

A low glycaemic load diet reduces risk factors for the metabolic syndrome and type 2 diabetes in lean and overweight menopausal women and women with polycystic ovary syndrome (PCOS)

By Anne M. Herriot BSc RD¹, Sovra I.J. Whitcroft FRCOG¹, Yvonne M. Jeanes PhD RD²

¹*The Surrey Park Clinic: Health and Hormone Clinic, Stirling House, Stirling Road, Guildford, Surrey, UK.* ²*School of Human and Life Sciences, Roehampton University, London, UK.*

BACKGROUND:

- *Insulin resistance (IR) is a component of the metabolic syndrome (MS) and type 2 diabetes.*
- *Abdominal adiposity is correlated with IR and the MS (Grundy et al., 2004).*
- *IR is also a feature of Polycystic ovary syndrome (PCOS) and IR commonly increases around the time of menopause (Kaaja 2008).*
- *Increasing glycaemic load (GL) increases insulinaemia (Brand-Miller et al, 2003).*
- *It is hypothesised that ↓ the GL of the diet should help ↓ exposure to insulin and ↓ abdominal adiposity.*

STUDY AIM:

To assess the impact of a low GL diet on waist circumference and waist: hip ratio.

METHODS:

- *Patients diagnosed with IR, in combination with PCOS (n= 41) or the menopause (n=36) attending baseline (BL) and follow up (FU) dietetic appointments (mean 2.5 months apart) were audited.*
- *Average age of all women was 40±13 years*
- *women with PCOS 31±10years menopausal 51± 7years).*
- *All had been prescribed a low GL diet (approx 30% energy from protein, <40% energy from carbohydrate from low glycaemic index foods), isocaloric for lean, reduced calorie for overweight.*
- *Weight, waist circumference (WC), waist hip ratio (W:H) and body mass index (BMI) were recorded.*

RESULTS:

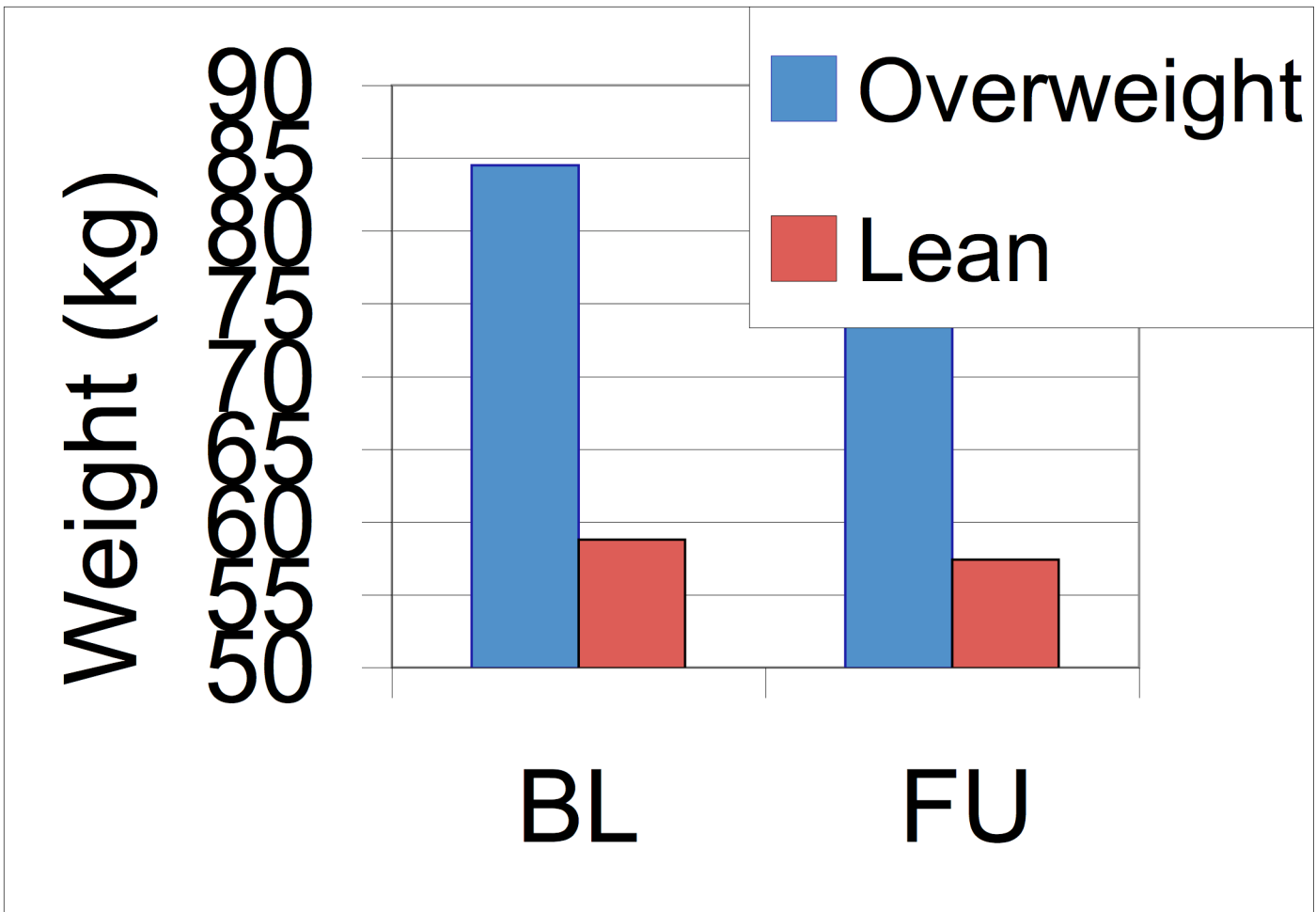
- At the initial dietetic appointment 48% had a BMI $<25\text{kgm}^{-2}$ & 52% had a BMI $>25\text{kgm}^{-2}$

Table 1. Difference in anthropometric variables at baseline (BL) and follow up (FU) stratified for BMI(mean \pm SD)

	Lean		Overweight	
	BL	FU	BL	FU
WC (cm)	76.4 (7.3)	73.9 (6.5)	99.3 (12.4)	95.2 (11.3)
W:H ratio	0.78 (0.07)	0.76 (0.06)	0.86 (0.07)	0.84 (0.06)
Weight (kg)	58.8 (6.6)	57.4 (6.1)	84.5 (14.6)	81.3 (14.2)
BMI (kgm^{-2})	21.6 (2.2)	21.1 (2.1)	31.0 (4.6)	29.8 (4.5)

- WC decreased in 80% of all patients, from a mean (SD) 88.3 (15.4)cm to 85.0 (14.2)cm. When stratified for BMI lean women still had a significant decrease in WC and W:H ratio (as shown in table 1).

Figure 1. Difference in weight at baseline (BL) and follow up (FU) stratified for BMI (mean \pm SD)



- Overweight women had a significantly greater reduction in weight and BMI compared with lean women ($p < 0.05$).

CONCLUSION:

This data supports the hypothesis that low GL diets promote redistribution of weight away from the abdominal region independent of BMI category.

REFERENCES:

- Grundy, S., Brewer, B., Cleeman, J., Smith, S. & Lenfant, C. (2004) Definition of Metabolic Syndrome. *Circulation* **109**, 433-438
- Brand-Miller, J., Thomas, M., Swan, V., Ahmad, Z., Petocz, P. & Colagiuri, S. (2003) Physiological validation of the concept of glycemic load in lean young adults. *Journal of Nutrition* **133**, 2728-2732
- Kaaja, R.J. (2008) Metabolic syndrome and the menopause. *Menopause International* **14**, 21-25