

# Supplementary Materials

**Supplementary Table S1.** List of steroid metabolites ( $\mu\text{g}/24\text{h}$ ): differences between the normal weight and obesity in prepubertal boys

	Normal weight (n=18)		Obesity (n=16)		p value
	Mean $\pm$ SD	Median (IQR)	Mean $\pm$ SD	Median (IQR)	
Androsterone	98.43 $\pm$ 77.31	80.35 (38.08-125.36)	467.63 $\pm$ 417.04	265.81 (172.85-631.27)	<0.001
Etiocholanolone	69.51 $\pm$ 51.76	54.62 (27.48-98.83)	233.07 $\pm$ 175.46	141.01 (104.03-342.32)	<0.001
Dihydroandrosterone	19.20 $\pm$ 15.61	15.39 (6.89-25.29)	23.77 $\pm$ 35.73	10.34 (7.20-25.42)	0.798
Dehydroepiandrosterone	105.39 $\pm$ 74.41	108.30 (50.62-141.13)	113.24 $\pm$ 168.37	42.93 (23.04-107.71)	0.330
Androstenediol	5.38 $\pm$ 3.91	5.18 (2.27-7.60)	23.38 $\pm$ 24.53	12.96 (5.27-35.04)	0.005
11-oxo-etiocholanolone	283.59 $\pm$ 121.12	301.12 (196.48-348.76)	421.38 $\pm$ 371.97	334.77 (105.59-618.21)	0.605
5 $\alpha$ -dihydrotestosterone	5.41 $\pm$ 3.30	4.23 (2.97-7.57)	20.16 $\pm$ 27.50	14.36 (7.38-16.82)	0.005
17 $\beta$ -estradiol	0.72 $\pm$ 0.75	0.40 (0.10-1.08)	1.16 $\pm$ 0.95	0.99 (0.25-1.85)	0.198
Testosterone	6.78 $\pm$ 2.25	6.24 (5.96-7.70)	13.06 $\pm$ 11.14	9.37 (6.53-16.08)	0.036
11 $\beta$ -hydroxyandrosterone	259.65 $\pm$ 112.38	237.94 (214.01-362.14)	540.32 $\pm$ 338.59	426.35 (293.36-785.37)	0.005
11 $\beta$ -hydroxyetiocholanolone	125.69 $\pm$ 89.06	113.73 (55.12-189.91)	257.54 $\pm$ 289.73	128.04 (40.18-298.50)	0.486
17-hydroxypregnanolone	3.97 $\pm$ 2.73	3.27 (2.40-4.55)	12.88 $\pm$ 10.15	8.02 (6.59-17.01)	<0.001
16 $\alpha$ -hydroxy-DHEA	67.63 $\pm$ 58.63	55.27 (28.85-66.79)	300.24 $\pm$ 385.15	99.49 (38.70-394.22)	0.081
Pregnanediol	32.45 $\pm$ 29.16	21.77 (13.48-44.23)	191.79 $\pm$ 279.53	128.60 (44.97-184.13)	0.001
Pregnanetriol	87.28 $\pm$ 41.66	85.71 (50.65-120.93)	217.07 $\pm$ 133.06	170.91 (122.03-310.90)	<0.001
Androstenetriol	31.30 $\pm$ 27.14	23.46 (6.62-50.60)	56.43 $\pm$ 58.95	29.93 (11.34-95.86)	0.330
Tetrahydro-11-deoxycortisol	49.47 $\pm$ 33.96	41.48 (23.95-63.78)	65.96 $\pm$ 52.51	58.03 (25.88-80.33)	0.486
Tetrahydrodeoxycorticosterone	3.44 $\pm$ 2.26	3.20 (2.35-3.72)	6.93 $\pm$ 3.90	6.30 (3.37-9.30)	0.003
Estriol	0.48 $\pm$ 0.36	0.35 (0.25-0.58)	0.69 $\pm$ 0.51	0.73 (0.29-0.99)	0.313
Pregnanetriolone	6.59 $\pm$ 3.40	5.69 (4.55-7.77)	16.48 $\pm$ 9.57	12.98 (9.90-21.67)	<0.001
Pregnenetriol	4.24 $\pm$ 5.99	2.39 (1.07-4.20)	11.65 $\pm$ 8.90	7.86 (5.38-15.51)	<0.001
Tetrahydrocortisone	1675.81 $\pm$ 877.13	1375.59 (1193.58-1812.31)	2722.70 $\pm$ 2076.95	2253.85 (1152.19-3246.49)	0.313
Tetrahydro-11-dehydrocorticosterone	95.62 $\pm$ 68.15	65.80 (53.16-112.66)	199.99 $\pm$ 150.59	117.24 (81.34-310.30)	0.007
Tetrahydrocorticosterone	51.04 $\pm$ 29.68	40.93 (36.46-47.86)	140.22 $\pm$ 78.21	132.25 (76.70-216.79)	<0.001
5 $\alpha$ -tetrahydrocorticosterone	210.36 $\pm$ 186.16	150.55 (128.22-209.06)	422.76 $\pm$ 285.85	334.91 (165.55-709.64)	0.033
Tetrahydrocortisol	498.63 $\pm$ 244.28	429.82 (345.60-532.27)	730.60 $\pm$ 509.15	568.47 (303.59-858.47)	0.251
5 $\alpha$ -tetrahydrocortisol	700.12 $\pm$ 541.02	531.19 (454.98-691.01)	1152.20 $\pm$ 837.95	1049.48 (576.78-1450.30)	0.022
$\alpha$ -cortolone	499.77 $\pm$ 286.43	444.14 (337.37-544.27)	1195.25 $\pm$ 906.94	912.12 (447.11-1538.73)	0.009
$\beta$ -cortolone	283.01 $\pm$ 103.51	267.97 (226.85-349.42)	439.39 $\pm$ 287.90	377.95 (188.81-598.75)	0.251
$\alpha$ -cortol	105.68 $\pm$ 48.13	85.76 (79.88-121.62)	188.82 $\pm$ 131.35	148.37 (97.80-261.41)	0.075
$\beta$ -cortol	222.29 $\pm$ 108.93	220.39 (164.25-260.35)	301.14 $\pm$ 207.40	232.52 (154.51-400.88)	0.463
Cortisone	81.61 $\pm$ 32.05	77.23 (61.66-90.59)	104.85 $\pm$ 77.37	69.76 (46.65-163.92)	1.000
Cortisol	83.36 $\pm$ 32.05	75.73 (62.52-87.88)	96.10 $\pm$ 56.99	74.79 (55.95-123.86)	0.878
20 $\alpha$ -dihydrocortisone	13.42 $\pm$ 6.25	11.29 (9.92-17.13)	15.03 $\pm$ 9.85	11.54 (7.97-17.82)	0.905
20 $\beta$ -dihydrocortisone	28.22 $\pm$ 14.01	23.50 (19.83-32.59)	68.37 $\pm$ 54.91	47.37 (30.17-88.74)	0.010
20 $\alpha$ -dihydrocortisol	23.23 $\pm$ 17.85	16.10 (12.20-28.03)	41.85 $\pm$ 37.37	31.00 (10.97-65.83)	0.422
20 $\beta$ -dihydrocortisol	126.52 $\pm$ 96.80	96.26 (43.75-165.23)	76.46 $\pm$ 34.90	62.52 (58.42-88.80)	0.442
6 $\beta$ -hydroxycortisol	33.41 $\pm$ 13.43	31.54 (22.33-43.80)	38.18 $\pm$ 27.33	33.48 (15.52-48.13)	0.986

**Supplementary Table S2.** List of steroid metabolites (µg/24h): differences between the normal weight and obesity in boys with advanced puberty

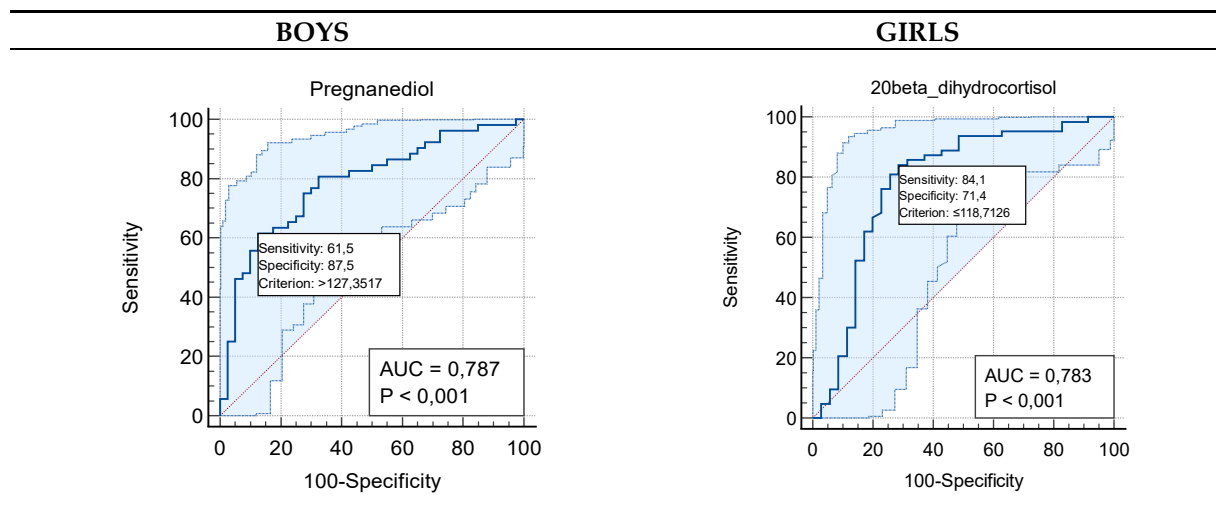
	Normal weight (n = 12)		Obesity (n = 28)		p value
	Mean±SD	Median (IQR)	Mean±SD	Median (IQR)	
Androsterone	2385.34 ± 1602.63	1953.79 (1531.54-2593.81)	1968.90 ± 1426.66	1477.15 (986.05-2717.29)	0.328
Etiocholanolone	1245.88 ± 858.90	1011.44 (626.36-1740.87)	955.41 ± 715.79	587.26 (424.83-1184.96)	0.202
Dihydroandrosterone	78.34 ± 46.93	67.53 (45.68-91.10)	67.20 ± 50.71	56.60 (34.74-80.52)	0.358
Dehydroepiandrosterone	786.77 ± 736.39	521.20 (273.67-971.03)	324.77 ± 558.52	86.32 (49.71-421.15)	0.010
Androstenediol	55.23 ± 47.61	41.53 (22.51-54.05)	58.71 ± 73.89	43.05 (20.82-63.30)	0.919
11-oxo-etiocholanolone	697.89 ± 303.35	712.95 (481.06-844.82)	590.36 ± 468.85	565.74 (253.11-759.14)	0.202
5α-dihydrotestosterone	24.61 ± 11.95	26.44 (16.07-32.87)	20.83 ± 14.91	15.31 (8.92-35.70)	0.389
17β-estradiol	1.33 ± 1.55	0.75 (0.43-1.08)	1.40 ± 1.44	0.94 (0.48-1.63)	0.610
Testosterone	57.35 ± 36.44	52.41 (23.70-71.40)	48.55 ± 40.84	38.31 (27.40-58.12)	0.475
11β-hydroxyandrosterone	1232.31 ± 646.76	1171.65 (723.71-1529.15)	1217.40 ± 681.94	1139.65 (640.52-1594.88)	0.942
11β-hydroxyetiocholanolone	315.69 ± 211.25	266.88 (160.04-444.04)	332.76 ± 300.69	256.86 (115.30-459.12)	0.850
17-hydroxypregnanolone	33.81 ± 30.38	18.65 (13.97-47.37)	24.40 ± 17.36	21.93 (11.43-29.79)	0.610
16α-hydroxy-DHEA	441.16 ± 210.11	381.91 (293.39-561.04)	370.53 ± 275.32	271.84 (150.79-641.50)	0.224
Pregnanediol	155.30 ± 143.97	114.80 (55.22-165.41)	232.12 ± 194.19	189.44 (82.23-276.15)	0.122
Pregnanetriol	589.28 ± 352.02	559.52 (281.61-919.63)	507.04 ± 295.34	393.98 (274.58-696.93)	0.760
Androstenetriol	361.75 ± 236.84	267.99 (207.19-461.82)	312.57 ± 243.53	239.67 (140.75-395.14)	0.512
Tetrahydro-11-deoxycortisol	63.82 ± 44.94	42.92 (39.95-77.30)	62.68 ± 49.50	55.21 (21.93-94.17)	0.850
Tetrahydrodeoxycorticosterone	7.29 ± 6.37	4.98 (3.07-8.40)	7.81 ± 8.40	5.25 (3.25-8.67)	0.805
Estriol	3.12 ± 3.82	1.89 (0.76-3.05)	2.69 ± 2.24	1.72 (1.28-3.38)	0.782
Pregnanetriolone	17.58 ± 10.82	15.91 (9.43-23.30)	14.05 ± 7.58	11.06 (7.80-21.77)	0.493
Pregnenetriol	97.81 ± 178.07	28.84 (21.80-68.30)	74.89 ± 143.71	33.08 (13.04-82.17)	0.805
Tetrahydrocortisone	2945.23 ± 1227.57	2475.24 (2048.97-3508.52)	3553.55 ± 2069.90	3309.55 (1849.42-4618.60)	0.457
Tetrahydro-11-dehydrocorticosterone	150.24 ± 105.70	128.47 (86.49-155.73)	225.46 ± 120.38	219.98 (147.50-285.70)	0.021
Tetrahydrocorticosterone	111.74 ± 78.87	88.60 (55.55-145.35)	263.49 ± 308.70	171.15 (130.89-218.91)	0.007
5α-tetrahydrocorticosterone	506.93 ± 365.63	372.36 (248.61-644.59)	523.05 ± 322.54	422.25 (322.42-679.77)	0.570
Tetrahydrocortisol	1023.23 ± 509.55	806.60 (644.98-1413.56)	1259.60 ± 732.54	1090.40 (783.90-1613.18)	0.389
5α-tetrahydrocortisol	1890.18 ± 974.22	1667.86 (1081.87-2481.29)	1828.22 ± 1342.45	1169.83 (910.61-2463.39)	0.550
α-cortolone	1385.42 ± 589.98	1418.05 (1031.91-1485.55)	1939.85 ± 958.08	1920.14 (1136.76-2691.38)	0.108
β-cortolone	455.92 ± 162.60	426.26 (306.91-544.40)	562.83 ± 298.18	517.45 (329.28-698.16)	0.389
α-cortol	295.59 ± 110.13	267.53 (197.42-385.50)	366.15 ± 202.33	326.41 (198.40-485.90)	0.439
β-cortol	396.95 ± 158.67	346.97 (284.75-519.40)	507.68 ± 247.69	444.34 (304.95-690.83)	0.260
Cortisone	161.39 ± 68.35	160.62 (94.94-204.73)	138.02 ± 76.14	127.17 (86.74-159.49)	0.182
Cortisol	171.26 ± 80.21	144.39 (111.04-236.02)	150.62 ± 82.92	133.94 (95.13-169.10)	0.439
20α-dihydrocortisone	31.40 ± 8.99	32.56 (25.03-35.42)	20.83 ± 9.41	18.64 (13.57-26.51)	<0.001
20β-dihydrocortisone	81.37 ± 32.81	82.00 (56.88-94.91)	96.69 ± 46.91	87.13 (61.93-118.11)	0.273
20α-dihydrocortisol	45.34 ± 24.50	40.58 (29.55-56.03)	82.24 ± 59.02	73.33 (46.20-95.88)	0.056
20β-dihydrocortisol	239.06 ± 215.31	153.58 (106.30-271.14)	116.42 ± 92.01	79.80 (70.89-138.73)	0.033
6β-hydroxycortisol	49.62 ± 20.01	45.56 (34.14-66.90)	49.10 ± 39.96	37.56 (25.15-57.61)	0.405

**Supplementary Table S3.** List of steroid metabolites ( $\mu\text{g}/24\text{h}$ ): differences between the normal weight and obesity in prepubertal girls

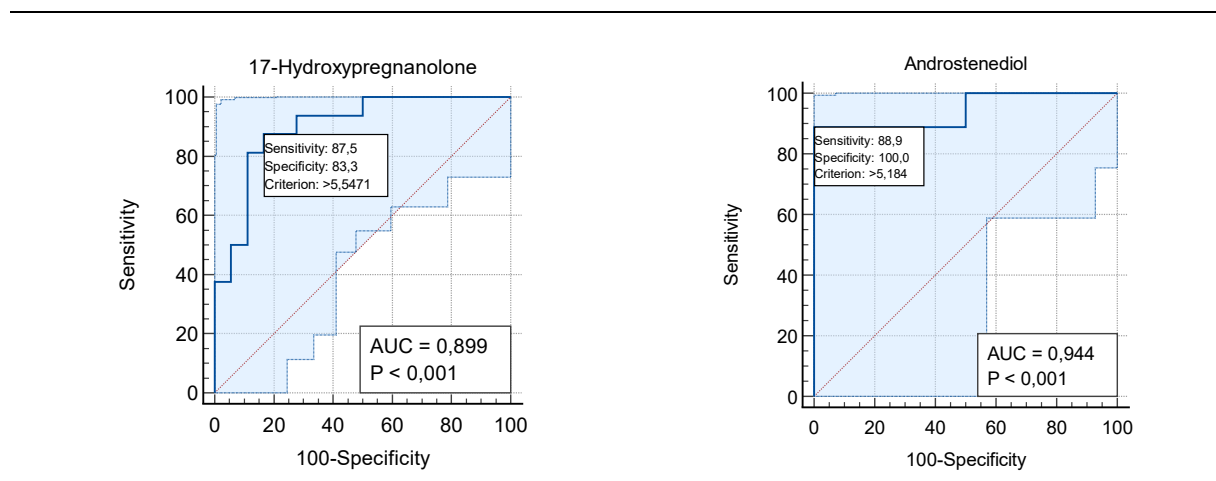
	Normal weight (n=6)		Obesity (n=18)		<i>p</i> value
	Mean $\pm$ SD	Median (IQR)	Mean $\pm$ SD	Median (IQR)	
Androsterone	174.85 $\pm$ 136.71	120.31 (93.88-207.23)	559.06 $\pm$ 805.96	254.92 (158.10-440.15)	0.056
Etiocholanolone	74.98 $\pm$ 36.52	88.00 (42.75-104.48)	338.83 $\pm$ 567.60	119.75 (77.84-428.66)	0.177
Dihydroandrosterone	11.18 $\pm$ 8.01	8.04 (5.12-17.91)	27.99 $\pm$ 41.32	13.35 (9.70-20.35)	0.224
Dehydroepiandrosterone	54.31 $\pm$ 83.46	16.80 (8.34-38.92)	60.04 $\pm$ 55.59	35.87 (14.89-92.08)	0.310
Androstenediol	3.60 $\pm$ 1.24	3.72 (2.81-4.53)	18.15 $\pm$ 14.28	13.10 (8.17-24.34)	<0.001
11-oxo-etiocholanolone	192.52 $\pm$ 101.31	172.92 (140.22-201.07)	374.70 $\pm$ 182.12	340.02 (204.99-562.07)	0.027
5 $\alpha$ -dihydrotestosterone	4.94 $\pm$ 3.03	4.60 (2.58-7.88)	5.73 $\pm$ 5.65	3.62 (2.46-6.53)	0.820
17 $\beta$ -estradiol	0.63 $\pm$ 0.48	0.55 (0.22-0.93)	0.69 $\pm$ 0.76	0.38 (0.13-0.92)	0.820
Testosterone	6.03 $\pm$ 1.09	6.60 (5.27-6.88)	10.27 $\pm$ 8.77	6.86 (4.76-12.80)	0.494
11 $\beta$ -hydroxyandrosterone	237.88 $\pm$ 78.82	248.68 (193.35-297.23)	464.53 $\pm$ 354.67	294.97 (269.92-496.48)	0.119
11 $\beta$ -hydroxyetiocholanolone	100.49 $\pm$ 67.34	80.30 (45.20-165.88)	156.59 $\pm$ 118.31	134.81 (69.14-183.44)	0.378
17-hydroxypregnanolone	4.89 $\pm$ 3.25	4.69 (2.03-7.69)	8.34 $\pm$ 5.85	6.20 (4.94-8.78)	0.310
16 $\alpha$ -hydroxy-DHEA	26.02 $\pm$ 17.52	22.80 (10.26-37.18)	143.12 $\pm$ 167.63	87.83 (40.18-177.55)	0.007
Pregnanediol	45.19 $\pm$ 25.73	46.93 (24.93-56.67)	179.83 $\pm$ 315.11	59.23 (25.61-153.88)	0.310
Pregnanetriol	118.46 $\pm$ 47.75	122.10 (91.38-160.29)	231.50 $\pm$ 155.55	154.70 (120.76-288.10)	0.077
Androstenetriol	18.39 $\pm$ 14.85	12.18 (7.77-27.92)	87.73 $\pm$ 158.25	50.48 (21.96-72.81)	0.007
Tetrahydro-11-deoxycortisol	48.00 $\pm$ 21.60	41.19 (33.30-62.20)	62.94 $\pm$ 37.89	58.51 (41.77-80.33)	0.415
Tetrahydrodeoxycorticosterone	3.95 $\pm$ 2.09	2.98 (2.71-4.58)	5.05 $\pm$ 4.29	3.77 (2.41-5.96)	0.770
Estriol	0.46 $\pm$ 0.38	0.30 (0.19-0.58)	1.50 $\pm$ 3.21	0.66 (0.31-0.87)	0.280
Pregnanetriolone	5.06 $\pm$ 2.12	4.61 (3.60-6.10)	11.89 $\pm$ 6.40	11.31 (7.10-13.58)	0.004
Pregnenetriol	2.21 $\pm$ 2.25	0.99 (0.94-2.32)	5.23 $\pm$ 4.11	3.84 (2.04-7.92)	0.040
Tetrahydrocortisone	1400.46 $\pm$ 528.56	1095.99 (1004.73-1782.82)	2430.33 $\pm$ 1348.91	2127.69 (1533.62-3063.53)	0.119
Tetrahydro-11-dehydrocorticosterone	81.35 $\pm$ 38.35	62.86 (56.25-112.84)	152.03 $\pm$ 86.77	127.35 (92.02-226.42)	0.119
Tetrahydrocorticosterone	55.45 $\pm$ 27.72	51.86 (32.04-75.67)	102.93 $\pm$ 88.36	74.10 (46.23-144.00)	0.251
5 $\alpha$ -tetrahydrocorticosterone	251.21 $\pm$ 148.21	171.19 (135.52-352.32)	320.94 $\pm$ 184.71	259.68 (193.91-411.47)	0.392
Tetrahydrocortisol	381.42 $\pm$ 135.12	375.43 (267.10-459.76)	728.96 $\pm$ 640.79	524.12 (314.00-842.95)	0.156
5 $\alpha$ -tetrahydrocortisol	660.27 $\pm$ 208.89	718.48 (464.54-820.75)	1059.30 $\pm$ 524.39	943.37 (575.19-1456.55)	0.119
$\alpha$ -cortolone	606.22 $\pm$ 326.37	433.01 (346.67-894.30)	985.07 $\pm$ 433.43	819.46 (686.16-1345.50)	0.056
$\beta$ -cortolone	239.72 $\pm$ 77.17	222.09 (174.57-297.33)	355.89 $\pm$ 185.70	303.69 (243.18-409.55)	0.199
$\alpha$ -cortol	118.60 $\pm$ 47.19	106.16 (86.97-140.02)	161.03 $\pm$ 82.74	135.87 (104.74-235.40)	0.280
$\beta$ -cortol	173.06 $\pm$ 49.52	160.42 (154.92-206.40)	368.15 $\pm$ 312.78	181.64 (145.53-538.56)	0.224
Cortisone	76.06 $\pm$ 31.32	73.18 (46.14-106.03)	86.36 $\pm$ 50.47	70.90 (56.89-92.58)	0.820
Cortisol	85.94 $\pm$ 41.13	79.00 (56.38-107.89)	83.66 $\pm$ 43.94	65.58 (49.25-109.48)	0.820
20 $\alpha$ -dihydrocortisone	13.37 $\pm$ 6.49	11.65 (7.56-18.35)	11.10 $\pm$ 5.41	10.45 (6.69-14.50)	0.626
20 $\beta$ -dihydrocortisone	34.68 $\pm$ 19.03	30.47 (18.28-43.73)	48.40 $\pm$ 25.73	43.63 (30.16-65.14)	0.415
20 $\alpha$ -dihydrocortisol	29.11 $\pm$ 21.20	23.31 (11.75-39.65)	43.80 $\pm$ 43.70	29.75 (16.12-52.89)	0.673
20 $\beta$ -dihydrocortisol	180.24 $\pm$ 142.27	158.42 (97.97-195.69)	56.64 $\pm$ 26.48	53.77 (38.26-70.88)	0.033
6 $\beta$ -hydroxycortisol	30.80 $\pm$ 12.02	31.11 (19.20-40.97)	33.86 $\pm$ 34.35	18.43 (14.44-33.95)	0.378

**Supplementary Table S4.** List of steroid metabolites ( $\mu\text{g}/24\text{h}$ ): differences between the normal weight and obesity in girls with advanced puberty.

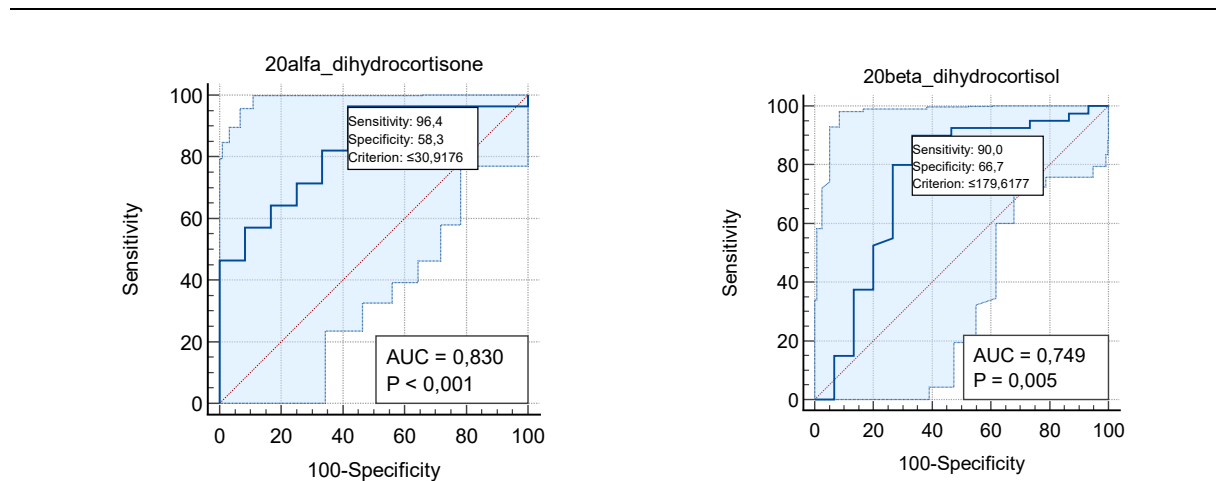
	Normal weight (n = 15)		Obesity (n = 40)		p value
	Mean $\pm$ SD	Median (IQR)	Mean $\pm$ SD	Median (IQR)	
Androsterone	1855.48 $\pm$ 1183.85	1831.69 (999.00-2100.43)	1970.30 $\pm$ 1732.32	1374.73 (1043.89-2252.31)	0.874
Etiocolanolone	1347.82 $\pm$ 1076.99	719.82 (558.32-1965.09)	1116.51 $\pm$ 795.40	940.08 (616.55-1221.95)	0.786
Dihydroandrosterone	35.37 $\pm$ 24.83	28.15 (20.82-43.78)	52.90 $\pm$ 46.06	39.02 (22.43-62.25)	0.204
Dehydroepiandrosterone	194.52 $\pm$ 273.92	36.55 (22.98-268.66)	485.75 $\pm$ 1272.88	64.94 (31.93-270.22)	0.248
Androstenediol	37.57 $\pm$ 19.99	31.58 (23.42-55.69)	112.84 $\pm$ 257.65	50.26 (24.67-86.16)	0.155
11-oxo-etiocholanolone	657.19 $\pm$ 578.88	461.27 (278.30-740.38)	432.58 $\pm$ 294.00	315.47 (211.39-657.45)	0.233
5 $\alpha$ -dihydrotestosterone	17.23 $\pm$ 16.26	15.13 (7.41-20.31)	1699 $\pm$ 11.89	14.41 (6.70-23.66)	0.772
17 $\beta$ -estradiol	1.98 $\pm$ 1.48	1.29 (0.99-2.12)	2.20 $\pm$ 1.51	1.78 (1.07-3.16)	0.594
Testosterone	22.38 $\pm$ 18.24	17.80 (11.27-26.78)	26.49 $\pm$ 30.85	17.12 (11.22-28.22)	0.948
11 $\beta$ -hydroxyandrosterone	1340.76 $\pm$ 906.05	1230.72 (845.54-1539.83)	1227.75 $\pm$ 1153.84	878.21 (678.43-1366.89)	0.280
11 $\beta$ -hydroxyetiocholanolone	437.43 $\pm$ 647.75	183.72 (66.22-532.20)	297.90 $\pm$ 271.35	213.27 (105.07-428.82)	0.758
17-hydroxypregnanolone	23.76 $\pm$ 18.58	17.77 (11.54-32.73)	31.31 $\pm$ 33.63	17.30 (11.98-36.15)	0.715
16 $\alpha$ -hydroxy-DHEA	330.74 $\pm$ 278.34	239.16 (110.22-441.75)	492.77 $\pm$ 541.93	310.61 (129.42-655.75)	0.394
Pregnanediol	305.23 $\pm$ 242.07	283.18 (118.26-378.62)	410.96 $\pm$ 385.88	263.69 (118.27-590.21)	0.531
Pregnanetriol	646.79 $\pm$ 459.42	522.58 (309.92-839.83)	647.75 $\pm$ 448.90	536.43 (372.78-804.78)	0.859
Androstenetriol	278.36 $\pm$ 164.39	244.31 (169.67-365.42)	389.03 $\pm$ 394.39	264.62 (133.49-497.42)	0.715
Tetrahydro-11-deoxycortisol	74.57 $\pm$ 32.87	69.26 (46.15-97.60)	65.32 $\pm$ 49.56	50.48 (35.28-82.57)	0.161
Tetrahydrodeoxycorticosterone	7.77 $\pm$ 4.87	7.43 (3.33-11.68)	7.93 $\pm$ 6.88	4.76 (3.34-9.24)	0.801
Estriol	5.58 $\pm$ 4.14	4.62 (2.66-7.39)	9.87 $\pm$ 10.78	5.33 (2.85-12.97)	0.415
Pregnanetriolone	16.25 $\pm$ 12.20	12.58 (8.28-20.78)	14.64 $\pm$ 14.92	9.66 (6.53-14.23)	0.298
Pregnenetriol	32.69 $\pm$ 43.78	14.71 (6.28-31.15)	183.98 $\pm$ 400.41	33.68 (16.58-162.44)	0.045
Tetrahydrocortisone	3151.05 $\pm$ 1042.78	3278.60 (2244.49-3738.04)	3059.06 $\pm$ 2157.01	2502.48 (1758.73-3782.87)	0.325
Tetrahydro-11-dehydrocorticosterone	155.36 $\pm$ 90.49	120.51 (90.37-219.57)	152.30 $\pm$ 109.34	133.60 (69.73-184.73)	0.874
Tetrahydrocorticosterone	105.95 $\pm$ 56.94	100.34 (57.42-127.91)	145.57 $\pm$ 129.56	98.54 (72.33-153.44)	0.531
5 $\alpha$ -tetrahydrocorticosterone	346.19 $\pm$ 111.17	328.53 (247.47-426.39)	384.70 $\pm$ 301.72	346.85 (176.26-462.38)	0.568
Tetrahydrocortisol	1132.53 $\pm$ 499.81	1101.57 (716.61-1388.38)	1428.86 $\pm$ 1372.95	1147.31 (735.09-1704.99)	0.660
5 $\alpha$ -tetrahydrocortisol	1281.04 $\pm$ 489.55	1054.00 (937.81-1687.02)	1783.34 $\pm$ 1591.22	1353.33 (899.26-2039.96)	0.460
$\alpha$ -cortolone	1816.33 $\pm$ 944.00	1551.04 (1171.45-2324.15)	1512.81 $\pm$ 904.17	1281.58 (886.97-1972.49)	0.226
$\beta$ -cortolone	619.88 $\pm$ 263.36	530.65 (417.21-803.06)	471.40 $\pm$ 282.66	440.44 (277.20-563.86)	0.041
$\alpha$ -cortol	306.05 $\pm$ 155.54	287.77 (197.85-376.05)	407.72 $\pm$ 452.84	288.02 (178.13-445.30)	0.786
$\beta$ -cortol	515.55 $\pm$ 293.11	399.39 (289.54-703.57)	482.70 $\pm$ 396.98	391.37 (269.72-508.36)	0.518
Cortisone	134.79 $\pm$ 38.84	122.85 (106.24-174.40)	123.04 $\pm$ 76.05	106.63 (68.17-157.36)	0.134
Cortisol	150.55 $\pm$ 51.22	138.12 (110.07-165.87)	143.19 $\pm$ 95.49	127.30 (78.18-167.21)	0.233
20 $\alpha$ -dihydrocortisone	22.23 $\pm$ 8.01	21.76 (14.04-28.83)	17.46 $\pm$ 12.23	13.65 (10.54-23.89)	0.014
20 $\beta$ -dihydrocortisone	70.59 $\pm$ 31.13	64.92 (41.76-101.77)	83.25 $\pm$ 68.08	62.65 (46.17-102.37)	0.903
20 $\alpha$ -dihydrocortisol	52.58 $\pm$ 35.57	38.46 (29.04-62.95)	88.59 $\pm$ 154.17	40.41 (25.39-62.72)	0.903
20 $\beta$ -dihydrocortisol	252.33 $\pm$ 209.11	223.02 (111.69-300.32)	110.03 $\pm$ 81.43	82.34 (61.37-119.73)	0.004
6 $\beta$ -hydroxycortisol	50.17 $\pm$ 27.93	40.35 (28.46-76.89)	44.40 $\pm$ 38.78	34.40 (20.68-49.01)	0.344



A



B



C

**Supplementary Figure S1. Results of the analysis of the ROC curve for most appropriate classifier to distinguish alterations in steroid metabolites between normal weight and obesity.** The blue shaped area is the 95% confidence interval of the sensitivity at the given specificity. A – whole group divided by sex, B – prepubertal group divided by sex, C – group with advanced puberty divided by sex.