Insect Repellents

Selected References:

- Almeida AR, et al. 2023. Challenges encountered by natural repellents: Since obtaining until the final product. Pestic Biochem Physiol; 195:105538.
- Barr DB, et al. 2010. Pesticide concentrations in maternal and umbilical cord sera and their relation to birth outcomes in a population of pregnant women and newborns in New Jersey. Sci Total Environ; 408(4):790-795.
- Consumer Reports. 2018. Mosquito Repellents That Best Protect Against Zika. Available at: http://www.consumerreports.org/insect-repellents/mosquito-repellents-that-best-protect-against-zika/
- Diaz JH. 2016. Chemical and plant-based insect repellents: efficacy, safety, and toxicity. Wilderness & Environmental Medicine; 27(1):153-63.
- Dugas J, et al. 2010. Use of biocides and insect repellents and risk of hypospadias. Occup Environ Med; 67:196-200.
- EPA. 2026. Repellents: Protection against Mosquitoes, Ticks and Other Arthropods. Available at: https://www.epa.gov/insect-repellents. Accessed July 2026.
- Fradin MS, et al. 2002. Comparative efficacy of insect repellents against mosquito bites. New Eng J of Med; 347(1):13-8.
- Goodyer, L. et al. 2018. Mosquito repellents for the traveller: does picaridin provide longer protection than DEET? J Travel Med; 25:S10.
- Lupi E, et al. 2013. The efficacy of repellents against Aedes, Anopheles, Culex and Ixodes spp.—a literature review. Travel Med Infect Dis; 11(6):374-411.
- McGready R, et al. 2001. Safety of the insect repellent N,N-diethyl-M-toluamide (DEET) in pregnancy. Am J Trop Med Hyg; 65(4):285-9.
- Nguyen QD, et al. 2023. Insect repellents: An updated review for the clinician. J Am Acad Dermatol; 88(1):123-130.
- Orders, M. 2021. Insect Repellents. Med Lett Drugs Ther; 63(1628): 109-112.
- Segal TR, et al. 2017. Urinary concentrations of 3-(diethylcarbamoyl)benzoic acid (DCBA), a major metabolite of N,N-diethyl-m-toluamide (DEET) and semen parameters among men attending a fertility center. Hum Reprod; 32(12):2532-2539.
- The American College of Obstetricians and Gynecologists (ACOG). 2019. Management of patients in the context of Zika virus. ACOG Committee Opinion, number 784. Obstet Gynecol; 134:e64.
- The U.S. Centers for Disease Control and Prevention (CDC). 2025. Mosquitoes, Ticks, and Other Arthropods. https://www.cdc.gov/yellow-book/hcp/environmental-hazards-risks/mosquitoes-ticks-and-other-arthropods.html.
- The U.S. Centers for Disease Control and Prevention (CDC). 2024. Prevent Mosquito Bites. https://www.cdc.gov/mosquitoes/prevention/?CDC.
- U.S. Environmental Protection Agency (EPA). 2025. Find the Repellent that is Right for You. https://www.epa.gov/insect-repellents/find-repellent-right-you.
- U.S. Environmental Protection Agency (EPA). 2026. Skin-Applied Repellent Ingredients. https://www.epa.gov/insect-repellents/skin-applied-repellent-ingredients.
- U.S. Environmental Protection Agency (EPA). 2025. Using Insect Repellents Safely and Effectively. https://www.epa.gov/insect-repellents/using-insect-repellents-safely-and-effectively.
- Wylie B, et al. 2016. Insect repellants during pregnancy in the era of the Zika Virus. Obstetrics and Gynecology; 128(5), 1111–1115.

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Insect Repellents

Selected References:

- Aljary H et al. 2020. Pregnancy outcomes in women with rheumatoid arthritis: a retrospective population-based cohort study. The Journal of Maternal-Fetal & Neonatal Medicine; 33;4:618-624.
- Atladóttir HO, et al. 2009. Association of family history of autoimmune diseases and autism spectrum disorders. Pediatr; 124:687-694.
- Bandoli G et al. 2020. Mediation of adverse pregnancy outcomes in autoimmune conditions by pregnancy complications. Arthritis Care Res; 72(2):256-264.
- Bermas BL, Sammaritano LR. 2015. Fertility and pregnancy in rheumatoid arthritis and systemic lupus erythematosus. Fertil Res Pract; 27;1:13.
- Bourg M et al. 2020. Fertility and sexuality of women with inflammatory arthritis. European Journal of Obstetrics & Gynecology and Reproductive Biology; 251:199-205.
- Brouwer J, et al. 2013. Levels of serum anti-Müllerian hormone, a marker for ovarian reserve, in women with rheumatoid arthritis. Arthritis Care Res (Hoboken); 65(9):1534-8.
- Brouwer J, et al. 2015. Brief report: Miscarriages in female rheumatoid arthritis patients: Associations with serologic findings, disease activity, and antirheumatic drug treatment. Arthritis Rheumatol; 67(7):1738-1743.
- Brouwer J, et al. 2015. Fertility in women with rheumatoid arthritis: influence of disease activity and medication. Ann Rheum Dis; 74(10):1836-1841.
- Brouwer J, et al. 2017.Subfertility in Women With Rheumatoid Arthritis and the Outcome of Fertility Assessments. Arthritis Care Res (Hoboken); 69(8):1142-1149.
- Chang T, et al. 2024. Rheumatoid arthritis and adverse pregnancy outcomes: a bidirectional two-sample mendelian randomization study. BMC Pregnancy Childbirth; 24(1):517.
- Comi AM, et al. 1999. Familial clustering of autoimmune disorders and evaluation of medical risk factors in autism. J Child Neurol; 14:388-394
- de Man YA, et al. 2014. Disease activity or remission of rheumatoid arthritis before, during and following pregnancy. Curr Opin Rheumatol; 26(3):329-333.
- de Man YA, et al. 2008. Disease activity of rheumatoid arthritis during pregnancy: results from a nationwide prospective study. Arthritis Rheumatol, 59(9):1241-1248.

- De Santis M, et al. 2005. Paternal and maternal exposure to leflunomide: pregnancy and neonatal outcome. Ann Rheum Dis; 64(7):1096-1097.
- Dissanayke TD et al. 2020. Peripartum issues in the inflammatory arthritis patient: a survey of the RAPPORT registry. Nature Scientific Report, 10:3733.
- Ekström K, et al. 2003. Risk of malignant lymphomas in patients with rheumatoid arthritis and in their first-degree relatives. Arthritis Rheum; 48:963-970.
- Emadi SA, et al. 2025. Impact of Rheumatoid Arthritis on Pregnancy Outcomes: Increased Risks of Abortion and Low Birth Weight in a Prospective Case-Control Study. Mediterr J Rheumatol; 36(4):557-565.
- Fischer-Betz R, et al. 2015. High risk of flares during pregnancy in women with rheumatoid arthritis who discontinue treatment with TNF Inhibitors at conception. Arthritis Rheumatol; 67(suppl 10).
- Förger F, et al. 2012. Pregnancy mediated improvement of rheumatoid arthritis. Swiss Med Wkly; 142:w13644.
- Förger F et al. 2019. Discontinuing TNF-inhibitors before gestational week 20 in well controlled rheumatoid arthritis and juvenile arthritis is not associated with a disease worsening in late pregnancy. Arthritis and Rheumatology; 71(6)901-907.
- Giannakaki AG, et al. 2025. Current Approaches to the Management of Rheumatic Diseases in Pregnancy: Risk Stratification, Therapeutic Advances, and Maternal-Fetal Outcomes. J Pers Med; 15(9):406.
- Götestam Skorpen C, et al. 2016. The EULAR points to consider for use of antirheumatic drugs before pregnancy, and during pregnancy and lactation. Ann Rheum Dis; 75(5):795-810.
- Hellgren K, et al. 2022. Pregnancy outcomes in relation to disease activity and anti-rheumatic treatment strategies in women with rheumatoid arthritis: a matched cohort study from Sweden and Denmark. Rheumatology (Oxford); 61(9):3711-3722.
- Huang W, et al. 2023. Maternal and fetal outcomes in pregnant women with rheumatoid arthritis: a systematic review and meta-analysis. Clin Rheumatol; 42(3):855-870.
- Ikram N, et al. Breastfeeding in women with rheumatic diseases. Lupus Sci Med; Apr;8(1):e000491.
- Jethwa H, et al. 2019. Does Rheumatoid Arthritis Really Improve During Pregnancy? A Systematic Review and Metaanalysis. J Rheumatol; 46(3):245-250.
- Katz PP. 2006. Childbearing decisions and family size among women with rheumatoid arthritis. Arthritis Rheum; 55(2):217-23.
- Keeling SO, et al. 2020. A population-level analysis of the differing effects of rheumatoid arthritis and spondyloarthritis on peripartum outcomes. J Rheumatol; 47:197-203.
- Krause ML, Makol A. 2016. Management of rheumatoid arthritis during pregnancy: challenges and solutions. Open Access Rheumatol; 8:23-36.
- Littlejohn, Emily A. 2020. Pregnancy and rheumatoid arthritis. Best Practice & Research Clinical Obstetrics and Gynaecology; 64: 52-58
- Liu S,et at. 2025. Best Evidence Summary for Preconception Management in Childbearing-Age Patients with Rheumatoid Arthritis. J Multidiscip Healthc; 18:8197-8208.
- Lv J, et al. 2023. Association between disease activity of rheumatoid arthritis and maternal and fetal outcomes in pregnant women: a systematic review and meta-analysis. BMC Pregnancy Childbirth; 23(1):724.
- Mahadevan U, et al. 2014. 960 Exposure to anti-TNFα therapy in the third trimester of pregnancy is not associated with increased adverse outcomes: Results from the PIANO Registry. Gastroenterol; 146(5), Suppl 1:S-170.
- Mellemkjær L, et al. 2000. Cancer among children of parents with autoimmune diseases. Br J Cancer; 82:1353-1357.
- Mishra N, et al. 2026. The Interplay Between Rheumatoid Arthritis and Pregnancy Outcomes: A Narrative Review. Cureus; 18(3):e105178.
- Nathan NO, et al. 2020. Rheumatoid arthritis and risk of spontaneous abortion: a Danish nationwide cohort study. Rheumatology; 59:1984-1991.
- Østensen M, et al. 2015. State of the art: Reproduction and pregnancy in rheumatic diseases. Autoimmun Rev; 14(5):376-86.

- Park JS et al. 2022. Risk of pregnancy complications and low birth weight offsprings in Korean women with rheumatic diseases: a nationwide population-based study. J Korean Med Sci; 37(2):e18
- Quaak CH, et al. 2026. Time to pregnancy in women with rheumatoid arthritis who want to conceive treated according to a treat-to-target approach: a comparison of an observational cohort with a historical reference cohort. Lancet Rheumatol; 8(6):e461-e469.
- Ranjbaran ME, Kazemi M. 2024. Reproductive health and rheumatoid arthritis. BMC Rheumatol; 8(1):53.
- Rom AL, et al. 2014. Fetal growth and preterm birth in children exposed to maternal or paternal rheumatoid arthritis: a nationwide cohort study. Arthritis Rheumatol; 66(12):3265-73.
- Rom AL, et al. 2016. Parental rheumatoid arthritis and long-term child morbidity: a nationwide cohort study. Ann Rheum Dis; 75:1831-1837
- Sagberg I, et al. 2026. The biologic era and pregnancy in rheumatoid arthritis: a prospective multicenter study from the Norwegian RevNatus registry. BMC Rheumatol; doi: 10.1186/s41927-026-00663-7. Epub ahead of print.
- Sammaritano LR, et al. 2020. 2020 American College of Rheumatology Guideline for the Management of Reproductive Health in Rheumatic and Musculoskeletal Diseases. Arthritis & Rheumatology; 72(4): 529-556.
- Sims C, Talabi MB. 2025. Family Planning and Rheumatoid Arthritis. Curr Rheumatol Rep;27(1):26.
- Spinillo A, et al. 2016. The impact of unrecognized autoimmune rheumatic diseases on the incidence of preeclampsia and fetal growth restriction: a longitudinal cohort study. BMC Pregnancy Childbirth; 16(1):313.
- Tsai YC, et al. 2022. Fetal-neonatal and maternal pregnancy outcomes in women with rheumatoid arthritis: a population-based cohort study. BMJ Open; 12(10):e059203.
- Valdeyron C, et al. 2021. Impact of disease activity and treatments on ovarian reserve in patients with rheumatoid arthritis in the ESPOIR cohort. Rheumatology (Oxford); 60(4):1863-1870.
- van den Brandt S, et al. 2017. Risk factors for flare and treatment of disease flares during pregnancy in rheumatoid arthritis and axial spondyloarthritis patients. Arthritis Res Ther, 19(1):64.
- Viktil KK, et al. 2012. Outcomes after anti-rheumatic drug use before and during pregnancy: A cohort study among 50,000 pregnant women and expectant fathers. Scand J Rheumatol; 41(3):196-201.
- Vinet, É and Bernatsky, S. 2017. Outcomes in children born to women with rheumatic diseases. Rheumatic Disease Clinics; 43(2):263-273.
- Wallenius M, et al. 2015. Miscarriage and Stillbirth in Women with Rheumatoid Arthritis. J Rheumatol; 42(9):1570-2.
- Williams M and Chakravarty EF, 2014. Rheumatoid arthritis and pregnancy: impediments to optimal management of both biologic use before, during and after pregnancy. Curr Opin Rheumatol; 26(3):341-346.
- Wojcik S, et al. 2015. Risk of autism spectrum disorders in children born to mothers with rheumatoid arthritis: a systematic literature review. J Rheumatol; 42:1263-1351.
- Zhu EH, et al. 2025. Maternal rheumatoid arthritis and the risk of offspring autism spectrum disorder: two national birth cohorts and a meta-analysis. Mol Autism; 16(1):61.
- Ziegler CI, et al. 2025. Deciphering the influence of pregnancy on rheumatoid arthritis and psoriatic arthritis: insights from musculoskeletal ultrasound dynamics. Arch Gynecol Obstet; 312(4):1133-1143.

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Selected References:

- Banerjee M, et al. 2026. Pre-Pregnancy GLP-1 Receptor Agonist or Tirzepatide Use and Gestational Diabetes Risk: Evaluating Pharmacodynamic Carry-Over Versus Post-Discontinuation Metabolic Rebound in a Multinational Federated Cohort. Diabetes Obes Metab. May 7. doi: 10.1111/dom.70853. Online ahead of print.
- Diab H, et al. 2025. Tirzepatide (Zepbound) in human milk during periods of maternal dosing. Paper available as preprint (not peer reviewed). Preprint submitted to J Chromatogr B 2025. doi: 10.2139/ssrn.5387250.
- Duah J, Seifer DB. 2025. Medical therapy to treat obesity and optimize fertility in women of reproductive age: a narrative review. Reprod Biol Endocrinol. 23(1):2.
- Drummond R, et al. 2025. Glucagon-like peptide-1 receptor agonist use in pregnancy: a review. Am J Obstet Gynecol. 232(1):17-25.
- Howard MD, Allen SE. 2025. The use of GLP-1: receptor agonist medications for benign gynecology. Curr Opin Obstet Gynecol. 37(4):279-284.
- Food and Drug Administration. 2022. Mounjaro prescribing information. Retrieved on May 9 2024,from https://www.accessdata.fda.gov/drugsatfda_docs/label/2022/215866s000lbl.pdf. Accessed June 2026.
- Food and Drug Administration. 2021. FDA nonclinical review of tirzepatide. https://www.accessdata.fda.gov/drugsatfda_docs/nda/2022/215866Orig1s000PharmR.pdf. Accessed June 2026.
- Howard MD, Allen SE. 2025. The use of GLP-1: receptor agonist medications for benign gynecology. Curr Opin Obstet Gynecol. 37(4):279-284.
- Kettner J, et al. 2026. Glucagon-like Peptide-1 Receptor Agonists and Reproductive Health: Current Evidence and Clinical Implications. J Pharm Pract. 39(3):239-250.
- Sood A, et al. 2024. Revolutionizing diabetes care: unveiling tirzepatide’s potential in glycemic control and beyond. Expert Rev Clin Pharmacol. 17(3):235-246.
- Zepbound drug label. 2026. https://dailymed.nlm.nih.gov/dailymed/drugInfo.cfm?setid=487cd7e7-434c-4925-99fa-aa80b1cc776b&audience=consumer#modal-label-rss.

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Insect Repellents

Selected References:

- Allergan, Inc. 2025. Vraylar Product Label. National Institute of Health DailyMed Database. Available at: https://dailymed.nlm.nih.gov/dailymed/drugInfo.cfm.
- Balamurali S, et al. 2026. Cariprazine in Human Milk: Cautionary Implications for Use During Lactation. J Clin Psychopharmacol; doi: 10.1097/JCP.0000000000002174. Epub ahead of print.
- Culpepper L, et al. 2022. Minimal Effects of Cariprazine on Prolactin Levels in Bipolar Disorder and Schizophrenia. Neuropsychiatr Dis Treat; 18: 995-1011.
- Herold R, et al. 2024. Cariprazine maintenance treatment during pregnancy – a case report. Front Psychiatry; 15:1421395.
- Huybrechts K, et al. 2023. Association of In Utero Antipsychotic Medication Exposure With Risk of Congenital Malformations in Nordic Countries and the US. JAMA Psychiatry: 80(2):156–166.
- U.S. FDA. 2015. Vraylar (Cariprazine) pharmacology review. Available at: https://www.accessdata.fda.gov/drugsatfda_docs/nda/2015/204370Orig1Orig2s000PharmR.pdf. Accessed May 23, 2024.

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Insect Repellents

Selected References:

- Ahrens KA, et al. 2013. Antiherpetic Medication Use and the Risk of Gastroschisis: Findings From the National Birth Defects Prevention Study, 1997-2007. Paediatric and Perinatal Epidemiology. 27(4):340-345.
- Braig S, et al. 2001. Acyclovir prophylaxis in late pregnancy prevents recurrent genital herpes and viral shedding. Eur J Obstet Gynecol Reprod Biol. 96(1):55-58. Centers for Disease Control. 1993. Pregnancy outcomes following systemic prenatal acyclovir exposure – June 1, 1984-June 30, 1993. MMWR. 42(41):806-809.
- Douglas JM Jr, et al. 1988. A double-blind, placebo-controlled trial of the effect of chronically administered oral acyclovir on sperm production in men with frequently recurrent genital herpes. J Infect Dis. 157(3):588-593.
- Drake AL, et al. 2012. Infant Safety During and After Maternal Valacyclovir Therapy in Conjunction with Antiretroviral HIV-1 Prophylaxis in a Randomized Clinical Trial. PloS One. 7(4):e34635.
- Drake AL, et al. 2012. Valacyclovir Suppressive Therapy Reduces Plasma and Breast Milk HIV-1 RNA Levels During Pregnancy and Postpartum: A Randomized Trial. J Infect Dis. 205(3):366-375.
- Kallia V, et al. 2025. Efficacy and Safety of Antivirals in Lactating Women with Herpesviridae Infections: A Systematic Review. Viruses. 17(4):538.
- Kimberlin DF, et al. 1998. Pharmacokinetics of oral valacyclovir and acyclovir in late pregnancy. Am J Obstet Gynecol. 179(4):846-851.
- Longbottom K, et al. 2024. Neonatal varicella. Arch Dis Child. 109(8):610-615.
- Pasternak B, et al. 2010. Use of acyclovir, valacyclovir, and famciclovir in the first trimester of pregnancy and the risk of birth defects. JAMA 304(8):859-866.
- Prober CG. 2001. Management of the neonate whose mother received suppressive acyclovir therapy during late pregnancy. Pediatr Infect Dis J. 20(1):90-91.
- Ratanajamit C, et al. 2003. Adverse pregnancy outcome in women exposed to acyclovir during pregnancy: a population-based observational study. Scand J Infect Dis. 35(4):255-259.
- Sheffield JS, et al. 2002. Acyclovir concentrations in human breast milk after valaciclovir administration. Am J Obstet Gynecol. 186(1):100-102.

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