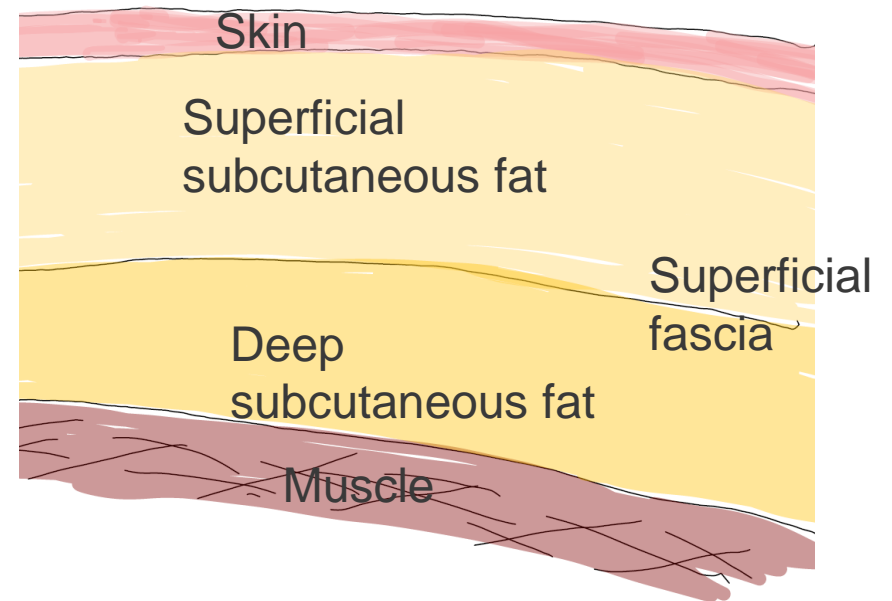
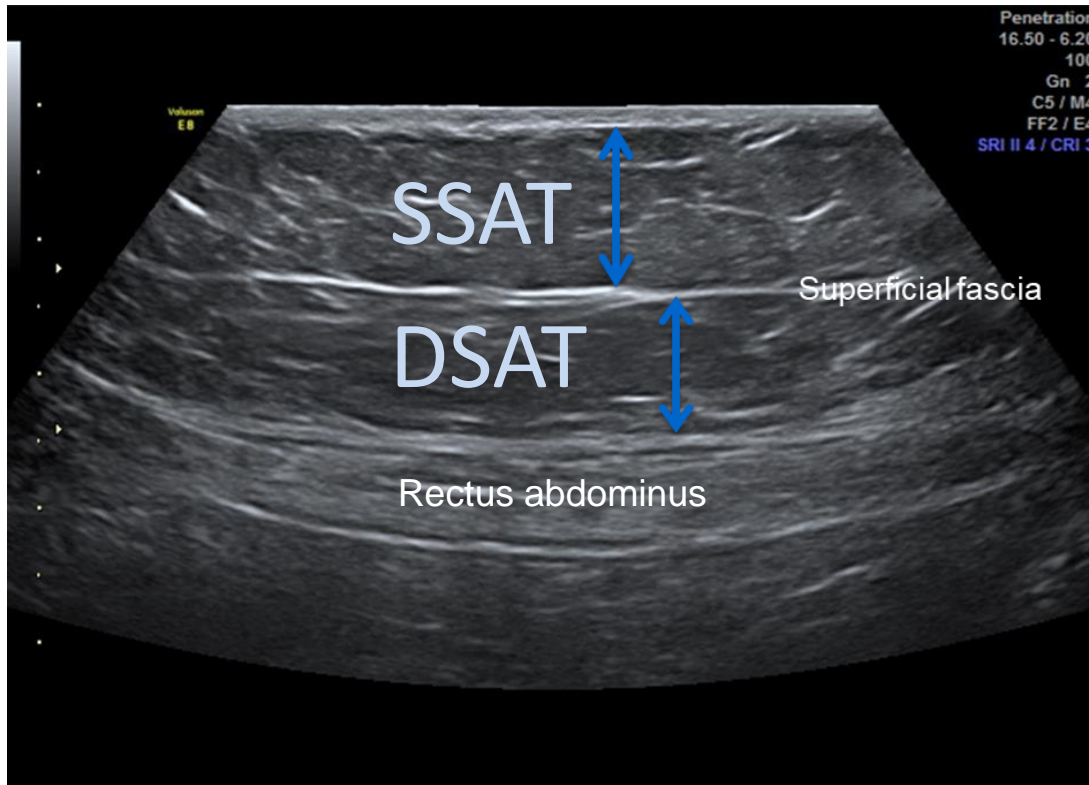


Changes in maternal abdominal subcutaneous fat layers using ultrasound: a longitudinal study

Narelle Kennedy, Ann Quinton, Michael Peek,
Chris Brown, Ron Benzie, Ralph Nanan

*Sydney Medical School Nepean,
University of Sydney*

Aim: describe the changes in maternal fat distribution through pregnancy and post-partum within BMI categories



Layers of subcutaneous fat

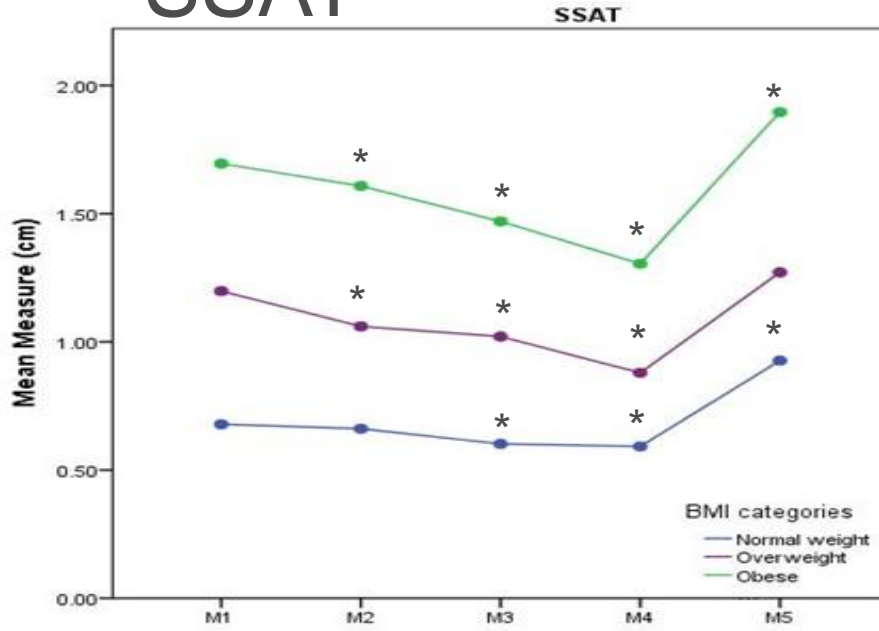
Demographics

Age: Mean \pm SD	28.67 (6.4) years				
Weight kg: Median[IQR]	70 [72-74]				
BMI kg/cm ² : Mean \pm SD	27.01 \pm 6.4				
Smokers: n (%)	32 (14.9%)				
Ethnicity	European 196 (91.6%)				
Parity	Nulliparous		Multiparous		
n (%)	547 (36.5%)		952 (63.5 %)		
Gestational Age Weeks	1 st U/S	2 nd U/S	3 rd U/S	4 th U/S	5 th U/S post-partum
Mean \pm SD	12.4 (0.9)	19.15 (0.57)	27.7 (1.13)	34.5 (0.85)	6.98 (1.15)
BMI	Normal weight		Overweight	Obese	
Categories	(18.5 -24.9)		(25 – 29.9)	(\geq 30)	
n (%)	94 (43.9%)		54 (25.2%)	66 (30.8%)	

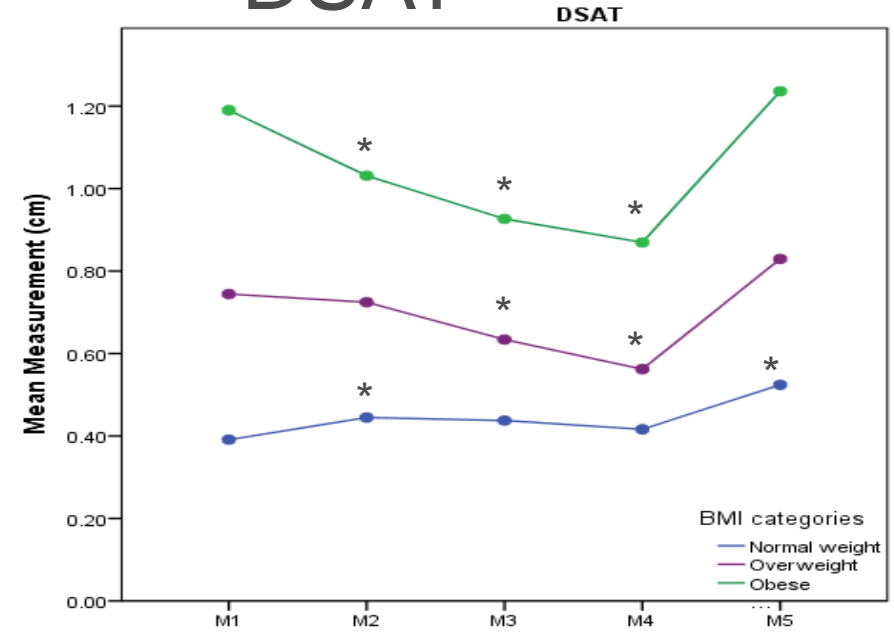
RESULTS:

Number = 214

SSAT

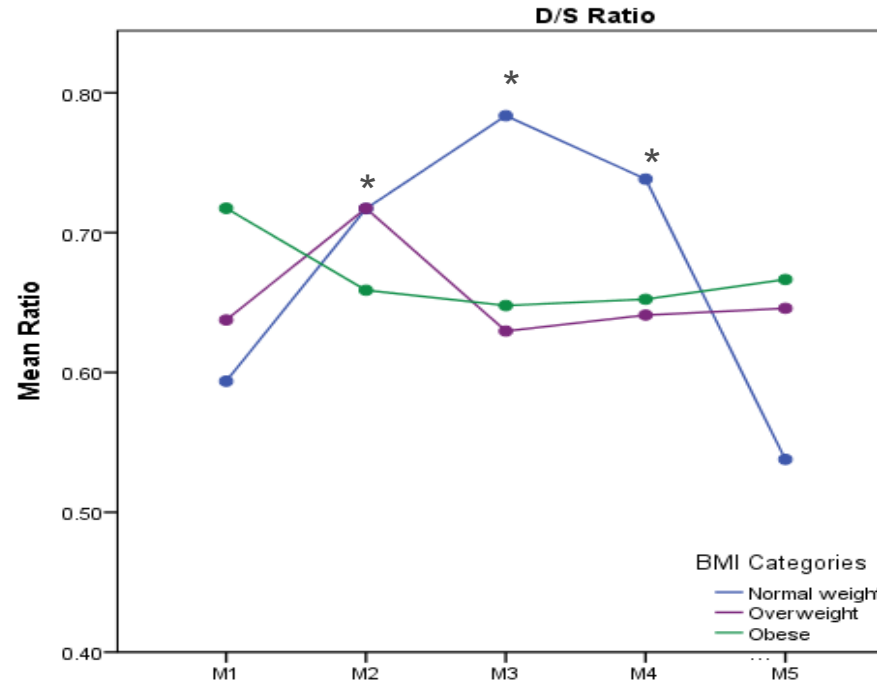


DSAT



D/S Ratio

* Significant $p < 0.05$



Weight change in pregnancy

BMI categories	M1 (kg)	M4 (kg)	M5 (kg)	Weight gain in pregnancy (kg)	Postpartum weight gain (kg)
Normal	58.49 (6.82)	70.16 (8.81)	64.5 (7.59)	11.67 (6.49)	6.01 (5.13)
Overweight	72.87 (7.17)	83.86 (10.36)	76.8 (8.83)	10.99 (8.04)	3.93 (6.7)
Obese	95.73 (14.32)	102.82 (14.87)	96.42 (16.94)	7.09 (5.32)	0.69 (8.64)
Total	73.4 (18.75)	83.55 (18.1)	78.23(18.1)	10.15 (6.80)	4.83 (7.12)



Reproducibility

- Intra class coefficient (ICC) was ICC: 0.91 ($p < 0.000$).
- Inter-operator ICC: 0.99 ($p < 0.000$) intra-operator ICC 0.98 ($p < 0.000$).

Limitation – smaller numbers of overweight

- Retention: number 200 (94%) 18-20 weeks
 - 182 (85%) 26-28weeks
 - 174 (81.3%) 33-36 weeks
 - 117 (55%) post-partum





Importance of findings

- First research assessing the maternal layers of abdominal SF in pregnancy
- Demonstrating a difference in fat mobilisation and D/S ratio in the different BMI categories
- Important as SSAT and DSAT are metabolically different, DSAT is metabolically more active and similar in function to visceral fat.
- Understanding the mobilisation of fat in pregnancy may be key to understanding obesity related complications in pregnancy
- Future research should investigate the D/S ratio and its relationship to insulin resistance in pregnancy.

Thank you



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Recently published paper that elaborates on this research further:

*Kennedy N, Quinton A, Brown C, Peek M.J, Benzie R, Nanan R.
**Changes in maternal abdominal subcutaneous fat layers using
ultrasound: a longitudinal study.** Obesity Research & Clinical
Practice 2017;11(6):655-64.*