# Table: Descriptive characteristics of arms and participants for included studies

| **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, 3-15 mins) = 183.5 (SD = 26), Peak insulin (mU/L, 4 mins) = 273 (SD = 9) | Indirect Calorimetry: Deltatrac metabolic monitor (Datex 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 polycystic ovary syndrome. | 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), 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) | Indirect Calorimetry: Pulmolab EX505 (Morgan 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 = 25.27 (SE = 1.41), QUICKI = 0.31 (SE = 0) | Indirect Calorimetry: Pulmolab EX505 (Morgan Medical, Kent, U.K.) |
| 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 polycystic ovary syndrome. | 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 (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) | Indirect Calorimetry: ParvoMedics TrueOne 2400 Canopy System (ParvoMedics, 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 (median) = 3.4 (IQR = 1.8-4.7) | Indirect Calorimetry: Fitmate (Cosmed, Rome, Italy) |
| 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 (mU/L) = 16.2 (SD = 12.6) | Indirect Calorimetry: Quark RMR instrument (Cosmed, Cernusco sul Naviglio, Italy) equipped with a ventilated hood |
| 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 |
| PCOS = polycystic ovary syndrome; BMI = body mass index; OGTT = oral glucose tolerance test; HOMA-IR = homeostatic model assessment of insulin resistance | | | | | | | | | | | | | | | |
| †Values are Mean (SD) unless otherwise specified; note, some have been calculated/estimated from corresponding standard error, range, iqr, median, and sample size (see data and code) | | | | | | | | | | | | | | | |
| †\*Indicates that this mean was estimated from the corresponding means for body mass/height/BMI | | | | | | | | | | | | | | | |