Mirtazapine (Remeron®)

Selected References:

- Aichhorn, Wolfgang et al. 2014. Mirtazapine and breast-feeding. *The American journal of psychiatry* vol. 161,12 (2004): 2325.
- Biswas PN, et al. 2003. The pharmacovigilance of mirtazapine: results of a prescription event monitoring study on 13,554 patients in England. J Psychopharmacol 17:121-6.
- Carvalho, André F et al. 2016. The Safety, Tolerability and Risks Associated with the Use of Newer Generation Antidepressant Drugs: A Critical Review of the Literature. *Psychotherapy and psychosomatics* vol. 85,5 (2016): 270-88.
- Djulus J, et al. 2006. Exposure to mirtazapine during pregnancy: a prospective, comparative study of birth outcomes. J Clin Psychiatry 67(8):1280-4.
- Einarson A, et al. 2009. Incidence of major malformations in infants following antidepressant exposure in pregnancy: results of a large prospective cohort study. Can J Psychiatry 54(4): 242-246.
- Grigoriadis S, et al. 2013. The effect of prenatal antidepressant exposure on neonatal adaptation: a systematic review and meta-analysis. J Clin Psychiatry. 74(4):e309-20.
- Goracci, Arianna et al. 2015. Benefici e potenziali rischi dell'utilizzo di antidepressivi in gravidanza: una revisione della letteratura [Antidepressant use in pregnancy: a critical review of the risk and benefits]. *Rivista di psichiatria* vol. 50,3 (2015): 118-26.
- Guclu S, et al. 2005. Mirtazapine use in resistant hyperemesis gravidarum: report of three cases and review of the literature. Arch Gynecol Obstet 272(4):298-300
- Kieviet N, et al. 2015. Risk factors for poor neonatal adaptation after exposure to antidepressants in utero. Acta Paediatr 104(4):384-91.
- Kjaersgaard MI, et al. 2013. Prenatal antidepressant exposure and risk of spontaneous abortion – a population-based study. PLoS One 8(8):e72095.
- Klier C, et al. 2007. Mirtazapine and breastfeeding: maternal and infant plasma levels. Am J Psychiatry 164:2: 348-349.
- Kristensen JH, et al. 2007. Transfer of the antidepressant mirtazapine into breast milk. Br J Clin Pharmacol 63:322-7.
- Lennestal R. 2007. Delivery outcome in relation to maternal use of some recently introduced antidepressants. J Clin Psychopharmacology 27(6):607-613.
- Milosavljević, Jovana Z et al. 2022. The effects of selective serotonin reuptake inhibitors on male and female fertility: a brief literature review. *International journal of psychiatry in clinical practice* vol. 26(1): 43-49.
- Ostenfeld, Anne et al. 2022. Mirtazapine exposure in pregnancy and fetal safety: A nationwide cohort study. Acta Psychiatr Scand 145(6): 557-567.
- Ostenfeld A, et al. 2025. Mirtazapine in pregnancy and lactation: A systematic review of adverse outcomes. Acta Psychiatr Scand 151(1):6-32.
- Saks BR. 2001. Mirtazapine: treatment of depression, anxiety, and hyperemesis gravidarum in the pregnant patient: A report of 7 cases. Arch Womens Ment Health 3(4):165-170.
- Schwarzer V, et al. 2008. Treatment resistant hyperemesis gravidarum in a patient with type I diabetes mellitus: neonatal withdrawal symptoms after successful antiemetic therapy with mirtazapine. Arch Gynecol Obstet 277:67-69.
- Smit M, et al. 2016. Mirtazapine in pregnancy and lactation: A systemic review. European Neuropsychopharmacology 26:126-135.
- Smit M, et al. 2015 Mirtazapine in pregnancy and lactation: Data from a case series. J Clin Psychopharmacol 35:163-7.
- Sokolover N, et al. 2008. Neonatal recurrent prolonged hypothermia associated with maternal mirtazapine

treatment during pregnancy. Can J Clin Pharmacol 15(2):e188-190.

- Sołek, Przemysław et al. 2021. Molecular Consequences of Depression Treatment: A Potential In Vitro Mechanism for Antidepressants-Induced Reprotoxic Side Effects. International journal of molecular sciences. 22(21):11855.
- Solek, P et al. 2021. Toxic effect of antidepressants on male reproductive system cells: evaluation of possible fertility reduction mechanism. J Physiol Pharmacol; 72(3).
- Tonn P, et al. 2009. High mirtazapine plasma levels in infant after breastfeeding: case report and review of the literature. J Clin Psychopharmacol; 29(2):191-192.
- Winterfeld U, et al. 2015. Pregnancy outcome following maternal exposure to mirtazapine: a multicenter, prospective study. J Clin Psychopharmacol; 35(3):25.

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Mirtazapine (Remeron®)

Selected References:

- Broussard CS, et al. 2011. National Birth Defects Prevention Study: Maternal treatment with opioid analgesics and risk for birth defects. Am J Obstet Gynecol. 204(4):314.e1–11.
- Cohen RS. 2009. Fentanyl transdermal analgesia during pregnancy and lactation. J Hum Lact. 25(3):359-361.
- Fishman B, et al. 2019. Pregnancy outcome following opioid exposure: A cohort study. PLoS One 14(7): e0219061.
- Fleet JA, et al. 2020. Fentanyl concentration in maternal and umbilical cord plasma following intranasal or subcutaneous administration in labour. Int J Obstet Anesth. 42:34-38.
- Larson JJ, et al. 2019. Cognitive and behavioral impact on children exposed to opioids during pregnancy. Pediatrics. 144(2): e20190514.
- Lind JN, et al. 2017. Maternal use of opioids during pregnancy and congenital malformations: A systemic review.

Pediatrics. 139(6):e20164131.

- Mahomed K, et al. 2019. Does fentanyl epidural analgesia affect breastfeeding: A prospective cohort study. Aust N Z J Obstet Gynaecol. 59(6):819-824.
- Moore A, et al. 2016. Maternal Epidural Fentanyl Administered for Labor Analgesia Is Found in Neonatal Urine 24 Hours After Birth. Breastfeed Med. 11(1):40-1.
- Nitsun M, et al. 2006. Pharmacokinetics of midazolam, propofol, and fentanyl transfer to human breast milk. Clin Pharmacol Ther. 79(6):549-557.
- Rana D, et al. 2025. Illicit Fentanyl in the Prenatal Period: A Significant Emerging Risk for Neonatal Opioid Withdrawal Syndrome. American journal of perinatology, 42(7):891–898.
- Regan J, et al. 2000. Neonatal abstinence syndrome due to prolonged administration of fentanyl in pregnancy. Br J Obstet Gynecol. 107:570-572.
- Väänänen A, et al. 2019. Spinal and epidural sufentanil and fentanyl in early labour. Acta Anaesthesiol Scand. 63(10):1413-1418.
- Wadman E, et al. 2023. A novel syndrome associated with prenatal fentanyl exposure. Genetics in Medicine Open; 1, 100834.
- Yazdy MM, et al. 2013. Periconceptional use of opioids and the risk of neural tube defects. Obstetrics and Gynecology. 122(4):838–844.

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Mirtazapine (Remeron®)

Selected References

- American College of Obstetricians and Gynecologists (ACOG). 2017 (Reaffirmed 2021). Marijuana Use During Pregnancy and Lactation. ACOG Committee Opinion Number. 722. Obstetrics & Gynecology 130(4).
- Arora M, et al. 2025. Cannabis use & female infertility: A cross sectional analysis of the National Health and

Nutrition Examination Survey, 2013-2018. Ann Epidemiol. 104:1-7.

- Astley SJ, Little RE. 1990. Maternal marijuana use during lactation and infant development at one year. Neurotoxicol Teratol 12:161–8.
- Avalos LA, et al. 2024. Early maternal prenatal cannabis use and child developmental delays. JAMA Netw Open. 7(10):e2440295.
- Avalos LA, et al. 2024. Neonatal outcomes associated with in utero cannabis exposure: a population-based retrospective cohort study. Am J Obstet Gynecol. 231(1):132.e1-132.e13.
- Bandoli G, et al. Cannabis-related diagnosis in pregnancy and adverse maternal and infant outcomes. ***Drug Alcohol Depend*** 225:108757.
- Bertrand KA, et al. 2018. Marijuana use by breastfeeding mothers and cannabinoid concentrations in breast milk. Pediatrics 142:e20181076.
- Brik M, et al. 2024. Cannabis exposure during pregnancy and perinatal outcomes: a cohort study. Acta Obstet Gynecol Scand. 103(6):1083-1091.
- Carroll K, et al. 2020. Marijuana use and its influence on sperm morphology and motility: identified risk for fertility among Jamaican men. Andrology 8(1):136-142.
- Chabarria KC, et al. 2016. Marijuana use and its effects in pregnancy. Am J Obstet Gynecol 215(4):506.e1-7.
- Cioffredi LA, et al. 2022. Prenatal cannabis exposure predicts attention problems, without changes on fMRI in adolescents. Neurotoxicology and teratology 91, 107089.
- Coleman-Cowger V, et al. 2018. Prevalence and associated birth outcomes of co-use of cannabis and tobacco cigarettes during pregnancy. Neurotoxicity and Teratology 68:84-90
- Committee on Drugs, American Academy of Pediatrics. 2001. The transfer of drugs and other chemicals into human breast milk. Pediatrics 108:776-89.
- Corsi DJ, et. al. 2020. Maternal cannabis use in pregnancy and child neurodevelopmental outcomes. Nat Med; 26, 1536-1540.
- Davis, E, et al. 2020. Cannabis use in pregnancy and breastfeeding: The pharmacist's role. Can Pharm J 153(2):95-100.
- Delker E, et al. 2022. Prenatal exposure to cannabis and risk of major structural birth defects: A systematic review and meta-analysis. Ob Gyn 142(2):269-283
- Delker E, et al. 2024. Prenatal cannabis use disorder and gastroschisis in California, 2007-19. Int J Epidemiol. 53(2):dyae042.
- ElSohly MA, et al. 2016. Changes in cannabis potency over the last 2 decades (1995-2014): Analysis of current data in the united states. biol psychiatry. 79(7):613-9.
- Feinshtein V, et al. 2013. Cannabidiol changes P-gp and BCRP expression in trophoblast cell lines. PeerJ 1:e153.
- Fried PA, Smith AM. 2001. A lit review of the consequences of prenatal marihuana exposure. An emerging theme of a deficiency in aspects of executive function. Neurotoxicol Teratol 23:1-11.
- Fronczak CM, et al. 2012. The insults of illicit drug use on male fertility. J Androl 33(4): 515-528.
- Goldschmidt L, et al. 2004. Prenatal marijuana and alcohol exposure and academic achievement at age 10. Neurotoxicol Teratol 26(4):521-32.
- Goldschmidt L, et al. 2008. Prenatal marijuana and intelligence test performance at age 6. J Am Acad Child Adolesc Psychiatry 47(3):254-263.
- Goldschmidt L, et al. 2016. Early marijuana initiation: Link between prenatal marijuana exposure, early childhood behavior, and negative adult roles. Neurotoxicol Teratol 58:40-45.
- Gray T, et al. 2010. Identifying prenatal cannabis exposure and effects of concurrent tobacco exposure on neonatal growth. Clin Chem 56(9):1442-1450.
- Gundersen TD, et al. 2015. Association between use of marijuana and male reproductive hormones and semen quality: A study among 1,215 healthy young men. Am J Epidemiol.;182(6):473-481.
- Hale D, Phillips W. 2022. Cannabis withdrawal in two newborns. Abstract published at SHM Converge 2022. Abstract G24 Journal of Hospital Medicine. https://shmabstracts.org/abstract/cannabis-withdrawal-in-two-newborns/.

- Harhangi MS, et al. 2025. Placental endocannabinoid system: focus on preeclampsia and cannabis use. Hypertension. 82(5):804-815.
- Harris M, et al. 2023. Academy of Breastfeeding Medicine Clinical Protocol #21: Breastfeeding in the Setting of Substance Use and Substance Use Disorder (Revised 2023). Breastfeed Med. 18(10):715-733.
- Hayatbakhsh MR, et al. 2012. Birth outcomes associated with cannabis use before and during pregnancy. Pediatric Res 71(2): 215-219.
- Hehemann MC, et al. 2021. Evaluation of the impact of marijuana use on semen quality: a prospective analysis. Therapeutic Advances in Urology 13:17562872211032484.
- Huizink A. 2009. Moderate use of alcohol, tobacco, and cannabis during pregnancy: New approaches and update on research findings. Reprod Toxicol 28:143-151.
- Jones MJ, et al. 2022. Prenatal marijuana exposure and neonatal outcomes: a retrospective cohort study. BMJ open, 12(9), e061167.
- Karatayev O, et al. 2024. Neurological disorders induced by drug use: effects of adolescent and embryonic drug exposure on behavioral neurodevelopment. Int J Mol Sci. 25(15):8341.
- Keim SA, et al. 2024. Prenatal cannabis exposure and executive function and aggressive behavior at age 5 years. JAMA Pediatr. 178(12):1316-1325.
- Lam PK and Torfs CP. 2006. Interaction between maternal smoking and malnutrition in infant risk of gastroschisis. Birth Defects Res 76:182-186.
- Leech SL, et al. 1999. Prenatal substance exposure: effects on attention and impulsivity of 6-year-olds. Neurotoxicol Teratol 21(2):109-18.
- Leemaqz SY, et al, SCOPE Consortium. 2016. Maternal marijuana use has independent effects on risk for spontaneous preterm birth but not other common later pregnancy complications. Reprod Toxicol 62:77-86.
- Liston J. 1998. Breastfeeding and the use of recreational drugs alcohol, caffeine, nicotine and marijuana. Breastfeed Rev 6(2):27-30.
- Matrin GI. 2020. Marijuana: The effects on pregnancy, the fetus, and the newborn. J Perinatology; 40, 1470-1476.
- Metz TD, et al. 2017. Maternal marijuana use, adverse pregnancy outcomes, and neonatal morbidity. Am J Obstet Gynecol; 217:478.e1-8.
- Moore BF, et al. 2025. Impact of prenatal exposure to delta 9-tetrahydrocannabinol and cannabidiol on birth size and postnatal growth trajectories. Pediatr Obes. 20(1):e13187.
- Moss MJ, et al. 2021. Cannabis use and measurement of cannabinoids in plasma and breast milk of breastfeeding mothers. Pediatric research, 90(4), 861–868.
- Narayanan P, et al. 2025. The effect of cannabis consumption during lactation on the macronutrient concentrations in breast milk. Breastfeeding Medicine. 20(1):33–41.
- Neradugomma NK, et al. 2019. Marijuana-derived cannabinoids inhibit uterine endometrial stromal cell decidualization and compromise trophoblast-endometrium cross-talk. Reprod Toxicol; 87:100-107.
- Nguyen VH, Harley KG. 2022. Prenatal cannabis use and infant birth outcomes in the Pregnancy Risk Assessment Monitoring System. The Journal of pediatrics, 240, 87–93.
- Petersen JM, et al. 2025. An exploration of potential risk factors for gastroschisis using decision tree learning. Ann Epidemiol. 101:19-26.
- Pleau J, et al. 2025. Longitudinal associations between cannabis use during pregnancy and child cognitive, motor, and language development at 2 years old. Matern Child Health J 29(4):549-562.
- Roca A, et al. 2021. Clinical features and risk factors associated with prenatal exposure to drugs of abuse. Anales de pediatria, 95(5), 307–320.
- Ryan SA, et al. 2018. . Marijuana use during pregnancy and breastfeeding: implications for neonatal and childhood outcomes, Pediatrics. 142(3):e20181889.
- Sarrafpour S, et. al. 2020. Considerations and Implications of cannabidiol use during pregnancy. Curr Pain Headache Rep; 24, 38.
- Sasso EB, et al. 2021. Marijuana use and perinatal outcomes in obstetric patients at a safety net hospital.

European journal of obstetrics, gynecology, and reproductive biology, 266, 36–41.

- Smith AM, et al. 2004. Effects of prenatal marijuana on response inhibition: an MRI study of young adults Neurotoxicol Teratol 26(4):533-42.
- Sonon, KE, et al. 2014. Prenatal marijuana exposure predicts marijuana use in young adulthood. Neurotoxicol Teratol. 47:10–15.
- Tadesse AW, et al. 2025. Maternal cannabis use disorder and neonatal health outcomes: a data linkage study. BJOG. 132(4):529-538.
- Tadesse AW, et al. 2025. Maternal cannabis use disorder and offspring behavioral outcomes: findings from a linked data cohort study. Psychiatry Res. 346:116404.
- Thompson R, et al. 2019. Marijuana use in pregnancy: A review. Obstet Gynecol Surv. 74(7):415-428.
- S. Food and Drug Administration (FDA). 2019. What You Should Know About Using Cannabis, Including CBD, When Pregnant or Breastfeeding: Available at: https://www.fda.gov/consumers/consumer-updates/what-you-should-know-about-using-cannabis-including-cbd-when-pregnant-or-breastfeeding [Accessed 10/2022].
- Varner MW, et al. 2014. Association between stillbirth and illicit drug use and smoking during pregnancy. Obstet Gynecol; 123(1):113-25.
- Weinsheimer RL, et al. 2008. Impact of maternal substance abuse and smoking on children with gastroschisis. J Pediatr Surg 43:879-883.
- Williams LJ, et al. 2004. Maternal lifestyle factors and risk for ventricular septal defects. Birth Defects Res A Clin Mol Teratol 70:59-64.
- Young-Wolff KC, et al. 2024. Prenatal cannabis use and maternal pregnancy outcomes. JAMA Intern Med. 184(9):1083–1093.
- Young-Wolff KC, et al. 2025. Prenatal cannabis use and offspring attention deficit hyperactivity disorder and disruptive behavior disorders: a retrospective cohort study. J Dev Behav Pediatr. 46(1):e25-e32.

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Mirtazapine (Remeron®)

Selected References:

- Adkoli A, et al. 2022. Access to Family Planning Services Following Natural Disasters and Pandemics: A Review of the English Literature. Cureus. 14(7):e26926.
- Atkin K, et al. 2024. Climate-Related Emergencies in Pregnancy. AACN Adv Crit Care. 35(4):343-352.
- Ha S. 2022. The Changing Climate and Pregnancy Health. Curr Environ Health Rep. 9(2):263-275.
- Pashaei-Asl Y, et al. Consequences of Natural and Man-made Disasters on Pregnancy Outcomes and Complications: A Systematic Review. Arch Acad Emerg Med. 12(1):e61.
- Severson E, et al. 2023. Experiencing Trauma During or Before Pregnancy: Qualitative Secondary Analysis After Two Disasters. Matern Child Health J. 27(5):944-953.
- Suter MA, et al. 2023. Natural disasters resulting from climate change: The impact of hurricanes and flooding on perinatal outcomes. Semin Perinatol. 47(8):151840.

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Mirtazapine (Remeron®)

Selected References:

- Bowman, J. D., Kim, H., & Bustamante, J. J. 2012. Drug-Induced gynecomastia. Pharmacotherapy the Journal of Human Pharmacology and Drug Therapy, 32(12), 1123–1140.
- Carone, L., Oxberry, S. G., Twycross, R., Charlesworth, S., Mihalyo, M., & Wilcock, A. 2016. Spironolactone. Journal of Pain and Symptom Management, 53(2), 288–292.

- de Arriba G, Sanchez-Heras M, Basterrechea MA. 2009. Gitelman syndrome during pregnancy: a therapeutic challenge. Arch Gynecol Obstet 280(5):807-809.
- Delgado, D., Stellwagen, L., McCune, S., Sejane, K., & Bode, L. 2023. Experience of induced lactation in a transgender woman: analysis of human milk and a suggested protocol. Breastfeeding Medicine, 18(11), 888–893.
- Forestiero, V., Sconfienza, E., Mulatero, P., & Monticone, S. 2022. Primary aldosteronism in pregnancy. Reviews in Endocrine and Metabolic Disorders, 24(1), 39–48.
- Groves TD, Corenblum B. 1995. Spironolactone therapy during human pregnancy. Am J Obstet Gynecol 172(5):1655-1656.
- Liszewski W, Boull C. Lack of evidence for feminization of males exposed to spironolactone in utero: A systematic review. J Am Acad Dermatol. 2019;80(4):1147-8.
- Loriaux, D. L. 1976. Spironolactone and endocrine dysfunction. Annals of Internal Medicine, 85(5), 630.
- Nagi, S., & Virgo, B. B. 1982. The effects of spironolactone on reproductive functions in female rats and mice.
- Toxicology and Applied Pharmacology, 66(2), 221–228.
- Phelps, D. L., & Karim, A. 1977. Spironolactone: Relationship between Concentrations of Dethioacetylated
- Metabolite in Human Serum and Milk. Journal of Pharmaceutical Sciences, 66(8), 1203.
- Pugashetti, R., & Shinkai, K. 2013. Treatment of acne vulgaris in pregnant patients. Dermatologic Therapy, 26(4), 302–311. https://doi.org/10.1111/dth.12077.
- Reisman, T., & Goldstein, Z. 2018. Case report: Induced lactation in a transgender woman. Transgender Health, 3(1), 24–26.
- Rigo J Jr, Glaz E, Papp Z/ 1986. Low or high doses of spironolactone for treatment of maternal Bartter's syndrome. Am J Obstet Gynecol 174(1 Pt 1):297, 1996.
- Spironolactone Product Label. 2022. Retrieved February 2025 from https://labeling.pfizer.com/ShowLabeling.aspx?id=12861%20.
- U.S. Food and Drug Administration. 2018. Spironolactone. Retrieved February 2025 from https://www.accessdata.fda.gov/drugsatfda_docs/label/2018/012151s075lbl.pdf.

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