Authors	Article title	Condition	Diagnostic criteria	Sample size	Age†	Body mass†*	Height†*	BMI†*	Fat mass†	Fat free mass†	Race/Ethnicity	Physical activity	Country of study	Metabolic health	Measurement Method
Segal and Dunaif (1990)	Resting metabolic rate and postprandial thermogenesis in polycystic ovarian syndrome.	Control		11	28 (3.32)	62.5 (4.97)				48.8 (3.32)			USA	OGTT (75g oral glucose load), Fasting glucose (mM) = 4.5 (SE = 0.2), Fasting insulin (pM) = 72 (SE = 7), Glucose area (mM 2 hours) = 9.9 (SE = 0.2), Insulin area (pM 2 hours) = 653 (SE = 7)	Indirect Calorimetry: Sensormedics Horizon Metabolic Measurement Cart (Sensormedics Corporation, Anaheim, CA, USA)
		Control		9	29 (6)	86.9 (17.4)				50.4 (7.5)			USA	OGTT (75g oral glucose load), Fasting glucose (mM) = 4.8 (SE = 0.1), Fasting insulin (pM) = 122 (SE = 14), Glucose area (mM 2 hours) = 9.9 (SE = 0.2), Insulin area (pM 2 hours) = 1300 (SE = 294)	Indirect Calorimetry: Sensormedics Horizon Metabolic Measurement Cart (Sensormedics Corporation, Anaheim, CA, USA)
		PCOS	PCOS was diagnosed by elevation of one or more plasma and androgen levels in the presence of chronic oligomenorrhea or ammenorrhea.	10	25 (6.32)	84.1 (8.54)				48.7 (3.79)			USA	OGTT (75g oral glucose load), Fasting glucose (mM) = 4.9 (SE = 0.1), Fasting insulin (pM) = 223 (SE = 43), Glucose area (mM 2 hours) = 12.4 (SE = 0.9), Insulin area (pM 2 hours) = 2872 (SE =381)	Indirect Calorimetry: Sensormedics Horizon Metabolic Measurement Cart (Sensormedics Corporation, Anaheim, CA, USA)
Robinson et al., (1992)	Postprandial thermogenesis is reduced in polycystic ovary syndrome and is associated with increased insulin resistance.	PCOS	PCOS was defined by the clinical features: amenorrhoea or oligomenorrhoea menstrual cycle longer than 35 days) and/or hirsutism (score greater than 8) with polycystic ovaries on ultrasound scanning.	14	29 (6.44)	78.05 (18.95)	169.86*	27.05 (8.64)		51.12 (4.69)	Matched between groups but not reported		UK	Short insulin tolerance test (0.5 U/kg body weight), Glucose slope (median, 3-15 mins) = 148.5 (SD = 20.5), Peak insulin (mU/L, 4 mins) = 265 (SD = 18)	Indirect Calorimetry: Deltatrac metabolic monitor (Datex Instrumentarium, Helsinki, Finland)
		Control		14	30.25 (4.98)	76.62 (19.03)	165.87*	27.85 (6.65)		50.12 (7.99)	Matched between groups but not reported		UK	Short insulin tolerance test (0.5 U/kg body weight), Glucose slope (median, 3-	Indirect Calorimetry: Deltatrac metabolic monitor (Datex

PCOS = polycystic ovary syndrome; BMI = body mass index; OGTT = oral glucose tolerance test; HOMA-IR = homeostatic model assessment of insulin resistance

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Authors	Article title	Condition	Diagnostic criteria	Sample size	Age†	Body mass†*	Height†*	BMI†*	Fat mass†	Fat free mass†	Race/Ethnicity	Physical activity	Country of study	Metabolic health	Measurement Method
														15 mins) = 183.5 (SD = 26), Peak insulin (mU/L, 4 mins) = 273 (SD = 9)	Instrumentarium, Helsinki, Finland)
Kritikou et al., (2006)	The ?2B and ?3 Adrenergic Receptor Genes Polymorphisms in Women with Polycystic Ovarian Syndrome (PCOS) and their Association with Insulin Resistance and Basal Metabolic Rate (BMR)	Control		47	34 (6.86)			19.1 (6.86)					Greece		Indirect Calorimetry: Pulmolab EX505 (Morgan Medical, Kent, U.K.)
		PCOS	Rotterdam criteria	63	24 (5.4)	72.5 (17.44)	162.64*	27.41 (6.69)					Greece	OGTT (100g oral glucose load), Fasting insulin (uIU/ml) = 13.6 (SE = 1.3), Fasting glucose (mg/dL) = 83.4 (SE = 1.4), Fasting glucose:insulin ratio = 10.24 (SE = 1.06), HOMA = 66.94 (SE = 8.66), QUICKI = 0.347 (SE = 0.005)	Indirect Calorimetry: Pulmolab EX505 (Morgan Medical, Kent, U.K.)
Bruner et al., (2006)	Effects of exercise and nutritional counseling in women with polycystic ovary syndrome	PCOS	Rotterdam criteria	7	32.3 (2.65)	100.5 (17.73)	166.62*	36.2 (5.29)				Sedentary at baseline (not specified how defined)	Canada	Fasting insulin (pmol/L) = 116.7 (SE = 42.2)	Indirect Calorimetry: Sensorimedics VMAX 29 series metabolic cart (Sensorimedics, Yorba Linda, CA, USA)
		PCOS	Rotterdam criteria	5	28.4 (6.04)	94.8 (13.86)	159.85*	37.1 (7.6)				Sedentary at baseline (not specified how defined)	Canada	Fasting insulin (pmol/L) = 233.8 (SE = 77.4)	Indirect Calorimetry: Sensorimedics VMAX 29 series metabolic cart (Sensorimedics, Yorba Linda, CA, USA)
Moran et al., (2006)	Short-term meal replacements followed by dietary macronutrient restriction enhance weight loss in polycystic ovary syndrome	PCOS	Rotterdam criteria	34	32.62 (5.17)	96 (19.24)	165.85*	34.9 (6.79)	34.9 (8.75)	61.5 (12.24)	White/Caucasian	24-h physical activity record for all 7 d/wk in weeks 0, 8, 20, and 32 (but not actually reported)	Australia	Fasting glucose (mmol/L) = 5.2 (SE = 0.1), Fasting insulin (mU/L, baseline only) = 12.86 (SD = 6.95), HOMA (baseline only) = 2.5 (SD = 1.77)	Indirect Calorimetry: Deltatract metabolic monitor (Datex Division Instrumentarium Corp., Helsinki, Finland) using a ventilated canopy
Saltamavros et al., (2007)	alpha 2 beta adrenoreceptor 301-303 deletion polymorphism in	PCOS	Rotterdam criteria	73	24 (10.58)	70.9 (166.89)	162.95*	26.7 (13.76)					Greece	OGTT (100g oral glucose load), Fasting insulin (uIU/ml) = 11.64 (SE = 1.8),	Indirect Calorimetry: Pulmolab EX505 (Morgan

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Authors	Article title	Condition	Diagnostic criteria	Sample size	Age†	Body mass†*	Height†*	BMI†*	Fat mass†	Fat free mass†	Race/Ethnicity	Physical activity	Country of study	Metabolic health	Measurement Method
	polycystic ovary syndrome.													Fasting glucose (mg/dL) = 82.13 (SE = 2.6), Fasting glucose:insulin ratio = 10.54 (SE = 2), HOMA = 70.43 (SE = 16.25), QUICKI = 0.354 (SE = 0.01)	Medical, Kent, U.K.)
		Control		114	27 (10.68)			19.1 (10.68)					Greece		Indirect Calorimetry: Pulmolab EX505 (Morgan Medical, Kent, U.K.)
Cosar et al., (2008)	Resting metabolic rate and exercise capacity in women with polycystic ovary syndrome.	PCOS	Rotterdam criteria	31	25.9 (5.3)			26.97 (5.12)					Turkey	Fasting glucose/insulin (ratio) = 6.01 (SD = 3.72), Fasting glucose (mg/dL) = 95.64 (SD = 11.03), Fasting insulin (mIU/mL) = 16.13 (SD = 9.86)	Indirect Calorimetry: Quark b2 (Cosmed, Rome, Italy) with a computerized metabolic card
		Control		29	27.1 (4.8)			26.03 (5.66)					Turkey	Fasting glucose/insulin (ratio) = 13.56 (SD = 6.13), Fasting glucose (mg/dL) = 92.49 (SD = 10.66), Fasting insulin (mIU/mL) = 7.25 (SD = 3.01)	Indirect Calorimetry: Quark b2 (Cosmed, Rome, Italy) with a computerized metabolic card
Georgopoulos et al., (2009)	Basal metabolic rate is decreased in women with polycystic ovary syndrome and biochemical hyperandrogenemia and is associated with insulin resistance.	PCOS	Rotterdam criteria	46	23.56 (3.53)			24.79 (5.15)					Greece	OGTT (75g oral glucose load), Fasting insulin (uIU/ml) = 6.32 (SE = 0.3), Fasting glucose:insulin ratio = 14.84 (SE = 1.19), HOMA = 103.38 (SE = 9.85), QUICKI = 0.38 (SE = 0)	Indirect Calorimetry: Pulmolab EX505 (Morgan Medical, Kent, U.K.)
		PCOS	Rotterdam criteria	25	23.97 (3.79)			30.45 (7.55)					Greece	OGTT (75g oral glucose load), Fasting insulin (uIU/ml) = 20.86 (SE = 1.13), Fasting glucose:insulin ratio = 4.24 (SE = 0.18), HOMA	Indirect Calorimetry: Pulmolab EX505 (Morgan Medical, Kent, U.K.)

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														= 25.27 (SE = 1.41), QUICKI = 0.31 (SE = 0)	
		Control		48	26.33 (6.44)			23.35 (5.89)					Greece		Indirect Calorimetry: Pulmolab EX505 (Morgan Medical, Kent, U.K.)
Koika et al., (2009)	Association of the Pro12Ala polymorphism in peroxisome proliferator-activated receptor gamma2 with decreased basic metabolic rate in women with polycystic ovary syndrome	PCOS	Rotterdam criteria	156	22.82 (4.99)			25.62 (6.44)			White/Caucasian		Greece	OGTT (75g oral glucose load), Fasting insulin (uIU/ml) = 9.88 (SD = 5.88), Fasting glucose:insulin ratio = 11.85 (SD = 12.06), HOMA-IR = 2.32 (SD = 2.45), QUICKI = 0.357 (SD = 0.044)	Indirect Calorimetry: Pulmolab EX505 (Morgan Medical, Kent, U.K.)
		Control		56	22.91 (1.5)			21.19 (2.5)			White/Caucasian		Greece		Indirect Calorimetry: Pulmolab EX505 (Morgan Medical, Kent, U.K.)
Graff et al., (2013)	Dietary glycemic index is associated with less favorable anthropometric and metabolic profiles in polycystic ovary syndrome women with different phenotypes	PCOS	Rotterdam criteria	61	22.7 (6.2)			28.9 (5.6)			White/Caucasian - 87.6%	Physical activity (steps/day, median) = 5519 (IQR = 3658-7002)	Brazil	OGTT (75g oral glucose load), Fasting glucose (md/dL) = 86.8 (SD = 91), Fasting insulin (uU/mL, median) = 16.7 (IQR = 9.8-21.2), HOMA-IR (median) = 3.5 (IQR = 2.1-4.7)	Indirect Calorimetry: Fitmate (Cosmed, Rome, Italy)
		Control		44	25 (5.6)			27.1 (5.7)			White/Caucasian - 87.6%	Physical activity (steps/day, median) = 5811 (IQR = 4339-7267)	Brazil	OGTT (75g oral glucose load), Fasting glucose (md/dL) = 87 (SD = 7.5), Fasting insulin (uU/mL, median) = 9.9 (IQR = 6.8-12.5), HOMA-IR (median) = 2.1 (IQR = 1.4-2.8)	Indirect Calorimetry: Fitmate (Cosmed, Rome, Italy)
Pohlmeier er al., (2014)	Effect of a low-starch/low-dairy diet on fat oxidation in overweight and obese women with	PCOS	Rotterdam criteria	10	29.6 (4.6)	105.4 (14.5)	165.46*	38.5 (4.2)	52.4 (14.8)	52.3 (10.7)	White/Caucasian = 6, Hispanic = 3, Native American = 1	Physical activity level (ratio of TDEE/RMR) = 1.65	USA	OGTT (75g oral glucose load), Fasting glucose (md/dL) = 91.6 (SD = 9.4), Fasting insulin (ug/mL) = 35.3	Indirect Calorimetry: ParvoMedics TrueOne 2400 Canopy System (ParvoMedics,

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	polycystic ovary syndrome.													(SD = 7), Glucose at 2 hours (mg/dL) = 131.7 (SD = 45.2), Insulin at 2 hours (ug/mL) = 271.6 (SD =285), HbA1c (%) = 5.5 (SD = 0.4)	Sandy, Utah, USA).
Doh et al., (2016)	The Relationship between Adiposity and Insulin Sensitivity in African Women Living with the Polycystic Ovarian Syndrome: A Clamp Study.	PCOS	Rotterdam criteria	6	26 (5.19)			34.1 (3.56)	41.2 (12.45)	56.3 (4.97)	African	Engaged in sporting activities < 2 days/week - 50%	Cameroon	Hyperinsulinemic euglycemic clamp technique, M-value (mg/kg/min, median) = 6.6 (IQR = 5.5-7.3)	Indirect Calorimetry: Korr ReeVue indirect calorimetry (KorrMedical Technologies, Inc., Salt Lake City, UT 84120, USA)
		PCOS	Rotterdam criteria	8	27 (3.71)			26.4 (2.97)	23.3 (6.89)	47.4 (5.56)	African	Engaged in sporting activities < 2 days/week - 87.5%	Cameroon	Hyperinsulinemic euglycemic clamp technique, M-value - (mg/kg/min, median) = 9.1 (IQR 7.7-10)	Indirect Calorimetry: Korr ReeVue indirect calorimetry (KorrMedical Technologies, Inc., Salt Lake City, UT 84120, USA)
		Control		10	23 (0.74)			22.5 (3.63)	17.1 (7.56)	45.9 (6.67)	African	Engaged in sporting activities < 2 days/week - 80%	Cameroon	Hyperinsulinemic euglycemic clamp technique, M-value (mg/kg/min, median) = 11.9 (IQR = 9.4-14.5)	Indirect Calorimetry: Korr ReeVue indirect calorimetry (KorrMedical Technologies, Inc., Salt Lake City, UT 84120, USA)
Larsson et al., (2016)	Dietary intake, resting energy expenditure, and eating behavior in women with and without polycystic ovary syndrome.	PCOS	Modified Rotterdam criteria	72	30.2 (4.4)	79.6 (20.3)	167.12*	28.5 (7.2)					Sweden		Indirect Calorimetry: Deltatrack II Metabolic Monitor ventilated hood system (Datex, Helsinki, Finland).
		Control		30	27.8 (3.6)	70.9 (17.1)	169.77*	24.6 (5)					Sweden		Indirect Calorimetry: Deltatrack II Metabolic Monitor ventilated hood system (Datex, Helsinki, Finland).
Graff et al., (2017)	Saturated Fat Intake Is Related to Heart Rate Variability in Women with Polycystic Ovary Syndrome.	PCOS	Rotterdam criteria	84	23.5 (6.3)			29.4 (6.4)			White/Caucasian - 92.9%	Physical activity (steps/day, median) = 5821 (IQR = 3821-7664)	Brazil	OGTT (75g oral glucose load), Fasting glucose (md/dL) = 87.4 (SD = 8.4), Glucose at 2 hours (mg/dL) = 103.6 (SD = 31.5), HOMA-IR	Indirect Calorimetry: Fitmate (Cosmed, Rome, Italy)

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														(median) = 3.4 (IQR = 1.8-4.7)	
		Control		54	26.2 (6.5)			27.2 (5.8)			White/Caucasian - 88.9%	Physical activity (steps/day, median) = 6002 (IQR = 4375-7427)	Brazil	OGTT (75g oral glucose load), Fasting glucose (md/dL) = 86.8 (SD = 7.9), Glucose at 2 hours (mg/dL) = 97 (SD = 20.9), HOMA-IR (median) = 2.1 (IQR = 1.5-2.8)	Indirect Calorimetry: Fitmate (Cosmed, Rome, Italy)
Rodriques et al., (2017)	Low validity of predictive equations for calculating resting energy expenditure in overweight and obese women with polycystic ovary syndrome.	PCOS	Rotterdam criteria	30	30.8 (5.4)	85.3 (13.1)	161.76*	32.6 (3.7)				"Physical activity level was assessed using criteria established by the Institute of Medicine" 66.7% classified sedentary, 33.3% classified as low activity level	Brazil		Indirect Calorimetry: Meta-CheckTM metabolic rate analysis system (model 7100; Korr Medical Technologies, Salt Lake City, UT, USA)
Broskey et al., (2017)	Assessing Energy Requirements in Women With Polycystic Ovary Syndrome: A Comparison Against Doubly Labeled Water.	PCOS	1990 National Institutes of Health criteria	28	28.6 (5)	104.1 (19.3)	161.52*	39.9 (8.3)	51.6 (15.4)	52.5 (7.5)	White/Caucasian - 50%, African American - 50%	Physical activity level (ratio of TDEE/RMR) = 1.6 (SD = 0.2)	USA	Fasting glucose (md/dL) = 89.9 (SD = 6.9), Fasting insulin (uU/mL) = 18.8 (SD = 10.6), HOMA-IR = 4.3 (SD = 2.7)	Doubly Labelled Water: Oral dose (1.0 g/kg bodyweight) of amixture that contained 1 part deuterium (2H 99.9% enriched) and 19 parts Oxygen-18 (18O10% enriched), followed by 100 mL of tap water used to rinse the dose container.
Tosi et al., (2024)	Resting energy expenditure in women with polycystic ovary syndrome	PCOS	Rotterdam criteria	266	23.3 (5.2)			28.3 (7.4)	27.1 (14.4)	49 (7.7)			Italy	Hyperinsulinemic euglycemic clamp technique, M-value (mg/kg_FFM x min) = 9.8 (SD = 3.7), 72.5% classified as IR based on cut off value of 11.76, Fasting glucose (mg/dL) = 85.3 (SD = 9.5), Fasting insulin	Indirect Calorimetry: Quark RMR instrument (Cosmed, Cernusco sul Naviglio, Italy) equipped with a ventilated hood

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														(mU/L) = 16.2 (SD = 12.6)	
		Control		51	25.2 (3.6)			20.5 (2)	13.6 (5.4)	42.8 (4.6)			Italy	Fasting glucose (mg/dL) = 83.4 (SD = 5.9), Fasting insulin (mU/L) = 7 (SD = 5)	Indirect Calorimetry: Quark RMR instrument (Cosmed, Cernusco sul Naviglio, Italy) equipped with a ventilated hood

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