

TABLE 1. Vitamin D and Polycystic Ovary Syndrome (PCOS) - Observational Studies

Author	Number of Participants	Country	Main Results	25(OH)VitD Measurement	Reference
Panidis et al	291 PCOS 109 Controls	Greece	Lower 25(OH)VitD levels in controls 25(OH)VitD levels inversely correlated with BMI, PTH, insulin levels and HOMA-IR	Radioimmunoassay	54
Mahmoudi et al	85 PCOS 115 Controls	Iran	Higher 25(OH)VitD levels in PCOS Positive effect of PCOS on PTH, insulin levels and HOMA-IR	Radioimmunoassay	55
Ngo et al	27 PCOS 20 Controls	Australia	Higher 25(OH)VitD levels in PCOS Lower QUICKI in PCOS	Radioimmunoassay	56
Sadhir et al	37 PCOS 70 Controls	USA	No significant association between 25(OH)VitD levels between PCOS and control group	Liquid chromatography-tandem mass spectrometry	57
Joham et al	42 PCOS 34 Controls	Australia	Lower 25(OH)VitD levels in overweight PCOS Vitamin D and IR association in PCOS women	Chemiluminescence Immunoassay	58
Muscogiuri et al	38 PCOS	Italy	25(OH)VitD levels inversely correlated with BMI, WHR and total fat mass. Low vitamin D status in PCOS determined by the degree of adiposity. 25(OH)VitD levels positively correlated with glucose uptake during HEC and with SHBG	Chemiluminescence Immunoassay Radioimmunoassay	59
Hahn et al	120 PCOS	Germany	25(OH)VitD levels negatively correlated with BMI, body fat, HOMA-IR, Insulin levels and FAI 25(OH)VitD levels positively correlated with HDL, SHBG	Radioimmunoassay	60
Sahin et al	50 PCOS 40 Controls	Turkey	25(OH)VitD levels not associated with HOMA-IR in PCOS	Chemiflex Immunoassay	61
Ganie et al	122 PCOS 46 Controls	India	No significant association between 25(OH)VitD levels and plasma insulin, HOMA-IR, QUICKI in normal BMI PCOS women	Radioimmunoassay	62
Yildizhan et al	100 PCOS	Turkey	25(OH)VitD levels inversely correlated with BMI, WHR, HOMA-IR, TG, total testosterone and DHEA-S in obese PCOS	High -performance Liquid Chromatography (HPLC)	63
Wehr et al	206 PCOS	Austria	25(OH)VitD levels positively associated with QUICKI , HDL and SHBG; 25(OH)VitD levels negatively associated with BMI, WHR, waist circumference, systolic and diastolic blood pressure, fasting and stimulated glucose, fasting insulin, HOMA-IR and TG	ELISA	64
Li et al	25 PCOS 27 Controls	United Kingdom	25(OH)VitD levels in PCOS negatively correlated with BMI, FAI 25(OH)VitD levels in PCOS positively correlated with QUICKI, HDL-C, SHBG	Liquid chromatography-tandem mass spectrometry	65
Patra et al	60 PCOS	India	25(OH)VitD levels inversely correlated with HOMA-IR and fasting plasma glucose levels	ELISA	66
Mishra et al	44PCOS 45 Controls	India	25(OH)VitD levels inversely associated with HOMA-IR in PCOS. No significant association with testosterone, LH/FSH levels	Electrochemiluminescence Immunoassay	67
Savastano et al	90 PCOS 40 Controls	Italy	25(OH)VitD levels inverse associated with BMI, PED/PEA-15, insulin, HOMA-IR, FAI and L/A ratio in PCOS	Chemiluminescence Immunoassay	68
Pal et al	540 PCOS	USA	Vitamin D sufficiency associated with successful ovulation (OV) Higher 25(OH)VitD status in women with live-birth following ovulation induction	Radioimmunoassay	69
Ott et al	91 PCOS	Austria	Vitamin D deficiency significant predictive parameter for follicle development and pregnancy in PCOS women undergoing CC stimulation	Not determined	70

25(OH)VitD: 25-hydroxy Vitamin D; CC: clomiphene citrate; FAI: free androgen index; FG: Ferriman-Gallwey; HDL: high-density lipoprotein; HEC: hyperinsulinemic–euglycemic clamp; HOMA-IR: homeostasis model assessment–insulin resistance; L/A ratio: leptin/adiponectin ratio; PED/PEA15: phosphoprotein enriched in diabetes gene product; QUICKI: quantitative insulin-sensitivity check index; SHBG: sex hormone-binding globulin, TG: triglycerides; WHR: waist to hip ratio.