

ANDROGEN EXCESS AND PCOS SOCIETY

Quarterly Review for Androgen Excess-PCOS Society
July 1st – September 30th, 2012

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Brief overviews of selected publications

Congenital Adrenal Hyperplasia and Disorders of Steroidogenesis

Meyer-Bahlburg HF, Dolezal C, Haggerty R, Silverman M, New MI. Cognitive outcome of offspring from dexamethasone-treated pregnancies at risk for congenital adrenal hyperplasia due to 21-hydroxylase deficiency. *Eur J Endocrinol.* 2012 Jul;167(1):103-10..... 24

Insulin resistance

Guo X, Cui J, Jones MR, Haritunians T, Xiang AH, Chen YD, Taylor KD, Buchanan TA, Davis RC, Hsueh WA, Raffel LJ, Rotter JI, Goodarzi MO. Insulin clearance: confirmation as a highly heritable trait, and genome-wide linkage analysis. *Diabetologia.* 2012 Aug;55(8):2183-92..... 24

PCOS – Adolescence

Trottier A, Battista MC, Geller DH, Moreau B, Carpentier AC, Simoneau-Roy J, Baillargeon JP. Adipose tissue insulin resistance in peripubertal girls with first-degree family history of polycystic ovary syndrome. *Fertil Steril.* 2012 Dec;98(6):1627-34. PubMed PMID: 22985947..... 24

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PCOS – Ovary

Catteau-Jonard S, Bancquart J, Poncelet E, Lefebvre-Maunoury C, Robin G, Dewailly D. Polycystic ovaries at ultrasound: normal variant or silent polycystic ovary syndrome? *Ultrasound Obstet Gynecol.* 2012 Aug;40(2):223-9. PubMed PMID: 22648908..... 25

PCOS and Thyroid complications

Celik C, Abali R, Tasdemir N, Guzel S, Yuksel A, Aksu E, Yilmaz M. Is subclinical hypothyroidism contributing dyslipidemia and insulin resistance in women with polycystic ovary syndrome? *Gynecol Endocrinol.* 2012 Aug;28(8):615-8. PubMed PMID: 22329744..... 25

List of Publications

Congenital Adrenal Hyperplasia and Disorders of Steroidogenesis

Abrahams L, Semjonous NM, Guest P, Zielinska A, Hughes B, Lavery GG, Stewart PM. Biomarkers of hypothalamic-pituitary-adrenal axis activity in mice lacking 11 β -HSD1 and H6PDH. *J Endocrinol.* 2012 Sep;214(3):367-72

Al-Agha AE, Ocheltree AH, Al-Tamimi MD. Association between genotype, clinical presentation, and severity of congenital adrenal hyperplasia: a review. *Turk J Pediatr.* 2012 Jul-Aug;54(4):323-32.

Brossaud J, Barat P, Fagour L, Corcuff JB. Cortisol assay in dried blood spots to reduce false positive rate in congenital adrenal hyperplasia screening. *Clin Chim Acta.* 2012 Aug 16;413(15-16):1306-7

Escamilla-Márquez MA, Garduño-García Jde J, Ordóñez-Sánchez ML, Reza-Albarrán A, Tusie-Luna MT, Gómez Pérez FJ, Aguilar-Salinas CA. Primary amenorrhea in two sisters: description of a Mexican family with 17 α hydroxylase-17 lyase deficiency caused by arginine – stop mutation. *Gynecol Endocrinol.* 2012 Sep;28(9):733-5.

Güran T, Yeşil G, Güran Ö, Cesur S, Bosnalı O, Celayir A, Topçuoğlu S, Bereket A. A giant ovarian cyst in a neonate with classical 21-hydroxylase deficiency with very high testosterone levels demonstrating a high-dose hook effect. *J Clin Res Pediatr Endocrinol.* 2012 Sep;4(3):151-3

Lee MH, Won Park S, Yoon TK, Shim SH. Homozygous CYP17A1 mutation (H373L) identified in a 46,XX female with combined 17 α -hydroxylase/17,20-lyase deficiency. *Gynecol Endocrinol.* 2012 Jul;28(7):573-6

Matsubara Y, Ono M, Miyai K, Takizawa F, Takasawa K, Onishi T, Kashimada K, Mizutani S. Longitudinal analysis of growth and body composition of Japanese 21-OHD patients in childhood. *Endocr J.* 2013;60(2):149-54. Epub 2012 Sep 28.

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Meyer-Bahlburg HF, Dolezal C, Haggerty R, Silverman M, New MI. Cognitive outcome of offspring from dexamethasone-treated pregnancies at risk for congenital adrenal hyperplasia due to 21-hydroxylase deficiency. *Eur J Endocrinol*. 2012 Jul;167(1):103-10

Moreira RP, Gomes LG, Mendonca BB, Bachega TA. Impact of glucocorticoid receptor gene polymorphisms on the metabolic profile of adult patients with the classical form of 21-hydroxylase deficiency. *PloS One*. 2012;7(9):e44893. Doi: 10.1371/journal.pone.0044893. Epub 2012 Sep 18.

Okten A, Cakir M, Makuloglu M. Bone mineral status, bone turnover markers and vitamin D status in children with congenital adrenal hyperplasia. *Minerva Endocrinol*. 2012 Sep;37(3):275-82

Rabbani B, Mahdih N, Haghi Ashtiani MT, Setoodeh A, Rabbani A. In silico structural, functional and pathogenicity evaluation of a novel mutation: an overview of HSD3B2 gene mutations. *Gene*. 2012 Jul 25;503(2):215-21.

Reisch N, Willige M, Kohn D, Schwarz HP, Allolio B, Reincke M, Quinkler M, Hahner S, Beuschlein F. Frequency and causes of adrenal crises over lifetime in patients with 21-hydroxylase deficiency. *Eur J Endocrinol*. 2012 Jul;167(1):35-42

Sarafoglou K, Lorentz CP, Otten N, Oetting WS, Grebe SK. Molecular testing in congenital adrenal hyperplasia due to 21 α -hydroxylase deficiency in the era of newborn screening. *Clin Genet*. 2012 Jul;82(1):64-70

Taylor NF, Chan AO. New strategies for detecting steroid metabolic disorders—paneling vs profiling. *Clin Chem*. 2012 Aug;58(8):1262-3.

Insulin resistance

Amini P, Wadden D, Cahill F, Randell E, Vasdev S, Chen X, Gulliver W, Zhang W, Zhang H, Yi Y, Sun G. Serum acylated ghrelin is negatively correlated with the insulin resistance in the CODING study. *PloS One*. 2012;7(9):e45657. Doi: 10.1371/journal.pone.0045657. Epub 2012 Sep 20

Bayram F, Kocer D, Ozsan M, Muhtaroglu S. Evaluation of endothelial dysfunction, lipid metabolism in women with polycystic ovary syndrome: relationship of paraoxonase 1 activity, malondialdehyde levels, low-density lipoprotein subfractions, and endothelial dysfunction. *Gynecol Endocrinol*. 2012 Jul;28(7):497-501

Dobrian AD. A tale with a Twist: a developmental gene with potential relevance for metabolic dysfunction and inflammation in adipose tissue. *Front Endocrinol (Lausanne)*. 2012 Aug 30;3:108.

Du Q, Wang YJ. Comparative efficacy of thiazolidinediones and metformin for polycystic ovary syndrome. *Saudi Med J*. 2012 Sep;33(9):954-61

Gherlan I, Vladoiu S, Alexiu F, Giurcaneanu M, Oros S, Brehar A, Procopiuc C, Dumitrache C. Adipocytokine profile and insulin resistance in childhood obesity. *Maedica (Buchar)*. 2012 Sep;7(3):205-13

Gorden P, Zadeh ES, Cochran E, Brown RJ. Syndromic insulin resistance: models for the therapeutic basis of the metabolic syndrome and other targets of insulin resistance. *Endocr Pract*. 2012 Sep-Oct;18(5):763-71

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Gorjão R, Takahashi HK, Pan JA, Massao Hirabara S. Molecular mechanisms involved in inflammation and insulin resistance in chronic diseases and possible interventions. *J Biomed Biotechnol.* 2012;2012:841983. Doi: 10.1155/2012/841983. Epub 2012 Sep 25.

Guo X, Cui J, Jones MR, Haritunians T, Xiang AH, Chen YD, Taylor KD, Buchanan TA, Davis RC, Hsueh WA, Raffel LJ, Rotter JI, Goodarzi MO. Insulin clearance: confirmation as a highly heritable trait, and genome-wide linkage analysis. *Diabetologia.* 2012 Aug;55(8):2183-92.

Hee SW, Tsai SH, Chang YC, Chang CJ, Yu IS, Lee PC, Lee WJ, Yun-Chia Chang E, Chuang LM. The role of nocturnin in early adipogenesis and modulation of systemic insulin resistance in human. *Obesity (Silver Spring).* 2012 Aug;20(8):1558-65.

Hirabara SM, Gorjão R, Vinolo MA, Rodrigues AC, Nachbar RT, Curi R. Molecular targets related to inflammation and insulin resistance and potential interventions. *J Biomed Biotechnol.* 2012;2012:379024. Doi: 10.1155/2012/379024

Kitade H, Sawamoto K, Nagashimada M, Inoue H, Yamamoto Y, Sai Y, Takamura T, Yamamoto H, Miyamoto K, Ginsberg HN, Mukaida N, Kaneko S, Ota T. CCR5 plays a critical role in obesity-induced adipose tissue inflammation and insulin resistance by regulating both macrophage recruitment and M1/M2 status. *Diabetes.* 2012 Jul;61(7):1680-90. Doi: 10.2337/db11-1506

Lee MS, Choi SE, Ha ES, An SY, Kim TH, Han SJ, Kim HJ, Kim DJ, Kang Y, Lee KW. Fibroblast growth factor-21 protects human skeletal muscle myotubes from palmitate-induced insulin resistance by inhibiting stress kinase and NF- κ B. *Metabolism.* 2012 Aug;61(8):1142-51.

Li W, Ma L, Li Q. Insulin resistance but not impaired β -cell function: a key feature in Chinese normal-weight PCOS women with normal glucose regulation. *Gynecol Endocrinol.* 2012 Aug;28(8):598-601

Liu B, Xu Y, Voss C, Qiu FH, Zhao MZ, Liu YD, Nie J, Wang ZL. Altered protein expression in gestational diabetes mellitus placentas provides insight into insulin resistance and coagulation/fibrinolysis pathways. *PloS One.* 2012;7(9):e44701. Doi: 10.1371/journal.pone.0044701. Epub 2012 Sep

Manrique C, Lastra G, Habibi J, Mugerfeld I, Garro M, Sowers JR. Loss of Estrogen Receptor α Signaling Leads to Insulin Resistance and Obesity in Young and Adult Female Mice. *Cardiorenal Med.* 2012 Aug;2(3):200-210

Moran C, Arriaga M, Rodriguez G, Moran S. Obesity differentially affects phenotypes of polycystic ovary syndrome. *Int J Endocrinol.* 2012;2012:317241. Doi: 10.1155/2012/317241. Epub 2012 Jul 8

Muscogiuri G, Policola C, Prioletta A, Sorice G, Mezza T, Lassandro A, Della Casa S, Pontecorvi A, Giaccari A. Low levels of 25(OH)D and insulin-resistance: 2 unrelated features or a cause-effect in PCOS? *Clin Nutr.* 2012 Aug;31(4):476-80.

Oh KJ, Park J, Kim SS, Oh H, Choi CS, Koo SH. TCF7L2 modulates glucose homeostasis by regulating CREB- and FoxO1-dependent transcriptional pathway in the liver. *PloS Genet.* 2012 Sep;8(9):e1002986. Doi: 10.1371/journal.pgen.1002986. Epub 2012 Sep 27

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Pal A, Barber TM, Van de Bunt M, Rudge SA, Zhang Q, Lachlan KL, Cooper NS, Linden H, Levy JC, Wakelam MJ, Walker L, Karpe F, Gloyn AL. PTEN mutations as a cause of constitutive insulin sensitivity and obesity. *N Engl J Med*. 2012 Sep 13;367(11):1002-11.

Rowe MW, Bergman RN, Wagenknecht LE, Kolberg JA. Performance of a multi-marker diabetes risk score in the Insulin Resistance Atherosclerosis Study (IRAS), a multi-ethnic US cohort. *Diabetes Metab Res Rev*. 2012 Sep;28(6):519-26.

Schofield CJ, Sutherland C. Disordered insulin secretion in the development of insulin resistance and Type 2 diabetes. *Diabet Med*. 2012 Aug;29(8):972-9

Sinaiko AR, Caprio S. Insulin resistance. *J Pediatr*. 2012 Jul;161(1):11-5

Spanos N, Tziomalos K, Macut D, Koiou E, Kandaraki EA, Delkos D, Tsourdi E, Panidis D. Adipokines, insulin resistance and hyperandrogenemia in obese patients with polycystic ovary syndrome: cross-sectional correlations and the effects of weight loss. *Obes Facts*. 2012;5(4):495-504. Doi: 10.1159/000341579. Epub 2012 Jul 23

Tucker LA, Tucker JM. Insulin resistance as a predictor of gains in body fat, weight, and abdominal fat in nondiabetic women: a prospective study. *Obesity (Silver Spring)*. 2012 Jul;20(7):1503-10.

Zanni MV, Burdo TH, Makimura H, Williams KC, Grinspoon SK. Relationship between monocyte/macrophage activation marker soluble CD163 and insulin resistance in obese and normal-weight subjects. *Clin Endocrinol (Oxf)*. 2012 Sep;77(3):385-90.

Zhou D, Strakovsky RS, Zhang X, Pan YX. The skeletal muscle Wnt pathway may modulate insulin resistance and muscle development in a diet-induced obese rat model. *Obesity (Silver Spring)*. 2012 Aug;20(8):1577-84.

Polycystic ovary syndrome (PCOS)

PCOS – Adolescence

Catteau-Jonard S, Cortet-Rudelli C, Richard-Proust C, Dewailly D. Hyperandrogenism in adolescent girls. *Endocr Dev*. 2012;22:181-93. PubMed PMID: 22846529.

Deveer R, Engin-Üstün Y, Uysal S, Su FA, Sariaslan S, Gülerman C, Mollamahmutoğlu L. Serum brain natriuretic peptide and C-reactive protein levels in adolescent with polycystic ovary syndrome. *Gynecol Endocrinol*. 2012 Aug;28(8):602-5. PubMed PMID: 22316276.

Flannery CA, Rackow B, Cong X, Duran E, Selen DJ, Burgert TS. Polycystic ovary syndrome in adolescence: impaired glucose tolerance occurs across the spectrum of BMI. *Pediatr Diabetes*. 2012 Aug 28. PubMed PMID: 22925367.

Jakubowski KP, Black JJ, El Nokali NE, Belendiuk KA, Hannon TS, Arslanian SA, Rofey DL. Parents' Readiness to Change Affects BMI Reduction Outcomes in Adolescents with Polycystic Ovary Syndrome. *J Obes*. 2012;2012:298067. PubMed PMID: 22970350; PubMed Central PMCID: PMC3433146.

ANDROGEN EXCESS AND PCOS SOCIETY

Morgan CL, Jenkins-Jones S, Currie CJ, Rees DA. Evaluation of adverse outcome in young women with polycystic ovary syndrome versus matched, reference controls: a retrospective, observational study. *J Clin Endocrinol Metab.* 2012 Sep;97(9):3251-60. PubMed PMID: 22767635.

Nandalike K, Agarwal C, Strauss T, Coupey SM, Isasi CR, Sin S, Arens R. Sleep and cardiometabolic function in obese adolescent girls with polycystic ovary syndrome. *Sleep Med.* 2012 Dec;13(10):1307-12. PubMed PMID: 22921588; PubMed Central PMCID: PMC3509263.

Nidhi R, Padmalatha V, Nagarathna R, Ram A. Effect of a yoga program on glucose metabolism and blood lipid levels in adolescent girls with polycystic ovary syndrome. *Int J Gynaecol Obstet.* 2012 Jul;118(1):37-41. PubMed PMID: 22507264.

Pinola P, Lashen H, Bloigu A, Puukka K, Ulmanen M, Ruokonen A, Martikainen H, Pouta A, Franks S, Hartikainen AL, Järvelin MR, Morin-Papunen L. Menstrual disorders in adolescence: a marker for hyperandrogenaemia and increased metabolic risks in later life? Finnish general population-based birth cohort study. *Hum Reprod.* 2012 Nov;27(11):3279-86. PubMed PMID: 22933528.

Santos BR, Mascarenhas LP, Satler F, Boguszewski MC, Spritzer PM. Vitamin D receptor gene polymorphisms and sex steroid secretion in girls with precocious pubarche in Southern Brazil: a pilot study. *J Endocrinol Invest.* 2012 Sep;35(8):725-9. PubMed PMID: 21975377.

To WW, Wong MW. A comparison of bone mineral density in normal weight and obese adolescents with polycystic ovary syndrome. *J Pediatr Adolesc Gynecol.* 2012 Aug;25(4):248-53. PubMed PMID: 22840935.

Trottier A, Battista MC, Geller DH, Moreau B, Carpentier AC, Simoneau-Roy J, Baillargeon JP. Adipose tissue insulin resistance in peripubertal girls with first-degree family history of polycystic ovary syndrome. *Fertil Steril.* 2012 Dec;98(6):1627-34. PubMed PMID: 22985947.

PCOS – Dermatology and Body Hair Complications

Cakir GA, Erdogan FG, Gurler A. Isotretinoin treatment in nodulocystic acne with and without polycystic ovary syndrome: efficacy and determinants of relapse. *Int J Dermatol.* 2012 Sep 24. PubMed PMID: 22998438.

Franks S. The investigation and management of hirsutism. *J Fam Plann Reprod Health Care.* 2012 Jul;38(3):182-6. PubMed PMID: 22787248.

Galobardes B, Patel S, Henderson J, Jeffreys M, Smith GD. The association between irregular menstruations and acne with asthma and atopy phenotypes. *Am J Epidemiol.* 2012 Oct 15;176(8):733-7. PubMed PMID: 23028012; PubMed Central PMCID: PMC3472614.

PCOS – Endocrine Disrupters

Tarantino G, Valentino R, Di Somma C, D'Esposito V, Passaretti F, Pizza G, Brancato V, Orio F, Formisano P, Colao A, Savastano S. Bisphenol A in Polycystic Ovary Syndrome and its Association with Liver-Spleen Axis. *Clin Endocrinol (Oxf).* 2012 Jul 16. PubMed PMID: 22805002.

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PCOS – Etiology and Animal Models

Abbott AD, Colman RJ, Tiefenthaler R, Dumesic DA, Abbott DH. Early-to-mid gestation fetal testosterone increases right hand 2D:4D finger length ratio in polycystic ovary syndrome-like monkeys. *PLoS ONE*. 2012;7(8):e42372. PubMed PMID: 22927929; PubMed Central PMCID: PMC3425513.

Abramovich D, Irusta G, Bas D, Cataldi NI, Parborelli E, Tesone M. Angiopoietins/TIE2 system and VEGF are involved in ovarian function in a DHEA rat model of polycystic ovary syndrome. *Endocrinology*. 2012 Jul;153(7):3446-56. PubMed PMID: 22577112.

Bachelot A, Chakhtoura Z, Plu-Bureau G, Coudert M, Coussieu C, Badachi Y, Dulon J, Charbit B, Touraine P; CAHLH study group. Influence of hormonal control on LH pulsatility and secretion in women with classical congenital adrenal hyperplasia. *Eur J Endocrinol*. 2012 Oct;167(4):499-505. PubMed PMID: 22893695.

Brown RE, Wilkinson DA, Imran SA, Caraty A, Wilkinson M. Hypothalamic kiss1 mRNA and kisspeptin immunoreactivity are reduced in a rat model of polycystic ovary syndrome (PCOS). *Brain Res*. 2012 Jul 27;1467:1-9. PubMed PMID: 22668987.

Deveci HS, Deveci I, Habesoglu M, Sürmeli M, Kınıs V, Eriman M, Gunes P, Yekrek M, Egeli E. Histological evaluation of rat larynx in experimental polycystic ovary syndrome model. *Eur Arch Otorhinolaryngol*. 2012 Aug;269(8):1945-50. PubMed PMID: 22407189.

Luna SL, Neuman S, Aguilera J, Brown DI, Lara HE. In vivo β -adrenergic blockade by propranolol prevents isoproterenol-induced polycystic ovary in adult rats. *Horm Metab Res*. 2012 Sep;44(9):676-81. PubMed PMID: 22328164.

Nugent BM, Tobet SA, Lara HE, Lucion AB, Wilson ME, Recabarren SE, Paredes AH. Hormonal programming across the lifespan. *Horm Metab Res*. 2012 Jul;44(8):577-86. PubMed PMID: 22700441.

Ortega I, Villanueva JA, Wong DH, Cress AB, Sokalska A, Stanley SD, Duleba AJ. Resveratrol reduces steroidogenesis in rat ovarian theca-interstitial cells: the role of inhibition of Akt/PKB signaling pathway. *Endocrinology*. 2012 Aug;153(8):4019-29. PubMed PMID: 22719052; PubMed Central PMCID: PMC3404354.

Ortega I, Wong DH, Villanueva JA, Cress AB, Sokalska A, Stanley SD, Duleba AJ. Effects of resveratrol on growth and function of rat ovarian granulosa cells. *Fertil Steril*. 2012 Dec;98(6):1563-73. PubMed PMID: 22959450.

Ou XH, Li S, Wang ZB, Li M, Quan S, Xing F, Guo L, Chao SB, Chen Z, Liang XW, Hou Y, Schatten H, Sun QY. Maternal insulin resistance causes oxidative stress and mitochondrial dysfunction in mouse oocytes. *Hum Reprod*. 2012 Jul;27(7):2130-45. PubMed PMID: 22556376.

Park JH, Choi TS. Polycystic ovary syndrome (PCOS)-like phenotypes in the d-galactose-induced aging mouse model. *Biochem Biophys Res Commun*. 2012 Nov 2;427(4):701-4. PubMed PMID: 23022527.

Qu F, Wang FF, Yin R, Ding GL, El-Prince M, Gao Q, Shi BW, Pan HH, Huang YT, Jin M, Leung PC, Sheng JZ, Huang HF. A molecular mechanism underlying ovarian dysfunction of polycystic ovary syndrome: hyperandrogenism induces epigenetic alterations in the granulosa cells. *J Mol Med (Berl)*. 2012 Aug;90(8):911-23. PubMed PMID: 22349439.

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Rø TB, Ludvigsen HV, Carlsen SM, Vanky E. Growth, body composition and metabolic profile of 8-year-old children exposed to metformin in utero. *Scand J Clin Lab Invest.* 2012 Nov;72(7):570-5. PubMed PMID: 22935043.

Sára L, Nádasy G, Antal P, Szekeres M, Monori-Kiss A, Horváth EM, Tőkés AM, Masszi G, Monos E, Várbíró S. Arteriolar biomechanics in a rat polycystic ovary syndrome model – effects of parallel vitamin D3 treatment. *Acta Physiol Hung.* 2012 Sep;99(3):279-88. PubMed PMID: 22982716.

Shi D, Vine DF. Animal models of polycystic ovary syndrome: a focused review of rodent models in relationship to clinical phenotypes and cardiometabolic risk. *Fertil Steril.* 2012 Jul;98(1):185-93. PubMed PMID: 22607890.

Thomson RL, Spedding S, Buckley JD. Vitamin D in the aetiology and management of polycystic ovary syndrome. *Clin Endocrinol (Oxf).* 2012 Sep;77(3):343-50. PubMed PMID: 22574874.

Tremellen K, Pearce K. Dysbiosis of Gut Microbiota (DOGMA)—a novel theory for the development of Polycystic Ovarian Syndrome. *Med Hypotheses.* 2012 Jul;79(1):104-12. PubMed PMID: 22543078.

Velazquez MA, Hadelér KG, Herrmann D, Kues WA, Rémy B, Beckers JF, Niemann H. In vivo oocyte IGF-1 priming increases inner cell mass proliferation of in vitro-formed bovine blastocysts. *Theriogenology.* 2012 Aug;78(3):517-27. PubMed PMID: 22538004.

Will MA, Palaniappan M, Peegel H, Kayampilly P, Menon KM. Metformin: direct inhibition of rat ovarian theca-interstitial cell proliferation. *Fertil Steril.* 2012 Jul;98(1):207-14. PubMed PMID: 22608319; PubMed Central PMCID: PMC3389190.

PCOS – General Health Concerns

Abdulghani M, Hussin AH, Sulaiman SA, Chan KL. The ameliorative effects of *Eurycoma longifolia* Jack on testosterone-induced reproductive disorders in female rats. *Reprod Biol.* 2012 Jul;12(2):247-55. PubMed PMID: 22850474.

Bhattacharya SM, Jha A. Comparative study of the therapeutic effects of oral contraceptive pills containing desogestrel, cyproterone acetate, and drospirenone in patients with polycystic ovary syndrome. *Fertil Steril.* 2012 Oct;98(4):1053-9. PubMed PMID: 22795636.

Bonny AE, Appelbaum H, Connor EL, Cromer B, DiVasta A, Gomez-Lobo V, Harel Z, Huppert J, Sucato G; NASPAG Research Committee. Clinical variability in approaches to polycystic ovary syndrome. *J Pediatr Adolesc Gynecol.* 2012 Aug;25(4):259-61. PubMed PMID: 22840936.

Dokras A. In search of the best combined oral contraceptive for treatment of polycystic ovary syndrome. *Fertil Steril.* 2012 Oct;98(4):825-6. PubMed PMID: 22883569.

Galazis N, Olaleye O, Haoula Z, Layfield R, Atiomo W. Proteomic biomarkers for ovarian cancer risk in women with polycystic ovary syndrome: a systematic review and biomarker database integration. *Fertil Steril.* 2012 Dec;98(6):1590-1601.e1. PubMed PMID: 22959458.

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Gomes VA, Vieira CS, Jacob-Ferreira AL, Belo VA, Soares GM, França JB, Ferriani RA, Tanus-Santos JE. Oral contraceptive containing chlormadinone acetate and ethinylestradiol reduces plasma concentrations of matrix metalloproteinase-2 in women with polycystic ovary syndrome. *Basic Clin Pharmacol Toxicol*. 2012 Sep;111(3):211-6. PubMed PMID: 22510229.

Moll E, van Wely M, Lambalk CB, Bossuyt PM, van der Veen F. Health-related quality of life in women with newly diagnosed polycystic ovary syndrome randomized between clomifene citrate plus metformin or clomifene citrate plus placebo. *Hum Reprod*. 2012 Nov;27(11):3273-8. PubMed PMID: 22926838.

Mousiolis A, Michala L, Antsaklis A. Polycystic ovary syndrome: double click and right check. What do patients learn from the Internet about PCOS? *Eur J Obstet Gynecol Reprod Biol*. 2012 Jul;163(1):43-6. PubMed PMID: 22512829.

Oghan F, Coksuer H. Does hyperandrogenism have an effect on hearing loss in patients with polycystic ovary syndrome? *Auris Nasus Larynx*. 2012 Aug;39(4):365-8. PubMed PMID: 21862266.

Okoroh EM, Hooper WC, Atrash HK, Yusuf HR, Boulet SL. Prevalence of polycystic ovary syndrome among the privately insured, United States, 2003-2008. *Am J Obstet Gynecol*. 2012 Oct;207(4):299.e1-7. PubMed PMID: 22921097.

Rezvanfar MA, Rezvanfar MA, Ahmadi A, Shojaei-Saadi HA, Baeri M, Abdollahi M. Molecular mechanisms of a novel selenium-based complementary medicine which confers protection against hyperandrogenism-induced polycystic ovary. *Theriogenology*. 2012 Aug;78(3):620-31. PubMed PMID: 22541319.

Yavaşoğlu I, Küçük M. Anti-Helicobacter pylori antibodies and polycystic ovary syndrome. *Eur J Obstet Gynecol Reprod Biol*. 2012 Aug;163(2):243; PubMed PMID: 22560062.

Zhou JQ, Zhou LM, Chen LJ, Han JD, Wang Q, Fang ZY, Chen ZY, Ling S. Polycystic ovary syndrome in patients with epilepsy: a study in 102 Chinese women. *Seizure*. 2012 Nov;21(9):729-33. PubMed PMID: 22944116.

PCOS – Genetics

Capalbo A, Sagnella F, Apa R, Fulghesu AM, Lanzzone A, Morciano A, Farcomeni A, Gangale MF, Moro F, Martinez D, Ciardulli A, Palla C, Uras ML, Spettu F, Cappai A, Carcassi C, Neri G, Tiziano FD. The 312N variant of the luteinizing hormone/choriogonadotropin receptor gene (LHCGR) confers up to 2.7-fold increased risk of polycystic ovary syndrome in a Sardinian population. *Clin Endocrinol (Oxf)*. 2012 Jul;77(1):113-9. PubMed PMID: 22356187.

Chiang CW, Liu CT, Lettre G, Lange LA, Jorgensen NW, Keating BJ, Vedantam S, Nock NL, Franceschini N, Reiner AP, Demerath EW, Boerwinkle E, Rotter JI, Wilson JG, North KE, Papanicolaou GJ, Cupples LA; Genetic Investigation of Anthropometric Traits Consortium, Murabito JM, Hirschhorn JN. Ultraconserved elements in the human genome: association and transmission analyses of highly constrained single-nucleotide polymorphisms. *Genetics*. 2012 Sep;192(1):253-66. PubMed PMID: 22714408; PubMed Central PMCID: PMC3430540.

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Dasgupta S, Pisapati SV, Kudugunti N, Kathragadda A, Godi S, Reddy MB. Does follistatin gene have any direct role in the manifestation of polycystic ovary syndrome in Indian women? *J Postgrad Med*. 2012 Jul-Sep;58(3):190-3. PubMed PMID: 23023351.

Dasgupta S, Sirisha P, Neelaveni K, Anuradha K, Sudhakar G, Reddy BM. Polymorphisms in the IRS-1 and PPAR- γ genes and their association with polycystic ovary syndrome among South Indian women. *Gene*. 2012 Jul 15;503(1):140-6. Epub 2012 May 2. PubMed PMID: 22575725.

Echiburú B, Pérez-Bravo F, Maliqueo M, Ladrón de Guevara A, Gálvez C, Crisosto N, Sir-Petermann T. CAG repeat polymorphism of androgen receptor gene and X-chromosome inactivation in daughters of women with polycystic ovary syndrome (PCOS): relationship with endocrine and metabolic parameters. *Gynecol Endocrinol*. 2012 Jul;28(7):516-20. PubMed PMID: 22724574.

Eriksen MB, Brusgaard K, Andersen M, Tan Q, Altinok ML, Gaster M, Glintborg D. Association of polycystic ovary syndrome susceptibility single nucleotide polymorphism rs2479106 and PCOS in Caucasian patients with PCOS or hirsutism as referral diagnosis. *Eur J Obstet Gynecol Reprod Biol*. 2012 Jul;163(1):39-42. PubMed PMID: 22504079.

Guo X, Cui J, Jones MR, Haritunians T, Xiang AH, Chen YD, Taylor KD, Buchanan TA, Davis RC, Hsueh WA, Raffel LJ, Rotter JI, Goodarzi MO. Insulin clearance: confirmation as a highly heritable trait, and genome-wide linkage analysis. *Diabetologia*. 2012 Aug;55(8):2183-92. PubMed PMID: 22584727; PubMed Central PMCID: PMC3391346.

Hatzigelaki E, Wagner R, Kantartzis K, Heni M, Linder K, Ketterer C, Machicao F, Stefan N, Staiger H, Häring HU, Fritsche A. Insulin Resistant Phenotype of Polycystic Ovary Syndrome does not Seem to be Caused by Variation in FTO. *Horm Metab Res*. 2012 Oct;44(11):810-3. PubMed PMID: 22847851.

He J, Wang L, Liu J, Liu F, Li X. A meta-analysis on the association between PPAR- γ Pro12Ala polymorphism and polycystic ovary syndrome. *J Assist Reprod Genet*. 2012 Jul;29(7):669-77. PubMed PMID: 22527903; PubMed Central PMCID: PMC3401263.

Hwang JY, Lee EJ, Jin Go M, Sung YA, Lee HJ, Heon Kwak S, Jang HC, Soo Park K, Lee HJ, Byul Jang H, Song J, Park KH, Kim HL, Cho MC, Lee JY. Genome-wide association study identifies GYS2 as a novel genetic factor for polycystic ovary syndrome through obesity-related condition. *J Hum Genet*. 2012 Oct;57(10):660-4. PubMed PMID: 22951595.

Idali F, Zareii S, Mohammad-Zadeh A, Reihany-Sabet F, Akbarzadeh-Pasha Z, Khorram-Khorshid HR, Zarnani AH, Jeddi-Tehrani M. Plasminogen Activator Inhibitor 1 and Methylenetetrahydrofolate Reductase Gene mutations in Iranian Women with Polycystic Ovary Syndrome. *Am J Reprod Immunol*. 2012 Nov;68(5):400-7. PubMed PMID: 22882325.

Jia H, Wang B, Yu L, Jiang Z. Association of angiotensin-converting enzyme gene insertion/deletion polymorphism with polycystic ovary syndrome: a meta-analysis. *J Renin Angiotensin Aldosterone Syst*. 2012 Jul 12. PubMed PMID: 22791704.

Jones MR, Chazenbalk G, Xu N, Chua AK, Eigler T, Mengesha E, Chen YH, Lee JM, Pall M, Li X, Chen YD, Taylor KD, Mathur R, Krauss RM, Rotter JI, Legro RS, Azziz R, Goodarzi MO. Steroidogenic regulatory factor FOS is underexpressed in polycystic ovary syndrome (PCOS) adipose tissue and genetically associated with

ANDROGEN EXCESS AND PCOS SOCIETY

PCOS susceptibility. *J Clin Endocrinol Metab.* 2012 Sep;97(9):E1750-7. PubMed PMID: 22723319; PubMed Central PMCID: PMC3431575.

Kaur S, Archer KJ, Devi MG, Kriplani A, Strauss JF 3rd, Singh R. Differential Gene Expression in Granulosa Cells from Polycystic Ovary Syndrome Patients with and without Insulin Resistance: Identification of Susceptibility Gene Sets through Network Analysis. *J Clin Endocrinol Metab.* 2012 Oct;97(10):E2016-21. PubMed PMID: 22904171.

Kim JJ, Choi YM, Cho YM, Hong MA, Chae SJ, Hwang KR, Hwang SS, Yoon SH, Moon SY. Polycystic ovary syndrome is not associated with polymorphisms of the TCF7L2, CDKAL1, HHEX, KCNJ11, FTO and SLC30A8 genes. *Clin Endocrinol (Oxf).* 2012 Sep;77(3):439-45. PubMed PMID: 22443257.

Kowalska I, Adamska A, Malecki MT, Karczewska-Kupczewska M, Nikolajuk A, Szopa M, Gorska M, Straczkowski M. Impact of the FTO gene variation on fat oxidation and its potential influence on body weight in women with polycystic ovary syndrome. *Clin Endocrinol (Oxf).* 2012 Jul;77(1):120-5. PubMed PMID: 22385136.

Liu B, Lv HM, Li LN, Xia L, Zhang HX, Zhang YJ, Lei L. Common variants of transcription factor 7-like 2 (TCF7L2) are associated with reduced insulin secretion in women with polycystic ovary syndrome. *Gynecol Endocrinol.* 2012 Aug;28(8):594-7. PubMed PMID: 22296403.

Maier PS, Mattiello SS, Lages L, Spritzer PM. 17-hydroxysteroid dehydrogenase type 5 gene polymorphism (-71A/G HSD17B5 SNP) and treatment with oral contraceptive pills in PCOS women without metabolic comorbidities. *Gynecol Endocrinol.* 2012 Aug;28(8):606-10. PubMed PMID: 22329763.

Maier PS, Spritzer PM. Aromatase gene polymorphism does not influence clinical phenotype and response to oral contraceptive pills in polycystic ovary syndrome women. *Gynecol Obstet Invest.* 2012;74(2):136-42. PubMed PMID: 22889864.

Martínez-García MÁ, Gambineri A, Alpañés M, Sanchón R, Pasquali R, Escobar-Morreale HF. Common variants in the sex hormone-binding globulin gene (SHBG) and polycystic ovary syndrome (PCOS) in Mediterranean women. *Hum Reprod.* 2012 Dec;27(12):3569-76. PubMed PMID: 23001781.

Moro F, Morciano A, Tropea A, Sagnella F, Palla C, Scarinci E, Cosentino N, Niccoli G, Liuzzo G, Crea F, Lanzone A, Apa R. CD4(+)CD28(null) T lymphocyte frequency, a new marker of cardiovascular risk: relationship with polycystic ovary syndrome phenotypes. *Fertil Steril.* 2012 Sep 7. PubMed PMID: 22963806.

Nectaria X, Leandros L, Ioannis G, Agathocles T. The importance of Er α and Er β gene polymorphisms in PCOS. *Gynecol Endocrinol.* 2012 Jul;28(7):505-8. PubMed PMID: 22296324.

Ruan Y, Ma J, Xie X. Association of IRS-1 and IRS-2 genes polymorphisms with polycystic ovary syndrome: a meta-analysis. *Endocr J.* 2012 Jul 31;59(7):601-9. PubMed PMID: 22523112.

Schweighofer N, Lerchbaum E, Trummer O, Schwetz V, Pilz S, Pieber TR, Obermayer-Pietsch B. Androgen levels and metabolic parameters are associated with a genetic variant of F13A1 in women with polycystic ovary syndrome. *Gene.* 2012 Aug 1;504(1):133-9. PubMed PMID: 22565190.

ANDROGEN EXCESS AND PCOS SOCIETY

Shi Y, Zhao H, Shi Y, Cao Y, Yang D, Li Z, Zhang B, Liang X, Li T, Chen J, Shen J, Zhao J, You L, Gao X, Zhu D, Zhao X, Yan Y, Qin Y, Li W, Yan J, Wang Q, Zhao J, Geng L, Ma J, Zhao Y, He G, Zhang A, Zou S, Yang A, Liu J, Li W, Li B, Wan C, Qin Y, Shi J, Yang J, Jiang H, Xu JE, Qi X, Sun Y, Zhang Y, Hao C, Ju X, Zhao D, Ren CE, Li X, Zhang W, Zhang Y, Zhang J, Wu D, Zhang C, He L, Chen ZJ. Genome-wide association study identifies eight new risk loci for polycystic ovary syndrome. *Nat Genet.* 2012 Sep;44(9):1020-5. PubMed PMID: 22885925.

Strauss JF 3rd, McAllister JM, Urbanek M. Persistence pays off for PCOS gene prospectors. *J Clin Endocrinol Metab.* 2012 Jul;97(7):2286-8. PubMed PMID: 22774210; PubMed Central PMCID: PMC3387390.

Tellechea ML, Muzzio DO, Iglesias Molli AE, Belli SH, Graffigna MN, Levalle OA, Frechtel GD, Cerrone GE. Association between β 2-adrenoceptor (ADRB2) haplotypes and insulin resistance in PCOS. *Clin Endocrinol (Oxf).* 2012 Aug 20. PubMed PMID: 22900502.

Včelák J, Vejražková D, Vaňková M, Lukášová P, Bradnová O, Hálková T, Bešťák J, Andělová K, Kvasničková H, Hoskocová P, Vondra K, Vrbíková J, Bendlová B. T2DM risk haplotypes of the TCF7L2 gene in the Czech population sample: the association with free fatty acids composition. *Physiol Res.* 2012 Jul 20;61(3):229-40. PubMed PMID: 22480428.

Wang Z, Li T, Zhang W, You L, Zhao Y, Xia M, Zhao H, Chen ZJ. Variants in DENND1A and LHCGR are associated with endometrioid adenocarcinoma. *Gynecol Oncol.* 2012 Nov;127(2):403-5. PubMed PMID: 22902918.

Welt CK, Styrkarsdottir U, Ehrmann DA, Thorleifsson G, Arason G, Gudmundsson JA, Ober C, Rosenfield RL, Saxena R, Thorsteinsdottir U, Crowley WF, Stefansson K. Variants in DENND1A are associated with polycystic ovary syndrome in women of European ancestry. *J Clin Endocrinol Metab.* 2012 Jul;97(7):E1342-7. PubMed PMID: 22547425; PubMed Central PMCID: PMC3387396.

Wojciechowski P, Lipowska A, Rys P, Ewens KG, Franks S, Tan S, Lerchbaum E, Vcelak J, Attaoua R, Strackowski M, Azziz R, Barber TM, Hinney A, Obermayer-Pietsch B, Lukasova P, Bendlova B, Grigorescu F, Kowalska I, Goodarzi MO; GIANT Consortium, Strauss JF 3rd, McCarthy MI, Malecki MT. Impact of FTO genotypes on BMI and weight in polycystic ovary syndrome: a systematic review and meta-analysis. *Diabetologia.* 2012 Oct;55(10):2636-45. Erratum in: *Diabetologia.* 2012 Oct;55(10):2858-9. PubMed PMID: 22801903; PubMed Central PMCID: PMC3433670.

Yun JH, Gu BH, Kang YB, Choi BC, Song S, Baek KH. Association between INS-VNTR polymorphism and polycystic ovary syndrome in a Korean population. *Gynecol Endocrinol.* 2012 Jul;28(7):525-8. PubMed PMID: 22468791.

Zhang CW, Zhang XL, Xia YJ, Cao YX, Wang WJ, Xu P, Che YN, Wu XK, Yi L, Gao Q, Wang Y. Association between polymorphisms of the CYP11A1 gene and polycystic ovary syndrome in Chinese women. *Mol Biol Rep.* 2012 Aug;39(8):8379-85. PubMed PMID: 22699877.

Zhang H, Bi Y, Hu C, Lu W, Zhu D. Association between the Pro12Ala polymorphism of PPAR- γ gene and the polycystic ovary syndrome: a meta-analysis of case-control studies. *Gene.* 2012 Jul 15;503(1):12-7. PubMed PMID: 22564702.

ANDROGEN EXCESS AND PCOS SOCIETY

Zhuo G, Ding Y, Feng G, Yu L, Jiang Y. Analysis of mitochondrial DNA sequence variants in patients with polycystic ovary syndrome. Arch Gynecol Obstet. 2012 Sep;286(3):653-9. PubMed PMID: 22546954.

PCOS – Immunological Considerations

None.

PCOS – After the Menopause

None.



PCOS – Metabolic Dysfunction/Cardiovascular Disease/Inflammation

Akbarzadeh S, Ghasemi S, Kalantarhormozi M, Nabipour I, Abbasi F, Aminfar A, Jaffari SM, Motamed N, Movahed A, Mirzaei M, Rahbar AR. Relationship among plasma adipokines, insulin and androgens level as well as biochemical glycemic and lipidemic markers with incidence of PCOS in women with normal BMI. Gynecol Endocrinol. 2012 Jul;28(7):521-4. PubMed PMID: 22309615.

Atiomo W, Daykin CA. Metabolomic biomarkers in women with polycystic ovary syndrome: a pilot study. Mol Hum Reprod. 2012 Nov;18(11):546-53. PubMed PMID: 22809877.

Aydin K, Cinar N, Aksoy DY, Bozdogan G, Yildiz BO. Body composition in lean women with polycystic ovary syndrome: effect of ethinyl estradiol and drospirenone combination. Contraception. 2012 Aug 13. PubMed PMID: 22898361.

Aydogdu A, Tasci I, Kucukerdonmez O, Tapan S, Aydogdu S, Aydogan U, Sonmez A, Yazici M, Azal O. Increase in subcutaneous adipose tissue and fat free mass in women with polycystic ovary syndrome is related to impaired insulin sensitivity. Gynecol Endocrinol. 2012 Jul 31. PubMed PMID: 22849614.

Aydogdu A, Tasci I, Tapan S, Basaran Y, Aydogan U, Meric C, Sonmez A, Aydogdu S, Akbulut H, Taslipinar A, Uckaya G, Azal O. High plasma level of long Pentraxin 3 is associated with insulin resistance in women with polycystic ovary syndrome. Gynecol Endocrinol. 2012 Sep;28(9):722-5. PubMed PMID: 22304663.

Bayram F, Kocer D, Ozsan M, Muhtaroglu S. Evaluation of endothelial dysfunction, lipid metabolism in women with polycystic ovary syndrome: relationship of paraoxonase 1 activity, malondialdehyde levels, low-density lipoprotein subfractions, and endothelial dysfunction. Gynecol Endocrinol. 2012 Jul;28(7):497-501. PubMed PMID: 22703625.

Chen MJ, Han DS, Yang JH, Yang YS, Ho HN, Yang WS. Myostatin and its association with abdominal obesity, androgen and follistatin levels in women with polycystic ovary syndrome. Hum Reprod. 2012 Aug;27(8):2476-83. PubMed PMID: 22693174.

Choi YS, Yang HI, Cho S, Jung JA, Jeon YE, Kim HY, Seo SK, Lee BS. Serum asymmetric dimethylarginine, apelin, and tumor necrosis factor- α levels in non-obese women with polycystic ovary syndrome. Steroids. 2012 Nov;77(13):1352-8. PubMed PMID: 22944040.

Comerford KB, Almaro RU, Kim K, Karakas SE. Lean mass and insulin resistance in women with polycystic ovary syndrome. Metabolism. 2012 Sep;61(9):1256-60. PubMed PMID: 22424820.

ANDROGEN EXCESS AND PCOS SOCIETY

De Oliveira Baraldi C, Moisés EC, de Jesus Ponte Carvalho TM, de Jesus Antunes N, Lanchote VL, Duarte G, Cavalli RC. Effect of Type 2 Diabetes Mellitus on the Pharmacokinetics of Metformin in Obese Pregnant Women. *Clin Pharmacokinet*. 2012 Aug 31. PubMed PMID: 23018469.

Di Domenico K, Wiltgen D, Nickel FJ, Magalhães JA, Moraes RS, Spritzer PM. Cardiac autonomic modulation in polycystic ovary syndrome: does the phenotype matter? *Fertil Steril*. 2012 Sep 28. PubMed PMID: 23025880.

Du Q, Wang YJ. Comparative efficacy of thiazolidinediones and metformin for polycystic ovary syndrome. *Saudi Med J*. 2012 Sep;33(9):954-61. PubMed PMID: 22964806.

Du Q, Yang S, Wang YJ, Wu B, Zhao YY, Fan B. Effects of thiazolidinediones on polycystic ovary syndrome: a meta-analysis of randomized placebo-controlled trials. *Adv Ther*. 2012 Sep;29(9):763-74. PubMed PMID: 22932791.

Fulghesu AM, Romualdi D, Di Florio C, Sanna S, Tagliaferri V, Gambineri A, Tomassoni F, Minerba L, Pasquali R, Lanzone A. Is there a dose-response relationship of metformin treatment in patients with polycystic ovary syndrome? Results from a multicentric study. *Hum Reprod*. 2012 Oct;27(10):3057-66. PubMed PMID: 22786777.

Gambineri A, Patton L, Altieri P, Pagotto U, Pizzi C, Manzoli L, Pasquali R. Polycystic ovary syndrome is a risk factor for type 2 diabetes: results from a long-term prospective study. *Diabetes*. 2012 Sep;61(9):2369-74. PubMed PMID: 22698921; PubMed Central PMCID: PMC3425413.

Gebel E. A syndrome of their own: PCOS and its links to diabetes in women. *Diabetes Forecast*. 2012 Sep;65(9):32, 34. PubMed PMID: 22970510.

González F, Nair KS, Daniels JK, Basal E, Schimke JM, Blair HE. Hyperandrogenism sensitizes leukocytes to hyperglycemia to promote oxidative stress in lean reproductive-age women. *J Clin Endocrinol Metab*. 2012 Aug;97(8):2836-43. PubMed PMID: 22569241; PubMed Central PMCID: PMC3410256.

González F, Sia CL, Shepard MK, Rote NS, Minium J. Hyperglycemia-induced oxidative stress is independent of excess abdominal adiposity in normal-weight women with polycystic ovary syndrome. *Hum Reprod*. 2012 Dec;27(12):3560-8. PubMed PMID: 22940766; PubMed Central PMCID: PMC3501242.

González F, Sia CL, Shepard MK, Rote NS, Minium J. Inflammation in response to glucose ingestion is independent of excess abdominal adiposity in normal-weight women with polycystic ovary syndrome. *J Clin Endocrinol Metab*. 2012 Nov;97(11):4071-9. PubMed PMID: 22904174; PubMed Central PMCID: PMC3485595.

González F, Sia CL, Stanczyk FZ, Blair HE, Krupa ME. Hyperandrogenism exerts an anti-inflammatory effect in obese women with polycystic ovary syndrome. *Endocrine*. 2012 Dec;42(3):726-35. PubMed PMID: 22752961; PubMed Central PMCID: PMC3488360.

Güdücü N, Işçi H, Görmüş U, Yiğiter AB, Dündar I. Serum visfatin levels in women with polycystic ovary syndrome. *Gynecol Endocrinol*. 2012 Aug;28(8):619-23. PubMed PMID: 22313145.

ANDROGEN EXCESS AND PCOS SOCIETY

Gulhan I, Bozkaya G, Oztekin D, Uyar I, Kebapcilar AG, Pamuk B. Serum Fetuin-A levels in women with polycystic ovary syndrome. *Arch Gynecol Obstet*. 2012 Dec;286(6):1473-6. PubMed PMID: 22865037.

Haviland JA, Tonelli M, Haughey DT, Porter WP, Assadi-Porter FM. Novel diagnostics of metabolic dysfunction detected in breath and plasma by selective isotope-assisted labeling. *Metabolism*. 2012 Aug;61(8):1162-70. PubMed PMID: 22304834; PubMed Central PMCID: PMC3346854.

Jakubowicz D, Wainstein J, Homburg R. The link between polycystic ovarian syndrome and type 2 diabetes: preventive and therapeutic approach in Israel. *Isr Med Assoc J*. 2012 Jul;14(7):442-7. PubMed PMID: 22953622.

Jamal M, Gunay Y, Capper A, Eid A, Heitshusen D, Samuel I. Roux-en-Y gastric bypass ameliorates polycystic ovary syndrome and dramatically improves conception rates: a 9-year analysis. *Surg Obes Relat Dis*. 2012 Jul-Aug;8(4):440-4. PubMed PMID: 22169760.

Jones H, Sprung VS, Pugh CJ, Daousi C, Irwin A, Aziz N, Adams VL, Thomas EL, Bell JD, Kemp GJ, Cuthbertson DJ. Polycystic Ovary Syndrome with Hyperandrogenism Is Characterized by an Increased Risk of Hepatic Steatosis Compared to Nonhyperandrogenic PCOS Phenotypes and Healthy Controls, Independent of Obesity and Insulin Resistance. *J Clin Endocrinol Metab*. 2012 Oct;97(10):3709-16. PubMed PMID: 22837189.

Krentz AJ, von Mühlen D, Barrett-Connor E. Adipocytokine profiles in a putative novel postmenopausal polycystic ovary syndrome (PCOS) phenotype parallel those in premenopausal PCOS: the Rancho Bernardo Study. *Metabolism*. 2012 Sep;61(9):1238-41. PubMed PMID: 22560129.

Lerchbaum E, Schwetz V, Giuliani A, Pieber TR, Obermayer-Pietsch B. Opposing effects of dehydroepiandrosterone sulfate and free testosterone on metabolic phenotype in women with polycystic ovary syndrome. *Fertil Steril*. 2012 Nov;98(5):1318-1325.e1. PubMed PMID: 22835450.

Li W, Li Q. Dysregulation of glucose metabolism even in Chinese PCOS women with normal glucose tolerance. *Endocr J*. 2012 Sep 30;59(9):765-70. PubMed PMID: 22673295.

Li W, Ma L, Li Q. Insulin resistance but not impaired β -cell function: a key feature in Chinese normal-weight PCOS women with normal glucose regulation. *Gynecol Endocrinol*. 2012 Aug;28(8):598-601. PubMed PMID: 22309514.

Liang SJ, Liou TH, Lin HW, Hsu CS, Tzeng CR, Hsu MI. Obesity is the predominant predictor of impaired glucose tolerance and metabolic disturbance in polycystic ovary syndrome. *Acta Obstet Gynecol Scand*. 2012 Oct;91(10):1167-72. PubMed PMID: 22497305.

Lim SS, Davies MJ, Norman RJ, Moran LJ. Overweight, obesity and central obesity in women with polycystic ovary syndrome: a systematic review and meta-analysis. *Hum Reprod Update*. 2012 Nov-Dec;18(6):618-37. PubMed PMID: 22767467.

Liu Y, Jiang H, Xing FQ, Huang WJ, Mao LH, He LY. Uncoupling protein 2 expression affects androgen synthesis in polycystic ovary syndrome. *Endocrine*. 2012 Sep 25 PubMed PMID: 23008094.

ANDROGEN EXCESS AND PCOS SOCIETY

Messer C, Boston R, Leroith D, Geer E, Miller JD, Messer M, Futterweit W. Pancreatic β -Cell Dysfunction in Polycystic Ovary Syndrome: The Role of Metformin. *Endocr Pract.* 2012 Sep 1;18(5):685-93. PubMed PMID: 22548946.

Moran LJ, Noakes M, Wittert GA, Clifton PM, Norman RJ. Weight loss and vascular inflammatory markers in overweight women with and without polycystic ovary syndrome. *Reprod Biomed Online.* 2012 Nov;25(5):500-3. PubMed PMID: 22995747.

Muscogiuri G, Policola C, Prioletta A, Sorice G, Mezza T, Lassandro A, Della Casa S, Pontecorvi A, Giaccari A. Low levels of 25(OH)D and insulin-resistance: 2 unrelated features or a cause-effect in PCOS? *Clin Nutr.* 2012 Aug;31(4):476-80. PubMed PMID: 22260937.

Okoroh EM, Hooper WC, Atrash HK, Yusuf HR, Boulet SL. Is polycystic ovary syndrome another risk factor for venous thromboembolism? United States, 2003-2008. *Am J Obstet Gynecol.* 2012 Nov;207(5):377.e1-8. PubMed PMID: 22959762.

Ozerlat I. Reproductive endocrinology: Endothelial dysfunction in women with polycystic ovary syndrome—an inherent effect? *Nat Rev Endocrinol.* 2012 Oct;8(10):566. PubMed PMID: 22847243.

Pal L, Berry A, Coraluzzi L, Kustan E, Danton C, Shaw J, Taylor H. Therapeutic implications of vitamin D and calcium in overweight women with polycystic ovary syndrome. *Gynecol Endocrinol.* 2012 Dec;28(12):965-8. PubMed PMID: 22780885.

Patra SK, Nasrat H, Goswami B, Jain A. Vitamin D as a predictor of insulin resistance in Polycystic Ovarian Syndrome. *Diabetes Metab Syndr.* 2012 Jul;6(3):146-9. PubMed PMID: 23158978.

Polymeris A. The pluses and minuses of bariatric surgery for morbid obesity: An endocrinological perspective. *Hormones (Athens).* 2012 Jul;11(3):223-40. PubMed PMID: 22908056.

Rajagopal G, Reddy AP, Venkata Harinarayan C, Suresh V, Bitla A, P V L N Rao S, Sachan A. Effect of lifestyle modification and metformin therapy on emerging cardiovascular risk factors in overweight Indian women with polycystic ovary syndrome. *Metab Syndr Relat Disord.* 2012 Aug;10(4):273-9. PubMed PMID: 22468948.

Randeva HS, Tan BK, Weickert MO, Lois K, Nestler JE, Sattar N, Lehnert H. Cardiometabolic aspects of the polycystic ovary syndrome. *Endocr Rev.* 2012 Oct;33(5):812-41. PubMed PMID: 22829562; PubMed Central PMCID: PMC3461136.

Sathyapalan T, Shepherd J, Coady AM, Kilpatrick ES, Atkin SL. Atorvastatin reduces malondialdehyde concentrations in patients with polycystic ovary syndrome. *J Clin Endocrinol Metab.* 2012 Nov;97(11):3951-5. PubMed PMID: 22879630.

Savill P. Identifying patients at risk of type 2 diabetes. *Practitioner.* 2012 Jul-Aug;256(1753):25-7, 3. PubMed PMID: 22988703.

Schmidt J, Dahlgren E, Brännström M, Landin-Wilhelmsen K. Body composition, bone mineral density and fractures in late postmenopausal women with polycystic ovary syndrome – a long-term follow-up study. *Clin Endocrinol (Oxf).* 2012 Aug;77(2):207-14. PubMed PMID: 22385110.

ANDROGEN EXCESS AND PCOS SOCIETY

Spanos N, Tziomalos K, Macut D, Koiou E, Kandaraki EA, Delkos D, Tsourdi E, Panidis D. Adipokines, insulin resistance and hyperandrogenemia in obese patients with polycystic ovary syndrome: cross-sectional correlations and the effects of weight loss. *Obes Facts*. 2012;5(4):495-504. PubMed PMID: 22854419.

Svendsen PF, Christiansen M, Hedley PL, Nilas L, Pedersen SB, Madsbad S. Adipose expression of adipocytokines in women with polycystic ovary syndrome. *Fertil Steril*. 2012 Jul;98(1):235-41. PubMed PMID: 22607892.

Tao T, Li S, Zhao A, Zhang Y, Liu W. Expression of the CD11c gene in subcutaneous adipose tissue is associated with cytokine level and insulin resistance in women with polycystic ovary syndrome. *Eur J Endocrinol*. 2012 Nov;167(5):705-13. PubMed PMID: 22945299.

Thomson RL, Brinkworth GD, Noakes M, Clifton PM, Norman RJ, Buckley JD. The effect of diet and exercise on markers of endothelial function in overweight and obese women with polycystic ovary syndrome. *Hum Reprod*. 2012 Jul;27(7):2169-76. PubMed PMID: 22552687.

Toth PP, Simko RJ, Palli SR, Koselleck D, Quimbo RA, Cziraky MJ. The impact of serum lipids on risk for microangiopathy in patients with type 2 diabetes mellitus. *Cardiovasc Diabetol*. 2012 Sep 14;11:109. PubMed PMID: 22978715; PubMed Central PMCID: PMC3473235.

Unfer V, Carlomagno G, Dante G, Facchinetti F. Effects of myo-inositol in women with PCOS: a systematic review of randomized controlled trials. *Gynecol Endocrinol*. 2012 Jul;28(7):509-15. PubMed PMID: 22296306.

Vieira CS, Martins WP, Fernandes JB, Soares GM, dos Reis RM, de Sá MF, Ferriani RA. The effects of 2 mg chlormadinone acetate/30 mcg ethinylestradiol, alone or combined with spironolactone, on cardiovascular risk markers in women with polycystic ovary syndrome. *Contraception*. 2012 Sep;86(3):268-75. PubMed PMID: 22464410.

Vigerust NF, Bohov P, Bjørndal B, Seifert R, Nygård O, Svardal A, Glinborg D, Berge RK, Gaster M. Free carnitine and acylcarnitines in obese patients with polycystic ovary syndrome and effects of pioglitazone treatment. *Fertil Steril*. 2012 Sep 19. PubMed PMID: 22999793.

Wang ET, Ku IA, Shah SJ, Daviglius ML, Schreiner PJ, Konety SH, Williams OD, Siscovick D, Bibbins-Domingo K. Polycystic Ovary Syndrome Is Associated with Higher Left Ventricular Mass Index: The CARDIA Women's Study. *J Clin Endocrinol Metab*. 2012 Sep 25. PubMed PMID: 23012389.

Zhang J, Fan P, Liu H, Bai H, Wang Y, Zhang F. Apolipoprotein A-I and B levels, dyslipidemia and metabolic syndrome in south-west Chinese women with PCOS. *Hum Reprod*. 2012 Aug;27(8):2484-93. PubMed PMID: 22674204.

PCOS – Neuroendocrine Dysfunction

Sandoval-Guzmán T, Göngrich C, Moliner A, Guo T, Wu H, Broberger C, Ibáñez CF. Neuroendocrine control of female reproductive function by the activin receptor ALK7. *FASEB J*. 2012 Dec;26(12):4966-76. PubMed PMID: 22954591.

ANDROGEN EXCESS AND PCOS SOCIETY

PCOS – Ovary

Abuzeid MI, Mitwally M, Abuzeid YM, Bokhari HA, Ashraf M, Diamond MP. Early initiation of gonadotropin-releasing hormone antagonist in polycystic ovarian syndrome patients undergoing assisted reproduction: randomized controlled trial ISRCTN69937179. *J Assist Reprod Genet.* 2012 Nov;29(11):1193-202. PubMed PMID: 22960769.

Alcázar JL, Kudla MJ. Ovarian stromal vessels assessed by spatiotemporal image correlation-high definition flow in women with polycystic ovary syndrome: a case-control study. *Ultrasound Obstet Gynecol.* 2012 Oct;40(4):470-5. PubMed PMID: 22605534.

Baghdadi LR, Abu Hashim H, Amer SA, Palomba S, Falbo A, Al-Ojaimi E, Ott J, Zhu W, Fernandez H, Nasr A, Ramzy AM, Clark J, Doi SA. Impact of obesity on reproductive outcomes after ovarian ablative therapy in PCOS: a collaborative meta-analysis. *Reprod Biomed Online.* 2012 Sep;25(3):227-41. PubMed PMID: 22809865.

Battaglia C, Battaglia B, Morotti E, Paradisi R, Zanetti I, Meriggiola MC, Venturoli S. Two- and three-dimensional \square andomized \square and color Doppler techniques for diagnosis of polycystic ovary syndrome. The stromal/ovarian volume ratio as a new diagnostic criterion. *J Ultrasound Med.* 2012 Jul;31(7):1015-24. PubMed PMID: 22733850.

Boutzios G, Karalaki M, Zapanti E. Common pathophysiological mechanisms involved in luteal phase deficiency and polycystic ovary syndrome. Impact on fertility. *Endocrine.* 2012 Aug 29. PubMed PMID: 22930247.

Carmina E, Campagna AM, Mansuet P, Vitale G, Kort D, Lobo R. Does the level of serum antimüllerian hormone predict ovulatory function in women with polycystic ovary syndrome with aging? *Fertil Steril.* 2012 Oct;98(4):1043-6. PubMed PMID: 22771030.

Catteau-Jonard S, Bancquart J, Poncelet E, Lefebvre-Maunoury C, Robin G, Dewailly D. Polycystic ovaries at ultrasound: normal variant or silent polycystic ovary syndrome? *Ultrasound Obstet Gynecol.* 2012 Aug;40(2):223-9. PubMed PMID: 22648908.

Costello MF, Misso ML, Wong J, Hart R, Rombauts L, Melder A, Norman RJ, Teede HJ. The treatment of infertility in polycystic ovary syndrome: a brief update. *Aust N Z J Obstet Gynaecol.* 2012 Aug;52(4):400-3. PubMed PMID: 22639834.

De Resende LO, Vireque AA, Santana LF, Moreno DA, de Sá Rosa E Silva AC, Ferriani RA, Scrideli CA, Reis RM. Single-cell expression analysis of BMP15 and GDF9 in mature oocytes and BMPR2 in cumulus cells of women with polycystic ovary syndrome undergoing controlled ovarian hyperstimulation. *J Assist Reprod Genet.* 2012 Oct;29(10):1057-65. PubMed PMID: 22825968.

De Ziegler D, Streuli I, Gayet V, Frydman N, Bajouh O, Chapron C. Retrieving oocytes from small non-stimulated follicles in polycystic ovary syndrome (PCOS): in vitro maturation (IVM) is not indicated in the new GnRH antagonist era. *Fertil Steril.* 2012 Aug;98(2):290-3. PubMed PMID: 22846648.

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Di Carlo C, Savoia F, Ferrara C, Tommaselli GA, Bifulco G, Nappi C. Case report: a most peculiar family with spontaneous, recurrent ovarian hyperstimulation syndrome. *Gynecol Endocrinol.* 2012 Aug;28(8):649-51. PubMed PMID: 22313155.

Eilertsen TB, Vanky E, Carlsen SM. Anti-Mullerian hormone in the diagnosis of polycystic ovary syndrome: can morphologic description be replaced? *Hum Reprod.* 2012 Aug;27(8):2494-502. PubMed PMID: 22693172.

ESHRE Capri Workshop Group. Health and fertility in World Health Organization group 2 anovulatory women. *Hum Reprod Update.* 2012 Sep-Oct;18(5):586-99. PubMed PMID: 22611175.

Franasiak J, Young SL, Williams CD, Pastore LM. Longitudinal anti-müllerian hormone in women with polycystic ovary syndrome: an acupuncture randomized clinical trial. *Evid Based Complement Alternat Med.* 2012;2012:973712. PubMed PMID: 22966246; PubMed Central PMCID: PMC3433176.

Gremeau AS, Andreadis N, Fatum M, Craig J, Turner K, McVeigh E, Child T. In vitro maturation or in vitro fertilization for women with polycystic ovaries? A case-control study of 194 treatment cycles. *Fertil Steril.* 2012 Aug;98(2):355-60. PubMed PMID: 22658347.

Guzman L, Ortega-Hrepich C, Albus FK, Verheyen G, Devroey P, Smits J, De Vos M. Developmental capacity of in vitro-matured human oocytes retrieved from polycystic ovary syndrome ovaries containing no follicles larger than 6 mm. *Fertil Steril.* 2012 Aug;98(2):503-7.e1-2. PubMed PMID: 22365339.

Haouzi D, Assou S, Monzo C, Vincens C, Dechaud H, Hamamah S. Altered gene expression profile in cumulus cells of mature MII oocytes from patients with polycystic ovary syndrome. *Hum Reprod.* 2012 Dec;27(12):3523-30. PubMed PMID: 22951915.

He H, Li T, Yin D, Liu R, Chen Q, Wang J, Zhong G, Pu D. HOXA10 expression is decreased by testosterone in luteinized granulosa cells in vitro. *Mol Med Report.* 2012 Jul;6(1):51-6. PubMed PMID: 22576737.

Hirsch A, Hahn D, Kempná P, Hofer G, Nuoffer JM, Mullis PE, Flück CE. Metformin inhibits human androgen production by regulating steroidogenic enzymes HSD3B2 and CYP17A1 and complex I activity of the respiratory chain. *Endocrinology.* 2012 Sep;153(9):4354-66. PubMed PMID: 22778212.

Ismail MT, Hassanin MZ, Elshmaa NS. Preincisional infiltration and intraperitoneal instillation of levobupivacaine 0.25% for management of early postoperative pain following laparoscopic ovarian drilling. *J Obstet Gynaecol Res.* 2012 Aug 26. PubMed PMID: 22925421.

Jayaprakasan K, Chan Y, Islam R, Haoula Z, Hopkisson J, Coomarasamy A, Raine-Fenning N. Prediction of in vitro fertilization outcome at different antral follicle count thresholds in a prospective cohort of 1,012 women. *Fertil Steril.* 2012 Sep;98(3):657-63. PubMed PMID: 22749225.

Junk SM, Yeap D. Improved implantation and ongoing pregnancy rates after single-embryo transfer with an optimized protocol for in vitro oocyte maturation in women with polycystic ovaries and polycystic ovary syndrome. *Fertil Steril.* 2012 Oct;98(4):888-92. PubMed PMID: 22835445.

Lisi F, Carfagna P, Oliva MM, Rago R, Lisi R, Poverini R, Manna C, Vaquero E, Caserta D, Raparelli V, Marci R, Moscarini M. Pretreatment with myo-inositol in non polycystic ovary syndrome patients undergoing multiple

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follicular stimulation for IVF: a pilot study. *Reprod Biol Endocrinol.* 2012 Jul 23;10:52. PubMed PMID: 22823904; PubMed Central PMCID: PMC3416732.

McNeilly AS. Diagnostic applications for inhibin and activins. *Mol Cell Endocrinol.* 2012 Aug 15;359(1-2):121-5. PubMed PMID: 21741437.

Misso ML, Costello MF, Garrubba M, Wong J, Hart R, Rombauts L, Melder AM, Norman RJ, Teede HJ. Metformin versus clomiphene citrate for infertility in non-obese women with polycystic ovary syndrome: a systematic review and meta-analysis. *Hum Reprod Update.* 2013 Jan-Feb;19(1):2-11. PubMed PMID: 22956412.

Misso ML, Teede HJ, Hart R, Wong J, Rombauts L, Melder AM, Norman RJ, Costello MF. Status of clomiphene citrate and metformin for infertility in PCOS. *Trends Endocrinol Metab.* 2012 Oct;23(10):533-43. PubMed PMID: 22939889.

Nahuis MJ, Oude Lohuis E, Kose N, Bayram N, Hompes P, Oosterhuis GJ, Kaaijk EM, Cohlen BJ, Bossuyt PP, van der Veen F, Mol BW, van Wely M. Long-term follow-up of laparoscopic electrocautery of the ovaries versus ovulation induction with recombinant FSH in clomiphene citrate-resistant women with polycystic ovary syndrome: an economic evaluation. *Hum Reprod.* 2012 Dec;27(12):3577-82. PubMed PMID: 23001778.

Norman RJ. Does ovulation induction with follicle-stimulating hormone still have a future in polycystic ovary syndrome? *Fertil Steril.* 2012 Sep;98(3):599. PubMed PMID: 22575496.

Ouandaogo ZG, Frydman N, Hesters L, Assou S, Haouzi D, Dechaud H, Frydman R, Hamamah S. Differences in transcriptomic profiles of human cumulus cells isolated from oocytes at GV, MI and MII stages after in vivo and in vitro oocyte maturation. *Hum Reprod.* 2012 Aug;27(8):2438-47. PubMed PMID: 22617121.

Peng C, Guo Z, Long X, Lu G. Progesterone levels on the hCG day and outcomes in in-vitro fertilization in women with polycystic ovary syndrome. *J Assist Reprod Genet.* 2012 Jul;29(7):603-7. PubMed PMID: 22552733; PubMed Central PMCID: PMC3401251.

Polzikov M, Yakovenko S, Voznesenskaya J, Troshina M, Zatsepina O. Overexpression of ribosomal RNA in cumulus cells of patients with polycystic ovary syndrome. *J Assist Reprod Genet.* 2012 Oct;29(10):1141-5. PubMed PMID: 22772454.

Rosenfield RL, Wroblewski K, Padmanabhan V, Littlejohn E, Mortensen M, Ehrmann DA. Antimüllerian hormone levels are independently related to ovarian hyperandrogenism and polycystic ovaries. *Fertil Steril.* 2012 Jul;98(1):242-9. PubMed PMID: 22541936.

Salah IM. Office microlaparoscopic ovarian drilling (OMLOD) versus conventional laparoscopic ovarian drilling (LOD) for women with polycystic ovary syndrome. *Arch Gynecol Obstet.* 2012 Sep 1. PubMed PMID: 22941326.

Salehpour S, Sene AA, Saharkhiz N, Sohrabi MR, Moghimian F. N-Acetylcysteine as an adjuvant to clomiphene citrate for successful induction of ovulation in infertile patients with polycystic ovary syndrome. *J Obstet Gynaecol Res.* 2012 Sep;38(9):1182-6. PubMed PMID: 22540635.

ANDROGEN EXCESS AND PCOS SOCIETY

Siristatidis C, Vrachnis N, Chrelias C. Ovulation induction in women with polycystic ovarian syndrome: still steps to take. *Am J Obstet Gynecol*. 2012 Aug;207(2):e12; author reply e13. PubMed PMID: 22521457.

Van Tilborg TC, Eijkemans MJ, Laven JS, Koks CA, de Bruin JP, Scheffer GJ, van Golde RJ, Fleischer K, Hoek A, Nap AW, Kuchenbecker WK, Manger PA, Brinkhuis EA, van Heusden AM, Sluijmer AV, Verhoeff A, van Hooff MH, Friederich J, Smeenk JM, Kwee J, Verhoeve HR, Lambalk CB, Helmerhorst FM, van der Veen F, Mol BW, Torrance HL, Broekmans FJ. The OPTIMIST study: randomized of cost effectiveness through randomized FSH stimulation dosages for IVF treatment. A randomized controlled trial. *BMC Womens Health*. 2012 Sep 18;12:29. PubMed PMID: 22989359; PubMed Central PMCID: PMC3460731.

Veltman-Verhulst SM, Fauser BC, Eijkemans MJ. High singleton live birth rate confirmed after ovulation induction in women with anovulatory polycystic ovary syndrome: validation of a prediction model for clinical practice. *Fertil Steril*. 2012 Sep;98(3):761-768.e1. PubMed PMID: 22633255.

Vosnakis C, Georgopoulos NA, Armeni AK, Papadakis E, Roupas ND, Katsikis I, Panidis D. Sibutramine administration decreases serum anti-Müllerian hormone (AMH) levels in women with polycystic ovary syndrome. *Eur J Obstet Gynecol Reprod Biol*. 2012 Aug;163(2):185-9. PubMed PMID: 22579228.

Wiser A, Shalom-Paz E, Reinblatt SL, Holzer H, Tulandi T. Controlled ovarian hyperstimulation in women with polycystic ovarian syndrome with or without intrauterine insemination. *Gynecol Endocrinol*. 2012 Jul;28(7):502-4. PubMed PMID: 22122754.

Woo HY, Kim KH, Rhee EJ, Park H, Lee MK. Differences of the association of anti-Müllerian hormone with clinical or biochemical characteristics between women with and without polycystic ovary syndrome. *Endocr J*. 2012 Sep 30;59(9):781-90. PubMed PMID: 22673409.

Xiao J, Chen S, Zhang C, Chang S. The effectiveness of metformin ovulation induction treatment in patients with PCOS: a systematic review and meta-analysis. *Gynecol Endocrinol*. 2012 Dec;28(12):956-60. PubMed PMID: 22808990.

PCOS – Phenotypic Variation

Glntborg D, Mumm H, Ravn P, Andersen M. Age associated differences in prevalence of individual randomized criteria and metabolic risk factors during reproductive age in 446 caucasian women with polycystic ovary syndrome. *Horm Metab Res*. 2012 Sep;44(9):694-8. PubMed PMID: 22382934.

Moran C, Arriaga M, Rodriguez G, Moran S. Obesity differentially affects phenotypes of polycystic ovary syndrome. *Int J Endocrinol*. 2012;2012:317241. PubMed PMID: 22829818; PubMed Central PMCID: PMC3399368.

Panidis D, Macut D, Tziomalos K, Papadakis E, Mikhailidis K, Kandaraki EA, Tsourdi EA, Tantanasis T, Mavromatidis G, Katsikis I. Prevalence of metabolic syndrome in women with polycystic ovary syndrome. *Clin Endocrinol (Oxf)*. 2012 Aug 13. PubMed PMID: 22888988.

Yildiz BO, Bozdog G, Yapici Z, Esinler I, Yarali H. Prevalence, phenotype and cardiometabolic risk of polycystic ovary syndrome under different diagnostic criteria. *Hum Reprod*. 2012 Oct;27(10):3067-73. PubMed PMID: 22777527.

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PCOS – Pregnancy Complications

Palomba S, Russo T, Falbo A, Di Cello A, Amendola G, Mazza R, Tolino A, Zullo F, Tucci L, La Sala GB. Decidual endovascular trophoblast invasion in women with polycystic ovary syndrome: an experimental case-control study. *J Clin Endocrinol Metab.* 2012 Jul;97(7):2441-9. PubMed PMID: 22508703.

Vanky E, DE Zegher F, Díaz M, Ibáñez L, Carlsen SM. On the potential of metformin to prevent preterm delivery in women with polycystic ovary syndrome – an epi-analysis. *Acta Obstet Gynecol Scand.* 2012 Sep 24. PubMed PMID: 23006146.

Vanky E, Nordskar JJ, Leithe H, Hjorth-Hansen AK, Martinussen M, Carlsen SM. Breast size increment during pregnancy and breastfeeding in mothers with polycystic ovary syndrome: a follow-up study of a randomized controlled trial on metformin versus placebo. *BJOG.* 2012 Oct;119(11):1403-9. PubMed PMID: 22827167.

PCOS – Protocol Reviews

None.

PCOS – Psychology

Bazarganipour F, Ziaei S, Montazeri A, Faghihzadeh S, Frozanfard F. Psychometric properties of the Iranian version of modified polycystic ovary syndrome health-related quality-of-life questionnaire. *Hum Reprod.* 2012 Sep;27(9):2729-36. PubMed PMID: 22740491.

Kocelak P, Chudek J, Naworska B, Bak-Sosnowska M, Kotlarz B, Mazurek M, Madej P, Skrzypulec-Plinta V, Skalba P, Olszanecka-Glinianowicz M. Psychological disturbances and quality of life in obese and infertile women and men. *Int J Endocrinol.* 2012;2012:236217. PubMed PMID: 22844280; PubMed Central PMCID: PMC3403244.

Moran LJ, Deeks AA, Gibson-Helm ME, Teede HJ. Psychological parameters in the reproductive phenotypes of polycystic ovary syndrome. *Hum Reprod.* 2012 Jul;27(7):2082-8. PubMed PMID: 22493025.

Veltman-Verhulst SM, Boivin J, Eijkemans MJ, Fauser BJ. Emotional distress is a common risk in women with polycystic ovary syndrome: a systematic review and meta-analysis of 28 studies. *Hum Reprod Update.* 2012 Nov-Dec;18(6):638-51. PubMed PMID: 22824735.

PCOS – Thyroid Complications

Celik C, Abali R, Tasdemir N, Guzel S, Yuksel A, Aksu E, Yilmaz M. Is subclinical hypothyroidism contributing dyslipidemia and insulin resistance in women with polycystic ovary syndrome? *Gynecol Endocrinol.* 2012 Aug;28(8):615-8. PubMed PMID: 22329744.

PCOS – Uterus

Armstrong AJ, Hurd WW, Elguero S, Barker NM, Zanotti KM. Diagnosis and management of endometrial hyperplasia. *J Minim Invasive Gynecol.* 2012 Sep-Oct;19(5):562-71. PubMed PMID: 22863972.

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Cloke B, Christian M. The role of androgens and the androgen receptor in cycling endometrium. *Mol Cell Endocrinol*. 2012 Jul 25;358(2):166-75. PubMed PMID: 21745536.

Eryilmaz OG, Sarikaya E, Gulerman C, Akar S, Cicek N. Endometrial thickness measurement throughout a menstrual cycle in non-obese infertile patients with polycystic ovary syndrome. *Arch Gynecol Obstet*. 2012 Dec;286(6):1597-600. PubMed PMID: 22865034.

Hickey M, Higham JM, Fraser I. Progestogens with or without oestrogen for irregular uterine bleeding associated with anovulation. *Cochrane Database Syst Rev*. 2012 Sep 12;9:CD001895. PubMed PMID: 22972055.

Holm NS, Glintborg D, Andersen MS, Schledermann D, Ravn P. The prevalence of endometrial hyperplasia and endometrial cancer in women with polycystic ovary syndrome or hyperandrogenism. *Acta Obstet Gynecol Scand*. 2012 Oct;91(10):1173-6. PubMed PMID: 22583042.

Shang K, Jia X, Qiao J, Kang J, Guan Y. Endometrial abnormality in women with polycystic ovary syndrome. *Reprod Sci*. 2012 Jul;19(7):674-83. PubMed PMID: 22534323.

Yan L, Wang A, Chen L, Shang W, Li M, Zhao Y. Expression of apoptosis-related genes in the endometrium of polycystic ovary syndrome patients during the window of implantation. *Gene*. 2012 Sep 15;506(2):350-4. PubMed PMID: 22789864.

Zhai J, Liu CX, Tian ZR, Jiang QH, Sun YP. Effects of metformin on the expression of GLUT4 in endometrium of obese women with polycystic ovary syndrome. *Biol Reprod*. 2012 Aug 2;87(2):29. PubMed PMID: 22572996.

Premature Adrenarche

Bird IM. In the zone: understanding zona reticularis function and its transformation by adrenarche. *J Endocrinol*. 2012 Aug;214(2):109-11.

Paris F, Kalfa N, Philibert P, Jeandel C, Gaspari L, Sultan C. Very premature pubarche in girls is not a pubertal variant. *Hormones (Athens)*. 2012 Jul-Sep;11(3):356-60

Utriainen P, Laakso S, Jääskeläinen J, Voutilainen R. Polymorphisms of POR, SULT2A1 and HSD11B1 in children with premature adrenarche. *Metabolism*. 2012 Sep;61(9):1215-9.

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Brief summaries of selected publications

Congenital Adrenal Hyperplasia and Disorders of Steroidogenesis

Meyer-Bahlburg HF, Dolezal C, Haggerty R, Silverman M, New MI. Cognitive outcome of offspring from dexamethasone-treated pregnancies at risk for congenital adrenal hyperplasia due to 21-hydroxylase deficiency. Eur J Endocrinol. 2012 Jul;167(1):103-10

This manuscript reports the observational follow-up on children who received prenatal dexamethasone treatment because of their high risk to inherit CAH (sibs known to have congenital adrenal due to 21-hydroxylase deficiency). Their first study included 140 children aged 5-12 years with 67 DEX-exposed (long-term: eight CAH girls) and 73 unexposed (with 15 CAH girls). Their second study included 20 participants aged 11-24 years with seven DEX-exposed (long-term: one CAH woman) and 13 unexposed (with four CAH women). Although the vast majority of group comparisons were not significant, long-term DEX exposure was associated with slower mental processing than in controls on several neuropsychological variables. However, partial correlations of DEX exposure duration with cognitive outcome did not corroborate this association. These investigators concluded that their findings regarding cognitive function in CAH girls with long-term DEX exposure raised concerns about potentially adverse cognitive outcome following prenatal DEX. Nevertheless, they felt that replications in larger samples are required.

This manuscript investigates the outcome of prenatal dexamethasone treatment for pregnancies at risk for congenital adrenal hyperplasia. Accumulating data obtained from both animal and human investigations indicate the potential for deleterious consequences following prenatal DEX exposure. Based on the 2010 Endocrine Society Guidelines statement regarding prenatal DEX therapy, this use of this treatment should be re-evaluated (Speiser et al, Journal of Clinical Endocrinology & Metabolism 2010;95:4133-60).

Insulin resistance

Guo X, Cui J, Jones MR, Haritunians T, Xiang AH, Chen YD, Taylor KD, Buchanan TA, Davis RC, Hsueh WA, Raffel LJ, Rotter JI, Goodarzi MO. Insulin clearance: confirmation as a highly heritable trait, and genome-wide linkage analysis. Diabetologia. 2012 Aug;55(8):2183-92.

Insulin resistance shows an inverse correlation with insulin clearance which is considered to be an adaptive response to maintain euglycemia (Haffner et al. Eur J Clin Invest 1992;22:147-53). These authors had previously reported a high heritability of insulin clearance in a Hispanic cohort. In this manuscript, they validated their prior finding by performing hyperinsulinemic-euglycemic clamps in 513 participants from 140 Hispanic families. The most significant linkage peaks for steady state plasma insulin concentrations were observed at chromosome 15 and chromosome 20. Single nucleotide polymorphisms at these loci carry several promising candidate genes. Genes mapped to chromosome 15 include MEGF11, CYP1A2, CSK, LMAN1L, CHRN4, and ADAMTSL7. The locus on chromosome 20 included portions of the PLCG1 and ZHX3 genes. Understanding the mechanism(s) responsible for insulin clearance may benefit elucidation of the molecular etiologies of insulin resistance in PCOS.

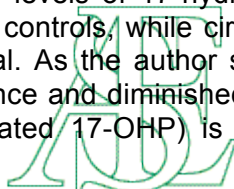
PCOS – Adolescence

Trottier A, Battista MC, Geller DH, Moreau B, Carpentier AC, Simoneau-Roy J, Baillargeon JP. Adipose tissue insulin resistance in peripubertal girls with first-degree family history of polycystic ovary syndrome. Fertil Steril. 2012 Dec;98(6):1627-34. PubMed PMID: 22985947

This study adds to increasing reports from these and other investigators on insulin-related defects in pre- and peri-pubertal girls who are either daughters or sisters of women with PCOS. This is a small, cross-sectional

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study with controls obtained from girls in general pediatric clinics with stable conditions, such as well-controlled hypothyroidism. The girls with close PCOS relatives were insulin resistant compared to controls and showed diminished insulin-mediated suppression of circulating levels of non-esterified fatty acids. The degree of insulin resistance correlated positively with circulating levels of 17-hydroxyprogesterone (17-OHP). PCOS relatives also had greater BMI and 17-OHP levels than controls, while circulating levels of androgens such as DHEA, androstenedione and testosterone were normal. As the author suggest, an increased genetic risk of PCOS may manifest before puberty as insulin resistance and diminished adipocyte response to insulin. Whether the accompanying latent hyperandrogenism (elevated 17-OHP) is a consequence or a cause of early onset metabolic defects requires elucidation.



PCOS - Ovary

Catteau-Jonard S, Bancquart J, Poncelet E, Lefebvre-Maunoury C, Robin G, Dewailly D. Polycystic ovaries at ultrasound: normal variant or silent polycystic ovary syndrome? Ultrasound Obstet Gynecol. 2012 Aug;40(2):223-9. PubMed PMID: 22648908.

The applicability of ovarian ultrasound criteria in the diagnosis PCOS, and its role in the long-term sequelae of the syndrome continue to stimulate controversy. Wrapped in this controversy is a large group of women who on ultrasound who exhibit a polycystic appearance to their ovaries (PCO), but do not satisfy any PCOS diagnosis based on NIH, Rotterdam or AEPCOS criteria. Despite multiple publications in the literature, there is no clear evidence for endocrine abnormalities in this group. The group from Lille, France, which has contributed greatly to our understanding of ovarian ultrasound and PCOS over many years, now presents interesting data concerning women with at least polycystic ovary. After strictly characterizing this subset of women, they report significantly higher levels of AMH in these women versus controls, and that they are intermediate between controls and those with PCOS. FSH levels were also reduced in these women, similar to those with PCOS. Inhibin levels were not studied, which would have been of interest regarding the FSH finding. The occurrence of ovulatory dysfunction, such as luteal deficiency, was not studied and would be another worthy area for study, particularly for infertile women in this group. The finding of increased AMH levels in these women is of clinical interest as it could have a negative impact on reproductive outcomes as well as a potential risk for ovarian hyperstimulation syndrome. PCO on ultrasound in otherwise normal phenotypes could therefore represent an intermediate condition, or “milder” PCOS phenotype as proposed by the authors. “Trust not too much to appearances” - [Virgil](#).

PCOS and Thyroid complications

Celik C, Abali R, Tasdemir N, Guzel S, Yuksel A, Aksu E, Yılmaz M. Is subclinical hypothyroidism contributing dyslipidemia and insulin resistance in women with polycystic ovary syndrome? Gynecol Endocrinol. 2012 Aug;28(8):615-8. PubMed PMID: 22329744.

In a small, but interesting study, Celik and colleagues investigated lipid parameters, insulin resistance, and glucose tolerance in subclinical hypothyroidism (SCH) women with and without polycystic ovary syndrome (PCOS). The topic is debatable as previous data have been controversial. They studied 20 patients with PCOS and SCH (Group I) and 39 patients with PCOS and normal thyroid function (Group II) and 53 healthy women with normal thyroid function (Group III). The results indicated significantly higher triglyceride levels (143.26 ± 99.86 mg/dL) in group I compared to both group II (88.56 ± 37.56 mg/dL) and group III (83.71 ± 31.94 mg/dL). All other lipid components including total cholesterol, HDL-cholesterol, LDL-cholesterol was comparable in the groups. HOMA-IR was significantly different in groups I (2.92 ± 2.34), II (1.95 ± 1.52) and III (1.60 ± 0.86). Similarly, serum insulin levels were significantly different ($P = 0.027$) among the groups I

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($12.45 \pm 8.62 \mu\text{U/mL}$), II ($8.60 \pm 5.35 \mu\text{U/mL}$) and III ($7.04 \pm 3.55 \mu\text{U/mL}$). The authors concluded that women with PCOS and subclinical hypothyroidism should be evaluated for dyslipidemia and insulin resistance. This finding was a little unexpected as earlier studies on a larger cohort with multiple insulin indices (Ganie et al Fertil Steril. 2011;95:2039-43) showed no significant differences related to thyroid function. A prospective, well designed, randomized study with levothyroxine replacement and a placebo-controlled arm is needed to answer this question more definitively.

