Fetal growth and body composition in pregnancies after metabolic surgery: data from the AURORA prospective cohort.

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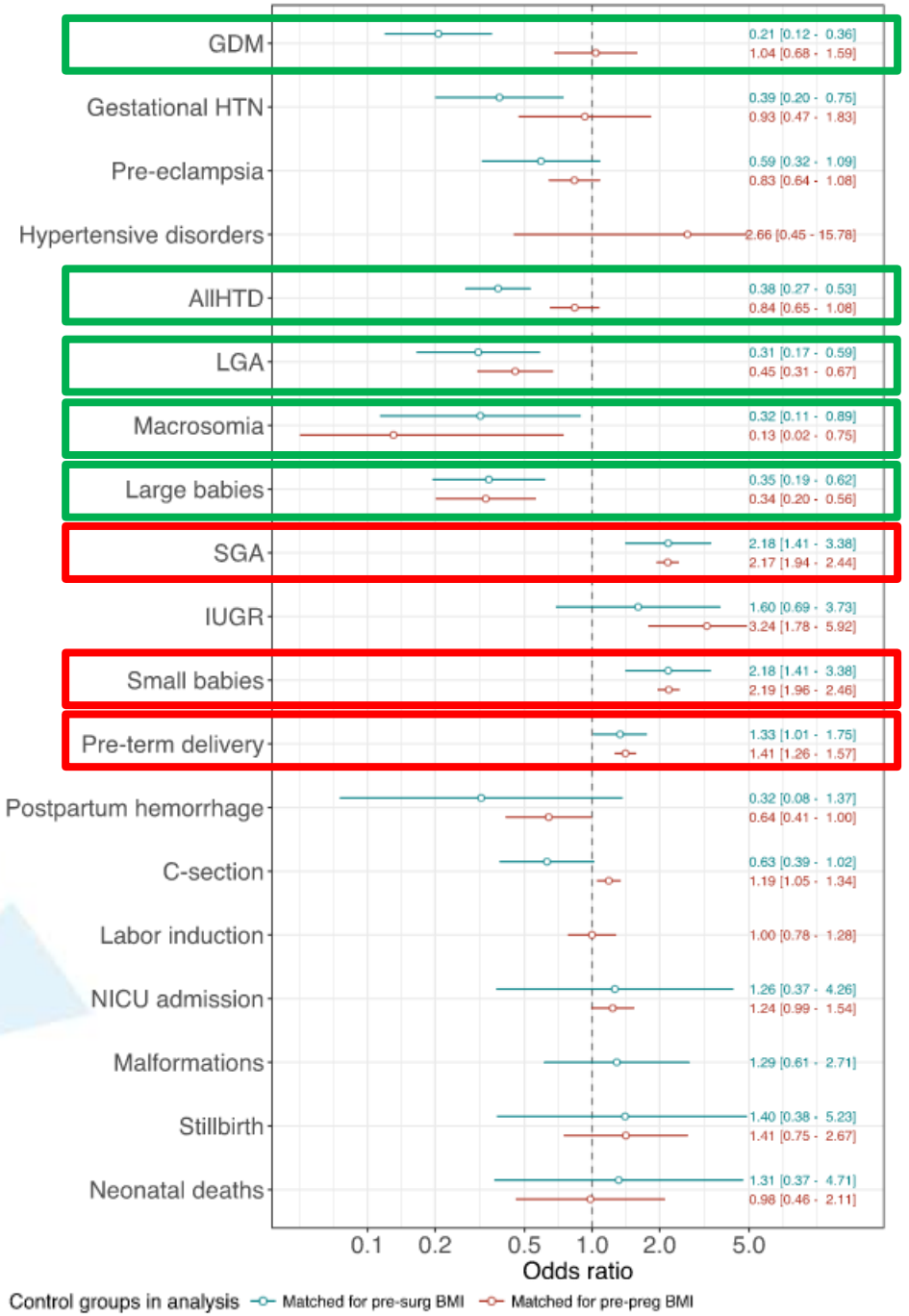
No conflict of interests



NNB = 5

NNB = 8

NNB = 6

NNB = 13

NNB = 7

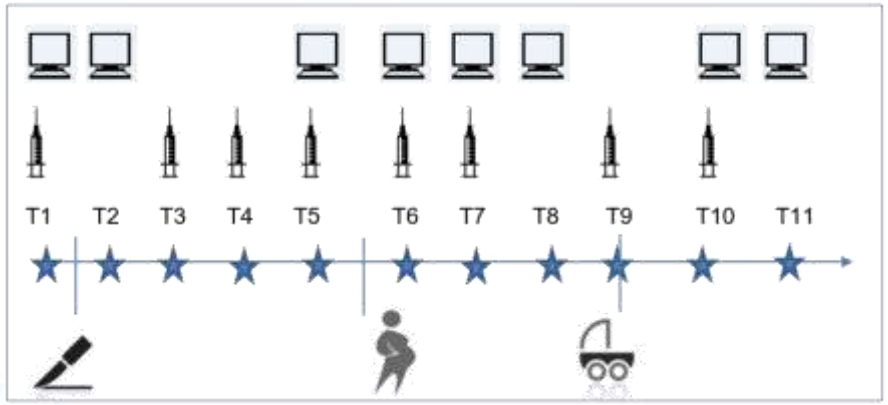
NNH = 21

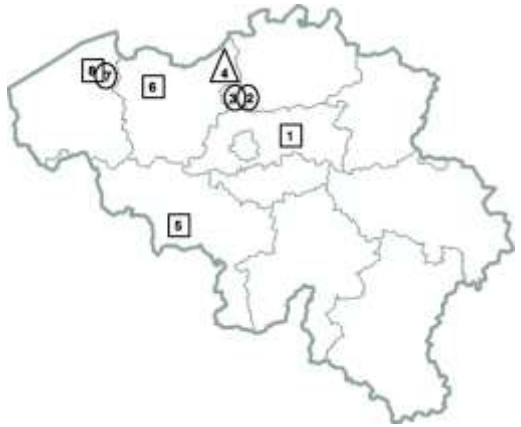
NNH = 21

NNH = 35

Kwong. Obstetric outcomes after bariatric surgery. Am J Obstet Gynecol 2018.

The Aurora Study: a prospective cohort study





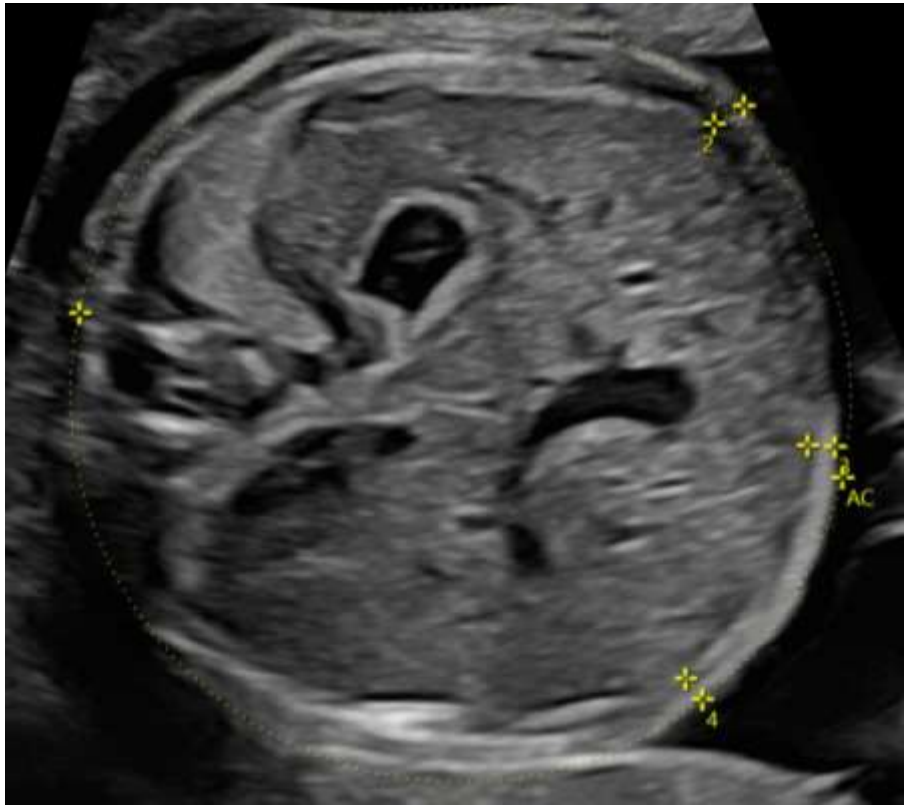
AURORA
Bariatric Surgery Registration in Women of Reproductive Age

- Aim:
  - Development of evidence based guidelines and recommendations for reproductive health after BS
- Objectives:
  - Research on pregnancy outcomes
  - Determining the incidence of nutritional deficiencies
  - Evalution of the effect of BS in women of reproductive age on fertility, sexuality, co-morbidities, contraception, pregnancy outcomes, antropometry, QoL, psychological outcomes, biochemical blood analyses and diet and physical activity

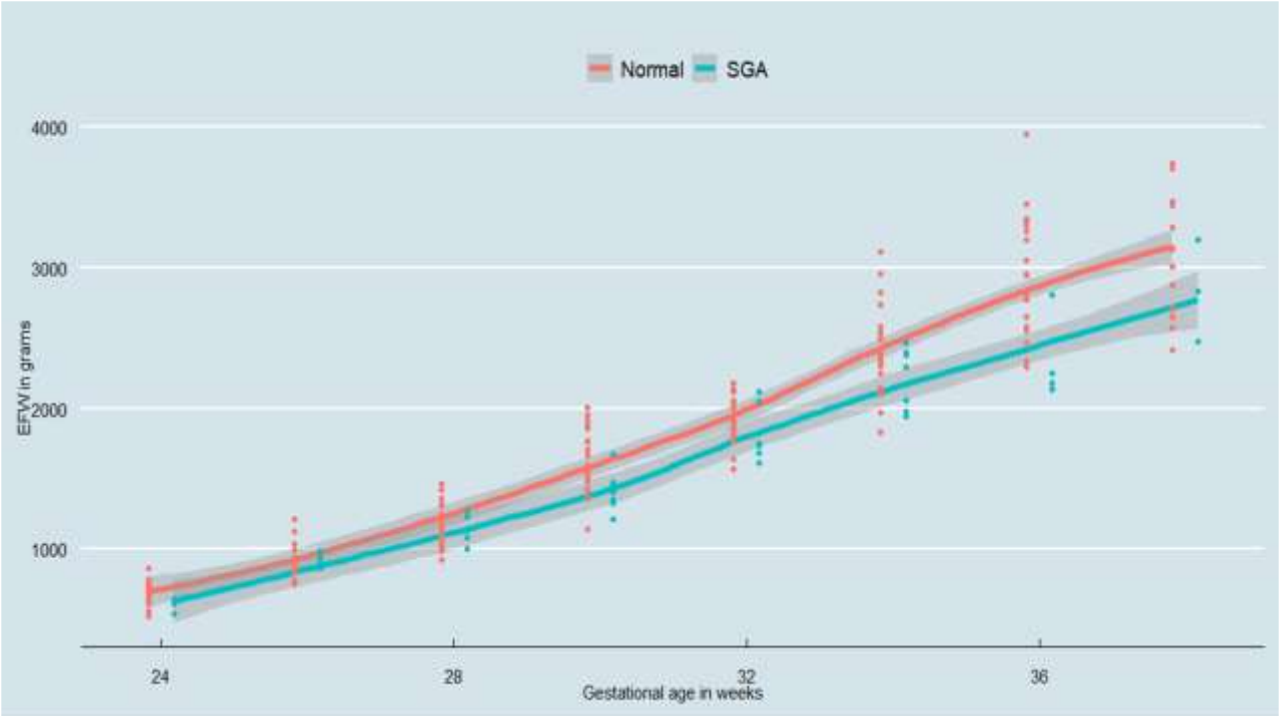
- Aim:
  - To examine fetal growth patterns and fetal body composition in pregnancies after bariatric surgery

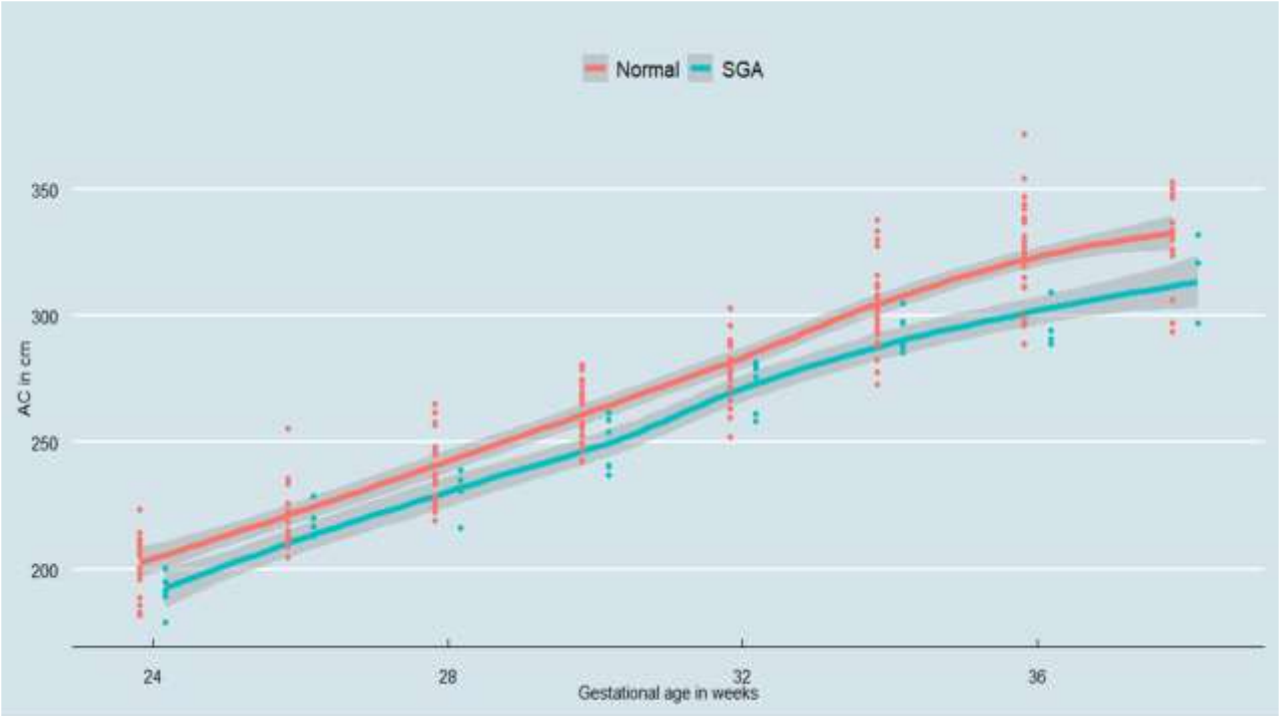
- Methods:
  - Prospective data from patients with a history of sleeve gastrectomy or gastric bypass
  - All patients were prescribed a general multivitamin, suited for pregnancy
  - Serial ultrasound measurements were made from 24w onwards
  - Growth patterns and body composition of fetuses born with a normal weight were compared to those born SGA

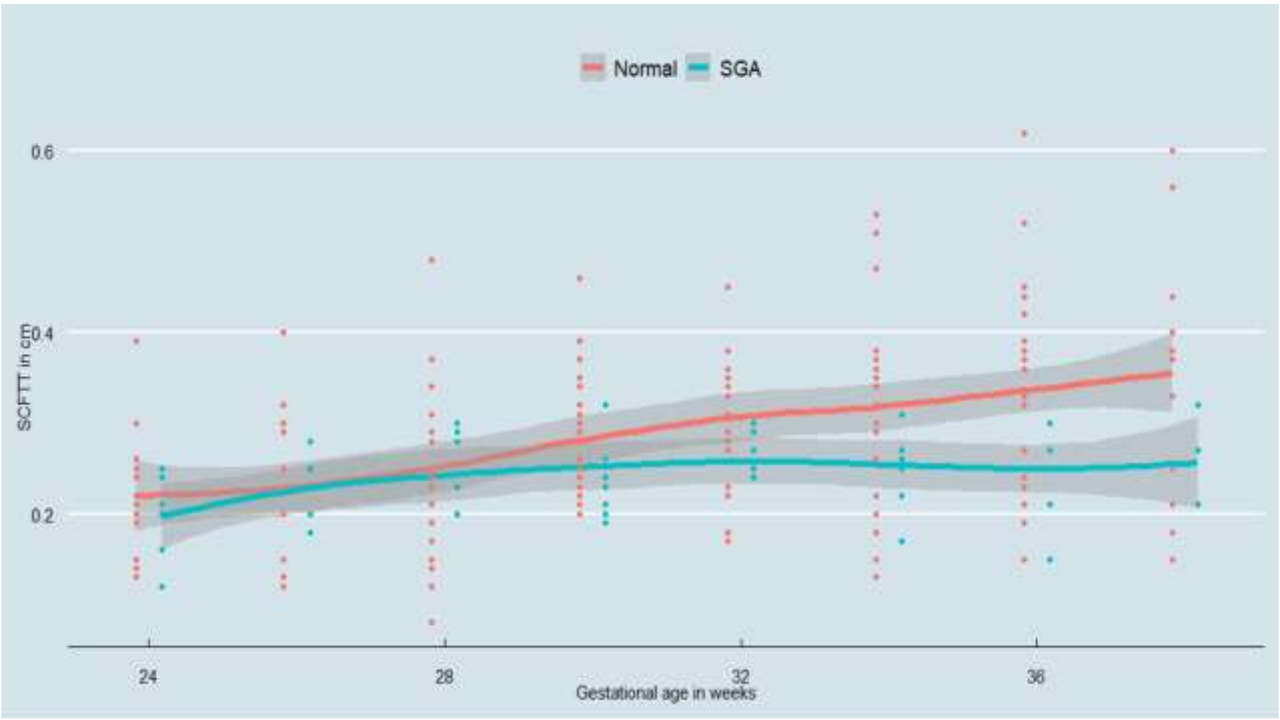
- Results from 42 subjects

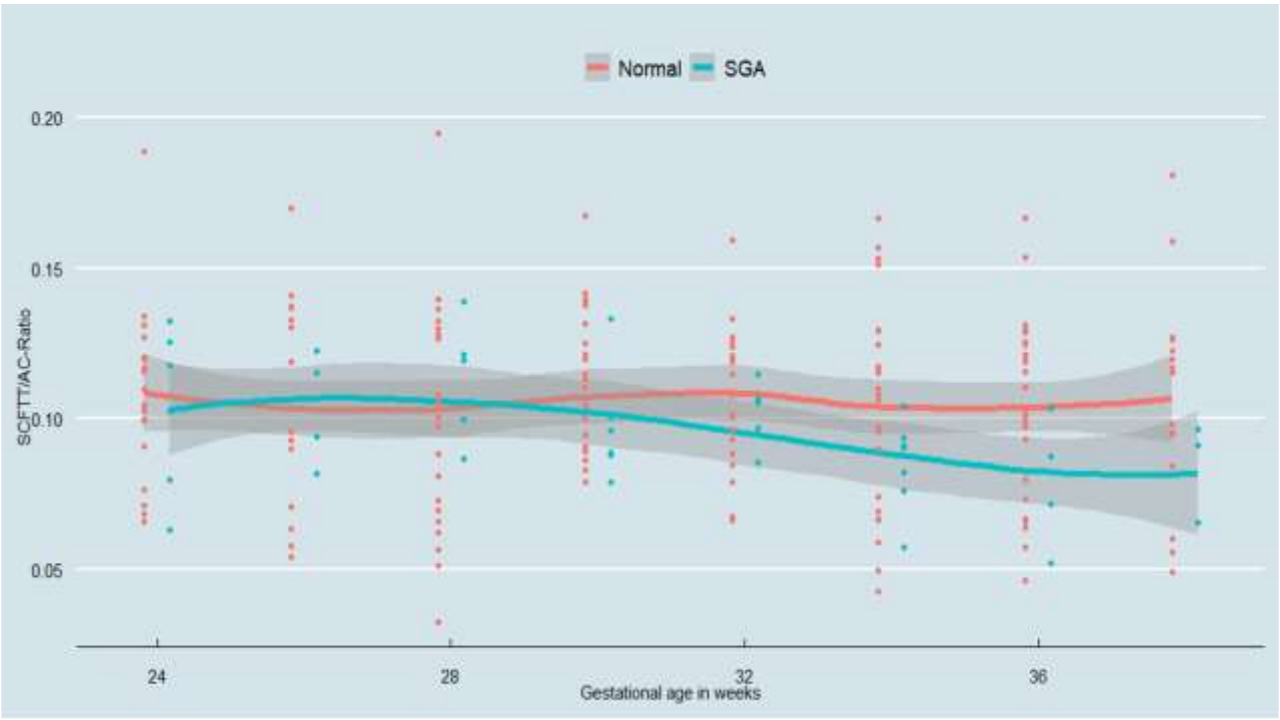


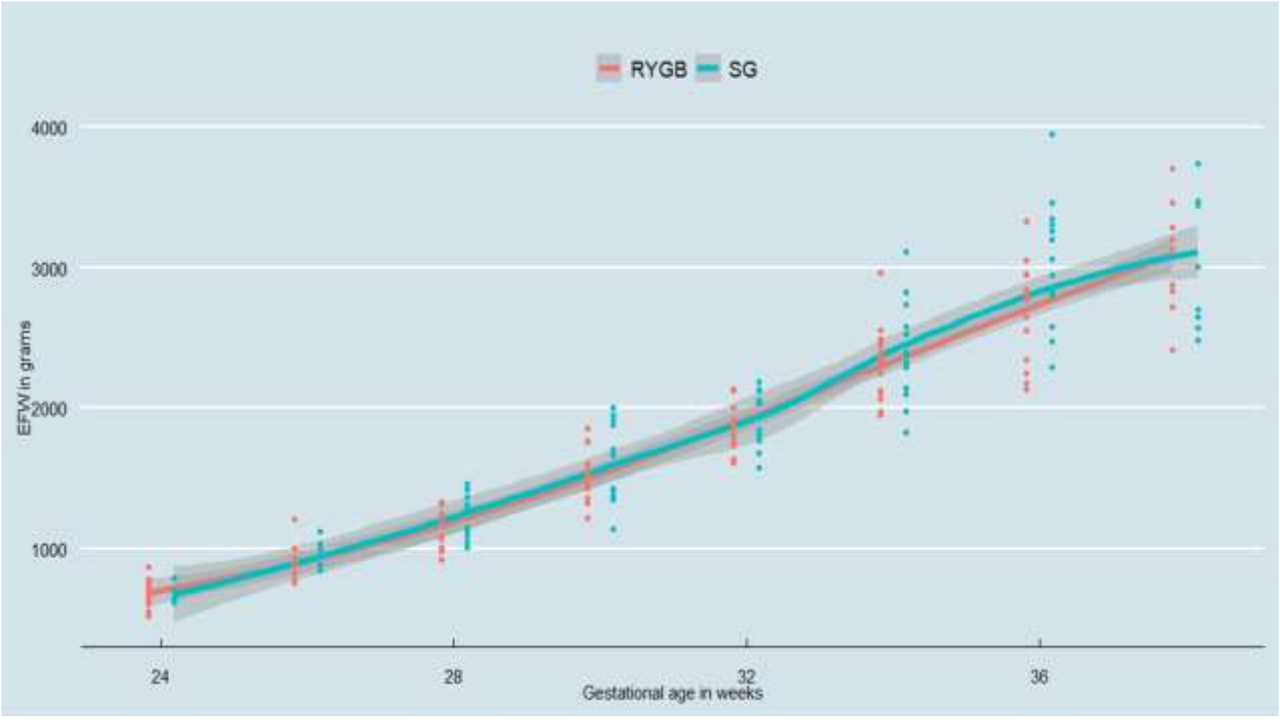
		Overall (n = 42)	RYGB (n = 23)	SG (n = 19)	p-value
Demographics					
Age, mean +- sd		30.0 +- 5.0	29.2 +- 5.0	31.1 +- 4.9	0.07
Pre-op BMI, mean +- sd		41.2 +- 7.9	41.4 +- 6.0	40.9 +- 9.9	0.38
Pre-conc BMI, mean +- sd		29.3 +- 4.8	27.0 +- 4.0	31.9 +- 4.3	0.52
Pre-conc BMI class, %					0.01
	Normal Weight	17.1%	27.3%	5.3%	
	Overweight	43.9%	54.5%	31.6%	
	Obese	39.0%	18.2%	63.2%	
Max. weight loss, mean +- sd		41.6 +- 16.7	42.4 +- 11.7	40.5 +- 21.4	0.54
Pregnancy					
Nulliparous, %		33.3%	30.4%	36.8%	0.76
Surgery to conception interval, mean +- sd		53.4 +- 35.1	58.4 +- 34.0	47.2 +- 36.4	0.43
GDM, %		9.5%	8.7%	10.5%	1
Hypertensive disorder, %		14.3%	13.0%	15.8%	1
Congenital anomalie, %		0.0%	0.0%	0.0%	1
GA, mean +- sd		38.0 +- 2.1	37.6 +- 2.6	38.6 +- 1.1	0.37
Induction, %		47.6%	39.1%	57.9%	0.18
Delivery method, %					0.57
	Spontaneuos delivery	61.9%	65.2%	57.9%	
	Assited vaginal delivery	9.5%	4.3%	15.8%	
	Cesarean section	28.6%	30.4%	26.3%	
Boy, %		42.90%	43.50%	42.10%	1
Birth weight, mean +- sd		3120 +- 622	2898 +- 592	3388 +- 560	0.43
Birth percentile, %					0.76
	SGA	19.0%	21.7%	15.8%	
	LGA	7.1%	4.3%	10.5%	
NICU admission, %		16.7%	26.1%	5.3%	0.11
GWG, mean +- sd		10.9 +-5.8	10.9 +- 5.8	10.9 +- 6.1	1


Normal
SGA
4000
3000
2000
1000
EFW in grams
24
28
32
36
Gestational age in weeks


Normal
SGA
350
300
250
200
AC in cm
24
28
32
36
Gestational age in weeks


Normal
SGA
0.6
0.4
0.2
SCFTT in cm
24
28
32
36
Gestational age in weeks


Normal
SGA
0.20
0.15
0.10
0.05
SCFTT/AC-Ratio
24
28
32
36
Gestational age in weeks


RYGB
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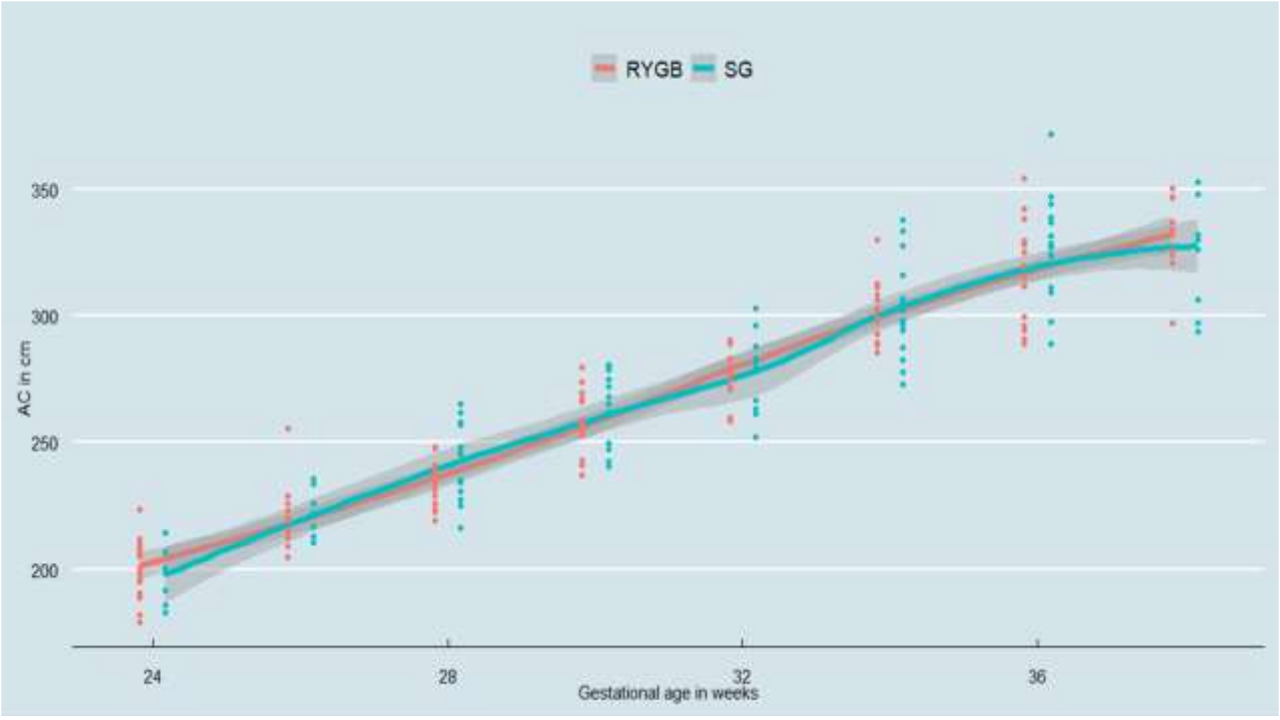
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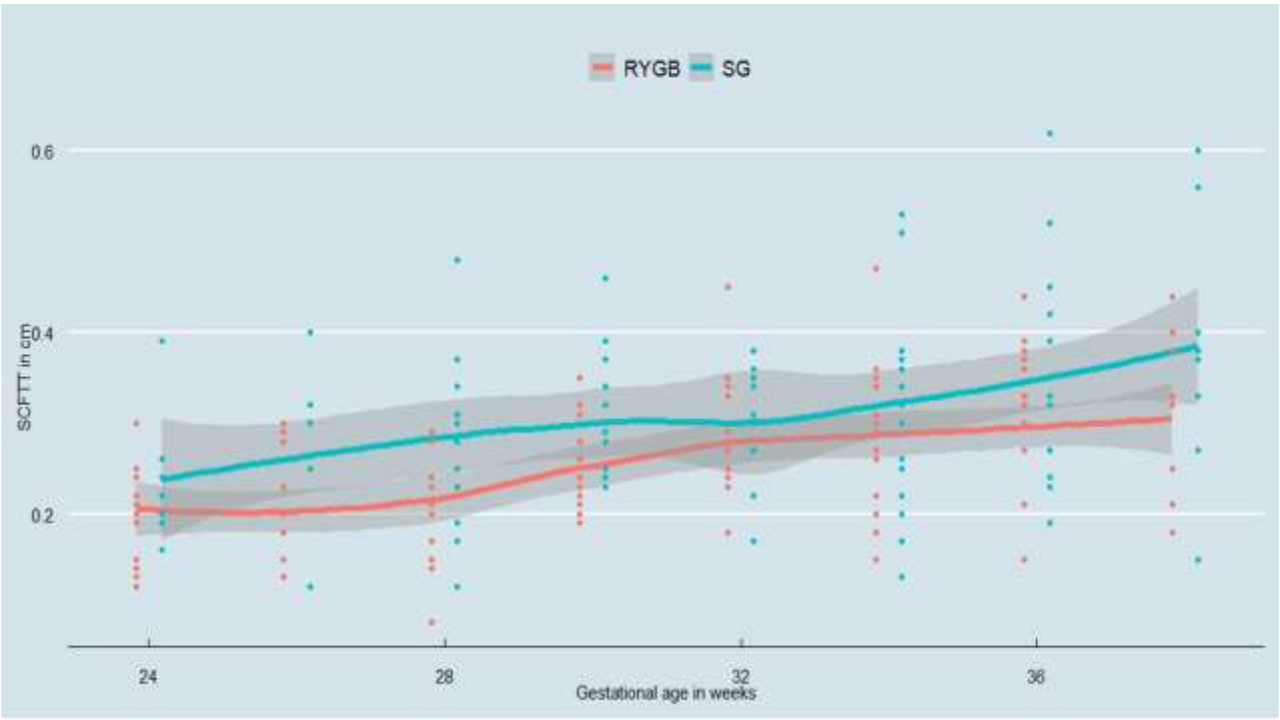
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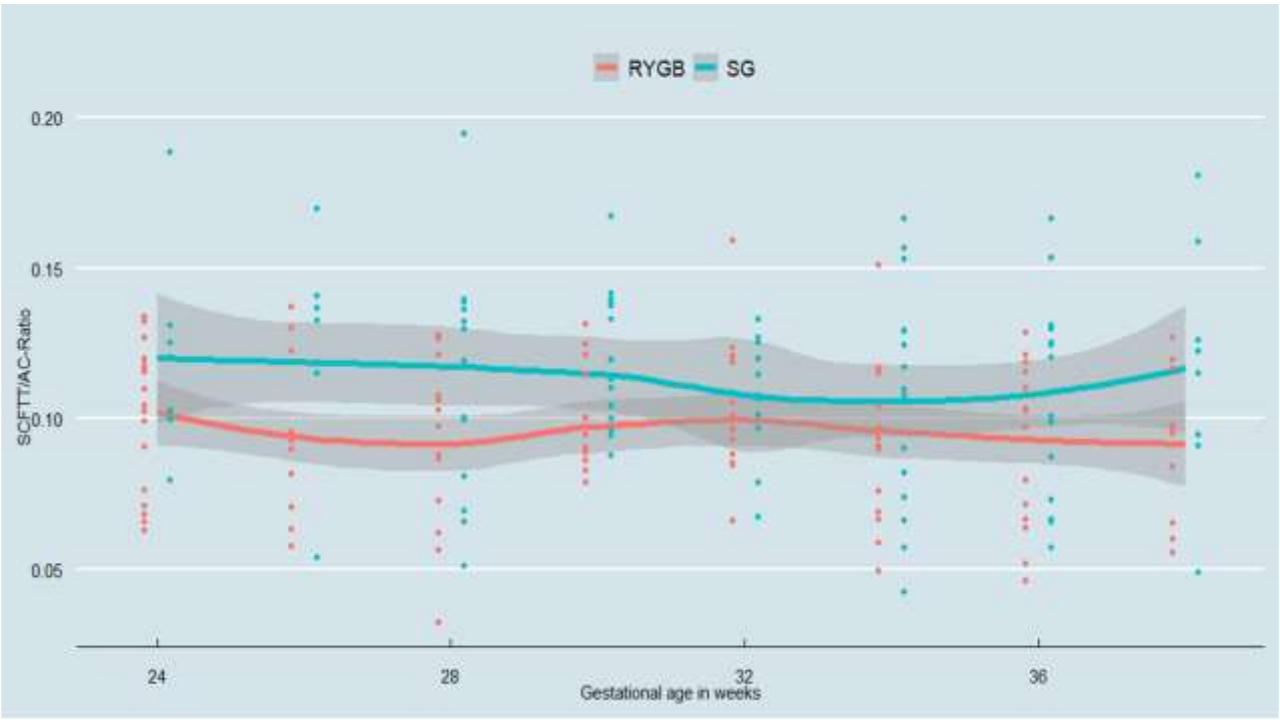
Gestational age in weeks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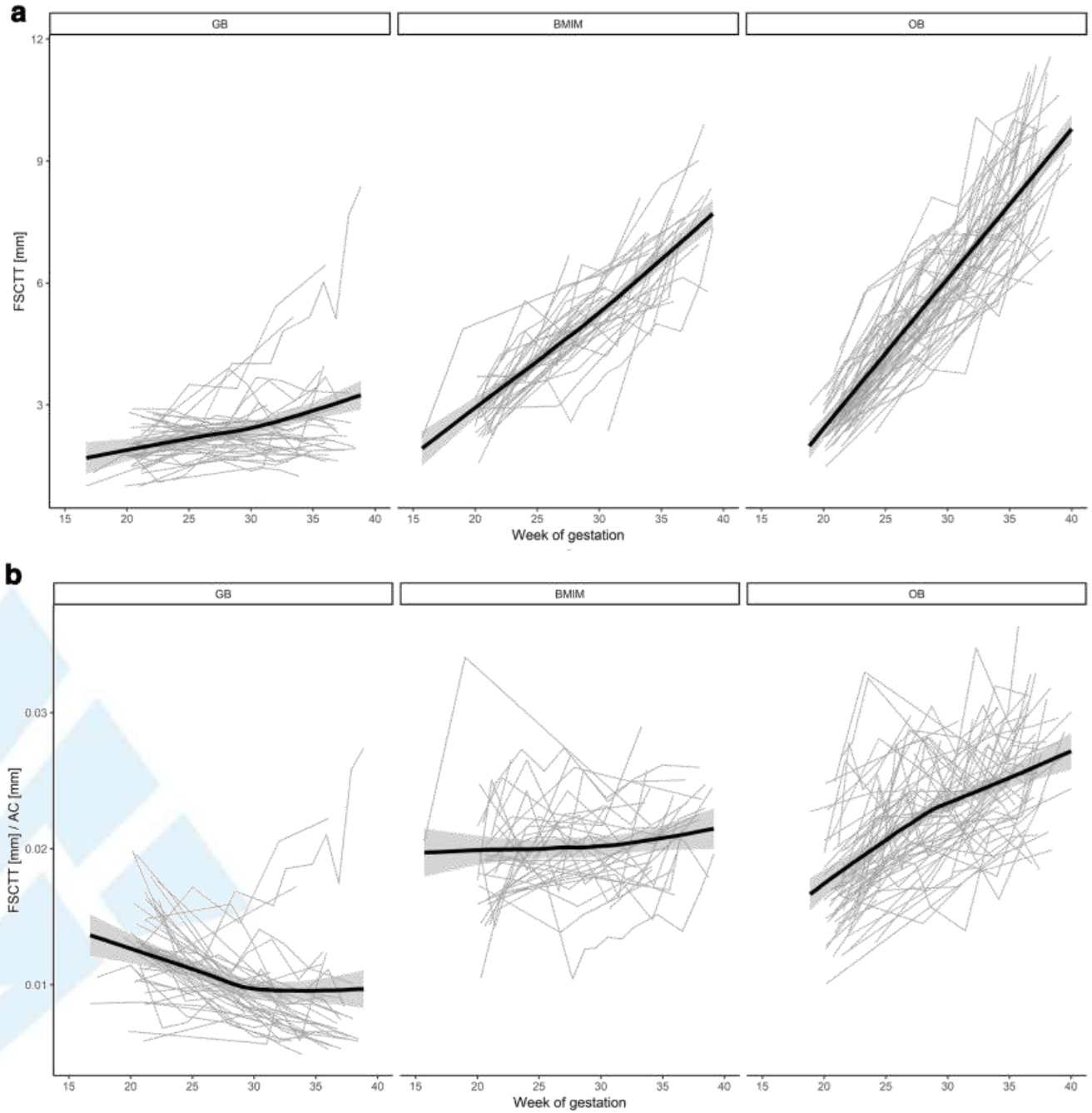

** Yerlikaya-Schatten, G., Feichtinger, M., Stopp, T. et al. Trajectories of Fetal Adipose Tissue Thickness in Pregnancies After Gastric Bypass Surgery. OBES SURG **30**, 96–101 (2020). https://doi.org/10.1007/s11695-019-04115-9*

Potential determinants of fetal growth after bariatric surgery

Placental function	• Improved by reduced incidence of hypertensive disorders & diabetes • Placental development and may be altered due to multifactorial causes
Micronutrients	• Reduced fetal adipose tissue is indicative for fetal malnutrition • Does adequate supplementation prevent IUGR?
Glycemic control	• Increased rates of hypoglycemia in pregnancies after bariatric surgery • GLORIA-trial will assess effect on fetal growth
Gut microbiome	• The one-carbon metabolism is affected by alterations in the gut microbiome • Bariatric surgery can significantly alter the microbiome • The BEYOND-trial will report on these interactions.
Pollutants	•LPOP's are released during periods of weight loss and/or insuline resistance. •Pollutants increase the risk for metabolic disorders. •We need to assess effects of transplacental uptake of pollutants by the fetus

Thank You

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Participating surgeons and centres in Belgium

KATHOLIEKE UNIVERSITEIT LEUVEN

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