945	7.99	98.74	0.945
	Glutamate	99.14	0.257	6.55	98.74	0.257
	Glycine	99.14	0.656	5.91	99.37	0.656
	Histidine	98.28	0.385	6.08	98.11	0.385
	Isoleucine	99.14	0.079	5.22	100.00	0.079
	Leucine	99.14	0.444	5.49	100.00	0.444
	Lysine	97.84	0.153	7.79	100.00	0.153
	Methionine	99.14	0.050	7.46	100.00	0.050
	Ornithine	97.41	0.916	8.64	97.48	0.916
	Phenylalanine	98.71	0.625	5.75	100.00	0.625
	Proline	99.14	0.724	5.89	98.11	0.724
	Serine	98.28	0.932	7.16	99.37	0.932
	Threonine	98.28	0.027	4.45	100.00	0.027
	Tryptophan	99.14	0.004	5.38	99.37	0.004
	Tyrosine	98.28	0.914	5.27	98.11	0.914
	Valine	99.57	0.280	5.48	99.37	0.280
Biogenic Amines	**Acetylornithine**	98.28	0.212	8.80	96.86	0.212
	Asymmetric dimethylarginine	86.64	0.684	8.79	99.37	0.684
	Alpha-aminoadipic acid	91.81	0.442	14.95	96.23	0.442
	Creatinine	99.57	0.390	3.00	99.37	0.390
	Kynurenine	98.71	0.416	8.03	100.00	0.416
	Methioninesulfoxide	95.69	0.475	8.21	97.48	0.475
	Serotonin	87.93	0.968	9.10	95.60	0.968
	Spermidine	94.40	0.969	3.64	99.37	0.969
	Spermine	86.21	0.100	7.56	97.48	0.100
	Hydroxyproline	99.14	0.139	6.08	91.19	0.139
	Taurine	98.71	0.423	3.32	99.37	0.423
	Total dimethylarginine	94.40	0.633	5.07	99.37	0.633

% above LOD = % above limit of detection, fasting = p-value of non-linear associations with fasting time (restricted cubic splines); CV = coefficient of variance

Note: CVs were not available for SHIP-TREND as no technical samples were measured for replication.

Table S1 - continued: Technical descriptive statistics for the analyzed metabolites in SHIP-TREND and SHIP-2

		SHIP-TREND		SHIP-2		
		% above LOD	p-value fasting	CV	% above LOD	p-value fasting
Lysophospholipids	**LPC a C14:0**	99.57	0.269	6.72	99.37	0.269
	LPC a C16:0	99.57	0.345	6.86	100.00	0.345
	LPC a C16:1	100.00	0.944	6.23	99.37	0.944
	LPC a C17:0	99.57	0.833	7.08	99.37	0.833
	LPC a C18:0	98.28	0.243	7.26	97.48	0.243
	LPC a C18:1	99.57	0.864	6.88	100.00	0.864
	LPC a C18:2	99.57	0.552	6.76	100.00	0.552
	LPC a C20:3	98.71	0.824	6.23	100.00	0.824
	LPC a C20:4	99.57	0.202	5.76	100.00	0.202
	LPC a C24:0	98.71	0.033	12.52	100.00	0.033
	LPC a C26:0	99.14	0.053	14.20	100.00	0.053
	LPC a C26:1	100.00	0.077	12.02	100.00	0.077
	LPC a C28:0	99.14	0.025	12.71	100.00	0.025
	LPC a C28:1	100.00	0.573	8.34	100.00	0.573
Phospholipids	**PC aa C24:0**	98.28	0.367	11.96	98.11	0.367
	PC aa C26:0	98.71	0.032	5.79	100.00	0.032
	PC aa C28:1	100.00	0.473	6.07	100.00	0.473
	PC aa C30:0	99.57	0.111	5.53	100.00	0.111
	PC aa C32:0	99.14	0.383	4.44	100.00	0.383
	PC aa C32:1	98.71	0.498	4.75	100.00	0.498
	PC aa C32:2	99.57	0.072	4.99	99.37	0.072
	PC aa C32:3	99.14	0.923	6.27	100.00	0.923
	PC aa C34:1	99.14	0.398	5.66	100.00	0.398
	PC aa C34:2	98.71	0.498	7.52	100.00	0.498
	PC aa C34:3	99.14	0.509	5.32	98.74	0.509
	PC aa C34:4	99.14	0.674	5.06	99.37	0.674
	PC aa C36:0	100.00	0.552	11.31	100.00	0.552
	PC aa C36:1	99.14	0.555	4.89	100.00	0.555
	PC aa C36:2	99.14	0.658	6.33	100.00	0.658
	PC aa C36:3	97.84	0.795	5.12	100.00	0.795
	PC aa C36:4	98.71	0.910	5.69	99.37	0.910
	PC aa C36:5	99.57	0.167	5.63	99.37	0.167
	PC aa C36:6	99.57	0.943	6.09	99.37	0.943
	PC aa C38:0	100.00	0.266	5.10	100.00	0.266

% above LOD = % above limit of detection, fasting = p-value of non-linear associations with fasting time (restricted cubic splines); CV = coefficient of variance

Note: CVs were not available for SHIP-TREND as no technical samples were measured for replication.

Table S1 - continued: Technical descriptive statistics for the analyzed metabolites in SHIP-TREND and SHIP-2

		SHIP-TREND		SHIP-2		
		% above LOD	p-value fasting	CV	% above LOD	p-value fasting
Phospholipids	**PC aa C38:1**	92.67	0.744	22.56	98.74	0.744
	PC aa C38:3	100.00	0.468	4.96	100.00	0.468
	PC aa C38:4	99.57	0.470	5.23	99.37	0.470
	PC aa C38:5	100.00	0.856	5.62	99.37	0.856
	PC aa C38:6	100.00	0.341	4.69	100.00	0.341
	PC aa C40:1	99.57	0.476	6.74	100.00	0.476
	PC aa C40:2	99.14	0.699	9.09	100.00	0.699
	PC aa C40:3	99.14	0.316	8.13	100.00	0.316
	PC aa C40:4	99.14	0.431	5.19	100.00	0.431
	PC aa C40:5	100.00	0.809	5.70	100.00	0.809
	PC aa C40:6	100.00	0.527	5.01	100.00	0.527
	PC aa C42:0	99.14	0.004	7.28	99.37	0.004
	PC aa C42:1	99.14	0.560	6.20	100.00	0.560
	PC aa C42:2	99.57	0.515	7.39	99.37	0.515
	PC aa C42:4	99.14	0.257	7.85	100.00	0.257
	PC aa C42:5	99.57	0.472	7.92	100.00	0.472
	PC aa C42:6	99.14	0.079	6.91	100.00	0.079
	PC ae C30:0	99.57	0.028	5.25	100.00	0.028
	PC ae C30:2	100.00	0.431	6.15	100.00	0.431
	PC ae C32:1	99.57	0.227	5.36	100.00	0.227
	PC ae C32:2	99.14	0.255	8.97	100.00	0.255
	PC ae C34:0	99.57	0.019	5.53	100.00	0.019
	PC ae C34:1	99.57	0.117	4.98	100.00	0.117
	PC ae C34:2	99.57	0.091	5.17	100.00	0.091
	PC ae C34:3	99.57	0.721	4.60	100.00	0.721
	PC ae C36:0	99.57	0.764	6.35	99.37	0.764
	PC ae C36:1	99.57	0.049	5.25	100.00	0.049
	PC ae C36:2	99.14	0.070	5.57	100.00	0.070
	PC ae C36:3	99.57	0.480	5.26	100.00	0.480
	PC ae C36:4	99.57	0.339	4.47	100.00	0.339
	PC ae C36:5	100.00	0.686	5.53	100.00	0.686
	PC ae C38:0	99.57	0.671	5.69	100.00	0.671
	PC ae C38:2	99.14	0.717	7.33	100.00	0.717
	PC ae C38:3	99.57	0.495	4.67	99.37	0.495
	PC ae C38:4	99.57	0.334	5.29	100.00	0.334
	PC ae C38:5	99.14	0.740	4.72	100.00	0.740

% above LOD = % above limit of detection, fasting = p-value of non-linear associations with fasting time (restricted cubic splines); CV = coefficient of variance

Note: CVs were not available for SHIP-TREND as no technical samples were measured for replication.

Table S1 - continued: Technical descriptive statistics for the analyzed metabolites in SHIP-TREND and SHIP-2

		SHIP-TREND		SHIP-2		
		% above LOD	p-value fasting	CV	% above LOD	p-value fasting
Phospholipids	**PC ae C38:6**	100.00	0.522	4.91	100.00	0.522
	PC ae C40:1	99.57	0.978	6.07	100.00	0.978
	PC ae C40:2	99.57	0.823	5.41	100.00	0.823
	PC ae C40:3	98.71	0.579	5.82	100.00	0.579
	PC ae C40:4	99.57	0.386	4.51	99.37	0.386
	PC ae C40:5	100.00	0.728	4.43	100.00	0.728
	PC ae C40:6	100.00	0.386	5.41	100.00	0.386
	PC ae C42:0	98.71	0.599	7.33	100.00	0.599
	PC ae 42:1	100.00	0.439	6.60	100.00	0.439
	PC ae C42:2	99.57	0.903	7.65	100.00	0.903
	PC ae C42:3	100.00	0.927	6.14	100.00	0.927
	PC ae C42:4	99.57	0.034	4.68	98.74	0.034
	PC ae C42:5	99.57	0.140	3.93	98.11	0.140
	PC ae C44:3	99.14	0.152	12.65	100.00	0.152
	PC ae C44:4	99.14	0.636	7.86	98.11	0.636
	PC ae C44:5	100.00	0.108	6.30	98.11	0.108
	PC ae C44:6	99.57	0.247	4.96	98.74	0.247
Sphingolipids	**SM (OH) C14:1**	100.00	0.365	4.74	99.37	0.365
	SM (OH) C16:1	100.00	0.371	5.51	100.00	0.371
	SM (OH) C22:1	100.00	0.249	5.38	100.00	0.249
	SM (OH) C22:2	100.00	0.273	6.22	100.00	0.273
	SM (OH) C24:1	98.71	0.282	6.14	100.00	0.282
	SM C16:0	100.00	0.560	5.41	100.00	0.560
	SM C16:1	100.00	0.073	5.31	100.00	0.073
	SM C18:0	99.57	0.029	5.27	100.00	0.029
	SM C18:1	99.14	0.259	4.94	100.00	0.259
	SM C20:2	99.14	0.158	7.29	98.74	0.158
	SM C22:3	91.81	0.229	9.62	100.00	0.229
	SM C24:0	100.00	0.045	5.35	100.00	0.045
	SM C24:1	100.00	0.016	5.17	100.00	0.016
	SM C26:0	98.71	0.280	8.15	100.00	0.280
	SM C26:1	99.57	0.403	12.84	100.00	0.403
	Hexose	98.28	0.590	5.16	98.74	0.590

% above LOD = % above limit of detection, fasting = p-value of non-linear associations with fasting time (restricted cubic splines); CV = coefficient of variance

Note: CVs were not available for SHIP-TREND as no technical samples were measured for replication.

Table S4: Metabolites associated with serum cortisol concentrations.

	SHIP-TREND			SHIP-2			Meta-analysis			Heterogeneity	
	b	**95%-CI**	**p-value**	**b**	**95%-CI**	**p-value**	**b**	**95%-CI**	**p-value**	**b**	**p-value**
Carnitine	-4.761×10^{-4}	$(-6.692\times10^{-4};-2.831\times10^{-4})$	2.236×10^{-6}	-2.341×10^{-4}	$(-5.032\times10^{-4};3.507\times10^{-5})$	0.088	-3.936×10^{-4}	$(-5.494\times10^{-4};-2.378\times10^{-4})$	7.413×10^{-7}	51.971	0.149
Citrulline	-5.975×10^{-4}	$(-8.798\times10^{-4};-3.153\times10^{-4})$	4.378×10^{-5}	-2.334×10^{-4}	$(-6.041\times10^{-4};1.374\times10^{-4})$	0.216	-4.635×10^{-4}	$(-6.866\times10^{-4};-2.404\times10^{-4})$	4.671×10^{-5}	57.999	0.123
Glutamine	-5.259×10^{-4}	$(-7.259\times10^{-4};-3.260\times10^{-4})$	4.990×10^{-7}	-3.786×10^{-4}	$(-6.261\times10^{-4};-1.311\times10^{-4})$	0.003	-4.675×10^{-4}	$(-6.220\times10^{-4};-3.130\times10^{-4})$	3.004×10^{-9}	0.000	0.360
Glycine	-0.001	$(-0.001;-8.022\times10^{-4})$	1.783×10^{-10}	-0.001	$(-0.002;-8.178\times10^{-4})$	8.876×10^{-7}	-0.001	$(-0.001;-9.164\times10^{-4})$	3.826×10^{-17}	0.000	0.534
Ornithine	-9.485×10^{-4}	$(-0.001;-6.740\times10^{-4})$	9.655×10^{-11}	-6.759×10^{-4}	$(-0.001;-2.411\times10^{-4})$	0.003	-8.705×10^{-4}	$(-0.001;-6.400\times10^{-4})$	1.364×10^{-13}	8.765	0.295
Tyrosine	-6.198×10^{-4}	$(-8.931\times10^{-4};-3.465\times10^{-4})$	1.266×10^{-5}	-1.277×10^{-4}	$(-5.430\times10^{-4};2.876\times10^{-4})$	0.544	-4.705×10^{-4}	$(-6.973\times10^{-4};-2.437\times10^{-4})$	4.792×10^{-5}	73.829	0.051
LPC a C14:0	*4.437×10^{-4}*	*$(2.356\times10^{-4};6.517\times10^{-4})$*	*3.834×10^{-5}*	*-2.685×10^{-5}*	*$(-2.071\times10^{-4};1.534\times10^{-4})$*	*0.769*	*1.743×10^{-4}*	*$(3.906\times10^{-5};3.096\times10^{-4})$*	*0.012*	*91.210*	*7.439×10^{-4}*
LPC a C17:0	-4.465×10^{-4}	$(-7.178\times10^{-4};-1.752\times10^{-4})$	0.001	-0.001	$(-0.002;-9.647\times10^{-4})$	1.119×10^{-8}	-6.961×10^{-4}	$(-9.292\times10^{-4};-4.630\times10^{-4})$	4.818×10^{-9}	92.298	3.143×10^{-4}
LPC a C18:0	-6.643×10^{-4}	$(-9.060\times10^{-4};-4.227\times10^{-4})$	1.598×10^{-7}	-0.001	$(-0.002;-9.201\times10^{-4})$	3.366×10^{-9}	-8.332×10^{-4}	$(-0.001;-6.250\times10^{-4})$	4.265×10^{-15}	86.824	0.006
LPC a C18:1	-5.393×10^{-4}	$(-7.689\times10^{-4};-3.097\times10^{-4})$	6.320×10^{-6}	-0.001	$(-0.002;-8.612\times10^{-4})$	2.010×10^{-8}	-7.071×10^{-4}	$(-9.083\times10^{-4};-5.058\times10^{-4})$	5.764×10^{-12}	89.230	0.002
LPC a C18:2	-9.347×10^{-4}	$(-0.001;-6.543\times10^{-4})$	3.665×10^{-10}	-0.002	(-0.002;-0.001)	1.752×10^{-9}	-0.001	$(-0.001;-8.504\times10^{-4})$	3.646×10^{-19}	77.161	0.036
LPC a C20:4	-1.547×10^{-4}	$(-4.142\times10^{-4};1.048\times10^{-4})$	0.241	-8.989×10^{-4}	$(-0.001;-5.227\times10^{-4})$	5.433×10^{-6}	-3.955×10^{-4}	$(-6.077\times10^{-4};-1.832\times10^{-4})$	2.601×10^{-4}	90.327	0.001
LPC a C26:0	5.609×10^{-4}	$(2.965\times10^{-4};8.252\times10^{-4})$	4.196×10^{-5}	5.904×10^{-4}	$(2.447\times10^{-4};9.361\times10^{-4})$	9.441×10^{-4}	5.718×10^{-4}	$(3.632\times10^{-4};7.804\times10^{-4})$	7.763×10^{-8}	0.000	0.893
PC aa C30:0	0.001	$(7.810\times10^{-4};0.001)$	2.339×10^{-10}	4.910×10^{-4}	$(-8.930\times10^{-5};0.001)$	0.097	9.588×10^{-4}	$(6.743\times10^{-4};0.001)$	3.937×10^{-11}	70.226	0.067
PC aa C32:0	5.616×10^{-4}	$(3.266\times10^{-4};7.966\times10^{-4})$	4.416×10^{-6}	3.270×10^{-4}	$(-4.301\times10^{-6};6.583\times10^{-4})$	0.053	4.828×10^{-4}	$(2.924\times10^{-4};6.732\times10^{-4})$	6.732×10^{-7}	23.118	0.254
PC aa C32:1	0.001	(0.001;0.002)	1.403×10^{-12}	0.002	$(9.947\times10^{-4};0.003)$	1.368×10^{-5}	0.002	(0.001;0.002)	2.264×10^{-18}	0.000	0.501
PC aa C32:2	7.518×10^{-4}	$(4.197\times10^{-4};0.001)$	1.308×10^{-5}	8.632×10^{-4}	$(3.174\times10^{-4};0.001)$	0.002	7.821×10^{-4}	$(5.001\times10^{-4};0.001)$	5.451×10^{-8}	0.000	0.731
PC aa C34:1	8.289×10^{-4}	$(5.993\times10^{-4};0.001)$	1.606×10^{-11}	6.332×10^{-4}	$(3.423\times10^{-4};9.240\times10^{-4})$	3.078×10^{-5}	7.535×10^{-4}	$(5.745\times10^{-4};9.325\times10^{-4})$	1.594×10^{-16}	7.978	0.297
PC aa C34:2	6.743×10^{-4}	$(4.772\times10^{-4};8.715\times10^{-4})$	1.411×10^{-10}	3.776×10^{-4}	$(1.644\times10^{-4};5.908\times10^{-4})$	6.157×10^{-4}	5.371×10^{-4}	$(3.934\times10^{-4};6.809\times10^{-4})$	2.421×10^{-13}	75.420	0.044
PC aa C34:3	9.363×10^{-4}	$(6.641\times10^{-4};0.001)$	1.113×10^{-10}	7.509×10^{-4}	$(2.596\times10^{-4};0.001)$	0.003	8.925×10^{-4}	$(6.560\times10^{-4};0.001)$	1.415×10^{-13}	0.000	0.514
PC aa C34:4	0.002	(0.001;0.002)	5.193×10^{-15}	0.001	$(5.761\times10^{-4};0.002)$	1.518×10^{-4}	0.001	(0.001;0.002)	3.126×10^{-20}	8.793	0.295
PC aa C36:3	9.143×10^{-4}	$(6.915\times10^{-4};0.001)$	4.435×10^{-14}	8.741×10^{-4}	$(5.589\times10^{-4};0.001)$	1.819×10^{-7}	9.008×10^{-4}	$(7.201\times10^{-4};0.001)$	1.536×10^{-22}	0.000	0.837
PC aa C36:4	0.001	$(7.799\times10^{-4};0.001)$	3.582×10^{-13}	8.961×10^{-4}	$(5.972\times10^{-4};0.001)$	2.169×10^{-8}	9.795×10^{-4}	$(7.821\times10^{-4};0.001)$	2.319×10^{-22}	0.000	0.460

PC aa C36:6	0.001	(6.973x10^{-4};0.001)	1.056x10^{-8}	8.198x10^{-4}	(1.591x10^{-4};0.001)	0.015	9.946x10^{-4}	(6.904x10^{-4};0.001)	1.467x10^{-10}	0.000	0.555
PC aa C38:6	7.162x10^{-4}	(4.300x10^{-4};0.001)	1.613x10^{-6}	7.830x10^{-4}	(3.090x10^{-4};0.001)	0.001	7.341x10^{-4}	(4.906x10^{-4};9.776x10^{-4})	3.435x10^{-9}	0.000	0.812
PC ae C42:0	5.246x10^{-4}	(3.565x10^{-4};6.928x10^{-4})	3.710x10^{-9}	4.666x10^{-4}	(2.649x10^{-4};6.682x10^{-4})	1.021x10^{-5}	5.007x10^{-4}	(3.725x10^{-4};6.290x10^{-4})	1.998x10^{-14}	0.000	0.662
SM C20:2	7.251x10^{-4}	(4.178x10^{-4};0.001)	5.761x10^{-6}	6.859x10^{-4}	(2.595x10^{-4};0.001)	0.002	7.117x10^{-4}	(4.640x10^{-4};9.594x10^{-4})	1.789x10^{-8}	0.000	0.883

Analyses adjusted for age, time of blood sampling, fasting time, waist circumference, white blood cell count, red blood cell count, thrombocytes count, and cystatin C concentrations. Metabolites are presented if the effect of OC use was Bonferroni-corrected significant (171 tests: $p < 2.924x10^{-4}$) in SHIP-TREND. Italics = meta-analytic effect after Bonferroni-correction (27 test: $p < 0.002$) not significant

Table S5. Metabolites associated with OC intake in the dependence of menstrual bleeding at the time of assessment in SHIP-TREND.

	no menstruation			menstruation					
	OC users (N = 63)			OC non-users (N = 32)			OC users (N = 10)		
	b	95%-CI	p-value	b	95%-CI	p-value	b	95%-CI	p-value
Carnitine	-0.184	(-0.264;-0.104)	9.415×10^{-6}	0.063	(-0.038;0.165)	0.221	0.025	(-0.172;0.222)	0.802
Citrulline	-0.337	(-0.461;-0.213)	2.129×10^{-7}	0.063	(-0.070;0.195)	0.351	-0.035	(-0.211;0.141)	0.697
Glutamine	-0.245	(-0.332;-0.158)	8.266×10^{-8}	0.030	(-0.063;0.124)	0.526	-0.076	(-0.200;0.047)	0.226
Glycine	-0.443	(-0.599;-0.287)	6.479×10^{-8}	0.022	(-0.142;0.187)	0.789	-0.286	(-0.503;-0.069)	0.010
Ornithine	-0.481	(-0.599;-0.363)	7.152×10^{-14}	0.009	(-0.121;0.138)	0.897	0.135	(-0.118;0.387)	0.296
Tyrosine	-0.279	(-0.380;-0.177)	1.747×10^{-7}	0.151	(0.030;0.271)	0.015	-0.028	(-0.298;0.243)	0.841
LPC a C14:0	0.202	(0.115;0.288)	7.006×10^{-6}	0.107	(-0.009;0.223)	0.069	0.241	(0.053;0.430)	0.012
LPC a C17:0	-0.277	(-0.377;-0.176)	1.510×10^{-7}	0.001	(-0.135;0.137)	0.987	0.064	(-0.173;0.301)	0.595
LPC a C18:0	-0.371	(-0.468;-0.275)	1.043×10^{-12}	0.119	(0.004;0.234)	0.042	-0.167	(-0.354;0.019)	0.079
LPC a C18:1	-0.325	(-0.423;-0.228)	3.715×10^{-10}	0.062	(-0.052;0.177)	0.283	-0.018	(-0.188;0.151)	0.831
LPC a C18:2	-0.476	(-0.594;-0.359)	8.135×10^{-14}	0.032	(-0.098;0.162)	0.629	-0.098	(-0.324;0.128)	0.393
LPC a C20:4	-0.202	(-0.296;-0.107)	3.738×10^{-5}	0.016	(-0.108;0.140)	0.797	-0.036	(-0.248;0.177)	0.741
LPC a C26:0	0.182	(0.066;0.298)	0.002	0.017	(-0.103;0.137)	0.779	0.359	(0.186;0.531)	5.807×10^{-5}
PC aa C30:0	0.512	(0.376;0.649)	3.292×10^{-12}	0.207	(0.030;0.383)	0.022	0.334	(0.070;0.598)	0.013
PC aa C32:0	0.204	(0.109;0.299)	3.558×10^{-5}	0.091	(-0.014;0.195)	0.089	0.134	(0.006;0.261)	0.040
PC aa C32:1	0.725	(0.541;0.908)	2.816×10^{-13}	0.255	(0.039;0.472)	0.021	0.364	(0.020;0.707)	0.038
PC aa C32:2	0.410	(0.263;0.557)	1.060×10^{-7}	0.084	(-0.106;0.275)	0.385	0.255	(-0.136;0.645)	0.200
PC aa C34:1	0.317	(0.219;0.415)	1.095×10^{-9}	0.123	(0.004;0.242)	0.043	0.255	(0.022;0.488)	0.032
PC aa C34:2	0.271	(0.186;0.357)	1.928×10^{-9}	0.065	(-0.030;0.160)	0.180	0.152	(-0.048;0.351)	0.135
PC aa C34:3	0.455	(0.335;0.574)	1.541×10^{-12}	0.227	(0.075;0.379)	0.004	0.188	(-0.053;0.430)	0.126
PC aa C34:4	0.633	(0.485;0.781)	5.059×10^{-15}	0.204	(0.028;0.379)	0.023	0.439	(0.073;0.804)	0.019
PC aa C36:3	0.343	(0.246;0.440)	4.116×10^{-11}	0.052	(-0.065;0.170)	0.379	0.148	(-0.065;0.362)	0.171
PC aa C36:4	0.358	(0.252;0.464)	2.183×10^{-10}	0.039	(-0.089;0.168)	0.548	0.156	(-0.020;0.331)	0.081
PC aa C36:6	0.470	(0.331;0.609)	2.276×10^{-10}	0.213	(0.040;0.386)	0.016	0.419	(0.178;0.661)	7.283×10^{-4}
PC aa C38:6	0.278	(0.161;0.395)	5.083×10^{-6}	0.075	(-0.070;0.221)	0.308	0.297	(0.075;0.518)	0.009
PC ae C42:0	0.160	(0.087;0.233)	2.396×10^{-5}	-0.004	(-0.110;0.103)	0.948	0.111	(-0.004;0.227)	0.059
SM C20:2	0.292	(0.151;0.433)	6.388×10^{-5}	0.048	(-0.108;0.203)	0.547	0.322	(0.060;0.583)	0.016

Analyses adjusted for age, time of blood sampling, fasting time (RCS), waist circumference, white blood cell count, red blood cell count, thrombocytes count, and cystatin C concentrations. OC non-users without menstrual bleeding at the time of assessment used as the reference group (N = 127).
Metabolites presented if the effect of OC use was Bonferroni-corrected significant (171 tests: $p < 2.924 \times 10^{-4}$) in SHIP-TREND.

Table S6. Metabolites associated with OC intake in the dependence of menstrual bleeding at the time of assessment in SHIP-2.

	no menstruation	menstruation	
	OC users	OC non-users	OC users

	(N = 36)			(N = 24)			(N = 7)		
	b	**95%-CI**	**p-value**	**b**	**95%-CI**	**p-value**	**b**	**95%-CI**	**p-value**
Carnitine	-0.114	(-0.211;-0.016)	0.023	0.007	(-0.139;0.154)	0.921	-0.061	(-0.173;0.052)	0.290
Citrulline	-0.163	(-0.295;-0.031)	0.016	0.100	(-0.061;0.261)	0.221	-0.002	(-0.324;0.320)	0.990
Glutamine	-0.225	(-0.309;-0.142)	3.775×10^{-7}	0.039	(-0.065;0.143)	0.459	-0.144	(-0.228;-0.060)	9.311×10^{-4}
Glycine	-0.545	(-0.694;-0.396)	2.586×10^{-11}	0.085	(-0.110;0.279)	0.392	-0.564	(-0.802;-0.327)	6.104×10^{-6}
Ornithine	-0.310	(-0.434;-0.185)	2.291×10^{-6}	0.144	(-0.043;0.332)	0.131	-0.265	(-0.643;0.114)	0.169
Tyrosine	-0.304	(-0.447;-0.161)	4.595×10^{-5}	0.073	(-0.141;0.287)	0.502	0.128	(-0.183;0.440)	0.418
LPC a C14:0	-0.019	(-0.076;0.038)	0.505	0.051	(-0.030;0.132)	0.213	0.034	(-0.081;0.150)	0.558
LPC a C17:0	-0.495	(-0.669;-0.320)	1.025×10^{-7}	0.208	(0.013;0.403)	0.037	-0.531	(-0.806;-0.255)	2.062×10^{-4}
LPC a C18:0	-0.559	(-0.716;-0.403)	7.069×10^{-11}	0.108	(-0.060;0.276)	0.205	-0.661	(-0.923;-0.400)	1.691×10^{-6}
LPC a C18:1	-0.507	(-0.658;-0.356)	6.185×10^{-10}	0.213	(0.018;0.407)	0.032	-0.578	(-0.860;-0.297)	7.961×10^{-5}
LPC a C18:2	-0.579	(-0.751;-0.406)	5.957×10^{-10}	0.131	(-0.062;0.324)	0.181	-0.843	(-1.179;-0.507)	1.976×10^{-6}
LPC a C20:4	-0.336	(-0.461;-0.211)	4.120×10^{-7}	0.100	(-0.056;0.256)	0.208	-0.458	(-0.722;-0.194)	7.914×10^{-4}
LPC a C26:0	0.162	(0.030;0.295)	0.017	0.013	(-0.146;0.172)	0.869	0.147	(-0.074;0.368)	0.190
PC aa C30:0	0.100	(-0.068;0.268)	0.242	0.012	(-0.228;0.251)	0.922	0.201	(-0.118;0.519)	0.215
PC aa C32:0	0.109	(0.013;0.206)	0.026	-0.039	(-0.179;0.102)	0.588	0.076	(-0.167;0.319)	0.536
PC aa C32:1	0.352	(0.092;0.612)	0.008	0.112	(-0.149;0.373)	0.397	0.661	(0.021;1.300)	0.043
PC aa C32:2	0.251	(0.087;0.414)	0.003	0.033	(-0.168;0.234)	0.748	0.321	(-0.030;0.671)	0.072
PC aa C34:1	0.197	(0.097;0.297)	1.422×10^{-4}	0.031	(-0.095;0.157)	0.630	0.216	(-0.098;0.529)	0.176
PC aa C34:2	0.144	(0.070;0.218)	1.701×10^{-4}	-0.046	(-0.146;0.053)	0.355	0.041	(-0.168;0.250)	0.699
PC aa C34:3	0.178	(0.024;0.333)	0.024	0.015	(-0.178;0.209)	0.878	0.238	(-0.096;0.573)	0.161
PC aa C34:4	0.322	(0.116;0.529)	0.002	0.033	(-0.228;0.295)	0.800	0.436	(0.041;0.831)	0.031
PC aa C36:3	0.263	(0.153;0.373)	5.599×10^{-6}	-0.014	(-0.152;0.124)	0.839	0.280	(0.037;0.524)	0.024
PC aa C36:4	0.295	(0.188;0.401)	1.887×10^{-7}	-0.069	(-0.205;0.067)	0.315	0.262	(0.009;0.515)	0.042
PC aa C36:6	0.154	(-0.071;0.379)	0.179	0.015	(-0.231;0.262)	0.901	0.477	(0.133;0.820)	0.007
PC aa C38:6	0.170	(0.012;0.327)	0.035	-0.095	(-0.251;0.060)	0.229	0.409	(0.203;0.615)	1.345×10^{-4}
PC ae C42:0	0.115	(0.030;0.200)	0.009	-0.058	(-0.159;0.043)	0.258	0.124	(1.475×10^{-4};0.247)	0.050
SM C20:2	0.143	(-0.002;0.289)	0.054	-0.010	(-0.178;0.158)	0.906	0.319	(0.066;0.573)	0.014

Analyses adjusted for age, time of blood sampling, fasting time (RCS), waist circumference, white blood cell count, red blood cell count, thrombocytes count, and cystatin C concentrations. OC non-users without menstrual bleeding at the time of assessment used as the reference group (N = 92).

Metabolites presented if the effect of OC use was Bonferroni-corrected significant (171 tests: $p < 2.924 \times 10^{-4}$) in SHIP-TREND.

Table S7. Meta-analytic results for metabolites associated with OC intake in the dependence of menstrual bleeding at the time of assessment.

	Meta-analyses									Heterogeneity					
	no menstruation			menstruation						no menstruation		menstruation			
	OC users (N = 99)			OC non-users (N = 56)			OC users (N = 17)			OC users		OC non-users		OC users	
	b	95%-CI	p-value	b	95%-CI	p-value	b	95%-CI	p-value	b	p-value	b	p-value	b	p-value
Carnitine	-0.156	(-0.217;-0.094)	$6.786x10^{-7}$	0.045	(-0.038;0.128)	0.287	-0.040	(-0.137;0.057)	0.425	17.833	0.270	0.000	0.535	0.000	0.457
Citrulline	-0.256	(-0.345;-0.166)	$2.426x10^{-8}$	0.078	(-0.024;0.179)	0.133	-0.027	(-0.181;0.126)	0.728	72.274	0.058	0.000	0.724	0.000	0.860
Glutamine	-0.235	(-0.295;-0.175)	$1.453x10^{-14}$	0.034	(-0.035;0.103)	0.332	-0.123	(-0.192;-0.053)	$5.036x10^{-4}$	0.000	0.743	0.000	0.899	0.000	0.370
Glycine	-0.497	(-0.604;-0.390)	$8.906x10^{-20}$	0.048	(-0.076;0.173)	0.447	-0.413	(-0.572;-0.254)	$3.585x10^{-7}$	0.000	0.352	0.000	0.629	65.781	0.087
Ornithine	-0.399	(-0.484;-0.314)	$3.179x10^{-20}$	0.052	(-0.053;0.158)	0.332	0.011	(-0.198;0.220)	0.919	74.275	0.049	27.896	0.239	66.669	0.083
Tyrosine	-0.287	(-0.369;-0.205)	$7.777x10^{-12}$	0.132	(0.028;0.236)	0.013	0.040	(-0.163;0.242)	0.702	0.000	0.773	0.000	0.531	0.000	0.457
LPC a C14:0	*0.047*	*(3.415x10^{-4};0.095)*	*0.048*	*0.070*	*(0.004;0.136)*	*0.038*	*0.091*	*(-0.007;0.188)*	*0.069*	*94.376*	*2.478x10^{-5}*	*0.000*	*0.436*	*70.795*	*0.064*
LPC a C17:0	-0.331	(-0.418;-0.245)	$6.046x10^{-14}$	0.069	(-0.042;0.180)	0.223	-0.190	(-0.369;-0.012)	0.037	78.164	0.032	66.019	0.086	90.413	0.001
LPC a C18:0	-0.423	(-0.505;-0.342)	$2.876x10^{-24}$	0.116	(0.021;0.210)	0.016	-0.334	(-0.485;-0.184)	$1.387x10^{-5}$	75.428	0.044	0.000	0.915	89.153	0.002
LPC a C18:1	-0.379	(-0.461;-0.298)	$7.419x10^{-20}$	0.101	(0.003;0.199)	0.043	-0.168	(-0.312;-0.024)	0.023	74.821	0.046	42.244	0.188	91.183	$7.577x10^{-4}$
LPC a C18:2	-0.509	(-0.605;-0.412)	$4.382x10^{-25}$	0.063	(-0.044;0.170)	0.249	-0.331	(-0.518;-0.145)	$4.998x10^{-4}$	0.000	0.332	0.000	0.399	92.415	$2.825x10^{-4}$
LPC a C20:4	-0.251	(-0.326;-0.176)	$5.374x10^{-11}$	0.049	(-0.048;0.145)	0.323	-0.202	(-0.366;-0.038)	0.016	64.930	0.091	0.000	0.408	83.501	0.014
LPC a C26:0	0.173	(0.087;0.260)	$8.871x10^{-5}$	0.016	(-0.080;0.111)	0.747	0.278	(0.143;0.413)	$5.288x10^{-5}$	0.000	0.827	0.000	0.970	55.113	0.136
PC aa C30:0	0.348	(0.242;0.453)	$9.789x10^{-11}$	0.138	(-0.003;0.279)	0.055	0.280	(0.078;0.481)	0.007	92.924	$1.704x10^{-4}$	40.316	0.196	0.000	0.525
PC aa C32:0	0.157	(0.090;0.224)	$4.643x10^{-6}$	0.044	(-0.039;0.128)	0.297	0.121	(0.009;0.233)	0.034	47.468	0.168	52.866	0.145	0.000	0.680
PC aa C32:1	0.601	(0.452;0.749)	$2.503x10^{-15}$	0.197	(0.032;0.362)	0.020	0.431	(0.130;0.731)	0.005	81.324	0.021	0.000	0.404	0.000	0.419
PC aa C32:2	0.339	(0.230;0.447)	$9.435x10^{-10}$	0.060	(-0.078;0.197)	0.393	0.291	(0.032;0.550)	0.027	51.125	0.153	0.000	0.714	0.000	0.804
PC aa C34:1	0.258	(0.189;0.327)	$3.131x10^{-13}$	0.080	(-0.006;0.166)	0.070	0.241	(0.056;0.427)	0.011	64.966	0.091	9.510	0.293	0.000	0.842
PC aa C34:2	0.198	(0.143;0.254)	$2.183x10^{-12}$	0.011	(-0.057;0.079)	0.744	0.099	(-0.044;0.242)	0.176	79.982	0.025	60.910	0.110	0.000	0.450
PC aa C34:3	0.351	(0.257;0.445)	$2.080x10^{-13}$	0.146	(0.027;0.264)	0.016	0.206	(0.011;0.400)	0.038	87.204	0.005	65.364	0.089	0.000	0.811

PC aa C34:4	0.527	(0.408;0.647)	$5.027x10^{-18}$	0.150	(0.006;0.295)	0.042	0.437	(0.171;0.704)	0.001	82.887	0.016	12.203	0.286	0.000	0.992
PC aa C36:3	0.308	(0.236;0.380)	$7.124x10^{-17}$	0.024	(-0.064;0.113)	0.589	0.206	(0.046;0.365)	0.011	13.600	0.282	0.000	0.468	0.000	0.421
PC aa C36:4	0.326	(0.252;0.401)	$8.596x10^{-18}$	-0.012	(-0.105;0.081)	0.797	0.191	(0.047;0.334)	0.009	0.000	0.407	23.784	0.252	0.000	0.496
PC aa C36:6	0.382	(0.265;0.500)	$1.836x10^{-10}$	0.147	(0.007;0.288)	0.040	0.438	(0.242;0.634)	$1.169x10^{-5}$	82.018	0.018	40.282	0.196	0.000	0.787
PC aa C38:6	0.239	(0.146;0.332)	$5.025x10^{-7}$	-0.004	(-0.110;0.101)	0.935	0.357	(0.207;0.507)	$3.026x10^{-6}$	15.924	0.275	59.983	0.114	0.000	0.465
PC ae C42:0	0.141	(0.086;0.196)	$5.339x10^{-7}$	-0.032	(-0.105;0.041)	0.385	0.117	(0.033;0.201)	0.006	0.000	0.430	0.000	0.463	0.000	0.886
SM C20:2	0.220	(0.119;0.320)	$1.865x10^{-5}$	0.021	(-0.093;0.134)	0.718	0.320	(0.140;0.501)	$5.067x10^{-4}$	52.501	0.147	0.000	0.619	0.000	0.990

Analyses adjusted for age, time of blood sampling, fasting time (RCS), waist circumference, white blood cell count, red blood cell count, thrombocytes count, and cystatin C concentrations. OC non-users without menstrual bleeding at the time of assessment used as the reference group (N = 219).
Metabolites presented if the effect of OC use was Bonferroni-corrected significant (171 tests: $p < 2.924x10^{-4}$) in SHIP-TREND. Italics = meta-analytic effect not significant in any of the three groups.

Table S8. Mediating effects of cortisol in women without menstrual bleeding at the time of assessment.

	SHIP-TREND (N = 190)			**SHIP-2 (N = 128)**			**Meta-analysis**						**Heterogenity**			
	ind.			**ind.**			**ind.**			**%**			**ind.**		**%**	
	effect	**95%-CI**	**p-value**	**effect**	**95%-CI**	**p-value**	**effect**	**95%-CI**	**p-value**	**mediated**	**95%-CI**	**p-value**	**effect**	**p-value**	**mediated**	**p-value**
Carnitine	-0.090	(-0.166;-0.015)	0.019	-0.007	(-0.069;0.055)	0.817	-0.041	(-0.089;0.007)	0.095	52.1	(-5.417;109.636)	0.076	63.990	0.096	0.0	0.929
Citrulline	-0.025	(-0.125;0.075)	0.624	-0.025	(-0.116;0.066)	0.592	-0.025	(-0.092;0.042)	0.468	7.4	(-23.850;38.567)	0.644	0.000	0.999	0.0	0.977
Glutamine	-0.055	(-0.124;0.014)	0.116	0.009	(-0.041;0.059)	0.728	-0.013	(-0.054;0.027)	0.522	7.6	(-12.925;28.215)	0.466	54.107	0.140	39.7	0.198
Glycine	-0.195	(-0.320;-0.069)	0.002	-0.065	(-0.190;0.061)	0.311	-0.130	(-0.218;-0.041)	0.004	22.6	(2.091;43.074)	0.031	51.645	0.150	56.0	0.132
Ornithine	-0.125	(-0.216;-0.035)	0.007	-0.038	(-0.148;0.072)	0.499	-0.090	(-0.160;-0.020)	0.012	23.4	(4.208;42.553)	0.017	31.041	0.229	0.0	0.584
Tyrosine	-0.134	(-0.224;-0.044)	0.004	0.101	(0.002;0.199)	0.045	-0.027	(-0.093;0.040)	0.427	10.8	(-19.811;41.472)	0.488	91.597	$5.610x10^{-4}$	85.9	0.008
LPC a C17:0	-0.049	(-0.147;0.049)	0.327	-0.134	(-0.260;-0.008)	0.037	-0.081	(-0.158;-0.004)	0.040	24.1	(0.555;47.641)	0.045	8.506	0.296	0.0	0.746
LPC a C18:0	-0.074	(-0.170;0.021)	0.128	-0.100	(-0.201;$5.912x10^{-4}$)	0.051	-0.087	(-0.156;-0.017)	0.014	18.6	(2.409;34.715)	0.024	0.000	0.715	0.0	0.866
LPC a C18:1	-0.046	(-0.141;0.048)	0.335	-0.097	(-0.197;0.003)	0.058	-0.070	(-0.139;-0.001)	0.045	17.2	(0.069;34.421)	0.049	0.000	0.473	0.0	0.847
LPC a C18:2	*-0.123*	*(-0.229;-0.017)*	*0.023*	*-0.117*	*(-0.228;-0.006)*	*0.040*	*-0.120*	*(-0.197;-0.043)*	*0.002*	*22.0*	*(6.412;37.590)*	*0.006*	*0.000*	*0.941*	*0.0*	*0.650*
LPC a C20:4	0.043	(-0.054;0.140)	0.386	-0.075	(-0.165;0.016)	0.107	-0.020	(-0.086;0.046)	0.557	14.3	(-11.157;39.750)	0.271	66.745	0.083	36.7	0.209

LPC a C26:0	0.066	(-0.044;0.175)	0.239	0.092	(-0.001;0.185)	0.053	0.081	(0.010;0.152)	0.025	35.2	(-107.320;177.630)	0.629	0.000	0.723	0.0	0.960
PC aa C32:0	0.116	(0.021;0.211)	0.016	0.050	(-0.022;0.123)	0.172	0.075	(0.017;0.132)	0.011	55.0	(-4.934;114.833)	0.072	14.195	0.280	0.0	0.988
PC aa C32:1	*0.139*	*(-0.019;0.296)*	*0.085*	*0.333*	*(0.135;0.531)*	*$9.631x10^{-4}$*	*0.214*	*(0.091;0.338)*	*$6.666x10^{-4}$*	*18.9*	*(-4.395;42.185)*	*0.112*	*56.039*	*0.131*	*0.0*	*0.869*
PC aa C32:2	0.020	(-0.096;0.135)	0.737	0.128	(0.002;0.253)	0.046	0.069	(-0.016;0.154)	0.111	9.2	(-18.960;37.276)	0.523	34.941	0.215	0.0	0.369
PC aa C34:1	*0.123*	*(0.029;0.216)*	*0.010*	*0.086*	*(0.021;0.150)*	*0.009*	*0.098*	*(0.045;0.151)*	*$3.136x10^{-4}$*	*40.1*	*(13.387;66.814)*	*0.003*	*0.000*	*0.522*	*0.0*	*0.851*
PC aa C34:2	0.100	(0.023;0.177)	0.011	0.043	(-0.009;0.096)	0.104	0.061	(0.018;0.104)	0.006	34.7	(6.933;62.501)	0.014	30.224	0.231	0.0	0.874
PC aa C34:3	*0.131*	*(0.035;0.226)*	*0.007*	*0.133*	*(0.014;0.252)*	*0.029*	*0.131*	*(0.057;0.206)*	*$5.357x10^{-4}$*	*28.4*	*(4.843;51.991)*	*0.018*	*0.000*	*0.979*	*0.0*	*0.924*
PC aa C34:4	*0.200*	*(0.062;0.337)*	*0.004*	*0.175*	*(0.028;0.322)*	*0.020*	*0.188*	*(0.088;0.289)*	*$2.466x10^{-4}$*	*30.7*	*(7.620;53.853)*	*0.009*	*0.000*	*0.812*	*0.0*	*0.913*
PC aa C36:3	*0.172*	*(0.081;0.262)*	*$2.032x10^{-4}$*	*0.110*	*(0.037;0.182)*	*0.003*	*0.134*	*(0.077;0.190)*	*$3.405x10^{-6}$*	*45.1*	*(22.856;67.394)*	*$7.137x10^{-5}$*	*9.413*	*0.293*	*0.0*	*0.694*
PC aa C36:4	*0.208*	*(0.099;0.316)*	*$1.706x10^{-4}$*	*0.101*	*(0.033;0.170)*	*0.004*	*0.132*	*(0.074;0.189)*	*$7.876x10^{-6}$*	*41.3*	*(21.771;60.843)*	*$3.412x10^{-5}$*	*62.235*	*0.104*	*21.1*	*0.260*
PC aa C38:6	0.108	(0.003;0.214)	0.044	0.098	(-0.014;0.210)	0.086	0.104	(0.027;0.180)	0.008	37.8	(-4.804;80.332)	0.082	0.000	0.899	0.0	0.979
PC ae C42:0	*0.124*	*(0.059;0.189)*	*$1.850x10^{-4}$*	*0.057*	*(0.009;0.105)*	*0.020*	*0.081*	*(0.042;0.119)*	*$4.226x10^{-5}$*	*70.8*	*(16.779;124.910)*	*0.010*	*62.361*	*0.103*	*0.0*	*0.723*
SM C20:2	0.109	($3.617x10^{-4}$;0.218)	0.049	0.124	(0.011;0.237)	0.031	0.117	(0.038;0.195)	0.004	36.1	(-6.289;78.519)	0.095	0.000	0.853	0.0	0.951

Analyses adjusted for age, time of blood sampling, fasting time (RCS), waist circumference, white blood cell count, red blood cell count, thrombocytes count, and cystatin C concentrations.

Metabolites presented if the effect of OC use was Bonferroni-corrected significant (171 tests: $p < 2.924x10^{-4}$) in SHIP-TREND. LPC a C14:0, PC aa C30.0, and PC aa C36:6 missing due to non-significant associations between these metabolite concentrations and cortisol in SHIP-2. Italics = significant indirect effect in meta-analysis after Bonferroni-correction for mediation analyses (24 tests. $p < 0.002$)