

Table S1. Geometric means (pmol/L) and 95% confidence intervals (CI) of serum estrogens/estrogen metabolites by current BMI (<25, 25-29.9, 30-34.9, 35-39.9, ≥40 kg/m²) in postmenopausal women not using menopausal hormone therapy: the Women's Health Initiative Observational Study

Current BMI (kg/m ²)	Model 1 ^a						Model 1 + unconjugated estradiol ^b					
	Geometric means (95% CI)					p-trend ^c	Geometric means (95% CI)					p-trend ^c
	<25	25-29.9	30-34.9	35-39.9	≥40		<25	25-29.9	30-34.9	35-39.9	≥40	
Median (kg/m ²)	22.7	27.3	31.8	37.0	44.0		22.7	27.3	31.8	37.0	44.0	
N	345	294	168	85	61		345	294	168	85	61	
Weighted N ^d	13571	9351	5205	1756	931		13571	9351	5205	1756	931	
Estrone	236	335	386	518	593	<0.001**	314	344	328	327	312	0.91
Conjugated	177	264	309	423	479	<0.001**	237	271	261	263	246	0.59
Unconjugated	50.8	62.1	69.6	84.0	100	<0.001**	64.5	63.4	60.8	57.2	58.5	0.13
Estradiol	45.1	58.5	63.8	87.5	126	<0.001**	60.4	60.1	54.1	54.7	65	0.33
Conjugated	30.5	39.8	39.7	53.9	78.5	<0.001**	38.1	40.6	34.9	37.5	47.2	0.99
Unconjugated	9.97	14.8	19.6	30.8	40.8	<0.001**	NA	NA	NA	NA	NA	NA
2-Hydroxyestrone	55.5	71.6	81.7	81.2	92.8	<0.001**	66.7	72.8	73.6	60.3	61.1	0.83
2-Hydroxyestradiol	14.2	17.7	20	20.2	23.3	<0.001**	16.9	18	18.1	15.2	15.7	0.69
2-Methoxyestrone	37.7	43.6	46.2	49.4	53.4	0.001**	44.9	44.3	41.8	37.2	35.9	0.05
Conjugated	27.3	32.1	33.5	34.8	40.6	0.002**	31.9	32.5	30.7	27.1	28.7	0.25
Unconjugated	9.64	10.5	10.9	13.9	12.6	0.02*	12.1	10.7	9.53	9.61	7.48	<0.001**
2-Methoxyestradiol	11.3	13.5	15.4	19.1	18.4	<0.001**	13.8	13.7	13.8	13.9	11.8	0.50
Conjugated	8.98	10.7	12.8	15.2	14.2	<0.001**	10.8	10.9	11.5	11.2	9.3	0.83
Unconjugated	1.87	2.19	2.03	3.05	3.53	<0.001**	2.35	2.24	1.79	2.12	2.12	0.002*
2-Hydroxyestrone-3-methyl ether	6.74	7.94	8.59	9.18	8.66	0.004**	7.74	8.04	7.94	7.33	6.32	0.24
4-Hydroxyestrone	6.75	8.68	10.1	9.88	11.2	<0.001**	8.05	8.82	9.13	7.43	7.51	0.96
4-Methoxyestrone	3.93	4.36	4.86	5.00	4.60	0.02*	4.52	4.42	4.49	3.99	3.36	0.19
4-Methoxyestradiol	1.65	1.86	2.10	2.50	2.47	<0.001**	1.96	1.89	1.90	1.89	1.66	0.30
16α-Hydroxyestrone	27.4	35.8	40.9	41.4	46	<0.001**	33.1	36.4	36.8	30.6	30.1	0.92
Estriol	113	155	171	192	198	<0.001**	138	158	153	139	126	0.94
Conjugated estriol	86.7	124	137	153	156	<0.001**	106	126	123	111	99.6	0.60
Unconjugated	23	27.3	31	36.8	38.9	<0.001**	28.0	27.8	27.7	26.8	24.9	0.29
16-Ketoestradiol	29	38.2	43.3	44.4	50.4	<0.001**	34.9	38.8	39	32.8	33	0.95
16-Epiestriol	12.8	16.4	18.7	20.0	21.4	<0.001**	15.2	16.6	17.0	15.2	14.6	0.78
17-Epiestriol	10.7	13.5	16.1	16.5	18.4	<0.001**	12.7	13.7	14.6	12.5	12.5	0.72

^a Model 1: Adjusted for age at blood draw (<55, 55-59, 60-64, 66-69, 70-74, 75-79 years), blood draw year (1993-1996, 1997-1998), race (white, non-white), smoking status (never, former, current), time since menopause (<10, 10-19, ≥20 years, missing), physical activity (0, 0.1-9.9, ≥10 MET-hr/wk).

^b Model 1 + unconjugated estradiol (log-transformed, continuous).

^c p-trend was estimated using the Wald test for continuous BMI (kg/m²).

^d Weighted N reflects weighted counts and refer to the study cohort.

* indicates False Discovery Rate (FDR) q-value<0.05 and ≥0.01. ** indicates FDR q-value<0.01.

Abbreviations: BMI=body mass index, CI=confidence interval, NA=not applicable.