

Table S1. Matching variables, N=342

Category	Non ASD (n=171)	ASD (n=171)	p-value
Matching variables			
Child age, mean (SD)	11.8 (3.6)	11.7(3.8)	N/A
Maternal age at delivery, n (%)	27.1 (6.0)	27.1 (5.9)	N/A
Gestational age in weeks, mean (SD)	39.0 (1.94)	39.1(1.8)	N/A
Male child, n (%)	137 (50.0)	137 (50.0)	N/A
Female child, n (%)	34 (50.0)	34 (50.0)	

Table S2. Demographic and clinical characteristics of entire sample (N=342)

	Cumulative dose of synthetic oxytocin				
	Zero	1 st level	2 nd level	3 rd level	Overall
All sample, n (%)	136 (39.77)	69 (20.18)	69 (20.18)	68 (19.88)	342 (100)
Sex of child, n (%)					
Female	28 (41.18)	12 (17.65)	19 (27.94)	9 (13.24)	68 (100)
Male	108 (39.42)	57 (20.80)	50 (18.25)	59 (21.53)	274 (100)
Age of child, mean (SD)	11.81 (3.83)	12.33 (3.33)	11.50 (3.78)	11.91 (3.75)	11.87 (3.70)
Gestational weeks, mean (SD)	38.86 (1.97)	39.10 (1.44)	39.67 (1.55)	38.94 (2.23)	39.09 (1.87)
Maternal age, mean (SD)	26.80 (5.99)	27.17 (6.66)	27.88 (5.67)	26.69 (5.52)	27.07 (5.97)
Maternal hypertension, n (%)					
None	130 (42.62)	59 (19.43)	64 (20.98)	52 (17.02)	305 (100)
Chronic hypertension	1 (25.00)	0 (0.00)	1 (25.00)	2 (50.00)	4 (100)
Gestational hypertension	4 (18.18)	9 (40.91)	2 (9.09)	7 (31.82)	22 (100)
Pre-eclampsia	1 (9.09)	1 (9.09)	2 (18.18)	7 (63.64)	11 (100)
Maternal diabetes, n (%)					
None	122 (38.85)	66 (21.02)	63 (20.06)	63 (20.06)	314 (100)
Non-gestational not insulin controlled	1 (100)	0 (0.00)	1 (0.00)	0 (0.00)	1 (100)
Non-gestational insulin controlled	2 (66.67)	1 (33.33)	0 (0.00)	0 (0.00)	3 (100)
Gestational not insulin controlled	8 (47.06)	2 (11.76)	4 (23.53)	3 (17.65)	17 (100)
Gestational insulin controlled	3 (42.86)	0 (0.00)	2 (28.57)	2 (28.57)	7 (100)
Mode of delivery, n (%)					
Vaginal	78 (35.14)	48 (21.62)	56 (25.23)	40 (18.02)	222 (100)
Vacuum	5 (41.47)	4 (33.33)	1 (8.33)	2 (16.67)	12 (100)
Forceps	2 (20.00)	3 (30.00)	2 (20.00)	3 (30.00)	10 (100)
Caesarean	51 (52.04)	14(14.29)	10 (10.20)	23 (23.47)	98 (100)
Maternal education, n (%)					
High school	66 (43.14)	40 (26.14)	19 (12.42)	28 (18.30)	153(100)
College	70 (37.43)	27(14.44)	50 (26.74)	40 (21.39)	187 (100)
Unknown	0 (0.00)	2 (100)	0 (0.00)	0 (0.00)	2 (100)
Indication for delivery, n (%)					
Elective	2 (13.33)	2 (13.33)	7 (46.67)	4 (26.67)	15 (100)
Spontaneous	70 (51.09)	39 (28.47)	17 (12.41)	11 (8.03)	137 (100)
Hypertensive disease	0 (0.00)	6 (33.33)	2 (11.11)	10 (55.56)	18 (100)
Diabetes	3 (33.33)	1 (11.11)	1 (11.11)	4 (44.44)	9 (100)
Repeat C-section	12 (100.00)	0 (0.00)	0 (0.00)	0 (0.00)	12 (100.00)
Dates	9 (20.00)	5 (11.11)	15(33.33)	16 (35.56)	45 (100.00)
Fetal indications	12 (31.58)	4 (10.53)	8 (21.05)	14 (36.84)	38 (100.00)
Birthweight in grams, mean (SD)	3305(645)	3303 (491)	3536 (605)	3460 (643)	3382 (613)

Table S2 (continued). Demographic and clinical characteristics of entire sample (N=342)

	Maximum rate of synthetic oxytocin				
	Zero	1 st level	2 nd level	3 rd level	Overall
All sample, n (%)	136 (39.77)	65 (19.01)	71 (20.76)	70 (20.47)	342 (100)
Sex of child, n (%)					
Female	28 (41.18)	13 (19.12)	14 (20.59)	13 (19.12)	68 (100)
Male	108 (39.42)	52 (18.98)	57 (20.80)	57 (20.80)	274 (100)
Age of child, mean (SD)	11.81(3.83)	12.17 (3.29)	11.59 (3.70)	12.01 (3.86)	11.87 (3.70)
Gestational weeks, mean (SD)	38.86 (1.97)	39.21 (1.58)	39.30 (1.95)	39.21 (1.83)	39.09 (1.87)
Maternal age, mean (SD)	26.80 (5.99)	26.83 (6.26)	27.88 (6.18)	27.00 (5.48)	27.07 (5.97)
Maternal hypertension, n (%)					
None	130 (42.62)	56 (18.36)	65 (21.31)	54 (17.70)	305 (100)
Chronic hypertension	1 (25.00)	0 (0.00)	0 (0.00)	3 (75.00)	4 (100)
Gestational hypertension	4 (18.18)	7 (31.82)	3 (13.64)	8 (36.36)	22 (100)
Pre-eclampsia	1 (9.09)	2 (18.18)	3 (27.27)	5 (45.45)	11 (100)
Maternal diabetes, n (%)					
None	122 (38.85)	63 (20.06)	62 (19.75)	67 (21.34)	314 (100)
Non-gestational not insulin controlled	1 (100)	0 (0.00)	0 (0.00)	0 (0.00)	1 (100)
Non-gestational insulin controlled	2 (66.67)	1 (33.33)	0 (0.00)	0 (0.00)	3 (100)
Gestational not insulin controlled	8 (47.06)	1 (5.88)	7 (41.18)	1 (5.88)	17 (100)
Gestational insulin controlled	3 (42.86)	0 (0.00)	2 (28.57)	2 (28.57)	7 (100)
Mode of delivery, n (%)					
Vaginal	78 (35.14)	45 (20.27)	56 (25.23)	43 (19.37)	222 (100)
Vacuum	5 (41.67)	3 (25.00)	2 (16.67)	2 (16.67)	12 (100)
Forceps	2 (20.00)	3 (30.00)	2 (20.00)	3 (30.00)	10 (100)
Caesarean	51 (52.04)	14 (14.29)	11(11.22)	22 (22.45)	98 (100)
Maternal education, n (%)					
High school	66 (43.14)	36 (23.53)	22 (14.38)	29 (18.95)	153 (100)
College	70 (37.43)	28 (14.97)	48 (25.67)	41 (21.93)	187 (100)
Unknown	0 (0.00)	1 (50.00)	1 (50.00)	0 (0.00)	2 (100)
Indication for delivery, n (%)					
Elective	2 (13.33)	2 (13.33)	5 (33.33)	6 (40.00)	15 (100)
Spontaneous	70 (51.09)	38 (27.74)	22 (16.06)	7 (5.11)	137 (100)
Hypertensive disease	0 (0.00)	5 (27.78)	2 (11.11)	11 (61.11)	18 (100)
Diabetes	3 (33.33)	0 (0.00)	3 (33.33)	3 (33.33)	9 (100)
Repeat C-section	12 (100)	0 (0.00)	0 (0.00)	0 (0.00)	12 (100)
Dates	9 (20.00)	4 (8.89)	14 (31.11)	18 (40.00)	45 (100)
Fetal indications	12 (31.58)	3 (7.89)	11 (28.95)	12 (31.58)	38 (100)
Birthweight in grams, mean (SD)	3305 (645)	3324 (514)	3425 (545)	3541 (677)	3382 (613)

Table S2 (continued). Demographic and clinical characteristics of entire sample (N=342)

	Time of exposure to synthetic oxytocin				
	Zero	1 st level	2 nd level	3 rd level	Overall
All sample, n (%)	136 (39.77)	69 (20.18)	69 (20.18)	68 (19.88)	342 (100)
Sex of child, n (%)					
Female	28 (41.18)	13 (19.12)	18 (26.47)	9 (13.24)	68 (100)
Male	108 (39.42)	56 (20.44)	51 (18.61)	59 (21.53)	274 (100)
Age of child, mean (SD)	11.81 (3.83)	12.34 (3.35)	11.86 (3.88)	11.54 (3.62)	11.87 (3.70)
Gestational weeks, mean (SD)	38.86 (1.97)	39.20 (1.43)	39.39 (1.63)	39.12 (2.23)	39.09 (1.87)
Maternal age, mean (SD)	26.80 (5.99)	27.53 (6.39)	27.18 (6.05)	27.02 (5.49)	27.07 (5.97)
Maternal hypertension, n (%)					
None	130 (42.62)	58 (19.02)	62 (20.33)	55 (18.03)	305(100)
Chronic hypertension	1 (25.00)	1 (25.00)	1 (25.00)	1 (25.00)	4 (100)
Gestational hypertension	4 (18.18)	9 (40.91)	3 (13.64)	6 (27.27)	22 (100)
Pre-eclampsia	1 (9.09)	1 (9.09)	3 (27.27)	6 (54.55)	11(100)
Maternal diabetes, n (%)					
None	122 (38.85)	67 (21.34)	63 (20.06)	62 (19.75)	314 (100)
Non-gestational not insulin controlled	1 (100)	0 (0.00)	0 (0.00)	0 (0.00)	1 (100)
Non-gestational insulin controlled	2 (66.67)	0 (0.00)	1 (33.33)	0 (0.00)	3 (100)
Gestational not insulin controlled	8 (47.06)	2 (11.76)	3 (17.65)	4 (23.53)	17 (100)
Gestational insulin controlled	3(42.86)	0 (0.00)	2 (28.57)	2 (28.57)	7 (100)
Mode of delivery, n (%)					
Vaginal	78 (35.14)	50 (22.52)	57 (25.68)	37 (16.67)	222 (100)
Vacuum	5 (41.67)	4 (33.33)	1 (8.33)	2 (16.67)	12 (100)
Forceps	2 (20.00)	3 (30.00)	1 (10.00)	4 (40.00)	10 (100)
Caesarean	51 (52.04)	12 (12.24)	10 (10.20)	25 (25.51)	98 (100)
Maternal education, n (%)					
High school	66 (43.14)	35 (22.88)	28 (18.30)	24 (15.69)	153 (100)
College	70 (37.43)	32 (17.11)	41 (21.93)	44 (23.53)	187 (100)
Unknown	0 (0.00)	2 (100)	0 (0.00)	0 (0.00)	2 (100)
Indication for delivery, n (%)					
Elective	2 (13.33)	4 (26.67)	6 (40.00)	3 (20.00)	15(100)
Spontaneous	70 (51.09)	36 (26.28)	21(15.33)	10 (7.30)	137 (100)
Hypertensive disease	0 (0.00)	5 (27.78)	4 (22.22)	9 (50.00)	18 (100)
Diabetes	3 (33.33)	1 (11.11)	0 (0.00)	5 (55.56)	9 (100)
Repeat C-section	12 (100.00)	0 (0.00)	0 (0.00)	0 (0.00)	0 (0.00)
Dates	9 (20.00)	5 (11.11)	14 (31.11)	17 (37.78)	45 (100)
Fetal indications	12 (31.58)	5 (13.16)	6 (15.79)	15 (39.47)	38 (100)
Birthweight in grams, mean (SD)	3305 (645)	3341 (484)	3483 (664)	3474 (600)	3382 (613)

Table S3. Oxytocin use in various delivery categories

Category	Non-ASD Oxytocin /Total, n (%)	ASD Oxytocin/Total, n (%)
Vaginal	80/125 (64.0)	64/97 (66.0)
Vacuum/Forceps	6/10 (60.0)	9/12 (75.0)
Caesarean, First-time	15/24 (62.5)	30/48 (62.5)
Caesarean, First-time No Fetal Indications	9/14 (64.3)	26/33 (78.8)
Caesarean, First-time Fetal Indications	6/10 (60.0)	4/15 (26.7)
Caesarean, Repeat	0/12 (0.0)	2/14 (14.3)

Table S4. Conditional logistic regression analysis of clinical features of sample, N=342 or 171 pairs.

Variable	Category/Range	Non ASD n=171 n(%)	ASD n=171 n(%)	Test Statistic OR (CI)	p-value
Any induction	No induction (ref)	110 (51.2)	105 (48.8)	1	0.928
	Any induction	61 (48.0)	66 (52.0)	1.03 (0.50-2.11)	
sOT induction (any dosage)	No induction (ref)	110 (51.2)	105 (48.8)	1	0.857
	sOT induction	54 (46.5)	62 (53.4)	1.07 (0.51-2.23)	
Any augmentation	No augmentation (ref)	101 (48.8)	106 (51.2)	1	0.457
	Any augmentation	70 (51.8)	65 (48.1)	1.26 (0.68-2.35)	
sOT augmentation (any dosage)	No augmentation (ref)	101 (48.8)	106 (51.2)	1	0.766
	sOT augmentation	47 (53.4)	41 (49.6)	0.89 (0.42-1.90)	
Any sOT (any dosage)	No sOT	70 (51.5)	66 (48.5)	1	0.534
	sOT	101 (49.0)	105 (51.0)	1.20 (0.68-2.10)	
Prostaglandin dose (any dosage)	No prostaglandin dose (ref)	157 (51.0)	151 (49.0)	1	0.800
	Prostaglandin dose (1+)	14 (41.2)	20 (58.8)	1.12 (0.47-2.65)	

OR=Odds Ratio, CI=Confidence Interval

Controlling for: maternal hypertension, maternal diabetes, maternal education, indication for delivery (including fetal indications), birth weight, maternal body mass index, mode of delivery, child race, smoking during pregnancy, alcohol use during pregnancy and paternal age. Note: The exposure variables (any induction through prostaglandin dose) were run in separate models. Each model consisted of the exposure variable, covariates, and the outcome.

Table S5. Conditional logistic regression results on the association between clinical variables and the odds of autism spectrum disorders among girls (N=68 or 34 pairs)

Variable ¹	N	Level	Result	
			OR (CI) ²	p-value
Cumulative dose of sOT (mU)	28	Zero mU (ref)	1	
	12	1 st level	0.15 (0.01-4.63)	0.278
	19	2 nd level	0.67 (0.06-7.73)	0.746
	9	3 rd level	6.97 (0.13-381.64)	0.342
Maximum rate of sOT (mU/min)	28	Zero rate mU (ref)	1	
	13	1 st level rate	0.16 (0.01-3.55)	0.247
	14	2 nd level rate	0.91 (0.08-10.16)	0.938
	13	3 rd level rate	2.17 (0.15-31.6)	0.569
Time of exposure to sOT (min)	28	Zero (ref)	1	
	13	1 st level of time	0.35 (0.05-8.71)	0.525
	18	2 nd level of time	1.42 (0.14-13.84)	0.764
	9	3 rd level of time	0.07 (0.01-34.77)	0.403

¹ All variables are categorical, variables are coded such that an OR>1 indicates higher odds of ASD.

² OR=Odds ratio; CI=Confidence interval.

Variables controlled were maternal hypertension, maternal diabetes, maternal education, mode of delivery, indication for delivery, birth weight, maternal body mass index, mode of delivery, child race, smoking during pregnancy, alcohol use during pregnancy and paternal age. Note: The exposure variables (Cumulative dose of sOT, Maximum dose rate, Time of exposure) were run in separate models. Each model consisted of the exposure variable, covariates, and the outcome.

Table S6. Conditional logistic regression results on the association between clinical variables and the odds of autism spectrum disorders among girls (N=68 or 34 pairs)

Variable ¹	OR	95% CI	p-value
Cumulative dose of sOT /per 500 mU ²	1.048	0.964-1.130	0.288
Maximum dose rate/per 10 mU/min ³	2.061	0.530-8.020	0.297
Time of exposure/per 500 min ⁴	1.380	0.425-4.475	0.592

OR > 1 indicates higher odds of ASD. OR=odds ratio, CI=confidence interval. Variable controlled for were maternal hypertension, maternal diabetes, maternal education, indication for delivery (including fetal indications), birth weight, maternal body mass index, mode of delivery, child race, smoking during pregnancy, alcohol use during pregnancy and paternal age.

¹The exposure variables (Cumulative dose of sOT, Maximum dose rate, Time of exposure) were run in separate models. Each model consisted of the exposure variable, covariates, and the outcome.

²The odds ratios presented for cumulative dose of sOT is to be interpreted as, on average, the odds ratio associated with every 500 mU increase in dose.

³The odds ratios presented for maximum dose of rate is to be interpreted as, on average, the odds ratio associated with every 10 mU/min increase in maximum dose rate.

⁴The odds ratios presented for time of exposure is to be interpreted as, on average, the odds ratio associated with every 500 minute increase time of exposure.