

## CHAPTER 8. REFERENCES

- Abdel-Maksoud FM, Knight R, Waler K, et al. 2018. Exposures of male rats to environmental chemicals [bisphenol A and di (2-ethylhexyl) phthalate] affected expression of several proteins in the developing epididymis. *Andrology* 6(1):214-222. <http://doi.org/10.1111/andr.12451>.
- Abdel-Maksoud FM, Ali FAZ, Akingbemi BT. 2019. Prenatal exposures to bisphenol A and di (2-ethylhexyl) phthalate disrupted seminiferous tubular development in growing male rats. *Reprod Toxicol* 88:85-90. <http://doi.org/10.1016/j.reprotox.2019.07.017>.
- Abe S, Sasaki M. 1977. Chromosome aberrations and sister chromatid exchanges in Chinese hamster cells exposed to various chemicals. *J Natl Cancer Inst* 58:1635-1641.
- Absalan F, Saremy S, Mansori E, et al. 2017. Effects of mono-(2-ethylhexyl) phthalate and di-(2-ethylhexyl) phthalate administrations on oocyte meiotic maturation, apoptosis and gene quantification in mouse model. *Cell J* 18(4):503-513. <http://doi.org/10.22074/cellj.2016.4717>.
- ACGIH. 2001. Di(2-ethylhexyl)phthalate. In: Documentation of the threshold limit values for chemical substances and physical agents and biological exposure indices. Cincinnati, OH: American Conference of Governmental Industrial Hygienists, 1-6.
- ACGIH. 2016. Di(2-ethylhexyl)phthalate. In: TLVs and BEIs based on the documentation of the threshold limit values for chemical substances and physical agents and biological exposure indices. Cincinnati, OH: American Conference of Governmental Industrial Hygienists, 27, 77.
- Adachi K, Suemizu H, Murayama N, et al. 2015. Human biofluid concentrations of mono(2-ethylhexyl)phthalate extrapolated from pharmacokinetics in chimeric mice with humanized liver administered with di(2-ethylhexyl)phthalate and physiologically based pharmacokinetic modeling. *Environ Toxicol Pharmacol* 39(3):1067-1073. <http://doi.org/10.1016/j.etap.2015.02.011>.
- Adibi JJ, Whyatt RM, Williams PL, et al. 2008. Characterization of phthalate exposure among pregnant women assessed by repeat air and urine samples. *Environ Health Perspect* 116(4):467-473. <http://doi.org/10.1289/ehp.10749>.
- Adibi JJ, Hauser R, Williams PL, et al. 2009. Maternal urinary metabolites of di-(2-ethylhexyl) phthalate in relation to the timing of labor in a US multicenter pregnancy cohort study. *Am J Epidemiol* 169(8):1015-1024. <http://doi.org/10.1093/aje/kwp001>.
- Adibi JJ, Lee MK, Naimi AI, et al. 2015. Human chorionic gonadotropin partially mediates phthalate association with male and female anogenital distance. *J Clin Endocrinol Metab* 100(9):E1216-E1224. <http://doi.org/10.1210/jc.2015-2370>.
- Agarwal DK, Agarwal S, Seth PK. 1982. Interaction of di-(2-ethylhexyl) phthalate with the pharmacological response and metabolic aspects of ethanol in mice. *Biochem Pharmacol* 31:3419-3423.
- Agarwal DK, Lawrence WH, Nunez LJ, et al. 1985. Mutagenicity evaluation of phthalic acid esters and metabolites in *Salmonella typhimurium* cultures. *J Toxicol Environ Health* 16(1):61-69. <http://doi.org/10.1080/15287398509530719>.
- Agarwal DK, Eustis S, Lamb JC, et al. 1986. Effects of di(2-ethylhexyl) phthalate on the gonadal pathophysiology, sperm morphology, and reproductive performance of male rats. *Environ Health Perspect* 65:343-350.
- Agay-Shay K, Martinez D, Valvi D, et al. 2015. Exposure to endocrine-disrupting chemicals during pregnancy and weight at 7 years of age: A multi-pollutant approach. *Environ Health Perspect* 123(10):1030-1037. <http://doi.org/10.1289/ehp.1409049>.
- Ahmad S, Khan MF, Parvez S, et al. 2017. Molecular docking reveals the potential of phthalate esters to inhibit the enzymes of the glucocorticoid biosynthesis pathway. *J Appl Toxicol* 37(3):265-277. <http://doi.org/10.1002/jat.3355>.
- Ahmed RS, Price SC, Grasso P, et al. 1989. Effects of intermittent feeding of rats with di-2-ethylhexylphthalate. *Biochem Soc Trans* 17(6):1073-1074.

## 8. REFERENCES

- Akingbemi BT, Youker RT, Sottas CM, et al. 2001. Modulation of rat Leydig cell steroidogenic function by di(2-ethylhexyl)phthalate. *Biol Reprod* 65(4):1252-1259. <http://doi.org/10.1095/biolreprod65.4.1252>.
- Akingbemi BT, Ge R, Klinefelter GR, et al. 2004. Phthalate-induced Leydig cell hyperplasia is associated with multiple endocrine disturbances. *Proc Natl Acad Sci U S A* 101(3):775-780. <http://doi.org/10.1073/pnas.0305977101>.
- Albert O, Jégou B. 2014. A critical assessment of the endocrine susceptibility of the human testis to phthalates from fetal life to adulthood. *Hum Reprod Update* 20(2):231-249. <http://doi.org/10.1093/humupd/dmt050>.
- Albro PW. 1986. Absorption, metabolism, and excretion of di(2-ethylhexyl) phthalate by rats and mice. *Environ Health Perspect* 65:293-298.
- Albro PW, Thomas RO. 1973. Enzymatic hydrolysis of di-(2-ethylhexyl) phthalate by lipases. *Biochim Biophys Acta* 360(3):380-390.
- Albro PW, Corbett JT. 1978. Distribution of di-and mono-(2-ethylhexyl) phthalate in human plasma. *Transfusion* 18:750-755.
- Albro PW, Lavenhar SR. 1989. Metabolism of di(2-ethylhexyl)phthalate. *Drug Metab Rev* 21(1):13-34. <http://doi.org/10.3109/03602538909029953>.
- Albro PW, Hass JR, Peck CC, et al. 1981. Identification of the metabolites of di-(2-ethylhexyl) phthalate in urine from the African green monkey. *Drug Metab Dispos* 9(3):223-225.
- Albro PW, Corbett JT, Schroeder JL, et al. 1982a. Pharmacokinetics, interactions with macromolecules and species difference in metabolism of DEHP. *Environ Health Perspect* 45:19-25.
- Albro PW, Hass JR, Peck CC, et al. 1982b. Applications of isotope differentiation for metabolic studies with di-(2-ethylhexyl) phthalate. *J Environ Sci Health B* 17(6):701-714.
- Albro PW, Tondeur I, Marbury D, et al. 1983. Polar metabolites of di-(2-ethylhexyl)phthalate in the rat. *Biochim Biophys Acta* 760:283-292.
- Alexander BM, Baxter CS. 2016. Flame-retardant contamination of firefighter personal protective clothing- a potential health risk for firefighters. *J Occup Environ Hyg* 13(9):D148-D155.
- Al-Omran LA, Preston MR. 1987. The interactions of phthalate esters with suspended particulate material in fresh and marine waters. *Environ Pollut* 46:177-186.
- Al-Saleh I, Coskun S, Al-Doush I, et al. 2019a. The relationships between urinary phthalate metabolites, reproductive hormones and semen parameters in men attending in vitro fertilization clinic. *Sci Total Environ* 658:982-995. <http://doi.org/10.1016/j.scitotenv.2018.12.261>.
- Al-Saleh I, Coskun S, Al-Doush I, et al. 2019b. Exposure to phthalates in couples undergoing in vitro fertilization treatment and its association with oxidative stress and DNA damage. *Environ Res* 169:396-408. <http://doi.org/10.1016/j.envres.2018.11.018>.
- Al-Saleh I, Coskun S, Al-Doush I, et al. 2019c. Supplemental material: Exposure to phthalates in couples undergoing in vitro fertilization treatment and its association with oxidative stress and DNA damage. *Environ Res* 169. <http://doi.org/10.1016/j.envres.2018.11.018>.
- Al-Saleh I, Coskun S, Al-Doush I, et al. 2019d. Couples exposure to phthalates and its influence on in vitro fertilization outcomes. *Chemosphere* 226:597-606. <http://doi.org/10.1016/j.chemosphere.2019.03.146>.
- Andersen C, Kraus AM, Eriksson AC, et al. 2018. Inhalation and dermal uptake of particle and gas-phase phthalates—a human exposure study. *Environ Sci Technol* 52(21):12792-12800. <http://doi.org/10.1021/acs.est.8b03761>.
- Anderson SP, Cattley RC, Corton JC. 1999. Hepatic expression of acute-phase protein genes during carcinogenesis induced by peroxisome proliferators. *Mol Carcinog* 26:226-238.
- Anderson WAC, Castle L, Scotter MJ, et al. 2001. A biomarker approach to measuring human dietary exposure to certain phthalate diesters. *Food Addit Contam* 18(12):1068-1074. <http://doi.org/10.1080/02652030110050113>.
- Anderson WA, Castle L, Hird S, et al. 2011. A twenty-volunteer study using deuterium labelling to determine the kinetics and fractional excretion of primary and secondary urinary metabolites of di-2-

## 8. REFERENCES

- ethylhexylphthalate and di-iso-nonylphthalate. *Food Chem Toxicol* 49(9):2022-2029. <http://doi.org/10.1016/j.fct.2011.05.013>.
- Andrade AJ, Grande SW, Talsness CE, et al. 2006a. A dose response study following in utero and lactational exposure to di-(2-ethylhexyl) phthalate (DEHP): Reproductive effects on adult male offspring rats. *Toxicology* 228(1):85-97. <http://doi.org/10.1016/j.tox.2006.08.020>.
- Andrade AJ, Grande SW, Talsness CE, et al. 2006b. A dose-response study following in utero and lactational exposure to di-(2-ethylhexyl)-phthalate (DEHP): Non-monotonic dose-response and low dose effects on rat brain aromatase activity. *Toxicology* 227(3):185-192. <http://doi.org/10.1016/j.tox.2006.07.022>.
- Andrade AJ, Grande SW, Talsness CE, et al. 2006c. A dose-response study following in utero and lactational exposure to di-(2-ethylhexyl) phthalate (DEHP): Effects on androgenic status, developmental landmarks and testicular histology in male offspring rats. *Toxicology* 225(1):64-74. <http://doi.org/10.1016/j.tox.2006.05.007>.
- Araki A, Ait Bamai Y, Bastiaensen M, et al. 2020. Combined exposure to phthalate esters and phosphate flame retardants and plasticizers and their associations with wheeze and allergy symptoms among school children. *Environ Res* 183:109212. <http://doi.org/10.1016/j.envres.2020.109212>.
- Arbuckle TE, MacPherson S, Barrett E, et al. 2019. Do stressful life events during pregnancy modify associations between phthalates and anogenital distance in newborns? *Environ Res* 177:108593. <http://doi.org/10.1016/j.envres.2019.108593>.
- Arcadi FA, Costa C, Imperatore C, et al. 1998. Oral toxicity of bis(2-ethylhexyl) phthalate during pregnancy and suckling in the Long-Evans rat. *Food Chem Toxicol* 36(11):963-970. [http://doi.org/10.1016/s0278-6915\(98\)00065-9](http://doi.org/10.1016/s0278-6915(98)00065-9).
- Arzuaga X, Smith MT, Gibbons CF, et al. 2019. Proposed key characteristics of male reproductive toxicants as an approach for organizing and evaluating mechanistic evidence in human health hazard assessments. *Environ Health Perspect* 127(6):065001. <http://doi.org/10.1289/ehp5045>.
- Ashari S, Karami M, Shokrzadeh M, et al. 2020. The implication of mitochondrial dysfunction and mitochondrial oxidative damage in di (2-ethylhexyl) phthalate induced nephrotoxicity in both in vivo and in vitro models. *Toxicol Mech Methods* 30(6):427-437. <http://doi.org/10.1080/15376516.2020.1758980>.
- Ashley-Martin J, Dodds L, Levy AR, et al. 2015. Prenatal exposure to phthalates, bisphenol A and perfluoroalkyl substances and cord blood levels of IgE, TSLP and IL-33. *Environ Res* 140:360-368. <http://doi.org/10.1016/j.envres.2015.04.010>.
- Astill BD. 1989. Metabolism of DEHP: Effects of prefeeding and dose variation, and comparative studies in rodents and the cynomolgus monkey (CMA studies). *Drug Metab Rev* 21(1):35-53.
- Astill B, Barber E, Lington A, et al. 1986. Chemical industry voluntary test program for phthalate esters: Health effects studies. *Environ Health Perspect* 65:329-336.
- Atlas E, Giam CS. 1981. Global transport of organic pollutants: Ambient concentrations in the remote marine atmosphere. *Science* 211:163-165.
- ATSDR. 1989. Decision guide for identifying substance-specific data needs related to toxicological profiles; Notice. Agency for Toxic Substances and Disease Registry. *Fed Regist* 54(174):37618-37634.
- ATSDR. 2010. Health consultation. Evaluation of contaminants in private residential well water, Fremont County, Pavillion, Wyoming. Agency For Toxic Substances and Disease Registry.
- ATSDR. 2017. Di-(2-ethylhexyl)phthalate. Full SPL data. Substance priority list (SPL) resource page. Agency for Toxic Substances and Disease Registry. <http://www.atsdr.cdc.gov/SPL/resources/index.html>. January 16, 2018.
- ATSDR. 2019. Di-2-ethylhexyl phthalate. Full SPL data. Substance priority list (SPL) resource page. Agency for Toxic Substances and Disease Registry.
- Attina TM, Trasande L. 2015. Association of exposure to di-2-ethylhexylphthalate replacements with increased insulin resistance in adolescents from NHANES 2009-2012. *J Clin Endocrinol Metab* 100(7):2640-2650. <http://doi.org/10.1210/jc.2015-1686>.

## 8. REFERENCES

- Autian J. 1982. Antifertility effects and dominant lethal assays for mutagenic effects of DEHP. *Environ Health Perspect* 45:115-118.
- Axelsson J, Rylander L, Rignell-Hydbom A, et al. 2015. Phthalate exposure and reproductive parameters in young men from the general Swedish population. *Environ Int* 85:54-60. <http://doi.org/10.1016/j.envint.2015.07.005>.
- Aydemir D, Karabulut G, Şimşek G, et al. 2018. Impact of the di(2-ethylhexyl) phthalate administration on trace element and mineral levels in relation of kidney and liver damage in rats. *Biol Trace Elem Res* 186(2):474-488. <http://doi.org/10.1007/s12011-018-1331-0>.
- Babich MA, Bevington C, Dreyfus MA. 2020. Plasticizer migration from children's toys, child care articles, art materials, and school supplies. *Regul Toxicol Pharmacol* 111:104574. <http://doi.org/10.1016/j.yrtph.2019.104574>.
- Balalian AA, Whyatt RM, Liu X, et al. 2019. Prenatal and childhood exposure to phthalates and motor skills at age 11 years. *Environ Res* 171:416-427. <http://doi.org/10.1016/j.envres.2019.01.046>.
- Barakat R, Lin PP, Rattan S, et al. 2017. Prenatal exposure to DEHP induces premature reproductive senescence in male mice. *Toxicol Sci* 156(1):96-108. <http://doi.org/10.1093/toxsci/kfw248>.
- Barakat R, Lin PC, Park CJ, et al. 2018. Prenatal exposure to DEHP induces neuronal degeneration and neurobehavioral abnormalities in adult male mice. *Toxicol Sci* 164(2):439-452. <http://doi.org/10.1093/toxsci/kfy103>.
- Barakat R, Lin PC, Park CJ, et al. 2020. Germline-dependent transmission of male reproductive traits induced by an endocrine disruptor, di-2-ethylhexyl phthalate, in future generations. *Sci Rep* 10(1):5705. <http://doi.org/10.1038/s41598-020-62584-w>.
- Barber ED, Astill BD, Moran EJ, et al. 1987. Peroxisome induction studies on seven phthalate esters. *Toxicol Ind Health* 3(2):7-24. <http://doi.org/10.1177/074823378700300203>.
- Barber ED, Teetsel NM, Kolberg KF, et al. 1992. A comparative study of the rats of *in vitro* percutaneous absorption of eight chemicals using rat and human skin. *Fundam Appl Toxicol* 19:493-497.
- Barber ED, Fox JA, Giordano CJ. 1994. Hydrolysis, absorption and metabolism of di(2-ethylhexyl) terephthalate in the rat. *Xenobiotica* 24(5):441-450.
- Barnes DG, Dourson M. 1988. Reference dose (RfD): Description and use in health risk assessments. *Regul Toxicol Pharmacol* 8(4):471-486.
- Barrett ES, Parlett LE, Wang C, et al. 2014. Environmental exposure to di-2-ethylhexyl phthalate is associated with low interest in sexual activity in premenopausal women. *Horm Behav* 66(5):787-792. <http://doi.org/10.1016/j.yhbeh.2014.10.003>.
- Barrett ES, Parlett LE, Sathyanarayana S, et al. 2016. Prenatal stress as a modifier of associations between phthalate exposure and reproductive development: Results from a multicentre pregnancy cohort study. *Paediatr Perinat Epidemiol* 30(2):105-114. <http://doi.org/10.1111/ppe.12264>.
- Barrows ME, Petrocelli SR, Macek KJ. 1980. Bioconcentration and elimination of selected water pollutants by bluegill sunfish (*Lepomis macrochirus*). In: Haque R, ed. *Dynamics, exposure and hazard assessment of toxic chemicals*. Ann Arbor, MN: Ann Arbor Science Publishers, Inc., 379-392.
- Barry YA, Labow RS, Keon WJ, et al. 1990. Atropine inhibition of the cardiodepressive effect of mono(2-ethylhexyl)phthalate on human myocardium. *Toxicol Appl Pharmacol* 106:48-52.
- Bartles JR, Khuon S, Lin XH, et al. 1990. Peroxisome proliferator-induced alterations in the expression and modification of rat hepatocyte plasma membrane proteins. *Cancer Res* 50(3):669-676.
- Basak S, Das MK, Duttaroy AK. 2020. Plastics derived endocrine-disrupting compounds and their effects on early development. *Birth Defects Research* 112(17):1308-1325. <http://doi.org/10.1002/bdr2.1741>.
- Bastos Sales L, van Esterik JCJ, Hodemaekers HM, et al. 2018. Analysis of lipid metabolism, immune function, and neurobehavior in adult C57BL/6JxFVB mice after developmental exposure to di(2-ethylhexyl) phthalate. *Front Endocrinol* 9:684. <http://doi.org/10.3389/fendo.2018.00684>.

## 8. REFERENCES

- Bauer MJ, Herrmann R. 1997. Estimation of the environmental contamination by phthalic acid esters leaching from household wastes. *Sci Total Environ* 208:49-57.
- Beko G, Callesen M, Weschler CJ, et al. 2015. Phthalate exposure through different pathways and allergic sensitization in preschool children with asthma, allergic rhinoconjunctivitis and atopic dermatitis. *Environ Res* 137:432-439. <http://doi.org/10.1016/j.envres.2015.01.012>.
- Bell FP. 1976. Inhibition of hepatic sterol and squalene biosynthesis in rats fed di-2-ethylhexyl phthalate. *Lipids* 11(10):769-773. <http://doi.org/10.1007/bf02533053>.
- Bell FP. 1980. Effect of di-2-ethylhexyl phthalate in the female rat: Inhibition of hepatic and adrenal sterologogenesis in vitro. *Bull Environ Contam Toxicol* 24:54-58.
- Bell FP. 1982. Effects of phthalate esters on lipid metabolism in various tissues, cells and organelles in mammals. *Environ Health Perspect* 45(0):41-50.
- Bell FP, Buthala DA. 1983. Biochemical changes in liver of rats fed the plasticizer di (2-ethylhexy) phthalate. *Bull Environ Contam Toxicol* 31(2):177-182. <http://doi.org/10.1007/bf01607890>.
- Bellavia A, Hauser R, Seely EW, et al. 2017. Urinary phthalate metabolite concentrations and maternal weight during early pregnancy. *Int J Hyg Environ Health* 220:1347-1355.
- Berger K, Eskenazi B, Kogut K, et al. 2018. Association of prenatal urinary concentrations of phthalates and bisphenol A and pubertal timing in boys and girls. *Environ Health Perspect* 126(9):97004. <http://doi.org/10.1289/EHP3424>.
- Berk M, Williams LJ, Andreazza A, et al. 2014. Pop, heavy metal and the blues: secondary analysis of persistent organic pollutants (POP), heavy metals and depressive symptoms in the NHANES National Epidemiological Survey. *Br Med J* 4(7):e005142. <http://doi.org/10.1136/bmjopen-2014-005142>.
- Berman E, Schlicht M, Moser VC, et al. 1995. A multidisciplinary approach to toxicological screening: I. Systemic toxicity. *J Toxicol Environ Health* 45(2):127-143. <http://doi.org/10.1080/15287399509531986>.
- Bertelsen RJ, Carlsen KC, Calafat AM, et al. 2013. Urinary biomarkers for phthalates associated with asthma in Norwegian children. *Environ Health Perspect* 121(2):251-256. <http://doi.org/10.1289/ehp.1205256>.
- Binder AM, Corvalan C, Calafat AM, et al. 2018a. Childhood and adolescent phenol and phthalate exposure and the age of menarche in Latina girls. *Environ Health* 17(1):32. <http://doi.org/10.1186/s12940-018-0376-z>.
- Binder AM, Corvalan C, Calafat AM, et al. 2018b. Supplemental material: Childhood and adolescent phenol and phthalate exposure and the age of menarche in Latina girls. *Environ Health* 17. <http://doi.org/10.1186/s12940-018-0376-z>.
- Bloom MS, Whitcomb BW, Chen Z, et al. 2015a. Associations between urinary phthalate concentrations and semen quality parameters in a general population. *Hum Reprod* 30(11):2645-2657. <http://doi.org/10.1093/humrep/dev219>.
- Bloom MS, Whitcomb BW, Chen Z, et al. 2015b. Supplemental material: Associations between urinary phthalate concentrations and semen quality parameters in a general population. *Hum Reprod* 30. <http://doi.org/10.1093/humrep/dev219>.
- Bloom MS, Wenzel AG, Brock JW, et al. 2019a. Racial disparity in maternal phthalates exposure; Association with racial disparity in fetal growth and birth outcomes. *Environ Int* 127:473-486. <http://doi.org/10.1016/j.envint.2019.04.005>.
- Bloom MS, Wenzel AG, Brock JW, et al. 2019b. Supplemental material: Racial disparity in maternal phthalates exposure; Association with racial disparity in fetal growth and birth outcomes. *Environ Int* 127. <http://doi.org/10.1016/j.envint.2019.04.005>.
- Bluthgen A. 2000. Organic migration agents into milk at farm level (illustrated with diethylhexylphthalate). *Bull IDF* 356:39-42.
- Blystone C, Kissling G, Bishop J, et al. 2010. Determination of the di-(2-ethylhexyl) phthalate NOAEL for reproductive development in the rat: importance of the retention of extra animals to adulthood. *Toxicol Sci* 116(2):640-646. <http://doi.org/10.1093/toxsci/kfq147>.

## 8. REFERENCES

- Boas M, Frederiksen H, Feldt-Rasmussen U, et al. 2010. Childhood exposure to phthalates: Associations with thyroid function, insulin-like growth factor I, and growth. *Environ Health Perspect* 118(10):1458-1464. <http://doi.org/10.1289/ehp.0901331>.
- Boerrigter ME. 2004. Mutagenicity of the peroxisome proliferators clofibrate, Wyeth 14,643 and di-2-ethylhexyl phthalate in the lacZ plasmid-based transgenic mouse mutation assay. *J Carcinog* 3(1):7. <http://doi.org/10.1186/1477-3163-3-7>.
- Bolling AK, Holme JA, Bornehag CG, et al. 2013. Pulmonary phthalate exposure and asthma - is PPAR a plausible mechanistic link? *EXCLI J* 12:733-759.
- Borch J, Metzdorff SB, Vinggaard AM, et al. 2006. Mechanisms underlying the anti-androgenic effects of diethylhexyl phthalate in fetal rat testis. *Toxicology* 223(1-2):144-155. <http://doi.org/10.1016/j.tox.2006.03.015>.
- Bornehag CG, Lundgren B, Weschler CJ, et al. 2005. Phthalates in indoor dust and their association with building characteristics. *Environ Health Perspect* 113(10):1399-1404. <http://doi.org/10.1289/ehp.7809>.
- Bornehag CG, Carlstedt F, Jonsson BA, et al. 2015. Prenatal phthalate exposures and anogenital distance in Swedish boys. *Environ Health Perspect* 123(1):101-107. <http://doi.org/10.1289/ehp.1408163>.
- Braun JM, Smith KW, Williams PL, et al. 2012. Variability of urinary phthalate metabolite and bisphenol A concentrations before and during pregnancy. *Environ Health Perspect* 120(5):739-745. <http://doi.org/10.1289/ehp.1104139>.
- Braun JM, Kalkbrenner AE, Just AC, et al. 2014. Gestational exposure to endocrine-disrupting chemicals and reciprocal social, repetitive, and stereotypic behaviors in 4- and 5-year-old children: the HOME study. *Environ Health Perspect* 122(5):513-520. <http://doi.org/10.1289/ehp.1307261>.
- Braun JM, Bellinger DC, Hauser R, et al. 2017a. Prenatal phthalate, triclosan, and bisphenol A exposures and child visual-spatial abilities. *Neurotoxicology* 58:75-83. <http://doi.org/10.1016/j.neuro.2016.11.009>.
- Braun JM, Bellinger DC, Hauser R, et al. 2017b. Supplemental material: Prenatal phthalate, triclosan, and bisphenol A exposures and child visual-spatial abilities. *Neurotoxicology* 58. <http://doi.org/10.1016/j.neuro.2016.11.009>.
- Brehm E, Rattan S, Gao L, et al. 2018. Prenatal exposure to di(2-ethylhexyl) phthalate causes long-term transgenerational effects on female reproduction in mice. *Endocrinology* 159(2):795-809. <http://doi.org/10.1210/en.2017-03004>.
- Brown KW, Donnelly KC. 1988. An estimation of risk associated with the organic constituents of hazardous and municipal waste landfill leachates. *Haz Waste Haz Mater* 5(1):1-30.
- Buck Louis GM, Peterson CM, Chen Z, et al. 2013. Bisphenol A and phthalates and endometriosis: The Endometriosis: Natural History, Diagnosis and Outcomes Study. *Fertil Steril* 100(1):162-169. <http://doi.org/10.1016/j.fertnstert.2013.03.026>.
- Buck Louis GM, Sundaram R, Sweeney AM, et al. 2014. Urinary bisphenol A, phthalates, and couple fecundity: the Longitudinal Investigation of Fertility and the Environment (LIFE) Study. *Fertil Steril* 101(5):1359-1366. <http://doi.org/10.1016/j.fertnstert.2014.01.022>.
- Buckley JP, Engel SM, Braun JM, et al. 2016a. Prenatal phthalate exposures and body mass index among 4- to 7-year-old children: A pooled analysis. *Epidemiology* 27(3):449-458. <http://doi.org/10.1097/ede.0000000000000436>.
- Buckley JP, Engel SM, Mendez MA, et al. 2016b. Prenatal phthalate exposures and childhood fat mass in a New York City cohort. *Environ Health Perspect* 124(4):507-513. <http://doi.org/10.1289/ehp.1509788>.
- Buser MC, Murray HE, Scinicariello F. 2014. Age and sex differences in childhood and adulthood obesity association with phthalates: Analyses of NHANES 2007-2010. *Int J Hyg Environ Health* 217(6):687-694. <http://doi.org/10.1016/j.ijheh.2014.02.005>.
- Busser MT, Lutz WK. 1987. Stimulation of DNA synthesis in rat and mouse liver by various tumor promoters. *Carcinogenesis* 8(10):1433-1437.

## 8. REFERENCES

- Bustamante-Montes LP, Hernández-Valero MA, Flores-Pimentel D, et al. 2013. Prenatal exposure to phthalates is associated with decreased anogenital distance and penile size in male newborns. *J Dev Orig Health Dis* 4(4):300-306. <http://doi.org/10.1017/s2040174413000172>.
- Butterworth BE. 1984. The genetic toxicology of di(2-ethylhexyl)phthalate (DEHP). *CIIT Activities* 4(10):1-8.
- Butterworth BE, Bermudez E, Smith-Oliver T, et al. 1984. Lack of genotoxic activity of di(2-ethylhexyl)phthalate (DEHP) in rat and human hepatocytes. *Carcinogenesis* 5(10):1329-1335.
- Cadogan DF, Howick C. 2001. Plasticizers. In: Kirk-Othmer encyclopedia of chemical technology. John Wiley & Sons, <http://doi.org/10.1002/0471238961.1612011903010415.a01>.
- Cadogan DF, Papez M, Poppe AC, et al. 1994. An assessment of the release, occurrence and possible effects of plasticisers in the environment. *Prog Rubber Plast Technol* 10:1-19.
- Cahill TM, Cousins I, Mackay D. 2003. Development and application of a generalized physiologically based pharmacokinetic model for multiple environmental contaminants. *Environ Toxicol Chem* 22(1):26-34. <http://doi.org/10.1002/etc.5620220104>.
- Cakmak S, Dales RE, Hebborn C, et al. 2014. The association between urinary phthalates and lung function. *J Occup Environ Med* 56(4):376-381. <http://doi.org/10.1097/jom.0000000000000137>.
- Calafat AM, Slakman AR, Silva MJ, et al. 2004. Automated solid phase extraction and quantitative analysis of human milk for 13 phthalate metabolites. *J Chromatogr* 805(1):49-56. <http://doi.org/10.1016/j.jchromb.2004.02.006>.
- Calafat AM, Brock JW, Silva MJ, et al. 2006. Urinary and amniotic fluid levels of phthalate monoesters in rats after the oral administration of di(2-ethylhexyl) phthalate and di-n-butyl phthalate. *Toxicology* 217(1):22-30. <http://doi.org/10.1016/j.tox.2005.08.013>.
- Calafat AM, Longnecker MP, Koch HM, et al. 2015. Optimal exposure biomarkers for nonpersistent chemicals in environmental epidemiology. *Environ Health Perspect* 123(7):A166-A168.
- Caldwell JC. 2012. DEHP: Genotoxicity and potential carcinogenic mechanisms-A review. *Mutat Res* 751(2):82-157. <http://doi.org/10.1016/j.mrrev.2012.03.001>.
- Camacho L, Latendresse JR, Muskhelishvili L, et al. 2020. Effects of intravenous and oral di(2-ethylhexyl) phthalate (DEHP) and 20% Intralipid vehicle on neonatal rat testis, lung, liver, and kidney. *Food Chem Toxicol* 144:111497. <http://doi.org/10.1016/j.fct.2020.111497>.
- Camann DE, Schultz ST, Yau AY, et al. 2013. Acetaminophen, pesticide, and diethylhexyl phthalate metabolites, anandamide, and fatty acids in deciduous molars: potential biomarkers of perinatal exposure. *J Expo Sci Environ Epidemiol* 23(2):190-196. <http://doi.org/10.1038/jes.2012.71>.
- Canter LW, Sabatini DA. 1994. Contamination of public ground water supplies by Superfund sites. *Int J Environ Stud* 46:35-57.
- Cantonwine DE, Meeker JD, Ferguson KK, et al. 2016. Urinary concentrations of bisphenol A and phthalate metabolites measured during pregnancy and risk of preeclampsia. *Environ Health Perspect* 124(10):1651-1655. <http://doi.org/10.1289/EHP188>.
- Cao XL. 2010. Phthalate esters in foods: Sources, occurrence, and analytical methods. *Compr Rev Food Sci Food Saf* 9(1):21-43. <http://doi.org/10.1111/j.1541-4337.2009.00093.x>.
- Carbone S, Szwarcfarb B, Ponzio O, et al. 2010. Impact of gestational and lactational phthalate exposure on hypothalamic content of amino acid neurotransmitters and FSH secretion in peripubertal male rats. *Neurotoxicology* 31(6):747-751. <http://doi.org/10.1016/j.neuro.2010.06.006>.
- Carbone S, Samaniego YA, Cutrera R, et al. 2012. Different effects by sex on hypothalamic-pituitary axis of prepubertal offspring rats produced by in utero and lactational exposure to di-(2-ethylhexyl) phthalate (DEHP). *Neurotoxicology* 33(1):78-84. <http://doi.org/10.1016/j.neuro.2011.11.009>.
- Carbone S, Ponzio OJ, Gobetto N, et al. 2013. Antiandrogenic effect of perinatal exposure to the endocrine disruptor di-(2-ethylhexyl) phthalate increases anxiety-like behavior in male rats during sexual maturation. *Horm Behav* 63(5):692-699. <http://doi.org/10.1016/j.yhbeh.2013.01.006>.
- Carpenter CP, Weil CS, Smyth HF. 1953. Chronic oral toxicity of di-(2-ethylhexyl) phthalate of rats, guinea pigs, and dogs. *AMA Arch Ind Hyg Occup Med* 8(3):219-226.

## 8. REFERENCES

- Carrara SM, Morita DM, Boscov ME. 2011. Biodegradation of di(2-ethylhexyl)phthalate in a typical tropical soil. *J Hazard Mater* 197:40-48. <http://doi.org/10.1016/j.jhazmat.2011.09.058>.
- Cartwright CD, Thompson IP, Burns G. 2000. Degradation and impact of phthalate plasticizers on soil microbial communities. *Environ Toxicol Chem* 19(5):1253-1261.
- Casas M, Valvi D, Ballesteros-Gomez A, et al. 2016. Exposure to bisphenol A and phthalates during pregnancy and ultrasound measures of fetal growth in the INMA-Sabadell Cohort. *Environ Health Perspect* 124(4):521-528. <http://doi.org/10.1289/ehp.1409190>.
- Caserta D, Bordi G, Ciardo F, et al. 2013. The influence of endocrine disruptors in a selected population of infertile women. *Gynecol Endocrinol* 29(5):444-447. <http://doi.org/10.3109/09513590.2012.758702>.
- Castillo M, Oubina A, Barcelo D. 1998. Evaluation of ELISA kits followed by liquid chromatography-atmospheric pressure chemical ionization-mass spectrometry for the determination of organic pollutants in industrial effluents. *Environ Sci Technol* 32:2180-2184.
- Castle L, Mayo A, Gilbert J. 1989. Migration of plasticizers from printing inks into foods. *Food Addit Contam* 6(4):437-443.
- Cathey A, Watkins DJ, Sánchez BN, et al. 2020a. Onset and tempo of sexual maturation is differentially associated with gestational phthalate exposure between boys and girls in a Mexico City birth cohort. *Environ Int* 136:105469. <http://doi.org/10.1016/j.envint.2020.105469>.
- Cathey A, Watkins DJ, Sánchez BN, et al. 2020b. Supplemental material: Onset and tempo of sexual maturation is differentially associated with gestational phthalate exposure between boys and girls in a Mexico City birth cohort. *Environ Int* 136. <http://doi.org/10.1016/j.envint.2020.105469>.
- Cattley RC, Glover SE. 1993. Elevated 8-hydroxydeoxyguanosine in hepatic DNA of rats following exposure to peroxisome proliferators: relationship to carcinogenesis and nuclear localization. *Carcinogenesis* 14(12):2495-2499.
- Cattley RC, Richardson KK, Smith-Oliver T, et al. 1986. Effect of peroxisome proliferator carcinogens on unscheduled DNA synthesis in rat hepatocytes determined by autoradiography. *Cancer Lett* 33(3):269-277. [http://doi.org/10.1016/0304-3835\(86\)90066-2](http://doi.org/10.1016/0304-3835(86)90066-2).
- Cattley RC, Conway JG, Popp JA. 1987. Association of persistent peroxisome proliferation and oxidative injury with hepatocarcinogenicity in female F-344 rats fed di(2-ethylhexyl)phthalate for 2 years. *Cancer Lett* 38(1-2):15-22. [http://doi.org/10.1016/0304-3835\(87\)90195-9](http://doi.org/10.1016/0304-3835(87)90195-9).
- Cattley RC, Smith-Oliver T, Butterworth BE, et al. 1988. Failure of the peroxisome proliferator WY-14,643 to induce unscheduled DNA synthesis in rat hepatocytes following in vivo treatment. *Carcinogenesis* 9(7):1179-1183. <http://doi.org/10.1093/carcin/9.7.1179>.
- Cavanagh JE, Trought K, Mitchell C, et al. 2018. Assessment of endocrine disruption and oxidative potential of bisphenol-A, triclosan, nonylphenol, diethylhexyl phthalate, galaxolide, and carbamazepine, common contaminants of municipal biosolids. *Toxicol in Vitro* 48:342-349. <http://doi.org/10.1016/j.tiv.2018.02.003>.
- CDC. 2015. Fourth national report on human exposure to environmental chemicals. February 2015. Atlanta, GA: Centers for Disease Control and Prevention.
- CDC. 2016. Biomonitoring summary. Phthalates overview. Centers for Disease Control and Prevention. [https://www.cdc.gov/biomonitoring/DEHP\\_BiomonitoringSummary.html](https://www.cdc.gov/biomonitoring/DEHP_BiomonitoringSummary.html). June 06, 2017.
- CDC. 2018. Fourth national report on human exposure to environmental chemicals. Updated Tables, March 2018, Volume One. Centers for Disease Control and Prevention.
- CDR. 2016. Chemical data reporting: 2016 data. U.S. Environmental Protection Agency. <https://www.epa.gov/chemical-data-reporting/access-cdr-data#2016>. July 9, 2020.
- Cerbulis J, Byler DM. 1986. Isolation and detection of dialkyl phthalates from pork. *J Agric Food Chem* 34:198-200.
- Cha S, Jung K, Lee MY, et al. 2018. Nonmonotonic effects of chronic low-dose di(2-ethylhexyl)phthalate on gonadal weight and reproductive. *Dev Reprod* 22(1):85-94. <http://doi.org/10.12717/dr.2018.22.1.085>.



## 8. REFERENCES

- Chang BV, Liao CS, Yuan SY. 2005. Anaerobic degradation of diethyl phthalate, di-n-butyl phthalate, and di-(2-ethylhexyl) phthalate from river sediment in Taiwan. *Chemosphere* 58(11):1601-1607. <http://doi.org/10.1016/j.chemosphere.2004.11.031>.
- Chang WH, Li SS, Wu MH, et al. 2015. Phthalates might interfere with testicular function by reducing testosterone and insulin-like factor 3 levels. *Hum Reprod* 30(11):2658-2670. <http://doi.org/10.1093/humrep/dev225>.
- Chang WH, Wu MH, Pan HA, et al. 2017a. Semen quality and insulin-like factor 3: Associations with urinary and seminal levels of phthalate metabolites in adult males. *Chemosphere* 173:594-602. <http://doi.org/10.1016/j.chemosphere.2017.01.056>.
- Chang WH, Wu MH, Pan HA, et al. 2017b. Supplemental material: Semen quality and insulin-like factor 3: Associations with urinary and seminal levels of phthalate metabolites in adult males. *Chemosphere* 173. <http://doi.org/10.1016/j.chemosphere.2017.01.056>.
- Chang YJ, Tseng CY, Lin PY, et al. 2017c. Acute exposure to DEHP metabolite, MEHP cause genotoxicity, mutagenesis and carcinogenicity in mammalian Chinese hamster ovary cells. *Carcinogenesis* 38(3):336-345. <http://doi.org/10.1093/carcin/bgx009>.
- Chang WH, Tsai YS, Wang JY, et al. 2019a. Sex hormones and oxidative stress mediated phthalate-induced effects in prostatic enlargement. *Environ Int* 126:184-192. <http://doi.org/10.1016/j.envint.2019.02.006>.
- Chang WH, Tsai YS, Wang JY, et al. 2019b. Supplemental material: Sex hormones and oxidative stress mediated phthalate-induced effects in prostatic enlargement. *Environ Int* 126. <http://doi.org/10.1016/j.envint.2019.02.006>.
- Chang JW, Liao KW, Huang CY, et al. 2020. Phthalate exposure increased the risk of early renal impairment in Taiwanese without type 2 diabetes mellitus. *Int J Hyg Environ Health* 224:113414. <http://doi.org/10.1016/j.ijheh.2019.10.009>.
- Chang-Liao WL, Hou ML, Chang LW, et al. 2013. Determination and pharmacokinetics of di-(2-ethylhexyl) phthalate in rats by ultra performance liquid chromatography with tandem mass spectrometry. *Molecules* 18(9):11452-11466. <http://doi.org/10.3390/molecules180911452>.
- Chaudhary BI, Liotta CL, Cogen JM, et al. 2016. Plasticized PVC. In: Reference module in materials science and materials engineering. Elsevier Inc., 1-6.
- Chauvigné F, Menuet A, Lesné L, et al. 2009. Time- and dose-related effects of di-(2-ethylhexyl) phthalate and its main metabolites on the function of the rat fetal testis in vitro. *Environ Health Perspect* 117(4):515-521. <http://doi.org/10.1289/ehp.11870>.
- Chen S, Chen J, Cai X, et al. 2010. Perinatal exposure to di-(2-ethylhexyl) phthalate leads to restricted growth and delayed lung maturation in newborn rats. *J Perinat Med* 38(5):515-521. <http://doi.org/10.1515/jpm.2010.083>.
- Chen J, Wu S, Wen S, et al. 2015. The mechanism of environmental endocrine disruptors (DEHP) induces epigenetic transgenerational inheritance of cryptorchidism. *PLoS ONE* 10(6):e0126403. <http://doi.org/10.1371/journal.pone.0126403>.
- Chen SY, Hwang JS, Sung FC, et al. 2017. Mono-2-ethylhexyl phthalate associated with insulin resistance and lower testosterone levels in a young population. *Environ Pollut* 225:112-117. <http://doi.org/10.1016/j.envpol.2017.03.037>.
- Chen CC, Wang YH, Chen WJ, et al. 2019. A benchmark dose study of prenatal exposure to di(2-ethylhexyl) phthalate and behavioral problems in children. *Int J Hyg Environ Health* 222(6):971-980. <http://doi.org/10.1016/j.ijheh.2019.06.002>.
- Cheng HF, Lin JG. 2000. Biodegradation of di-(2-ethylhexyl)phthalate in sewage sludge. *Water Sci Technol* 41(12):1-6.
- Cheon YP. 2020. Di-(2-ethylhexyl) phthalate (DEHP) and uterine histological characteristics. *Dev Reprod* 24(1):1-17. <http://doi.org/10.12717/dr.2020.24.1.1>.
- Chevrier C, Petit C, Philippat C, et al. 2012. Maternal urinary phthalates and phenols and male genital anomalies. *Epidemiology* 23(2):353-356. <http://doi.org/10.1097/EDE.0b013e318246073e>.

## 8. REFERENCES

- Chiang C, Flaws JA. 2019. Subchronic exposure to di(2-ethylhexyl) phthalate and diisononyl phthalate during adulthood has immediate and long-term reproductive consequences in female mice. *Toxicol Sci* 168(2):620-631. <http://doi.org/10.1093/toxsci/kfz013>.
- Chiang C, Lewis LR, Borkowski G, et al. 2020a. Late-life consequences of short-term exposure to di(2-ethylhexyl) phthalate and diisononyl phthalate during adulthood in female mice. *Reprod Toxicol* 93:28-42. <http://doi.org/10.1016/j.reprotox.2019.12.006>.
- Chiang C, Lewis LR, Borkowski G, et al. 2020b. Exposure to di(2-ethylhexyl) phthalate and diisononyl phthalate during adulthood disrupts hormones and ovarian folliculogenesis throughout the prime reproductive life of the mouse. *Toxicol Appl Pharmacol* 393:114952. <http://doi.org/10.1016/j.taap.2020.114952>.
- Ching NP, Jham GN, Subbarayan C, et al. 1981. Gas chromatographic-mass spectrometric detection of circulating plasticizers in surgical patients. *J Chromatogr* 222(2):171-177. [http://doi.org/10.1016/s0378-4347\(00\)81050-6](http://doi.org/10.1016/s0378-4347(00)81050-6).
- Chiu YH, Bellavia A, James-Todd T, et al. 2018a. Evaluating effects of prenatal exposure to phthalate mixtures on birth weight: A comparison of three statistical approaches. *Environ Int* 113:231-239. <http://doi.org/10.1016/j.envint.2018.02.005>.
- Chiu YH, Bellavia A, James-Todd T, et al. 2018b. Supplemental material: Evaluating effects of prenatal exposure to phthalate mixtures on birth weight: A comparison of three statistical approaches. *Environ Int* 113 <http://doi.org/10.1016/j.envint.2018.02.005>.
- Chiu CY, Sun SC, Chiang CK, et al. 2018c. Plasticizer di(2-ethylhexyl)phthalate interferes with osteoblastogenesis and adipogenesis in a mouse model. *J Orthop Res* 36(4):1124-1134. <http://doi.org/10.1002/jor.23740>.
- Choi S, Park S, Jeong J, et al. 2010. Identification of toxicological biomarkers of di(2-ethylhexyl) phthalate in proteins secreted by HepG2 cells using proteomic analysis. *Proteomics* 10(9):1831-1846. <http://doi.org/10.1002/pmic.200900674>.
- Choi K, Joo H, Campbell JL, et al. 2012. In vitro metabolism of di(2-ethylhexyl) phthalate (DEHP) by various tissues and cytochrome P450s of human and rat. *Toxicol in Vitro* 26(2):315-322. <http://doi.org/10.1016/j.tiv.2011.12.002>.
- Choi K, Joo H, Campbell JL, et al. 2013. In vitro intestinal and hepatic metabolism of di(2-ethylhexyl) phthalate (DEHP) in human and rat. *Toxicol in Vitro* 27(5):1451-1457. <http://doi.org/10.1016/j.tiv.2013.03.012>.
- Christiansen S, Scholze M, Dalgaard M, et al. 2009. Synergistic disruption of external male sex organ development by a mixture of four antiandrogens. *Environ Health Perspect* 117(12):1839-1846. <http://doi.org/10.1289/ehp.0900689>.
- Christiansen S, Boberg J, Axelstad M, et al. 2010. Low-dose perinatal exposure to di(2-ethylhexyl) phthalate induces anti-androgenic effects in male rats. *Reprod Toxicol* 30(2):313-321. <http://doi.org/10.1016/j.reprotox.2010.04.005>.
- Chu I, Dick D, Bronaugh R, et al. 1996. Skin reservoir formation and bioavailability of dermally administered chemicals in hairless guinea pigs. *Food Chem Toxicol* 34(3):267-276.
- Chuang SC, Chen HC, Sun CW, et al. 2020. Phthalate exposure and prostate cancer in a population-based nested case-control study. *Environ Res* 181:108902. <http://doi.org/10.1016/j.envres.2019.108902>.
- Cimini AM, Sulli A, Stefanini S, et al. 1994. Effects of di-(2-ethylhexyl)phthalate on peroxisomes of liver, kidney and brain of lactating rats and their pups. *Cell Mol Biol* 40(8):1063-1076.
- Clara M, Windhofer G, Hartl W, et al. 2010. Occurrence of phthalates in surface runoff, untreated and treated wastewater and fate during wastewater treatment. *Chemosphere* 78(9):1078-1084. <http://doi.org/10.1016/j.chemosphere.2009.12.052>.
- Clark KE, David RM, Guinn R, et al. 2011. Modeling human exposure to phthalate esters: A comparison of indirect and biomonitoring estimation methods. *Hum Ecol Risk Assess* 17(4):923-965. <http://doi.org/10.1080/10807039.2011.588157>.

## 8. REFERENCES

- Clayton GD, Clayton FE. 1981. Diethyl phthalate. In: Patty's industrial hygiene and toxicology. Vol. 2A. 3rd ed. New York, NY: John Wiley & Sons, 2344-2345.
- Clewell HJ, Andersen ME. 1985. Risk assessment extrapolations and physiological modeling. *Toxicol Ind Health* 1(4):111-131.
- Clewell RA, Campbell JL, Ross SM, et al. 2010. Assessing the relevance of in vitro measures of phthalate inhibition of steroidogenesis for in vivo response. *Toxicol in Vitro* 24(1):327-334. <http://doi.org/10.1016/j.tiv.2009.08.003>.
- CMA. 1986. Analysis of bis(2-ethylhexyl) phthalate (DEHP) by gas chromatography-mass spectrometry in dairy and meat products. Washington, DC: Chemical Manufacturer's Association.
- Cobellis L, Latini G, De Felice C, et al. 2003. High plasma concentrations of di-(2-ethylhexyl)-phthalate in women with endometriosis. *Hum Reprod* 18(7):1512-1515. <http://doi.org/10.1093/humrep/deg254>.
- Cohen H, Charrier C, Sarfaty J. 1991. Extraction and identification of a plasticizer, di-(2-ethylhexyl)phthalate, from a plastic bag containing contaminated corn. *Arch Environ Contam Toxicol* 20:437-440.
- Cole RS, Tocchi M, Whe E, et al. 1981. Contamination of commercial blood products by di-2-ethylhexyl phthalate and mono-2-ethylhexyl phthalate. *Vox Sang* 40:317-322.
- Cole RH, Frederick RE, Healy RP, et al. 1984. Preliminary findings of the priority pollutant monitoring project of the National Urban Runoff Program. *J Water Pollut Control Fed* 56(7):898-908.
- Contreras TJ, Sheibley RH, Valeri CR. 1974. Accumulation of di-2-ethylhexyl phthalate (DEHP) in whole blood, platelet concentrates and platelet-poor plasma. *Transfusion* 14:34-46.
- Conway JG, Tomaszewski KE, Olson MJ, et al. 1989. Relationship of oxidative damage to the hepatocarcinogenicity of the peroxisome proliferators di(2-ethylhexyl)phthalate and Wy-14,643. *Carcinogenesis* 10(3):513-519. <http://doi.org/10.1093/carcin/10.3.513>.
- Corton JC, Peters JM, Klaunig JE. 2018. The PPAR $\alpha$ -dependent rodent liver tumor response is not relevant to humans: Addressing misconceptions. *Arch Toxicol* 92:83-119.
- CPSC. 1999. CPSC releases study on phthalates in teething rings, rattles and other children's products. U.S. Consumer Product Safety Commission. <http://cpsc.gov/cpscpub/prerel/prhtml99/99031.html>. March 19, 2000.
- CPSC. 2001. Chronic Hazard Advisory Panel on diisononyl phthalate (DINP). U.S. Consumer Product Safety Commission.
- CPSC. 2010a. Memorandum to Michael Babich from Kent Carlson regarding the toxicity review of di(2-ethylhexyl) phthalate (DEHP). Bethesda, MD: U.S. Consumer Product Safety Commission.
- CPSC. 2010b. Review of exposure and toxicity data for phthalate substitutes. Bethesda, MD: U.S. Consumer Product Safety Commission. <https://www.cpsc.gov/s3fs-public/phthalsub.pdf>. July 13, 2021.
- CPSC. 2014. Report to the U.S. Consumer Product Safety Commission by the Chronic Hazard Advisory Panel on phthalates and phthalate alternatives. Bethesda, MD: U.S. Consumer Product Safety Commission.
- CPSIA. 2008. Consumer Product Safety Improvement Act of 2008. Public Law 11-314, 110th Congress. Title I- Children's product safety. Consumer Product Safety Improvement Act.
- Culty M, Thuillier R, Li W, et al. 2008. In utero exposure to di-(2-ethylhexyl) phthalate exerts both short-term and long-lasting suppressive effects on testosterone production in the rat. *Biol Reprod* 78(6):1018-1028. <http://doi.org/10.1095/biolreprod.107.065649>.
- Dales RE, Kauri LM, Cakmak S. 2018. The associations between phthalate exposure and insulin resistance,  $\beta$ -cell function and blood glucose control in a population-based sample. *Sci Total Environ* 612:1287-1292. <http://doi.org/10.1016/j.scitotenv.2017.09.009>.
- Dalgaard M, Ostergaard G, Lam HR, et al. 2000. Toxicity study of di(2-ethylhexyl)phthalate (DEHP) in combination with acetone in rats. *Pharmacol Toxicol* 86(2):92-100. <http://doi.org/10.1034/j.1600-0773.2000.pto860208.x>.

## 8. REFERENCES

- Dalsenter PR, Santana GM, Grande SW, et al. 2006. Phthalate affect the reproductive function and sexual behavior of male Wistar rats. *Hum Exp Toxicol* 25(6):297-303. <http://doi.org/10.1191/0960327105ht624oa>.
- Daniel JW, Bratt H. 1974. The absorption, metabolism and tissue distribution of di(2-ethylhexyl)phthalate in rats. *Toxicology* 2(1):51-65.
- Daniel S, Balalian AA, Whyatt RM, et al. 2020. Perinatal phthalates exposure decreases fine-motor functions in 11-year-old girls: Results from weighted Quantile sum regression. *Environ Int* 136:105424. <http://doi.org/10.1016/j.envint.2019.105424>.
- David RM, Moore MR, Cifone MA, et al. 1999. Chronic peroxisome proliferation and hepatomegaly associated with the hepatocellular tumorigenesis of di(2-ethylhexyl)phthalate and the effects of recovery. *Toxicol Sci* 50(2):195-205.
- David RM, Moore MR, Finney DC, et al. 2000a. Chronic toxicity of di(2-ethylhexyl)phthalate in rats. *Toxicol Sci* 55(2):433-443.
- David RM, Moore MR, Finney DC, et al. 2000b. Chronic toxicity of di(2-ethylhexyl)phthalate in mice. *Toxicol Sci* 58(2):377-385.
- Deisinger PJ, Perry LG, Guest D. 1998. In vivo percutaneous absorption of [<sup>14</sup>C]DEHP from [<sup>14</sup>C]DEHP-plasticized polyvinyl chloride film in male Fischer 344 rats. *Food Chem Toxicol* 36:521-527.
- DeLeon IR, Byrne CJ, Peuler EA, et al. 1986. Trace organic and heavy metal pollutants in the Mississippi River. *Chemosphere* 15:795-805.
- Deng T, Xie X, Duan J, et al. 2019. Di-(2-ethylhexyl) phthalate induced an increase in blood pressure via activation of ACE and inhibition of the bradykinin-NO pathway. *Environ Pollut* 247:927-934. <http://doi.org/10.1016/j.envpol.2019.01.099>.
- Deng T, Du Y, Wang Y, et al. 2020. The associations of urinary phthalate metabolites with the intermediate and pregnancy outcomes of women receiving IVF/ICSI treatments: A prospective single-center study. *Ecotoxicol Environ Saf* 188:109884. <http://doi.org/10.1016/j.ecoenv.2019.109884>.
- Desdoits-Lethimonier C, Albert O, Le Bizec B, et al. 2012. Human testis steroidogenesis is inhibited by phthalates. *Hum Reprod* 27(5):1451-1459. <http://doi.org/10.1093/humrep/des069>.
- Desideri PG, Lepri L, Checchini L, et al. 1994. Organic compounds in surface and deep Antarctic snow. *Int J Environ Anal Chem* 55:33-46.
- Desideri PG, Lepri L, Udisti R, et al. 1998. Analysis of organic compounds in Antarctic snow and their origin. *Int J Environ Anal Chem* 7(3-4):331-351.
- DeVault DS. 1985. Contaminants in fish from Great Lakes harbors and tributary mouths. *Arch Environ Contam Toxicol* 14:587-594.
- Dhanya CR, Indu AR, Deepadevi KV, et al. 2003. Inhibition of membrane Na(+)-K+ ATPase of the brain, liver and RBC in rats administered di(2-ethyl hexyl) phthalate (DEHP) a plasticizer used in polyvinyl chloride (PVC) blood storage bags. *Indian J Exp Biol* 41(8):814-820.
- Dine T, Luyckx M, Cazin M, et al. 1991. Rapid determination by high performance liquid chromatography of di-2-ethylhexyl phthalate in plasma stored in plastic bags. *Biomed Chromatogr* 5:94-97.
- Dine T, Luyckx M, Gressier B, et al. 2000. A pharmacokinetic interpretation of increasing concentrations of DEHP in haemodialysed patients. *Med Eng Phys* 22:157-165.
- Ding Y, Gao K, Liu Y, et al. 2019. Transcriptome analysis revealed the mechanism of the metabolic toxicity and susceptibility of di-(2-ethylhexyl)phthalate on adolescent male ICR mice with type 2 diabetes mellitus. *Arch Toxicol* 93(11):3183-3206. <http://doi.org/10.1007/s00204-019-02590-8>.
- Dirinck E, Dirtu AC, Geens T, et al. 2015. Urinary phthalate metabolites are associated with insulin resistance in obese subjects. *Environ Res* 137:419-423. <http://doi.org/10.1016/j.envres.2015.01.010>.
- Dirtu AC, Geens T, Dirinck E, et al. 2013. Phthalate metabolites in obese individuals undergoing weight loss: Urinary levels and estimation of the phthalates daily intake. *Environ Int* 59:344-353. <http://doi.org/10.1016/j.envint.2013.06.023>.

## 8. REFERENCES

- Dirven HA, Theuvs JL, Jongeneelen FJ, et al. 1991. Non-mutagenicity of 4 metabolites of di(2-ethylhexyl)phthalate (DEHP) and 3 structurally related derivatives of di(2-ethylhexyl)adipate (DEHA) in the Salmonella mutagenicity assay. *Mutat Res* 260(1):121-130. [http://doi.org/10.1016/0165-1218\(91\)90088-4](http://doi.org/10.1016/0165-1218(91)90088-4).
- Diwan BA, Ward JM, Rice JM, et al. 1985. Tumor-promoting effects of di(2-ethylhexyl)phthalate in JB6 mouse epidermal cells and mouse skin. *Carcinogenesis* 6(3):343-347. <http://doi.org/10.1093/carcin/6.3.343>.
- Do RP, Stahlhut RW, Ponzi D, et al. 2012. Non-monotonic dose effects of in utero exposure to di(2-ethylhexyl) phthalate (DEHP) on testicular and serum testosterone and anogenital distance in male mouse fetuses. *Reprod Toxicol* 34(4):614-621. <http://doi.org/10.1016/j.reprotox.2012.09.006>.
- DOE. 2018a. Table 3: Protective Action Criteria (PAC) Rev. 29a based on applicable 60-minute AEGLs, ERPGs, or TEELs. The chemicals are listed by CASRN. June 2018. Oak Ridge, TN: U.S. Department of Energy. [https://edms.energy.gov/pac/docs/Revision\\_29A\\_Table3.pdf](https://edms.energy.gov/pac/docs/Revision_29A_Table3.pdf). April 12, 2020.
- DOE. 2018b. Protective Action Criteria (PAC) with AEGLs, ERPGs, & TEELs: Rev. 29A, June 2018. Oak Ridge, TN: U.S. Department of Energy. <https://edms.energy.gov/pac/>. April 12, 2020.
- Doherty BT, Engel SM, Buckley JP, et al. 2017. Prenatal phthalate biomarker concentrations and performances on the Bayles Scales of infant development-II in a population of young urban children. *Environ Res* 152:51-58.
- Dombret C, Capela D, Poissenot K, et al. 2017. Neural mechanisms underlying the disruption of male courtship behavior by adult exposure to di(2-ethylhexyl) phthalate in mice. *Environ Health Perspect* 125(9):097001. <http://doi.org/10.1289/ehp1443>.
- Dong X, Dong J, Zhao Y, et al. 2017. Effects of long-term in vivo exposure to di-2-ethylhexylphthalate on thyroid hormones and the TSH/TSHR signaling pathways in Wistar rats. *Int J Environ Res Public Health* 14:44. <http://doi.org/10.3390/ijerph14010044>.
- Dong J, Cong Z, You M, et al. 2019. Effects of perinatal di (2-ethylhexyl) phthalate exposure on thyroid function in rat offspring. *Environ Toxicol Pharmacol* 67:53-60. <http://doi.org/10.1016/j.etap.2019.01.012>.
- Dorman DC, Chiu W, Hales BF, et al. 2018. Systematic reviews and meta-analyses of human and animal evidence of prenatal diethylhexyl phthalate exposure and changes in male anogenital distance. *J Toxicol Environ Health* 21(4):207-226. <http://doi.org/10.1080/10937404.2018.1505354>.
- Dostal LA, Jenkins WL, Schwetz BA. 1987. Hepatic peroxisome proliferation and hypolipidemic effects of di(2-ethylhexyl) phthalate in neonatal and adult rats. *Toxicol Appl Pharmacol* 87:81-90.
- Dostal LA, Chapin RE, Stefanski SA, et al. 1988. Testicular toxicity and reduced Sertoli cell numbers in neonatal rats by di(2-ethylhexyl) phthalate and the recovery of fertility as adults. *Toxicol Appl Pharmacol* 95(1):104-121. [http://doi.org/10.1016/s0041-008x\(88\)80012-7](http://doi.org/10.1016/s0041-008x(88)80012-7).
- Douglas GR, Hugenholtz AP, Blakey DH. 1986. Genetic toxicology of phthalate esters: Mutagenic and other genotoxic effects. *Environ Health Perspect* 65:255-262.
- Doull J, Cattley R, Elcombe C, et al. 1999. A cancer risk assessment of di(2-ethylhexyl)phthalate: Application of the new U.S. EPA Risk Assessment Guidelines. *Regul Toxicol Pharmacol* 29(3):327-357. <http://doi.org/10.1006/rtph.1999.1296>.
- Doyle TJ, Bowman JL, Windell VL, et al. 2013. Transgenerational effects of di-(2-ethylhexyl) phthalate on testicular germ cell associations and spermatogonial stem cells in mice. *Biol Reprod* 88(5):112. <http://doi.org/10.1095/biolreprod.112.106104>.
- Du YY, Fang YL, Wang YX, et al. 2016. Follicular fluid and urinary concentrations of phthalate metabolites among infertile women and associations with in vitro fertilization parameters. *Reprod Toxicol* 61:142-150. <http://doi.org/10.1016/j.reprotox.2016.04.005>.
- Du ZP, Feng S, Li YL, et al. 2020. Di-(2-ethylhexyl) phthalate inhibits expression and internalization of transthyretin in human placental trophoblastic cells. *Toxicol Appl Pharmacol* 394:114960. <http://doi.org/10.1016/j.taap.2020.114960>.
- Eckel W, Ross B, Isensee R. 1993. Pentobarbital found in ground water. *Ground Water* 31:801-804.

## 8. REFERENCES

- Edlund C, Ericsson J, Dallner G. 1987. Changes in hepatic dolichol and dolichyl monophosphate caused by treatment of rats with inducers of the endoplasmic reticulum and peroxisomes and during ontogeny. *Chem Biol Interact* 62(2):191-208. [http://doi.org/10.1016/0009-2797\(87\)90090-1](http://doi.org/10.1016/0009-2797(87)90090-1).
- Egestad B, Sjoberg P. 1992. Glucosidation as a new conjugation pathway for metabolites of bis(2-ethylhexyl) phthalate. *Drug Metab Dispos* 20(3):470-472.
- Egestad B, Green G, Sjoberg P, et al. 1996. Chromatographic fractionation and analysis by mass spectrometry of conjugated metabolites of bis(2-ethylhexyl)phthalate in urine. *J Chromatogr* 677(1):99-109. [http://doi.org/10.1016/0378-4347\(95\)00439-4](http://doi.org/10.1016/0378-4347(95)00439-4).
- Eisenreich SJ, Looney BB, Thornton JD. 1981. Airborne organic contaminants in the Great Lakes ecosystem. *Environ Sci Technol* 15(1):30-38.
- Ellington JJ. 1999. Octanol/water partition coefficients and water solubilities of phthalate esters. *J Chem Eng Data* 44:1414-1418.
- Elliott BM, Elcombe CR. 1987. Lack of DNA damage or lipid peroxidation measured in vivo in the rat liver following treatment with peroxisomal proliferators. *Carcinogenesis* 8(9):1213-1218. <http://doi.org/10.1093/carcin/8.9.1213>.
- Elsisi AE, Carter DE, Sipes IG. 1989. Dermal absorption of phthalate diesters in rats. *Fundam Appl Toxicol* 12:70-77.
- Emoto C, Murayama N, Rostami-Hodjegan A, et al. 2009. Utilization of estimated physicochemical properties as an integrated part of predicting hepatic clearance in the early drug-discovery stage: Impact of plasma and microsomal binding. *Xenobiotica* 39(3):227-235. <http://doi.org/10.1080/00498250802668863>.
- Engel SM, Villanger GD, Nethery RC, et al. 2018. Prenatal phthalates, maternal thyroid function, and risk of attention-deficit hyperactivity disorder in the Norwegian mother and child cohort. *Environ Health Perspect* 126(5):057004. <http://doi.org/10.1289/EHP2358>.
- EPA. 1979. Water-related environmental fate of 129 priority pollutants. Vol. II. Halogenated aliphatic hydrocarbons, halogenated ethers, monocyclic aromatics, phthalate esters, polycyclic aromatic hydrocarbons, nitrosamines, and miscellaneous compounds. Washington, DC: U.S. Environmental Protection Agency. EPA440479029a. PB80204373.
- EPA. 1980. Ambient water quality criteria for phthalate esters. Washington, DC: U.S. Environmental Protection Agency. EPA440479029a. PB80204373.
- EPA. 1981. An exposure and risk assessment for phthalate esters: Di(2-ethylhexyl) phthalate, di-n-butyl phthalate, dimethyl phthalate, diethyl phthalate, di-n-octyl phthalate, butyl benzyl phthalate. Washington, DC: U.S. Environmental Protection Agency. EPA440481020. PB85211936.
- EPA. 1984. GC/MS analysis of organics in drinking water concentrates and advanced waste treatment concentrates: Volume I: Analysis results for 17 drinking water, 16 advanced waste treatment and 3 process blank concentrates. Research Triangle Park, NC: U.S. Environmental Protection Agency. EPA600184020a. PB85128221.
- EPA. 1986. Method 8060: Phthalate esters. Test methods for evaluating solid waste. U.S. Environmental Protection Agency. SW-846.
- EPA. 1990. Table 1-11: Pollutant concentration estimates from the National Sewage Sludge Survey. U.S. Environmental Protection Agency. *Fed Regist* 55:47229.
- EPA. 1995. Method 525.2. Determination of organic compounds in drinking water by liquid-solid extraction and capillary column gas chromatography/mass spectrometry. Selected analytical methods for environmental remediation and recovery (SAM). Cincinnati, OH: U.S. Environmental Protection Agency. <https://www.epa.gov/sites/production/files/2015-06/documents/epa-525.2.pdf>. April 15, 2021.
- EPA. 1996. Method 8061A. Phthalate esters by gas chromatography with electron capture detection (GC/ECD). Test methods for evaluation solid waste. U.S. Environmental Protection Agency. SW-846.
- EPA. 2005. Toxic chemical release inventory reporting forms and instructions: Revised 2004 version. Section 313 of the Emergency Planning and Community Right-to-Know Act (Title III of the

## 8. REFERENCES

- Superfund Amendments and Reauthorization Act of 1986). U.S. Environmental Protection Agency. EPA260B05001.
- EPA. 2009a. Targeted national sewage sludge survey sampling and analysis technical report. Washington, DC: U.S. Environmental Protection Agency. EPA822R08016. <https://nepis.epa.gov/Exe/ZyPURL.cgi?Dockey=P1003RL8.txt>. July 31, 2020.
- EPA. 2009b. The analysis of regulated contaminant occurrence data from public water systems in support of the second six-year review of National Primary Drinking Water Regulations. U.S. Environmental Protection Agency.
- EPA. 2009c. National primary drinking water regulations. Washington, DC: U.S. Environmental Protection Agency. EPA816F090004. [https://www.epa.gov/sites/production/files/2016-06/documents/npwdr\\_complete\\_table.pdf](https://www.epa.gov/sites/production/files/2016-06/documents/npwdr_complete_table.pdf). September 7, 2017.
- EPA. 2012. Phthalates action plan. Revised 3/14/2012. Washington, DC: U.S. Environmental Protection Agency. [https://www.epa.gov/sites/production/files/2015-09/documents/phthalates\\_actionplan\\_revised\\_2012-03-14.pdf](https://www.epa.gov/sites/production/files/2015-09/documents/phthalates_actionplan_revised_2012-03-14.pdf). July 9, 2018.
- EPA. 2018a. 2018 Edition of the drinking water standards and health advisories. Washington, DC: U.S. Environmental Protection Agency. EPA822S12001. <https://www.epa.gov/sites/production/files/2018-03/documents/dwtable2018.pdf>. July 25, 2018.
- EPA. 2018b. Acute Exposure Guideline Levels (AEGs) values. U.S. Environmental Protection Agency. [https://www.epa.gov/sites/production/files/2018-08/documents/compiled\\_aegls\\_update\\_27jul2018.pdf](https://www.epa.gov/sites/production/files/2018-08/documents/compiled_aegls_update_27jul2018.pdf). April 12, 2020.
- Eriksson P, Darnerud PO. 1985. Distribution and retention of some chlorinated hydrocarbons and a phthalate in the mouse brain during the preweaning period. *Toxicology* 37:189-203.
- Erkekoğlu P, Rachidi W, De Rosa V, et al. 2010a. Protective effect of selenium supplementation on the genotoxicity of di(2-ethylhexyl)phthalate and mono(2-ethylhexyl)phthalate treatment in LNCaP cells. *Free Radic Biol Med* 49(4):559-566. <http://doi.org/10.1016/j.freeradbiomed.2010.04.03>.
- Erkekoglu P, Giray B, Durmaz E, et al. 2010b. Evaluation of the correlation between plasma amylase and lipase levels and phthalate exposure in pubertal gynecomastia patients. *Turk Pediatri Arsivi* 45(4):366-370. <http://doi.org/10.4274/tpa.45.366>.
- Erythropel HC, Maric M, Nicell JA, et al. 2014. Leaching of the plasticizer di(2-ethylhexyl)phthalate (DEHP) from plastic containers and the question of human exposure. *Appl Microbiol Biotechnol* 98(24):9967-9981. <http://doi.org/10.1007/s00253-014-6183-8>.
- Exxon Chemical Americas. 1990. An investigation of the effect of di-(2-ethylhexyl) phthalate on rat hepatic peroxisomes with cover letter. Submitted to the U.S. Environmental Protection Agency under TSCA Section 8D. OTS0530399. 86-91000007729. TSCATS/414999.
- Factor-Litvak P, Insel B, Calafat AM, et al. 2014. Persistent associations between maternal prenatal exposure to phthalates on child IQ at age 7 years. *PLoS ONE* 9(12):e114003. <http://doi.org/10.1371/journal.pone.0114003>.
- Fahrig R, Steinkamp-Zucht A. 1996. Co-recombinogenic and anti-mutagenic effects of diethylhexylphthalate, inactiveness of pentachlorophenol in the spot test with mice. *Mutat Res* 354(1):59-67. [http://doi.org/10.1016/0027-5107\(96\)00036-x](http://doi.org/10.1016/0027-5107(96)00036-x).
- Fallon ME, Horvath FJ. 1985. Preliminary assessment of contaminants in soft sediments of the Detroit River. *J Great Lakes Res* 11:373-378.
- Fan Y, Qin Y, Chen M, et al. 2020. Prenatal low-dose DEHP exposure induces metabolic adaptation and obesity: Role of hepatic thiamine metabolism. *J Hazard Mater* 385:121534. <http://doi.org/10.1016/j.jhazmat.2019.121534>.
- Faouzi MA, Dine T, Luyckx M, et al. 1994. Leaching of diethylhexyl phthalate from PVC bags into intravenous teniposide solution. *Int J Pharm* 105(1):89-93.
- Faouzi MA, Dine T, Gressier B, et al. 1999. Exposure of hemodialysis patients to di-2-ethylhexyl phthalate. *Int J Pharm* 180(1):113-121. [http://doi.org/10.1016/s0378-5173\(98\)00411-6](http://doi.org/10.1016/s0378-5173(98)00411-6).

## 8. REFERENCES

- Fayad NM, Sheikheldin SY, Al-Malack MH, et al. 1997. Migration of vinyl chloride monomer (VCM) and additives into PVC bottled drinking water. *J Environ Sci Health A Environ Sci Eng Toxic Hazard* A32(4):1065-1083.
- FDA. 1999a. Subpart B-Substances for use only as components of adhesives. Adhesives. U.S. Food and Drug Administration. Code of Federal Regulations. 21 CFR 175.105.
- FDA. 1999b. Cellophane. U.S. Food and Drug Administration. Code of Federal Regulations. 21 CFR 177.1200.
- FDA. 1999c. Acrylic and modified acrylic plastics, semirigid and rigid. U.S. Food and Drug Administration. Code of Federal Regulations. 21 CFR 177.1010.
- FDA. 1999d. Surface lubricants used in the manufacture of metallic articles. U.S. Food and Drug Administration. Code of Federal Regulations. 21 CFR 178.3910.
- FDA. 1999e. Defoaming agents used in the manufacture of paper and paper-board. U.S. Food and Drug Administration. Code of Federal Regulations. 21 CFR 176.210.
- FDA. 1999f. Plasticizers. U.S. Food and Drug Administration. Code of Federal Regulations. 21 CFR 181.27.
- FDA. 1999g. Resinous and polymeric coatings. U.S. Food and Drug Administration. Code of Federal Regulations. 21 CFR 175.300.
- FDA. 2001. Safety assessment of di(2-ethylhexyl)phthalate (DEHP) released from PVC medical devices. Rockville, MD: U.S. Food and Drug Administration.
- FDA. 2016. Subpart B- Requirements for specific standardized beverages. Bottled water. U.S. Food and Drug Administration. Code of Federal Regulations. 21 CFR 165.110.  
<https://www.osha.gov/laws-regs/regulations/standardnumber/1926/1926.55AppA>. June 06, 2017.
- FDA. 2019a. Di(2-ethylhexyl) phthalate. Indirect additives used in food contact substances. Washington, DC: U.S. Food and Drug Administration.  
<https://www.cfsanappsexternal.fda.gov/scripts/fdcc/index.cfm?set=IndirectAdditives&id=DIPHTHALATE>. August 26, 2020.
- FDA. 2019b. Subpart B - Requirements for specific standardized beverages. Bottled water. U.S. Food and Drug Administration. Code of Federal Regulations. 21 CFR 165.110.  
<https://www.govinfo.gov/content/pkg/CFR-2019-title21-vol2/pdf/CFR-2019-title21-vol2-part165.pdf>. December 5, 2019.
- FDA. 2020. Substances added to food. Washington, DC: U.S. Food and Drug Administration.  
<https://www.cfsanappsexternal.fda.gov/scripts/fdcc/?set=FoodSubstances>. April 12, 2020.
- Feng W, Liu Y, Ding Y, et al. 2020. Typical neurobehavioral methods and transcriptome analysis reveal the neurotoxicity and mechanisms of di(2-ethylhexyl) phthalate on pubertal male ICR mice with type 2 diabetes mellitus. *Arch Toxicol* 94(4):1279-1302. <http://doi.org/10.1007/s00204-020-02683-9>.
- Ferguson KK, Loch-Carusio R, Meeker JD. 2012. Exploration of oxidative stress and inflammatory markers in relation to urinary phthalate metabolites: NHANES 1999-2006. *Environ Sci Technol* 46(1):477-485. <http://doi.org/10.1021/es202340b>.
- Ferguson KK, Peterson KE, Lee JM, et al. 2014a. Prenatal and peripubertal phthalates and bisphenol A in relation to sex hormones and puberty in boys. *Reprod Toxicol* 47:70-76.  
<http://doi.org/10.1016/j.reprotox.2014.06.002>.
- Ferguson KK, McElrath TF, Meeker JD. 2014b. Environmental phthalate exposure and preterm birth. *JAMA Pediatrics* 168(1):61. <http://doi.org/10.1001/jamapediatrics.2013.3699>.
- Ferguson KK, McElrath TF, Ko Y, et al. 2014c. Variability in urinary phthalate metabolite levels across pregnancy and sensitive windows of exposure for the risk of preterm birth. *Environ Int* 70:118-124.  
<http://doi.org/10.1016/j.envint.2014.05.016>.
- Ferguson KK, Peterson KE, Lee JM, et al. 2014d. Supplemental material: Prenatal and peripubertal phthalates and bisphenol A in relation to sex hormones and puberty in boys. *Reprod Toxicol* 47.  
<http://doi.org/10.1016/j.reprotox.2014.06.002>.



## 8. REFERENCES

- Ferguson KK, McElrath TF, Chen YH, et al. 2015. Urinary phthalate metabolites and biomarkers of oxidative stress in pregnant women: A repeated measures analysis. *Environ Health Perspect* 123(3):210-216. <http://doi.org/10.1289/ehp.1307996>.
- Ferguson KK, Chen YH, VanderWeele TJ, et al. 2017. Mediation of the relationship between maternal phthalate exposure and preterm birth by oxidative stress with repeated measurements across pregnancy. *Environ Health Perspect* 125(3):488-494. <http://doi.org/10.1289/ehp282>.
- Ferguson KK, Rosen EM, Barrett ES, et al. 2019a. Joint impact of phthalate exposure and stressful life events in pregnancy on preterm birth. *Environ Int* 133(Pt B):105254. <http://doi.org/10.1016/j.envint.2019.105254>.
- Ferguson KK, Rosen EM, Barrett ES, et al. 2019b. Supplemental material: Joint impact of phthalate exposure and stressful life events in pregnancy on preterm birth. *Environ Int* 133. <http://doi.org/10.1016/j.envint.2019.105254>.
- Ferguson KK, Rosen EM, Rosario Z, et al. 2019c. Environmental phthalate exposure and preterm birth in the PROTECT birth cohort. *Environ Int* 132:105099. <http://doi.org/10.1016/j.envint.2019.105099>.
- Fernandez-Canal C, Pinta PG, Eljezi T, et al. 2018. Patients' exposure to PVC plasticizers from ECMO circuits. *Expert Rev Med Devices* 15(5):377-383. <http://doi.org/10.1080/17434440.2018.1462698>.
- Fernández-González V, Moscoso-Pérez C, Muniategui-Lorenzo S, et al. 2017. Reliable, rapid and simple method for the analysis of phthalates in sediments by ultrasonic solvent extraction followed by head space-solid phase microextraction gas chromatography mass spectrometry determination. *Talanta* 162:648-653. <http://doi.org/10.1016/j.talanta.2016.10.068>.
- Fiandanese N, Borromeo V, Berrini A, et al. 2016. Maternal exposure to a mixture of di(2-ethylhexyl) phthalate (DEHP) and polychlorinated biphenyls (PCBs) causes reproductive dysfunction in adult male mouse offspring. *Reprod Toxicol* 65:123-132. <http://doi.org/10.1016/j.reprotox.2016.07.004>.
- Fong JP, Lee FJ, Lu IS, et al. 2015. Relationship between urinary concentrations of di(2-ethylhexyl) phthalate (DEHP) metabolites and reproductive hormones in polyvinyl chloride production workers. *Occup Environ Med* 72(5):346-353. <http://doi.org/10.1136/oemed-2014-102532>.
- Franken C, Lambrechts N, Govarts E, et al. 2017. Phthalate-induced oxidative stress and association with asthma-related airway inflammation in adolescents. *Int J Hyg Environ Health* 220(2 Pt B):468-477. <http://doi.org/10.1016/j.ijheh.2017.01.006>.
- Friedman GM, Mukhopadhyay PK, Moch A, et al. 2000. Waters and organic-rich waste near dumping grounds in New York Bight. *Int J Coal Geol* 42:325-355.
- Furr JR, Lambright CS, Wilson VS, et al. 2014. A short-term in vivo screen using fetal testosterone production, a key event in the phthalate adverse outcome pathway, to predict disruption of sexual differentiation. *Toxicol Sci* 140(2):403-424. <http://doi.org/10.1093/toxsci/kfu081>.
- Ganning AE, Brunk U, Edlund C, et al. 1987. Effects of prolonged administration of phthalate ester on the liver. *Environ Health Perspect* 73(0):251-258.
- Ganning AE, Olsson MJ, Peterson E, et al. 1989. Fatty acid oxidation in hepatic peroxisomes and mitochondria after treatment of rats with di(2-ethylhexyl)phthalate. *Pharmacol Toxicol* 65(4):265-268. <http://doi.org/10.1111/j.1600-0773.1989.tb01170.x>.
- Ganning AE, Olsson MJ, Brunk U, et al. 1991. Effects of prolonged treatment with phthalate ester on rat liver. *Pharmacol Toxicol* 68:392-401.
- Gao X, Yang B, Tang Z, et al. 2014. Determination of phthalates released from paper packaging materials by solid-phase extraction-high-performance liquid chromatography. *J Chromatogr Sci* 52(5):383-389. <http://doi.org/10.1093/chromsci/bmt046>.
- Gao HT, Xu R, Cao WX, et al. 2016. Food emulsifier glycerin monostearate increases internal exposure levels of six priority controlled phthalate esters and exacerbates their male reproductive toxicities in rats. *PLoS ONE* 11(8):e0161253. <http://doi.org/10.1371/journal.pone.0161253>.
- Gao H, Xu YY, Huang K, et al. 2017. Cumulative risk assessment of phthalates associated with birth outcomes in pregnant Chinese women: A prospective cohort study. *Environ Pollut* 222:549-556. <http://doi.org/10.1016/j.envpol.2016.11.026>.

## 8. REFERENCES

- Gao H, Wang YF, Huang K, et al. 2019. Prenatal phthalate exposure in relation to gestational age and preterm birth in a prospective cohort study. *Environ Res* 176:108530. <http://doi.org/10.1016/j.envres.2019.108530>.
- Gascon M, Casas M, Morales E, et al. 2015a. Prenatal exposure to bisphenol A and phthalates and childhood respiratory tract infections and allergy. *J Allergy Clin Immunol* 135(2):370-378. <http://doi.org/10.1016/j.jaci.2014.09.030>.
- Gascon M, Valvi D, Fornis J, et al. 2015b. Prenatal exposure to phthalates and neuropsychological development during childhood. *Int J Hyg Environ Health* 218(6):550-558. <http://doi.org/10.1016/j.ijheh.2015.05.006>.
- Ge RS, Chen GR, Dong Q, et al. 2007. Biphasic effects of postnatal exposure to diethylhexylphthalate on the timing of puberty in male rats. *J Androl* 28(4):513-520. <http://doi.org/10.2164/jandrol.106.001909>.
- Gejlsbjerg B, Klinge C, Madsen T. 2001. Mineralization of organic contaminants in sludge-soil mixtures. *Environ Toxicol Chem* 20(4):698-705.
- Genius SJ, Beesoon S, Lobo RA, et al. 2012. Human elimination of phthalate compounds: Blood, urine, and sweat (BUS) study. *Sci World J* 2012:615068. <http://doi.org/10.1100/2012/615068>.
- Gerbracht U, Einig C, Oesterle D, et al. 1990. Di(2-ethylhexyl)phthalate alters carbohydrate enzyme activities and foci incidence in rat liver. *Carcinogenesis* 11(12):2111-2115.
- Ghassemi M, Quinlivan S, Bachmaier J. 1984. Characteristics of leachates from hazardous waste landfills. *J Environ Sci Health A Environ Sci Eng Toxic Hazard* 19:579-620.
- Giam CS, Wong MK. 1987. Plasticizers in food. *J Food Prot* 50(9):769-782.
- Giam CS, Chan HS, Neff GS. 1975. Sensitive method for determination of phthalate ester plasticizers in open-ocean biota samples. *Anal Chem* 47:2225-2228.
- Giam CS, Chan HS, Neff GS, et al. 1978. Phthalate ester plasticizers: A new class of marine pollutant. *Science* 199:419-421.
- Giam CS, Atlas E, Chan HS, et al. 1980. Phthalate esters, PCB and DDT residues in the Gulf of Mexico atmosphere. *Atmos Environ* 14:65-69.
- Gong M, Zhang Y, Weschler CJ. 2014. Measurement of phthalates in skin wipes: Estimating exposure from dermal absorption. *Environ Sci Technol* 48(13):7428-7435. <http://doi.org/10.1021/es501700u>.
- Goodman M, Lakind JS, Mattison DR. 2014. Do phthalates act as obesogens in humans? A systematic review of the epidemiological literature. *Crit Rev Toxicol* 44(2):151-175. <http://doi.org/10.3109/10408444.2013.860076>.
- Goodrich JM, Ingle ME, Domino SE, et al. 2019. First trimester maternal exposures to endocrine disrupting chemicals and metals and fetal size in the Michigan Mother-Infant Pairs study. *J Dev Orig Health Dis* 10(4):447-458. <http://doi.org/10.1017/S204017441800106X>.
- Gramiccioni L, Milana MR, DiMarzio S, et al. 1990. Experimental evaluation about the actual release of DEHP from caps to packaged foods. *Rass Chim* 42:3-7.
- Grande SW, Andrade AJ, Talsness CE, et al. 2006. A dose-response study following in utero and lactational exposure to di(2-ethylhexyl)phthalate: effects on female rat reproductive development. *Toxicol Sci* 91(1):247-254. <http://doi.org/10.1093/toxsci/kfj128>.
- Grande SW, Andrade AJ, Talsness CE, et al. 2007. A dose-response study following in utero and lactational exposure to di-(2-ethylhexyl) phthalate (DEHP): reproductive effects on adult female offspring rats. *Toxicology* 229(1-2):114-122. <http://doi.org/10.1016/j.tox.2006.10.005>.
- Grasso P, Heindel JJ, Powell CJ, et al. 1993. Effects of mono(2-ethylhexyl) phthalate, a testicular toxicant, on follicle-stimulating hormone binding to membranes from cultured rat Sertoli cells. *Biol Reprod* 48(3):454-459.
- Gray TJB, Beamand JA. 1984. Effect of some phthalate esters and other testicular toxins on primary cultures of testicular cells. *Food Chem Toxicol* 22(2):123-131. [http://doi.org/10.1016/0278-6915\(84\)90092-9](http://doi.org/10.1016/0278-6915(84)90092-9).
- Gray TJ, Gangolli SD. 1986. Aspects of the testicular toxicity of phthalate esters. *Environ Health Perspect* 65:229-235.

## 8. REFERENCES

- Gray TJ, Butterworth KR, Gaunt IF, et al. 1977. Short-term toxicity study of di-(2-ethylhexyl) phthalate in rats. *Food Chem Toxicol* 15(5):389-399. [http://doi.org/10.1016/s0015-6264\(77\)80003-5](http://doi.org/10.1016/s0015-6264(77)80003-5).
- Gray L, Barlow N, Howdeshell K, et al. 2009. Transgenerational effects of di (2-ethylhexyl) phthalate in the male CRL:CD(SD) rat: added value of assessing multiple offspring per litter. *Toxicol Sci* 110(2):411-425. <http://doi.org/10.1093/toxsci/kfp109>.
- Greifenstein M, White DW, Stubner A, et al. 2013. Impact of temperature and storage duration on the chemical and odor quality of military packaged water in polyethylene terephthalate bottles. *Sci Total Environ* 456-457:376-383. <http://doi.org/10.1016/j.scitotenv.2013.03.092>.
- Grindler NM, Allsworth JE, Macones GA, et al. 2015. Persistent organic pollutants and early menopause in U.S. women. *PLoS ONE* 10(1):e0116057. <http://doi.org/10.1371/journal.pone.0116057>.
- Gu H, Liu Y, Wang W, et al. 2016. In utero exposure to di-(2-ethylhexyl) phthalate induces metabolic disorder and increases fat accumulation in visceral depots of C57BL/6J mice offspring. *Exp Ther Med* 12(6):3806-3812. <http://doi.org/10.3892/etm.2016.3820>.
- Guo J, Han B, Qin L, et al. 2012. Pulmonary toxicity and adjuvant effect of di-(2-ethylhexyl) phthalate in ovalbumin-immunized BALB/c mice. *PLoS ONE* 7(6):e39008. <http://doi.org/10.1371/journal.pone.0039008>.
- Guo J, Li XW, Liang Y, et al. 2013. The increased number of Leydig cells by di(2-ethylhexyl) phthalate comes from the differentiation of stem cells into Leydig cell lineage in the adult rat testis. *Toxicology* 306:9-15. <http://doi.org/10.1016/j.tox.2013.01.021>.
- Guo Y, Weck J, Sundaram R, et al. 2014. Urinary concentrations of phthalates in couples planning pregnancy and its association with 8-hydroxy-2'-deoxyguanosine, a biomarker of oxidative stress: longitudinal investigation of fertility and the environment study. *Environ Sci Technol* 48(16):9804-9811. <http://doi.org/10.1021/es5024898>.
- Gupta RC, Goel SK, Earley K, et al. 1985. 32P-Postlabeling analysis of peroxisome proliferator-DNA adduct formation in rat liver in vivo and hepatocytes in vitro. *Carcinogenesis* 6(6):933-936. <http://doi.org/10.1093/carcin/6.6.933>.
- Gupta C, Hattori A, Shinozuka H. 1988. Suppression of EGF binding in rat liver by the hypolipidemic peroxisome proliferators, 4-chloro-6-(2,3-xylidino)-2-pyrimidinylthio-(N-beta-hydroxyethyl)acetamide and di(2-ethylhexyl)phthalate. *Carcinogenesis* 9(1):167-169. <http://doi.org/10.1093/carcin/9.1.167>.
- Guyton KZ, Chiu WA, Bateson TF, et al. 2009. A reexamination of the PPAR-alpha activation mode of action as a basis for assessing human cancer risks of environmental contaminants. *Environ Health Perspect* 117(11):1664-1672. <http://doi.org/10.1289/ehp.0900758>.
- Hall AP, Elcombe CR, Foster J, et al. 2012. Liver hypertrophy: A review of the adaptive (adverse and non-adverse changes)- conclusions from the 3rd International ESTP Expert Workshop. *Toxicol Pathol* 40(7):971-994.
- Han Y, Wang X, Chen G, et al. 2014a. Di-(2-ethylhexyl) phthalate adjuvantly induces imbalanced humoral immunity in ovalbumin-sensitized BALB/c mice ascribing to T follicular helper cells hyperfunction. *Toxicology* 324:88-97. <http://doi.org/10.1016/j.tox.2014.07.011>.
- Han X, Cui Z, Zhou N, et al. 2014b. Urinary phthalate metabolites and male reproductive function parameters in Chongqing general population, China. *Int J Hyg Environ Health* 217(2-3):271-278. <http://doi.org/10.1016/j.ijheh.2013.06.006>.
- Han H, Lee HA, Park B, et al. 2019. Associations of phthalate exposure with lipid levels and insulin sensitivity index in children: A prospective cohort study. *Sci Total Environ* 662:714-721. <http://doi.org/10.1016/j.scitotenv.2019.01.151>.
- Hanioka N, Isobe T, Ohkawara S, et al. 2019. Hydrolysis of di(2-ethylhexyl) phthalate in humans, monkeys, dogs, rats, and mice: An in vitro analysis using liver and intestinal microsomes. *Toxicol in Vitro* 54:237-242. <http://doi.org/10.1016/j.tiv.2018.10.006>.
- Hannas BR, Lambright CS, Furr J, et al. 2011. Dose-response assessment of fetal testosterone production and gene expression levels in rat testes following in utero exposure to diethylhexyl

## 8. REFERENCES

- phthalate, diisobutyl phthalate, diisoheptyl phthalate, and diisononyl phthalate. *Toxicol Sci* 123(1):206-216. <http://doi.org/10.1093/toxsci/kfr146>.
- Hannon PR, Peretz J, Flaws JA. 2014. Daily exposure to di(2-ethylhexyl) phthalate alters estrous cyclicity and accelerates primordial follicle recruitment potentially via dysregulation of the phosphatidylinositol 3-kinase signaling pathway in adult mice. *Biol Reprod* 90(6):136. <http://doi.org/10.1095/biolreprod.114.119032>.
- Hansen OG. 2019. Does it really make sense to develop PVC-free materials? *Plastics Today*. <https://www.plasticstoday.com/medical/does-it-really-make-sense-develop-pvc-free-materials>. July 9, 2021.
- Hansen JF, Bendtzen K, Boas M, et al. 2015. Influence of phthalates on cytokine production in monocytes and macrophages: a systematic review of experimental trials. *PLoS ONE* 10(3):e0120083. <http://doi.org/10.1371/journal.pone.0120083>.
- Hao C, Cheng X, Xia H, et al. 2012. The endocrine disruptor mono-(2-ethylhexyl) phthalate promotes adipocyte differentiation and induces obesity in mice. *Biosci Rep* 32:619-629.
- Harley KG, Berger K, Rauch S, et al. 2017. Association of prenatal urinary phthalate metabolite concentrations and childhood BMI and obesity. *Pediatr Res* 82(3):405-415.
- Hasegawa M, Kawai K, Mitsui T, et al. 2011. The reconstituted 'humanized liver' in TK-NOG mice is mature and functional. *Biochem Biophys Res Commun* 405(3):405-410. <http://doi.org/10.1016/j.bbrc.2011.01.042>.
- Hasmall SC, James NH, Macdonald N, et al. 2000. Species differences in response to diethylhexylphthalate: suppression of apoptosis, induction of DNA synthesis and peroxisome proliferator activated receptor alpha-mediated gene expression. *Arch Toxicol* 74(2):85-91. <http://doi.org/10.1007/s002040050657>.
- Hatch EE, Nelson JW, Qureshi MM, et al. 2008. Association of urinary phthalate metabolite concentrations with body mass index and waist circumference: a cross-sectional study of NHANES data, 1999-2002. *Environ Health* 7:27. <http://doi.org/10.1186/1476-069x-7-27>.
- Hauser TR, Bromberg SM. 1982. EPA's monitoring program at Love Canal 1980. *Environ Monit Assess* 2(3):249-272. <http://doi.org/10.1007/bf00394456>.
- Hauser R, Williams P, Altshul L, et al. 2005. Evidence of interaction between polychlorinated biphenyls and phthalates in relation to human sperm motility. *Environ Health Perspect* 113(4):425-430. <http://doi.org/10.1289/ehp.7305>.
- Hauser R, Meeker JD, Duty S, et al. 2006. Altered semen quality in relation to urinary concentrations of phthalate monoester and oxidative metabolites. *Epidemiology* 17(6):682-691. <http://doi.org/10.1097/01.ede.0000235996.89953.d7>.
- Hauser R, Meeker JD, Singh NP, et al. 2007. DNA damage in human sperm is related to urinary levels of phthalate monoester and oxidative metabolites. *Hum Reprod* 22(3):688-695. <http://doi.org/10.1093/humrep/del428>.
- Hauser R, Gaskins AJ, Souter I, et al. 2016. Urinary phthalate metabolite concentrations and reproductive outcomes among women undergoing in vitro fertilization: Results from the EARTH study. *Environ Health Perspect* 124(6):831-839. <http://doi.org/10.1289/ehp.1509760>.
- Hayashi F, Tamura H, Yamada J, et al. 1994. Characteristics of the hepatocarcinogenesis caused by dehydroepiandrosterone, a peroxisome proliferator, in male F-344 rats. *Carcinogenesis* 15(10):2215-2219. <http://doi.org/10.1093/carcin/15.10.2215>.
- Hayashi F, Motoki Y, Tamura H, et al. 1998. Induction of hepatic poly(ADP-ribose) polymerase by peroxisome proliferators, non-genotoxic hepatocarcinogens. *Cancer Lett* 127(1-2):1-7.
- Hayashi Y, Ito Y, Yanagiba Y, et al. 2012. Differences in metabolite burden of di(2-ethylhexyl)phthalate in pregnant and postpartum dams and their offspring in relation to drug-metabolizing enzymes in mice. *Arch Toxicol* 86(4):563-569. <http://doi.org/10.1007/s00204-011-0790-2>.
- Haynes WM. 2014. Physical constants of organic compounds. Bis(2-ethylhexyl) phthalate. In: *CRC handbook of chemistry and physics*. 95th ed. Boca Raton, FL: CRC Press, 3-54.

## 8. REFERENCES

- He L, Fan S, Müller K, et al. 2018. Comparative analysis biochar and compost-induced degradation of di-(2-ethylhexyl) phthalate in soils. *Sci Total Environ* 625:987-993. <http://doi.org/10.1016/j.scitotenv.2018.01.002>.
- He Y, Wang Q, He W, et al. 2019. Phthalate esters (PAEs) in atmospheric particles around a large shallow natural lake (Lake Chaohu, China). *Sci Total Environ* 687:297-308. <http://doi.org/10.1016/j.scitotenv.2019.06.034>.
- Health Canada. 1998. Risk assessment on diisononyl phthalate in vinyl children's products. Ottawa, ON: Health Canada.
- Heggeseth BC, Holland N, Eskenazi B, et al. 2019a. Heterogeneity in childhood body mass trajectories in relation to prenatal phthalate exposure. *Environ Res* 175:22-33. <http://doi.org/10.1016/j.envres.2019.04.036>.
- Heggeseth BC, Holland N, Eskenazi B, et al. 2019b. Supplementary data: Heterogeneity in childhood body mass trajectories in relation to prenatal phthalate exposure. *Environ Res* 175. <http://doi.org/10.1016/j.envres.2019.04.036>.
- Heindel JJ, Powell CJ. 1992. Phthalate ester effects on rat Sertoli cell function in vitro: Effects of phthalate side chain and age of animal. *Toxicol Appl Pharmacol* 115(1):116-123. [http://doi.org/10.1016/0041-008x\(92\)90374-2](http://doi.org/10.1016/0041-008x(92)90374-2).
- Hellwig J, Freudenberger H, Jäckh R. 1997. Differential prenatal toxicity of branched phthalate esters in rats. *Food Chem Toxicol* 35(5):501-512. [http://doi.org/10.1016/s0278-6915\(97\)00008-2](http://doi.org/10.1016/s0278-6915(97)00008-2).
- Helmig D, Bauer A, Mueller J, et al. 1990. Analysis of particulate organics in a forest atmosphere by thermodesorption GC/MS. *Atmos Environ* 24(1):179-184. [http://doi.org/10.1016/0960-1686\(90\)90454-u](http://doi.org/10.1016/0960-1686(90)90454-u).
- Herr C, zur Nieden A, Koch HM, et al. 2009. Urinary di(2-ethylhexyl)phthalate (DEHP)--metabolites and male human markers of reproductive function. *Int J Hyg Environ Health* 212(6):648-653. <http://doi.org/10.1016/j.ijheh.2009.08.001>.
- Hill SS, Shaw BR, Wu AH. 2001. The clinical effects of plasticizers, antioxidants, and other contaminants in medical polyvinylchloride tubing during respiratory and non-respiratory exposure. *Clin Chim Acta* 304:1-8.
- Hines EP, Calafat AM, Silva MJ, et al. 2009a. Concentrations of phthalate metabolites in milk, urine, saliva, and serum of lactating North Carolina women. *Environ Health Perspect* 117(1):86-92. <http://doi.org/10.1289/ehp.11610>.
- Hines CJ, Nilsen Hopf NB, Deddens JA, et al. 2009b. Urinary phthalate metabolite concentrations among workers in selected industries: a pilot biomonitoring study. *Ann Occup Hyg* 53(1):1-17. <http://doi.org/10.1093/annhyg/men066>.
- Hines C, Hopf N, Deddens J, et al. 2011. Estimated daily intake of phthalates in occupationally exposed groups. *J Expo Sci Environ Epidemiol* 21(2):133-141. <http://doi.org/10.1038/jes.2009.62>.
- Hinton RH, Mitchell FE, Mann A, et al. 1986. Effects of phthalic acid esters on the liver and thyroid. *Environ Health Perspect* 70:195-210.
- Hites RA. 1973. Analysis of trace organic compounds in New England rivers. *J Chromatogr Sci* 11(11):570-574.
- Hodgson JR. 1987. Results of peroxisome induction studies on tri(2-ethylhexyl)trimellitate and 2-ethylhexanol. *Toxicol Ind Health* 3(2):49-61. <http://doi.org/10.1177/074823378700300205>.
- Hodgson JR, Myhr BC, McKeon M, et al. 1982. Evaluation of di-(2-ethylhexyl)phthalate and its major metabolites in the primary rat hepatocyte unscheduled DNA synthesis assay. *Environ Mutagen* 4(3):388.
- Hoff RM, Chan KW. 1987. Measurement of polycyclic aromatic hydrocarbons in the air along the Niagara River. *Environ Sci Technol* 21:556-561.
- Holmes AK, Koller KR, Kieszak SM, et al. 2014. Case-control study of breast cancer and exposure to synthetic environmental chemicals among Alaska Native women. *Int J Circumpolar Health* 73:25760.

## 8. REFERENCES

- Hopf NB, Berthet A, Vernez D, et al. 2014. Skin permeation and metabolism of di(2-ethylhexyl) phthalate (DEHP). *Toxicol Lett* 224(1):47-53. <http://doi.org/10.1016/j.toxlet.2013.10.004>.
- Hoppin JA, Ulmer R, London SJ. 2004. Phthalate exposure and pulmonary function. *Environ Health Perspect* 112(5):571-574.
- Hoppin JA, Jaramillo R, London SJ, et al. 2013. Phthalate exposure and allergy in the U.S. population: Results from NHANES 2005-2006. *Environ Health Perspect* 121(10):1129-1134. <http://doi.org/10.1289/ehp.1206211>.
- Hou JW, Lin CL, Tsai YA, et al. 2015a. The effects of phthalate and nonylphenol exposure on body size and secondary sexual characteristics during puberty. *Int J Hyg Environ Health* 218(7):603-615. <http://doi.org/10.1016/j.ijheh.2015.06.004>.
- Hou JW, Lin CL, Tsai YA, et al. 2015b. Supplemental data: The effects of phthalate and nonylphenol exposure on body size and secondary sexual characteristics during puberty. *Int J Hyg Environ Health* 218.
- Howard PH. 1989. Large production and priority pollutants. In: *Handbook of environmental fate and exposure data of environmental chemicals*. Vol. 1. Chelsea, MA: Lewis Publishers Inc., 279-285.
- Howard PH, Meylan WM. 1997. Di(2-ethylhexyl)phthalate. In: *Handbook of physical properties of organic chemicals*. Boca Raton, FL: CRC Press, Inc., 226.
- Howard PH, Banerjee S, Robillard KH. 1985. Measurement of water solubilities, octanol/water partition coefficients and vapor pressures of commercial phthalate esters. *Environ Toxicol Chem* 4:653-661.
- Howarth JA, Price SC, Dobrota M, et al. 2001. Effects on male rats of di-(2-ethylhexyl) phthalate and di-n-hexylphthalate administered alone or in combination. *Toxicol Lett* 121(1):35-43.
- Howdeshell KL, Furr J, Lambright CR, et al. 2007. Cumulative effects of dibutyl phthalate and diethylhexyl phthalate on male rat reproductive tract development: Altered fetal steroid hormones and genes. *Toxicol Sci* 99(1):190-202. <http://doi.org/10.1093/toxsci/kfm069>.
- Howdeshell KL, Wilson VS, Furr J, et al. 2008. A mixture of five phthalate esters inhibits fetal testicular testosterone production in the Sprague-Dawley rat in a cumulative, dose-additive manner. *Toxicol Sci* 105(1):153-165. <http://doi.org/10.1093/toxsci/kfn077>.
- Hoyer BB, Lenters V, Giwercman A, et al. 2018. Impact of di-2-ethylhexyl phthalate metabolites on male reproductive function: A systematic review of human evidence. *Current Environmental Health Reports* 5(1):20-33. <http://doi.org/10.1007/s40572-018-0174-3>.
- Hsu NY, Lee CC, Wang JY, et al. 2012. Predicted risk of childhood allergy, asthma and reported symptoms using measured phthalate exposure in dust and urine. *Indoor Air* 22(3):186-199. <http://doi.org/10.1111/j.1600-0668.2011.00753.x>.
- Hsu PC, Kuo YT, Leon Guo Y, et al. 2016. The adverse effects of low-dose exposure to di(2-ethylhexyl) phthalate during adolescence on sperm function in adult rats. *Environ Toxicol* 31(6):706-712. <http://doi.org/10.1002/tox.22083>.
- Hsu JW, Yeh SC, Tsai FY, et al. 2019. Fibroblast growth factor 21 secretion enhances glucose uptake in mono(2-ethylhexyl)phthalate-treated adipocytes. *Toxicol in Vitro* 59:246-254. <http://doi.org/10.1016/j.tiv.2019.04.021>.
- Hsu JW, Nien CY, Yeh SC, et al. 2020. Phthalate exposure causes browning-like effects on adipocytes in vitro and in vivo. *Food Chem Toxicol* 142:111487. <http://doi.org/10.1016/j.fct.2020.111487>.
- Hu JMY, Arbuckle TE, Janssen P, et al. 2020. Associations of prenatal urinary phthalate exposure with preterm birth: the Maternal-Infant Research on Environmental Chemicals (MIREC) Study. *Can J Public Health* 111(3):333-341. <http://doi.org/10.17269/s41997-020-00322-5>.
- Huang PC, Kuo PL, Guo YL, et al. 2007. Associations between urinary phthalate monoesters and thyroid hormones in pregnant women. *Hum Reprod* 22(10):2715-2722. <http://doi.org/10.1093/humrep/dem205>.
- Huang PC, Tsai EM, Li WF, et al. 2010. Association between phthalate exposure and glutathione S-transferase M1 polymorphism in adenomyosis, leiomyoma and endometriosis. *Hum Reprod* 25(4):986-994. <http://doi.org/10.1093/humrep/deq015>.

## 8. REFERENCES

- Huang LP, Lee CC, Fan JP, et al. 2014a. Urinary metabolites of di(2-ethylhexyl) phthalate relation to sperm motility, reactive oxygen species generation, and apoptosis in polyvinyl chloride workers. *Int Arch Occup Environ Health* 87(6):635-646. <http://doi.org/10.1007/s00420-013-0905-6>.
- Huang T, Saxena AR, Isganaitis E, et al. 2014b. Gender and racial/ethnic differences in the associations of urinary phthalate metabolites with markers of diabetes risk: National Health and Nutrition Examination Survey 2001-2008. *Environ Health* 13(1):6. <http://doi.org/10.1186/1476-069x-13-6>.
- Huang HB, Chen HY, Su PH, et al. 2015. Fetal and childhood exposure to phthalate diesters and cognitive function in children up to 12 years of age: Taiwanese maternal and infant cohort study. *PLoS ONE* 10(6):e0131910. <http://doi.org/10.1371/journal.pone.0131910>.
- Huang HB, Pan WH, Chang JW, et al. 2017. Does exposure to phthalates influence thyroid function and growth hormone homeostasis? The Taiwan Environmental Survey for Toxicants (TEST) 2013. *Environ Res* 153:63-72. <http://doi.org/10.1016/j.envres.2016.11.014>.
- Huang HB, Kuo PL, Chang JW, et al. 2018. Longitudinal assessment of prenatal phthalate exposure on serum and cord thyroid hormones homeostasis during pregnancy- Tainan birth cohort study (TBCS). *Sci Total Environ* 619-620:1058-1065.
- Huang HB, Kuo PH, Su PH, et al. 2019. Prenatal and childhood exposure to phthalate diesters and neurobehavioral development in a 15-year follow-up birth cohort study. *Environ Res* 172:569-577. <http://doi.org/10.1016/j.envres.2019.02.029>.
- Huang PC, Waits A, Chen HC, et al. 2020a. Mediating role of oxidative/nitrosative stress biomarkers in the associations between phthalate exposure and thyroid function in Taiwanese adults. *Environ Int* 140:105751. <http://doi.org/10.1016/j.envint.2020.105751>.
- Huang PC, Chang WH, Wu MT, et al. 2020b. Characterization of phthalate exposure in relation to serum thyroid and growth hormones, and estimated daily intake levels in children exposed to phthalate-tainted products: A longitudinal cohort study. *Environ Pollut* 264:114648. <http://doi.org/10.1016/j.envpol.2020.114648>.
- Huber W, Grasl-Kraupp B, Schulte-Hermann R. 1996. Hepatocarcinogenic potential of di(2-ethylhexyl)phthalate in rodents and its implications on human risk. *Crit Rev Toxicol* 26(4):365-481. <http://doi.org/10.3109/10408449609048302>.
- Hunt BG, Wang Y, Chen M, et al. 2017. Maternal diethylhexyl phthalate exposure affects adiposity and insulin tolerance in offspring in a PCNA-dependent manner. *Environ Res* 159:588-594.
- Hutchins SR, Tomson MB, Ward CH. 1983. Trace organic contamination of ground water from a rapid infiltration site: A laboratory-field coordinated study. *Environ Toxicol Chem* 2(2):195-216.
- Iannuzzi TJ, Huntley SL, Schmidt CW, et al. 1997. Combined sewer overflows (CSOs) as sources of sediment contamination in the lower Passaic River, New Jersey. I. Priority pollutants and inorganic chemicals. *Chemosphere* 34(2):213-231.
- IARC. 1982. Di(2-ethylhexyl)phthalate. IARC Monographs on the evaluation of the carcinogenic risk of chemicals to humans: Some industrial chemicals and dyestuffs. Lyon, France: International Agency for Research on Cancer. Vol. 29, 269-294.
- IARC. 2012. Di(2-ethylhexyl)phthalate. IARC Monographs. Some chemicals present in industrial and consumer products, food and drinking-water. International Agency for Research on Cancer.
- IARC. 2013. Di(2-ethylhexyl)phthalate. IARC Monographs on the Evaluation of Carcinogenic Risks to Humans. Volume 101: Some chemicals present in industrial and consumer products, food and drinking-water. Lyon, France: International Agency for Research on Cancer.
- IARC. 2013. Di(2-ethylhexyl)phthalate. IARC Monographs on the evaluation of carcinogenic risks to humans. Volume 101: Some chemicals present in industrial and consumer products, food and drinking-water. Lyon, France: International Agency for Research on Cancer. 149-284. <https://publications.iarc.fr/125>. April 27, 2017.
- IARC. 2017. Agents classified by the IARC Monographs, Volumes 1-118. Lyon, France: International Agency for Research on Cancer.

## 8. REFERENCES

- ICI Americas Inc. 1982. Bis(2-ethylhexyl)phthalate: A comparative subacute toxicity study in the rat and marmoset with cover letter dated 032283. Submitted to the U.S. Environmental Protection Agency under TSCA Section 8D. OTS215194. 878220040. TSCATS/020230.
- Ikeda GJ, Sapienza PP, Couvillion JL, et al. 1980. Comparative distribution, excretion and metabolism of di-(2-ethylhexyl) phthalate in rats, dogs and miniature pigs. *Food Cosmet Toxicol* 18(6):637-642. [http://doi.org/10.1016/s0015-6264\(80\)80012-5](http://doi.org/10.1016/s0015-6264(80)80012-5).
- Inoue K, Kawaguchi M, Yamanaka R, et al. 2005. Evaluation and analysis of exposure levels of di(2-ethylhexyl) phthalate from blood bags. *Clin Chim Acta* 358(1-2):159-166. <http://doi.org/10.1016/j.cccn.2005.02.019>.
- Ipapo KN, Factor-Litvak P, Whyatt RM, et al. 2017. Maternal prenatal urinary phthalate metabolite concentrations and visual recognition memory among infants at 27 weeks. *Environ Res* 155:7-14. <http://doi.org/10.1016/j.envres.2017.01.019>.
- IRIS. 1988. Di(2-ethylhexyl)phthalate (DEHP); CASRN 117-81-7. Integrated Risk Information System. Washington, DC: U.S. Environmental Protection Agency. [https://cfpub.epa.gov/ncea/iris/iris\\_documents/documents/subst/0014\\_summary.pdf](https://cfpub.epa.gov/ncea/iris/iris_documents/documents/subst/0014_summary.pdf). April 27, 2017.
- Isenberg JS, Kamendulis LM, Smith JH, et al. 2000. Effects of di-2-ethylhexyl phthalate (DEHP) on gap-junctional intercellular communication (GJIC), DNA synthesis, and peroxisomal beta oxidation (PBOX) in rat, mouse, and hamster liver. *Toxicol Sci* 56:73-85.
- Isenberg JS, Kamendulis L, Ackley D, et al. 2001. Reversibility and persistence of di-2-ethylhexyl phthalate (DEHP)- and phenobarbital-induced hepatocellular changes in rodents. *Toxicol Sci* 64(2):192-199. <http://doi.org/10.1093/toxsci/64.2.192>.
- Ito Y, Yokota H, Wang R, et al. 2005. Species differences in the metabolism of di(2-ethylhexyl) phthalate (DEHP) in several organs of mice, rats, and marmosets. *Arch Toxicol* 79(3):147-154. <http://doi.org/10.1007/s00204-004-0615-7>.
- Ito Y, Kamijima M, Hasegawa C, et al. 2014. Species and inter-individual differences in metabolic capacity of di(2-ethylhexyl)phthalate (DEHP) between human and mouse livers. *Environ Health Prev Med* 19(2):117-125. <http://doi.org/10.1007/s12199-013-0362-6>.
- Ito Y, Kamijima M, Nakajima T. 2019. Di(2-ethylhexyl) phthalate-induced toxicity and peroxisome proliferator-activated receptor alpha: a review. *Environ Health Prev Med* 24(1):47. <http://doi.org/10.1186/s12199-019-0802-z>.
- Itoh H, Iwasaki M, Hanaoka T, et al. 2009. Urinary phthalate monoesters and endometriosis in infertile Japanese women. *Sci Total Environ* 408(1):37-42. <http://doi.org/10.1016/j.scitotenv.2009.09.012>.
- Jaeger RJ, Rubin RJ. 1972. Migration of a phthalate ester plasticizer from polyvinyl chloride blood bags into stored human blood and its localization in human tissues. *N Engl J Med* 287:1114-1118.
- Jaimes R, McCullough D, Siegel B, et al. 2019. Plasticizer interaction with the heart: Chemicals used in plastic medical devices can interfere with cardiac electrophysiology. *Circ Arrhythm Electrophysiol* 12(7):e007294. <http://doi.org/10.1161/circep.119.007294>.
- James-Todd T, Stahlhut R, Meeker JD, et al. 2012. Urinary phthalate metabolite concentrations and diabetes among women in the National Health and Nutrition Examination Survey (NHANES) 2001-2008. *Environ Health Perspect* 120(9):1307-1313. <http://doi.org/10.1289/ehp.1104717>.
- James-Todd TM, Huang T, Seely EW, et al. 2016a. The association between phthalates and metabolic syndrome: the National Health and Nutrition Examination Survey 2001-2010. *Environ Health* 15:52. <http://doi.org/10.1186/s12940-016-0136-x>.
- James-Todd TM, Meeker JD, Huang T, et al. 2016b. Pregnancy urinary phthalate metabolite concentrations and gestational diabetes risk factors. *Environ Int* 96:118-126. <http://doi.org/10.1016/j.envint.2016.09.009>.
- James-Todd TM, Chiu YH, Messerlian C, et al. 2018. Trimester-specific phthalate concentrations and glucose levels among women from a fertility clinic. *Environ Health* 17(1):55. <http://doi.org/10.1186/s12940-018-0399-5>.



## 8. REFERENCES

- Jarfelt K, Dalgaard M, Hass U, et al. 2005. Antiandrogenic effects in male rats perinatally exposed to a mixture of di(2-ethylhexyl) phthalate and di(2-ethylhexyl) adipate. *Reprod Toxicol* 19(4):505-515. <http://doi.org/10.1016/j.reprotox.2004.11.005>.
- Jensen TK, Frederiksen H, Kyhl HB, et al. 2016. Prenatal exposure to phthalates and anogenital distance in male infants from a low-exposed Danish cohort (2010-2012). *Environ Health Perspect* 124(7):1107-1113. <http://doi.org/10.1289/ehp.1509870>.
- Joensen UN, Frederiksen H, Blomberg Jensen M, et al. 2012. Phthalate excretion pattern and testicular function: a study of 881 healthy Danish men. *Environ Health Perspect* 120(10):1397-1403. <http://doi.org/10.1289/ehp.1205113>.
- Joensen UN, Jorgensen N, Meldgaard M, et al. 2014. Associations of filaggrin gene loss-of-function variants with urinary phthalate metabolites and testicular function in young Danish Men. *Environ Health Perspect* 122(4):345-350. <http://doi.org/10.1289/ehp.1306720>.
- Jøhnk C, Høst A, Husby S, et al. 2020. Maternal phthalate exposure and asthma, rhinitis and eczema in 552 children aged 5 years; a prospective cohort study. *Environ Health* 19(1):32. <http://doi.org/10.1186/s12940-020-00586-x>.
- Johns LE, Ferguson KK, Soldin OP, et al. 2015. Urinary phthalate metabolites in relation to maternal serum thyroid and sex hormone levels during pregnancy: a longitudinal analysis. *Reprod Biol Endocrinol* 13:4. <http://doi.org/10.1186/1477-7827-13-4>.
- Johns LE, Ferguson KK, McElrath TF, et al. 2016. Associations between repeated measures of maternal urinary phthalate metabolites and thyroid hormone parameters during pregnancy. *Environ Health Perspect* 124(11):1808-1815. <http://doi.org/10.1289/ehp170>.
- Johns LE, Ferguson KK, Cantonwine DE, et al. 2017. Urinary BPA and phthalate metabolite concentrations and plasma vitamin D levels in pregnant women: A repeated measures analysis. *Environ Health Perspect* 125(8):087026. <http://doi.org/10.1289/EHP1178>.
- Johnson BT, Heitkamp MA, Jones JR. 1977. Dynamics of phthalic acid esters in aquatic organisms. Fate of pollutants in the air and water environments: Part 2. Chemical and biological fate of pollutants in the environment. New York, NY: John Wiley & Sons. 283-300
- Johnson BT, Heitkamp MA, Jones JR. 1984. Environmental and chemical factors influencing the biodegradation of phthalic-acid esters in freshwater sediments. *Environ Pollut* 8(2):101-118. [http://doi.org/10.1016/0143-148x\(84\)90021-1](http://doi.org/10.1016/0143-148x(84)90021-1).
- Jones HB, Garside DA, Liu R, et al. 1993. The influence of phthalate esters on Leydig cell structure and function in vitro and in vivo. *Exp Mol Pathol* 58(3):179-193. <http://doi.org/10.1006/exmp.1993.1016>.
- Jones DL, Burklin CE, Seaman JC, et al. 1996. Models to estimate volatile organic hazardous air pollutant emissions from municipal sewer systems. *J Air Waste Manage Assoc* 46:657-666.
- Jones S, Boisvert A, Duong TB, et al. 2014. Disruption of rat testis development following combined in utero exposure to the phytoestrogen genistein and antiandrogenic plasticizer di-(2-ethylhexyl) phthalate. *Biol Reprod* 91(3):64. <http://doi.org/10.1095/biolreprod.114.120907>.
- Jones S, Boisvert A, Francois S, et al. 2015. In utero exposure to di-(2-ethylhexyl) phthalate induces testicular effects in neonatal rats that are antagonized by genistein cotreatment. *Biol Reprod* 93(4):92. <http://doi.org/10.1095/biolreprod.115.129098>.
- Jones S, Boisvert A, Naghi A, et al. 2016. Stimulatory effects of combined endocrine disruptors on MA-10 Leydig cell steroid production and lipid homeostasis. *Toxicology* 355-356:21-30. <http://doi.org/10.1016/j.tox.2016.05.008>.
- Jonsson BAG, Richthoff J, Rylander L, et al. 2005. Urinary phthalate metabolites and biomarkers of reproductive function in young men. *Epidemiology* 16(4):487-493. <http://doi.org/10.1097/01.ede.0000164555.19041.01>.
- Juberg DR, Alfano K, Coughlin RJ, et al. 2001. An observational study of object mouthing behavior by young children. *Pediatrics* 107:135-142.

## 8. REFERENCES

- Jukic AM, Calafat AM, McConaughey DR, et al. 2016. Urinary concentrations of phthalate metabolites and bisphenol A and associations with follicular-phase length, luteal-phase length, fecundability, and early pregnancy loss. *Environ Health Perspect* 124(3):321-328. <http://doi.org/10.1289/ehp.1408164>.
- Jurewicz J, Radwan M, Sobala W, et al. 2013. Human urinary phthalate metabolites level and main semen parameters, sperm chromatin structure, sperm aneuploidy and reproductive hormones. *Reprod Toxicol* 42:232-241. <http://doi.org/10.1016/j.reprotox.2013.10.001>.
- Just AC, Whyatt RM, Miller RL, et al. 2012. Children's urinary phthalate metabolites and fractional exhaled nitric oxide in an urban cohort. *Am J Respir Crit Care Med* 186(9):830-837. <http://doi.org/10.1164/rccm.201203-0398OC>.
- Kaestner F, Seiler F, Rapp D, et al. 2020. Exposure of patients to di(2-ethylhexyl)phthalate (DEHP) and its metabolite MEHP during extracorporeal membrane oxygenation (ECMO) therapy. *PLoS ONE* 15(1):e0224931. <http://doi.org/10.1371/journal.pone.0224931>.
- Kambia K, Dine T, Gressier B, et al. 2001. High-performance liquid chromatographic method for the determination of di(2-ethylhexyl) phthalate in total parenteral nutrition and in plasma. *J Chromatogr* 755(1-2):297-303. [http://doi.org/10.1016/s0378-4347\(01\)00125-6](http://doi.org/10.1016/s0378-4347(01)00125-6).
- Kamijo Y, Hora K, Nakajima T, et al. 2007. Peroxisome proliferator-activated receptor alpha protects against glomerulonephritis induced by long-term exposure to the plasticizer di-(2-ethylhexyl)phthalate. *J Am Soc Nephrol* 18(1):176-188. <http://doi.org/10.1681/asn.2006060597>.
- Kang Y, Park J, Youn K. 2019. Association between urinary phthalate metabolites and obesity in adult Korean population: Korean National Environmental Health Survey (KoNEHS), 2012-2014. *Ann Occup Environ Med* 31:e23. <http://doi.org/10.35371/aoem.2019.31.e23>.
- Kanki K, Nishikawa A, Masumura K, et al. 2005. In vivo mutational analysis of liver DNA in gpt delta transgenic rats treated with the hepatocarcinogens N-nitrosopyrrolidine, 2-amino-3-methylimidazo[4,5-f]quinoline, and di(2-ethylhexyl)phthalate. *Mol Carcinog* 42(1):9-17. <http://doi.org/10.1002/mc.20061>.
- Kanode R, Chandra S, Sharma S. 2017. Application of bacterial reverse mutation assay for detection of non-genotoxic carcinogens. *Toxicol Mech Methods* 27(5):376-381. <http://doi.org/10.1080/15376516.2017.1300616>.
- Karabulut G, Barlas N. 2018. Genotoxic, histologic, immunohistochemical, morphometric and hormonal effects of di-(2-ethylhexyl)-phthalate (DEHP) on reproductive systems in pre-pubertal male rats. *Toxicology Research* 7(5):859-873. <http://doi.org/10.1039/c8tx00045j>.
- Kardas F, Bayram AK, Demirci E, et al. 2016. Increased serum phthalates (MEHP, DEHP) and bisphenol A concentrations in children with autism spectrum disorder: The role of endocrine disruptors in autism etiopathogenesis. *J Child Neurol* 31(5):629-635. <http://doi.org/10.1177/0883073815609150>.
- Karle VA, Short BL, Martin GR, et al. 1997. Extracorporeal membrane oxygenation exposes infants to the plasticizer, di(2-ethylhexyl)phthalate. *Crit Care Med* 25:696-703.
- Kato K, Silva MJ, Reidy JA, et al. 2004. Mono(2-ethyl-5-hydroxyhexyl) phthalate and mono-(2-ethyl-5-oxohexyl) phthalate as biomarkers for human exposure assessment to di-(2-ethylhexyl) phthalate. *Environ Health Perspect* 112(3):327-330. <http://doi.org/10.1289/ehp.6663>.
- Kaun-Yu L, Tseng FW, Wu CJ, et al. 2004. Suppression by phthalates of the calcium signaling of human nicotinic acetylcholine receptors in human neuroblastoma SH-SY5Y cells. *Toxicology* 200(2-3):113-121. <http://doi.org/10.1016/j.tox.2004.03.018>.
- Kenaga EE. 1980. Predicted bioconcentration factors and soil sorption coefficient of pesticides and other chemicals. *Ecotoxicol Environ Saf* 4:26-38.
- Kessler W, Numtip W, Grote K, et al. 2004. Blood burden of di(2-ethylhexyl) phthalate and its primary metabolite mono(2-ethylhexyl) phthalate in pregnant and nonpregnant rats and marmosets. *Toxicol Appl Pharmacol* 195(2):142-153. <http://doi.org/10.1016/j.taap.2003.11.014>.
- Kessler W, Numtip W, Völkel W, et al. 2012. Kinetics of di(2-ethylhexyl) phthalate (DEHP) and mono(2-ethylhexyl) phthalate in blood and of DEHP metabolites in urine of male volunteers after

## 8. REFERENCES

- single ingestion of ring-deuterated DEHP. *Toxicol Appl Pharmacol* 264(2):284-291. <http://doi.org/10.1016/j.taap.2012.08.009>.
- Keys DA, Wallace DG, Kepler TB, et al. 1999. Quantitative evaluation of alternative mechanisms of blood and testes disposition of di(2-ethylhexyl) phthalate and mono(2-ethylhexyl) phthalate in rats. *Toxicol Sci* 49(2):172-185.
- Khedr A. 2013. Optimized extraction method for LC-MS determination of bisphenol A, melamine and di(2-ethylhexyl) phthalate in selected soft drinks, syringes, and milk powder. *J Chromatogr* 930:98-103. <http://doi.org/10.1016/j.jchromb.2013.04.040>.
- Kickham P, Otton SV, Moore MM, et al. 2012. Relationship between biodegradation and sorption of phthalate esters and their metabolites in natural sediments. *Environ Toxicol Chem* 31(8):1730-1737. <http://doi.org/10.1002/etc.1903>.
- Kim JH, Hong YC. 2014. HSP70-hom gene polymorphisms modify the association of diethylhexyl phthalates with insulin resistance. *Environ Mol Mutagen* 55(9):727-734. <http://doi.org/10.1002/em.21884>.
- Kim SH, Park MJ. 2014. Phthalate exposure and childhood obesity. *Ann Pediatr Endocrinol Metab* 19(2):69-75. <http://doi.org/10.6065/apem.2014.19.2.69>.
- Kim Y, Ha EH, Kim EJ, et al. 2011. Prenatal exposure to phthalates and infant development at 6 months: prospective Mothers and Children's Environmental Health (MOCEH) study. *Environ Health Perspect* 119(10):1495-1500. <http://doi.org/10.1289/ehp.1003178>.
- Kim JH, Park HY, Bae S, et al. 2013. Diethylhexyl phthalates is associated with insulin resistance via oxidative stress in the elderly: a panel study. *PLoS ONE* 8(8):e71392. <http://doi.org/10.1371/journal.pone.0071392>.
- Kim SH, Cho S, Ihm HJ, et al. 2015. Possible role of phthalate in the pathogenesis of endometriosis: in vitro, animal, and human data. *J Clin Endocrinol Metab* 100(12):E1502-E1511. <http://doi.org/10.1210/jc.2015-2478>.
- Kim JH, Park H, Lee J, et al. 2016a. Association of diethylhexyl phthalate with obesity-related markers and body mass change from birth to 3 months of age. *J Epidemiol Community Health* 70(5):466-472. <http://doi.org/10.1136/jech-2015-206315>.
- Kim KN, Choi YH, Lim YH, et al. 2016b. Urinary phthalate metabolites and depression in an elderly population: National Health and Nutrition Examination Survey 2005-2012. *Environ Res* 145:61-67. <http://doi.org/10.1016/j.envres.2015.11.021>.
- Kim S, Kim S, Won S, et al. 2017a. Considering common sources of exposure in association studies - Urinary benzophenone-3 and DEHP metabolites are associated with altered thyroid hormone balance in the NHANES 2007-2008. *Environ Int* 107:25-32. <http://doi.org/10.1016/j.envint.2017.06.013>.
- Kim S, Kim S, Won S, et al. 2017b. Supplemental material: Considering common sources of exposure in association studies - Urinary benzophenone-3 and DEHP metabolites are associated with altered thyroid hormone balance in the NHANES 2007-2008. *Environ Int* 107. <http://doi.org/10.1016/j.envint.2017.06.013>.
- Kim SH, On JW, Pyo H, et al. 2018a. Percentage fractions of urinary di(2-ethylhexyl) phthalate metabolites: Association with obesity and insulin resistance in Korean girls. *PLoS ONE* 13(11):e0208081. <http://doi.org/10.1371/journal.pone.0208081>.
- Kim HS, Cheon YP, Lee SH. 2018b. Hershberger assays for di-2-ethylhexyl phthalate and its substitute candidates. *Dev Reprod* 22(1):19-27. <http://doi.org/10.12717/dr.2018.22.1.019>.
- Kim M, Jeong JS, Kim H, et al. 2018c. Low dose exposure to di-2-ethylhexylphthalate in juvenile rats alters the expression of genes related with thyroid hormone regulation. *Biomol Ther (Seoul)* 26(5):512-519. <http://doi.org/10.4062/biomolther.2018.076>.
- Kim M, Jeong JS, Kim H, et al. 2018d. Supplemental material: Low dose exposure to di-2-ethylhexylphthalate in juvenile rats alters the expression of genes related with thyroid hormone regulation. *Biomol Ther (Seoul)* 26. <http://doi.org/10.4062/biomolther.2018.076>.

## 8. REFERENCES

- Kim YM, Kim J, Cheong HK, et al. 2018e. Exposure to phthalates aggravates pulmonary function and airway inflammation in asthmatic children. *PLoS ONE* 13(12):e0208553. <http://doi.org/10.1371/journal.pone.0208553>.
- Kim S, Eom S, Kim HJ, et al. 2018f. Association between maternal exposure to major phthalates, heavy metals, and persistent organic pollutants, and the neurodevelopmental performances of their children at 1 to 2 years of age- CHECK cohort study. *Sci Total Environ* 624:377-384. <http://doi.org/10.1016/j.scitotenv.2017.12.058>.
- Kim J, Cha S, Lee MY, et al. 2018g. Chronic low-dose nonylphenol or di-(2-ethylhexyl) phthalate has a different estrogen-like response in mouse uterus. *Dev Reprod* 22(4):379-391. <http://doi.org/10.12717/dr.2018.22.4.379>.
- Kim S, Park GY, Yoo YJ, et al. 2019a. Di-2-ethylhexylphthalate promotes thyroid cell proliferation and DNA damage through activating thyrotropin-receptor-mediated pathways in vitro and in vivo. *Food Chem Toxicol* 124:265-272. <http://doi.org/10.1016/j.fct.2018.12.010>.
- Kim J, Cha S, Lee MY, et al. 2019b. Chronic and low dose exposure to nonlyphenol or di(2-ethylhexyl) phthalate alters cell proliferation and the localization of steroid hormone receptors in uterine endometria in mice. *Dev Reprod* 23(3):263-275. <http://doi.org/10.12717/dr.2019.23.3.263>.
- Kirby PE, Pizzarello RF, Lawlor TE, et al. 1983. Evaluation of di-(2-ethylhexyl)phthalate and its major metabolites in the Ames test and L5178Y mouse lymphoma mutagenicity assay. *Environ Mutagen* 5(5):657-663. <http://doi.org/10.1002/em.2860050504>.
- Kitaoka M, Hirai S, Terayama H, et al. 2013. Effects on the local immunity in the testis by exposure to di-(2-ethylhexyl) phthalate (DEHP) in mice. *J Reprod Dev* 59(5):485-490. <http://doi.org/10.1262/jrd.2012-180>.
- Klaunig JE, Babich MA, Baetcke KP, et al. 2003. PPARalpha agonist-induced rodent tumors: Modes of action and human relevance. *Crit Rev Toxicol* 33(6):655-780. <http://doi.org/10.1080/713608372>.
- Kleinsasser NH, Harreus UA, Kastenbauer ER, et al. 2004. Mono(2-ethylhexyl)phthalate exhibits genotoxic effects in human lymphocytes and mucosal cells of the upper aerodigestive tract in the comet assay. *Toxicol Lett* 148(1-2):83-90. <http://doi.org/10.1016/j.toxlet.2003.12.013>.
- Klimisch HJ, Hellwig J, Kauffmann W, et al. 1991. Di-(2-ethylhexyl)phthalate (DEHP): Investigation of inhalation toxicity in rats after repeated exposure (28 d). *Hum Exp Toxicol* 10:68.
- Klimisch HJ, Gamer AO, Hellwig J, et al. 1992. Di-(2-ethylhexyl) phthalate: A short-term repeated inhalation toxicity study including fertility assessment. *Food Chem Toxicol* 30(11):915-919. [http://doi.org/10.1016/0278-6915\(92\)90175-k](http://doi.org/10.1016/0278-6915(92)90175-k).
- Klinefelter GR, Laskey JW, Winnik WM, et al. 2012. Novel molecular targets associated with testicular dysgenesis induced by gestational exposure to diethylhexyl phthalate in the rat: a role for estradiol. *Reproduction* 144(6):747-761. <http://doi.org/10.1530/rep-12-0266>.
- Klopcic I, Kolsek K, Dolenc MS. 2015. Glucocorticoid-like activity of propylparaben, butylparaben, diethylhexyl phthalate and tetramethrin mixtures studied in the MDA-kb2 cell line. *Toxicol Lett* 232(2):376-383. <http://doi.org/10.1016/j.toxlet.2014.11.019>.
- Kluwe WM, Haseman JK, Douglas JF, et al. 1982a. The carcinogenicity of dietary di(2-ethylhexyl) phthalate (DEHP) in Fischer 344 rats and B6C3F1 mice. *J Toxicol Environ Health* 10(4-5):797-815. <http://doi.org/10.1080/15287398209530296>.
- Kluwe WM, McConnell EE, Huff JE, et al. 1982b. Carcinogenicity testing of phthalate esters and related compounds by the National Toxicology Program and the National Cancer Institute. *Environ Health Perspect* 45:129-133. <http://doi.org/10.2307/3429396>.
- Kluwe WM, Huff JE, Matthews HB, et al. 1985. Comparative chronic toxicities and carcinogenic potentials of 2-ethylhexyl-containing compounds in rats and mice. *Carcinogenesis* 6(11):1577-1583. <http://doi.org/10.1093/carcin/6.11.1577>.
- Ko NY, Lo YC, Huang PC, et al. 2019. Changes in insulin resistance mediate the associations between phthalate exposure and metabolic syndrome. *Environ Res* 175:434-441. <http://doi.org/10.1016/j.envres.2019.04.022>.

## 8. REFERENCES

- Ko C, Benedict RT. 2020. Personal communication: Animal numbers used in Barakat et al. 2017 "Prenatal exposure to DEHP induces premature reproductive senescence in male" *Toxicol Sci* 156(1):96-108. University of Illinois at Urbana-Champaign. Agency for Toxic Substances and Disease Registry. December 2020.
- Kobayashi K, Miyagawa M, Wang RS, et al. 2006. Effects of in utero and lactational exposure to di(2-ethylhexyl)phthalate on somatic and physical development in rat offspring. *Ind Health* 44(4):652-660.
- Kobrosly RW, Evans S, Miodovnik A, et al. 2014. Prenatal phthalate exposures and neurobehavioral development scores in boys and girls at 6-10 years of age. *Environ Health Perspect* 122(5):521-528. <http://doi.org/10.1289/ehp.1307063>.
- Koch HM, Bolt HM, Angerer J. 2004. Di(2-ethylhexyl)phthalate (DEHP) metabolites in human urine and serum after a single oral dose of deuterium-labelled DEHP. *Arch Toxicol* 78(3):123-130. <http://doi.org/10.1007/s00204-003-0522-3>.
- Koch HM, Bolt HM, Preuss R, et al. 2005a. New metabolites of di(2-ethylhexyl)phthalate (DEHP) in human urine and serum after single oral doses of deuterium-labelled DEHP. *Arch Toxicol* 79(7):367-376. <http://doi.org/10.1007/s00204-004-0642-4>.
- Koch HM, Bolt HM, Preuss R, et al. 2005b. Intravenous exposure to di(2-ethylhexyl)phthalate (DEHP): metabolites of DEHP in urine after a voluntary platelet donation. *Arch Toxicol* 79(12):689-693. <http://doi.org/10.1007/s00204-005-0004-x>.
- Koch HM, Lorber M, Christensen KLY, et al. 2013. Identifying sources of phthalate exposure with human biomonitoring: Results of a 48h fasting study with urine collection and personal activity patterns. *Int J Hyg Environ Health* 216(6):672-681. <http://doi.org/10.1016/j.ijheh.2012.12.002>.
- Kolena B, Petrovicova I, Pilka T, et al. 2014. Phthalate exposure and health-related outcomes in specific types of work environment. *Int J Environ Res Public Health* 11(6):5628-5639. <http://doi.org/10.3390/ijerph110605628>.
- Kolena B, Petrovicova I, Sidlovska M, et al. 2020. Occupational hazards and risks associated with phthalates among Slovakian firefighters. *Int J Environ Res Public Health* 17(7) <http://doi.org/10.3390/ijerph17072483>.
- Koo HJ, Lee BM. 2007. Toxicokinetic relationship between di(2-ethylhexyl) phthalate (DEHP) and mono(2-ethylhexyl) phthalate in rats. *J Toxicol Environ Health* 70(5):383-387. <http://doi.org/10.1080/15287390600882150>.
- Kornbrust DJ, Barfknecht TR, Ingram P, et al. 1984. Effect of di(2-ethylhexyl) phthalate on DNA repair and lipid peroxidation in rat hepatocytes and on metabolic cooperation in Chinese hamster V-79 cells. *J Toxicol Environ Health* 13(1):99-116. <http://doi.org/10.1080/15287398409530484>.
- Kozumbo WJ, Kroll R, Rubin RJ. 1982. Assessment of the mutagenicity of phthalate esters. *Environ Health Perspect* 45:103-109. <http://doi.org/10.2307/3429391>.
- Krais AM, Andersen C, Eriksson AC, et al. 2018. Excretion of urinary metabolites of the phthalate esters DEP and DEHP in 16 volunteers after inhalation and dermal exposure. *Int J Environ Res Public Health* 15(11) <http://doi.org/10.3390/ijerph15112514>.
- Krishnan K, Anderson ME, Clewell HJ, et al. 1994. Physiologically based pharmacokinetic modeling of chemical mixtures. In: Yang RSH, ed. *Toxicology of chemical mixtures. Case studies, mechanisms, and novel approaches*. San Diego, CA: Academic Press, 399-437.
- Ku HY, Su PH, Wen HJ, et al. 2015. Prenatal and postnatal exposure to phthalate esters and asthma: a 9-year follow-up study of a Taiwanese birth cohort. *PLoS ONE* 10(4):e0123309. <http://doi.org/10.1371/journal.pone.0123309>.
- Ku HY, Tsai TL, Wang PL, et al. 2020. Prenatal and childhood phthalate exposure and attention deficit hyperactivity disorder traits in child temperament: A 12-year follow-up birth cohort study. *Sci Total Environ* 699:134053. <http://doi.org/10.1016/j.scitotenv.2019.134053>.
- Kuo FC, Su SW, Wu CF, et al. 2015. Relationship of urinary phthalate metabolites with serum thyroid hormones in pregnant women and their newborns: a prospective birth cohort in Taiwan. *PLoS ONE* 10(6):e0123884. <http://doi.org/10.1371/journal.pone.0123884>.

## 8. REFERENCES

- Kurahashi N, Kondo T, Omura M, et al. 2005. The effects of subacute inhalation of di (2-ethylhexyl) phthalate (DEHP) on the testes of prepubertal Wistar rats. *J Occup Health* 47(5):437-444.
- Kurane R. 1986. Microbial degradation of phthalate esters. *Microbiol Sci* 3(3):92-95.
- Kurata Y, Kidachi F, Yokoyama M, et al. 1998. Subchronic toxicity of di(2-ethylhexyl)phthalate in common marmosets: lack of hepatic peroxisome proliferation, testicular atrophy, or pancreatic acinar cell hyperplasia. *Toxicol Sci* 42(1):49-56. <http://doi.org/10.1006/toxs.1997.2414>.
- Kurata Y, Makinodan F, Shimamura N, et al. 2012a. Metabolism of di (2-ethylhexyl) phthalate (DEHP): comparative study in juvenile and fetal marmosets and rats. *J Toxicol Sci* 37(1):33-49. <http://doi.org/10.2131/jts.37.33>.
- Kurata Y, Shimamura N, Katoh M. 2012b. Metabolite profiling and identification in human urine after single oral administration of DEHP. *J Toxicol Sci* 37(2):401-414.
- Kushman ME, Kraft AD, Guyton KZ, et al. 2013. A systematic approach for identifying and presenting mechanistic evidence in human health assessments. *Regul Toxicol Pharmacol* 67(2):266-277. <http://doi.org/10.1016/j.yrtph.2013.08.005>.
- La Rocca C, Tait S, Guerranti C, et al. 2014. Exposure to endocrine disruptors and nuclear receptor gene expression in infertile and fertile women from different Italian areas. *Int J Environ Res Public Health* 11(10):10146-10164. <http://doi.org/10.3390/ijerph111010146>.
- Lacey S, Alexander BM, Baxter CS. 2014. Plasticizer contamination of firefighter personal protective clothing--a potential factor in increased health risks in firefighters. *J Occup Environ Hyg* 11(5):D43-48. <http://doi.org/10.1080/15459624.2013.877142>.
- Lagos-Cabr e R, Moreno RD. 2012. Contribution of environmental pollutants to male infertility: a working model of germ cell apoptosis induced by plasticizers. *Biol Res* 45(1):5-14. <http://doi.org/10.1590/s0716-97602012000100001>.
- Lake BG, Brantom PG, Gangolli SD, et al. 1976. Studies on the effects of orally administered di-(2-ethylhexyl) phthalate in the ferret. *Toxicology* 6(3):341-356.
- Lake BG, Gray TJ, Foster JR, et al. 1984. Comparative studies on di-(2-ethylhexyl) phthalate-induced hepatic peroxisome proliferation in the rat and hamster. *Toxicol Appl Pharmacol* 72(1):46-60. [http://doi.org/10.1016/0041-008x\(84\)90248-5](http://doi.org/10.1016/0041-008x(84)90248-5).
- Lake B, Kozlen S, Evans J, et al. 1987. Effect of prolonged administration of clofibric acid and di-(2-ethylhexyl)phthalate on hepatic enzyme activities and lipid peroxidation in the rat. *Toxicology* 44(2):213-228.
- Lamb J, Chapin R, Teague J, et al. 1987. Reproductive effects of four phthalic acid esters in the mouse. *Toxicol Appl Pharmacol* 88(2):255-269. [http://doi.org/10.1016/0041-008x\(87\)90011-1](http://doi.org/10.1016/0041-008x(87)90011-1).
- Larranaga MD, Lewis RJ, Lewis RA. 2016. Di(2-ethylhexyl) phthalate. In: *Hawley's condensed chemical dictionary*. 16th ed. Hoboken, NJ: John Wiley & Sons, Inc., 470-471.
- Larsen ST, Hansen JS, Hansen EW, et al. 2007. Airway inflammation and adjuvant effect after repeated airborne exposures to di-(2-ethylhexyl)phthalate and ovalbumin in BALB/c mice. *Toxicology* 235(1-2):119-129. <http://doi.org/10.1016/j.tox.2007.03.010>.
- Latini G. 2000. Potential hazards of exposure to di-(2-ethylhexyl)-phthalate in babies. *Biol Neonate* 78:269-276.
- Latini G, Avery GB. 1999. Materials degradation in endotracheal tubes: a potential contributor to bronchopulmonary dysplasia. *Acta Paediatr* 88(10):1174-1175. <http://doi.org/10.1111/j.1651-2227.1999.tb01011.x>.
- Laurenzana EM, Coslo DM, Vigilar MV, et al. 2016. Activation of the constitutive androstane receptor by monophthalates. *Chem Res Toxicol* 29(10):1651-1661. <http://doi.org/10.1021/acs.chemrestox.6b00186>.
- Lay JO, Miller BJ. 1987. Plasticizers in pacifiers: Direct determination by FAB-MS. *Anal Chem* 59(22):1323-1325.
- Le Hegarat L, Mourot A, Huet S, et al. 2014. Performance of comet and micronucleus assays in metabolic competent HepaRG cells to predict in vivo genotoxicity. *Toxicol Sci* 138(2):300-309. <http://doi.org/10.1093/toxsci/kfu004>.

## 8. REFERENCES

- Leboeuf RA, Kerckaert GA, Aardema MJ, et al. 1996. The pH 6.7 Syrian hamster embryo cell transformation assay for assessing the carcinogenic potential of chemicals. *Mutat Res* 356(1):85-127. [http://doi.org/10.1016/0027-5107\(95\)00199-9](http://doi.org/10.1016/0027-5107(95)00199-9).
- Lee BM, Koo HJ. 2007. Hershberger assay for antiandrogenic effects of phthalates. *J Toxicol Environ Health* 70(15-16):1365-1370. <http://doi.org/10.1080/15287390701432285>.
- Lee PC, Borysewicz R, Raab K, et al. 1993. Development of lipolytic activity in gastric aspirates from premature infants. *J Pediatr Gastroenterol Nutr* 17:291-297.
- Lee S, Martinez-Arguelles DB, Campioli E, et al. 2017. Fetal exposure to low levels of the plasticizer DEHP predisposes the adult male adrenal gland to endocrine disruption. *Endocrinology* 158(2):304-318. <http://doi.org/10.1210/en.2016-1604>.
- Lee KS, Lim YH, Kim KN, et al. 2018. Urinary phthalate metabolites concentrations and symptoms of depression in an elderly population. *Sci Total Environ* 625:1191-1197. <http://doi.org/10.1016/j.scitotenv.2017.12.219>.
- Lee DG, Kim KM, Lee HS, et al. 2019a. Peroxiredoxin 5 prevents diethylhexyl phthalate-induced neuronal cell death by inhibiting mitochondrial fission in mouse hippocampal HT-22 cells. *Neurotoxicology* 74:242-251. <http://doi.org/10.1016/j.neuro.2019.08.003>.
- Lee JW, Lee SJ, Gye MC, et al. 2019b. Genotoxicity and glucose tolerance induction by acetyltriethylcitrate, substitute plasticizer compared to di(2-ethylhexyl)phthalate. *Sci Rep* 9(1):12237. <http://doi.org/10.1038/s41598-019-48599-y>.
- Lee YS, Lee S, Lim JE, et al. 2019c. Occurrence and emission of phthalates and non-phthalate plasticizers in sludge from wastewater treatment plants in Korea. *Sci Total Environ* 692:354-360. <http://doi.org/10.1016/j.scitotenv.2019.07.301>.
- Lee DW, Lim YH, Shin CH, et al. 2020. Prenatal exposure to di-(2-ethylhexyl) phthalate and decreased skeletal muscle mass in 6-year-old children: A prospective birth cohort study. *Environ Res* 182:109020. <http://doi.org/10.1016/j.envres.2019.109020>.
- Letinski DJ, Connelly MJ, Peterson DR, et al. 2002. Slow-stir water solubility measurements of selected alcohols and diesters. *Chemosphere* 48(3):257-265.
- Leyder F, Boulanger P. 1983. Ultraviolet absorption, aqueous solubility, and octanol-water partition for several phthalates. *Bull Environ Contam Toxicol* 30:152-157.
- Lhuguenot JC, Mitchell AM, Elcombe CR. 1988. The metabolism of mono-(2-ethylhexyl) phthalate (MEHP) and liver peroxisome proliferation in the hamster. *Toxicol Ind Health* 4(4):431-441. <http://doi.org/10.1177/074823378800400402>.
- Lhuguenot JC, Mitchell AM, Milner G, et al. 1985. The metabolism of di(2-ethylhexyl) phthalate (DEHP) and mono-(2-ethylhexyl) phthalate (MEHP) in rats: in vivo and in vitro dose and time dependency of metabolism. *Toxicol Appl Pharmacol* 80(1):11-22. [http://doi.org/10.1016/0041-008x\(85\)90096-1](http://doi.org/10.1016/0041-008x(85)90096-1).
- Li H, Kim KH. 2003. Effects of mono-(2-ethylhexyl) phthalate on fetal and neonatal rat testis organ cultures. *Biol Reprod* 69(6):1964-1972. <http://doi.org/10.1095/biolreprod.103.018895>.
- Li LH, Jester WF, Orth JM. 1998. Effects of relatively low levels of mono-(2-ethylhexyl) phthalate on cocultured Sertoli cells and gonocytes from neonatal rats. *Toxicol Appl Pharmacol* 153(2):258-265. <http://doi.org/10.1006/taap.1998.8550>.
- Li LH, Jester WF, Laslett AL, et al. 2000. A single dose of di-(2-ethylhexyl) phthalate in neonatal rats alters gonocytes, reduces Sertoli cell proliferation, and decreases cyclin D2 expression. *Toxicol Appl Pharmacol* 166(3):222-229. <http://doi.org/10.1006/taap.2000.8972>.
- Li XW, Liang Y, Su Y, et al. 2012a. Adverse effects of di-(2-ethylhexyl) phthalate on Leydig cell regeneration in the adult rat testis. *Toxicol Lett* 215(2):84-91. <http://doi.org/10.1016/j.toxlet.2012.10.001>.
- Li N, Liu T, Zhou L, et al. 2012b. Di-(2-ethylhexyl) phthalate reduces progesterone levels and induces apoptosis of ovarian granulosa cell in adult female ICR mice. *Environ Toxicol Pharmacol* 34(3):869-875. <http://doi.org/10.1016/j.etap.2012.08.013>.

## 8. REFERENCES

- Li R, Yu C, Gao R, et al. 2012c. Effects of DEHP on endometrial receptivity and embryo implantation in pregnant mice. *J Hazard Mater* 241-242:231-240. <http://doi.org/10.1016/j.jhazmat.2012.09.038>.
- Li L, Zhang T, Qin XS, et al. 2014. Exposure to diethylhexyl phthalate (DEHP) results in a heritable modification of imprint genes DNA methylation in mouse oocytes. *Mol Biol Rep* 41(3):1227-1235. <http://doi.org/10.1007/s11033-013-2967-7>.
- Li L, Liu JC, Lai FN, et al. 2016. Di (2-ethylhexyl) phthalate exposure impairs growth of antral follicle in mice. *PLoS ONE* 11(2):e0148350. <http://doi.org/10.1371/journal.pone.0148350>.
- Li W, Zhang W, Chang M, et al. 2018. Quadrupole orbitrap mass spectrometer-based metabolomic elucidation of influences of short-term di(2-ethylhexyl) phthalate exposure on cardiac metabolism in male mice. *Chem Res Toxicol* 31(11):1185-1194. <http://doi.org/10.1021/acs.chemrestox.8b00184>.
- Li MC, Mínguez-Alarcón L, Bellavia A, et al. 2019a. Serum beta-carotene modifies the association between phthalate mixtures and insulin resistance: The National Health and Nutrition Examination Survey 2003-2006. *Environ Res* 178:108729. <http://doi.org/10.1016/j.envres.2019.108729>.
- Li MC, Mínguez-Alarcón L, Bellavia A, et al. 2019b. Supplemental material: Serum beta-carotene modifies the association between phthalate mixtures and insulin resistance: The National Health and Nutrition Examination Survey 2003-2006. *Environ Res* 178. <http://doi.org/10.1016/j.envres.2019.108729>.
- Li YL, Lv J, Du ZP, et al. 2020. The levels of phthalate exposure and associations with obesity in an elderly population in China. *Ecotoxicol Environ Saf* 201:110749. <http://doi.org/10.1016/j.ecoenv.2020.110749>.
- Liang Y, Bi C, Wang X, et al. 2019. A general mechanistic model for predicting the fate and transport of phthalates in indoor environments. *Indoor Air* 29(1):55-69. <http://doi.org/10.1111/ina.12514>.
- Lien YJ, Ku HY, Su PH, et al. 2015. Prenatal exposure to phthalate esters and behavioral syndromes in children at 8 years of age: Taiwan Maternal and Infant Cohort Study. *Environ Health Perspect* 123(1):95-100. <http://doi.org/10.1289/ehp.1307154>.
- Ligocki MP, Leuenberger C, Pankow JF. 1985a. Trace organic compounds in rain-II. Gas scavenging of neutral organic compounds. *Atmos Environ* 19(10):1609-1617.
- Ligocki MP, Leuenberger C, Pankow JF. 1985b. Trace organic compounds in rain-III. Particle scavenging of neutral organic compounds. *Atmos Environ* 19(10):1619-1626.
- Lin H, Ge R, Chen G, et al. 2008. Involvement of testicular growth factors in fetal Leydig cell aggregation after exposure to phthalate in utero. *Proc Natl Acad Sci U S A* 105(20):7218-7222. <http://doi.org/10.1073/pnas.0709260105>.
- Lin H, Lian Q, Hu G, et al. 2009. In utero and lactational exposures to diethylhexyl-phthalate affect two populations of Leydig cells in male Long-Evans rats. *Biol Reprod* 80(5):882-888. <http://doi.org/10.1095/biolreprod.108.072975>.
- Lin Y, Wei J, Li Y, et al. 2011. Developmental exposure to di(2-ethylhexyl) phthalate impairs endocrine pancreas and leads to long-term adverse effects on glucose homeostasis in the rat. *Am J Physiol Endocrinol Metab* 301(3):E527-538. <http://doi.org/10.1152/ajpendo.00233.2011>.
- Lin CY, Hsieh CJ, Lo SC, et al. 2016. Positive association between concentration of phthalate metabolites in urine and microparticles in adolescents and young adults. *Environ Int* 92-93:157-164. <http://doi.org/10.1016/j.envint.2016.04.006>.
- Lin LY, Tsai MS, Chen MH, et al. 2018. Childhood exposure to phthalates and pulmonary function. *Sci Total Environ* 615:1282-1289. <http://doi.org/10.1016/j.scitotenv.2017.08.318>.
- Lin CY, Lee HL, Hwang YT, et al. 2020. The association between urine di-(2-ethylhexyl) phthalate metabolites, global DNA methylation, and subclinical atherosclerosis in a young Taiwanese population. *Environ Pollut* 265(Pt B):114912. <http://doi.org/10.1016/j.envpol.2020.114912>.
- Lioy PJ, Hauser R, Gennings C, et al. 2015. Assessment of phthalates/phthalate alternatives in children's toys and childcare articles: Review of the report including conclusions and recommendations of Chronic Hazard Advisory Panel of the Consumer Product Safety Commission. *J Expo Sci Environ Epidemiol* 25:343-353.



## 8. REFERENCES

- Liss GM, Albro PW, Hartle RW, et al. 1985. Urine phthalate determinations as an index of occupational exposure to phthalic anhydride and di(2-ethylhexyl)phthalate. *Scand J Work Environ Health* 11(5):381-387.
- Liu X, He D, Zhang D, et al. 2008. Di(2-ethylhexyl) phthalate (DEHP) increases transforming growth factor-beta1 expression in fetal mouse genital tubercles. *J Toxicol Environ Health* 71(19):1289-1294. <http://doi.org/10.1080/15287390802114915>.
- Liu L, Bao H, Liu F, et al. 2012. Phthalates exposure of Chinese reproductive age couples and its effect on male semen quality, a primary study. *Environ Int* 42:78-83. <http://doi.org/10.1016/j.envint.2011.04.005>.
- Liu L, Wang H, Tian M, et al. 2017. Phthalate metabolites related to infertile biomarkers and infertility in Chinese men. *Environ Pollut* 231(Pt 1):291-300. <http://doi.org/10.1016/j.envpol.2017.08.018>.
- Liu T, Wang Y, Yang M, et al. 2018a. Di-(2-ethylhexyl) phthalate induces precocious puberty in adolescent female rats. *Iran J Basic Med Sci* 21(8):848-855. <http://doi.org/10.22038/ijbms.2018.28489.6905>.
- Liu H, Guo Y, Yang T, et al. 2018b. Intervention effect of gamma aminobutyric acid on anxiety behavior induced by phthalate (2-ethylhexyl ester) in rats. *Int J Neurosci* 128(10):928-934. <http://doi.org/10.1080/00207454.2017.1405952>.
- Liu C, Deng YL, Zheng TZ, et al. 2020. Urinary biomarkers of phthalates exposure and risks of thyroid cancer and benign nodule. *J Hazard Mater* 383:121189. <http://doi.org/10.1016/j.jhazmat.2019.121189>.
- Ljungvall K, Tienpont B, David F, et al. 2004. Kinetics of orally administered di(2-ethylhexyl) phthalate and its metabolite, mono(2-ethylhexyl) phthalate, in male pigs. *Arch Toxicol* 78(7):384-389. <http://doi.org/10.1007/s00204-004-0558-z>.
- Loff S, Kabs F, Witt J, et al. 2000. Polyvinylchloride infusion lines expose infants to large amounts of toxic plasticizers. *J Pediatr Surg* 35(12):1775-1781.
- Lopes TJ, Furlong ET. 2001. Occurrence and potential adverse effects of semivolatile organic compounds in streambed sediment, United States, 1992-1995. *Environ Toxicol Chem* 20(4):727-737.
- Lopes TJ, Furlong ET, Pritt JW. 1997. Occurrence and distribution of semivolatile organic compounds in stream bed sediments, United States, 1992-95. In: Little EE, Greenberg BM, DeLonay AJ, eds. *Environmental toxicology and risk assessment*. Vol. 7. West Conshohocken, PA: American Society for Testing and Materials, 105-119. <http://doi.org/10.1520/STP12158S>.
- Lopez-Carrillo L, Hernandez-Ramirez RU, Calafat AM, et al. 2010. Exposure to phthalates and breast cancer risk in northern Mexico. *Environ Health Perspect* 118(4):539-544. <http://doi.org/10.1289/ehp.0901091>.
- Lorber M, Calafat AM. 2012. Dose reconstruction of di(2-ethylhexyl) phthalate using a simple pharmacokinetic model. *Environ Health Perspect* 120(12):1705-1710. <http://doi.org/10.1289/ehp.1205182>.
- Lorber M, Angerer J, Koch H. 2010. A simple pharmacokinetic model to characterize exposure of Americans to di-2-ethylhexyl phthalate. *J Expo Sci Environ Epidemiol* 20(1):38-53. <http://doi.org/10.1038/jes.2008.74>.
- Lovekamp-Swan T, Davis BJ. 2003. Mechanisms of phthalate ester toxicity in the female reproductive system. *Environ Health Perspect* 111(2):139-145.
- Lu Z, Zhang C, Han C, et al. 2019. Plasticizer bis(2-ethylhexyl) phthalate causes meiosis defects and decreases fertilization ability of mouse oocytes in vivo. *J Agric Food Chem* 67(12):3459-3468. <http://doi.org/10.1021/acs.jafc.9b00121>.
- Lunderberg DM, Kristensen K, Liu Y, et al. 2019. Characterizing airborne phthalate concentrations and dynamics in a normally occupied residence. *Environ Sci Technol* 53(13):7337-7346. <http://doi.org/10.1021/acs.est.9b02123>.
- Luo Q, Liu ZH, Yin H, et al. 2018. Migration and potential risk of trace phthalates in bottled water: A global situation. *Water Res* 147:362-372. <http://doi.org/10.1016/j.watres.2018.10.002>.

## 8. REFERENCES

- Lutz WK. 1986. Investigation of the potential for binding of di(2-ethylhexyl) phthalate (DEHP) to rat liver DNA in vivo. *Environ Health Perspect* 65:267-269.
- Ma M, Kondo T, Ban S, et al. 2006. Exposure of prepubertal female rats to inhaled di(2-ethylhexyl)phthalate affects the onset of puberty and postpubertal reproductive functions. *Toxicol Sci* 93(1):164-171. <http://doi.org/10.1093/toxsci/kfl036>.
- Machtinger R, Gaskins AJ, Racowsky C, et al. 2018. Urinary concentrations of biomarkers of phthalates and phthalate alternatives and IVF outcomes. *Environ Int* 111:23-31. <http://doi.org/10.1016/j.envint.2017.11.011>.
- Mackintosh CE, Maldonado J, Hongwu J, et al. 2004. Distribution of phthalate esters in a marine aquatic food web: Comparison to polychlorinated biphenyls. *Environ Sci Technol* 38(7):2011-2020.
- Maloney EK, Waxman DJ. 1999. trans-Activation of PPAR $\alpha$  and PPAR $\gamma$  by structurally diverse environmental chemicals. *Toxicol Appl Pharmacol* 161(2):209-218. <http://doi.org/10.1006/taap.1999.8809>.
- Mangala Priya V, Mayilvanan C, Akilavalli N, et al. 2014. Lactational exposure of phthalate impairs insulin signaling in the cardiac muscle of F1 female albino rats. *Cardiovasc Toxicol* 14(1):10-20. <http://doi.org/10.1007/s12012-013-9233-z>.
- Mannsville Chemical Products Corporation. 1990. Chemical products synopsis: Dioctyl phthalate. Asbury Park, NY: Mannsville Chemical Products Corp.
- Maranghi F, Lorenzetti S, Tassinari R, et al. 2010. In utero exposure to di-(2-ethylhexyl) phthalate affects liver morphology and metabolism in post-natal CD-1 mice. *Reprod Toxicol* 29(4):427-432. <http://doi.org/10.1016/j.reprotox.2010.03.002>.
- Maresca MM, Hoepner LA, Hassoun A, et al. 2016. Prenatal exposure to phthalates and childhood body size in an urban cohort. *Environ Health Perspect* 124(4):514-520. <http://doi.org/10.1289/ehp.1408750>.
- Marie C, Vendittelli F, Sauvart-Rochat MP. 2015. Obstetrical outcomes and biomarkers to assess exposure to phthalates: A review. *Environ Int* 83:116-136. <http://doi.org/10.1016/j.envint.2015.06.003>.
- Marotta V, Russo G, Gambardella C, et al. 2019. Human exposure to bisphenol AF and diethylhexylphthalate increases susceptibility to develop differentiated thyroid cancer in patients with thyroid nodules. *Chemosphere* 218:885-894. <http://doi.org/10.1016/j.chemosphere.2018.11.084>.
- Marsman DS, Cattley RC, Conway JG, et al. 1988. Relationship of hepatic peroxisome proliferation and replicative DNA synthesis to the hepatocarcinogenicity of the peroxisome proliferators di(2-ethylhexyl)phthalate and [4-chloro-6-(2,3-xylylidino)-2-pyrimidinylthio]acetic acid (Wy-14,643) in rats. *Cancer Res* 48(23):6739-6744.
- Martínez MA, Rovira J, Sharma RP, et al. 2017. Prenatal exposure estimation of BPA and DEHP using integrated external and internal dosimetry: A case study. *Environ Res* 158:566-575. <http://doi.org/10.1016/j.envres.2017.07.016>.
- Martínez MA, Rovira J, Prasad Sharma R, et al. 2018. Comparing dietary and non-dietary source contribution of BPA and DEHP to prenatal exposure: A Catalonia (Spain) case study. *Environ Res* 166:25-34. <http://doi.org/10.1016/j.envres.2018.05.008>.
- Martínez MA, Rovira J, Sharma RP, et al. 2020. Reconstruction of phthalate exposure and DINCH metabolites from biomonitoring data from the EXHES cohort of Tarragona, Spain: A case study on estimated vs reconstructed DEHP using the PBPK model. *Environ Res* 186:109534. <http://doi.org/10.1016/j.envres.2020.109534>.
- Martinez-Arguelles DB, Papadopoulos V. 2015. Mechanisms mediating environmental chemical-induced endocrine disruption in the adrenal gland. *Front Endocrinol (Lausanne)* 6:29. <http://doi.org/10.3389/fendo.2015.00029>.
- Martinez-Arguelles DB, Guichard T, Culty M, et al. 2011. In utero exposure to the antiandrogen di-(2-ethylhexyl) phthalate decreases adrenal aldosterone production in the adult rat. *Biol Reprod* 85(1):51-61. <http://doi.org/10.1095/biolreprod.110.089920>.

## 8. REFERENCES

- Martinez-Arguelles DB, Mcintosh M, Rohlicek CV, et al. 2013. Maternal in utero exposure to the endocrine disruptor di-(2-ethylhexyl) phthalate affects the blood pressure of adult male offspring. *Toxicol Appl Pharmacol* 266(1):95-100. <http://doi.org/10.1016/j.taap.2012.10.027>.
- Martinez-Nava GA, Burguete-Garcia AI, Lopez-Carrillo L, et al. 2013. PPARgamma and PPARGC1B polymorphisms modify the association between phthalate metabolites and breast cancer risk. *Biomarkers* 18(6):493-501. <http://doi.org/10.3109/1354750x.2013.816776>.
- Martino-Andrade AJ, Morais RN, Botelho GGK, et al. 2009. Coadministration of active phthalates results in disruption of foetal testicular function in rats. *Int J Androl* 32(6):704-712. <http://doi.org/10.1111/j.1365-2605.2008.00939.x>.
- Martino-Andrade AJ, Liu F, Sathyanarayana S, et al. 2016. Timing of prenatal phthalate exposure in relation to genital endpoints in male newborns. *Andrology* 4(4):585-593. <http://doi.org/10.1111/andr.12180>.
- Marx J. 1990. Animal carcinogen testing challenged. *Science* 250:743-745.
- Mauthe RJ, Gibson DP, Bunch RT, et al. 2001. The Syrian hamster embryo (SHE) cell transformation assay: review of the methods and results. *Toxicol Pathol* 29 Suppl:138-146
- McCombie G, Biedermann S, Suter G, et al. 2017. Survey on plasticizers currently found in PVC toys on the Swiss market: Banned phthalates are only a minor concern. *J Environ Sci Health A Environ Sci Eng Toxic Hazard* 52(5):491-496. <http://doi.org/10.1080/10934529.2016.1274176>.
- McFall JA, Antoine SR, DeLeon IR. 1985a. Organics in the water column of Lake Pontchartrain. *Chemosphere* 14:1253-1265.
- McFall JA, Antoine SR, DeLeon IR. 1985b. Base-neutral extractable organic pollutants in biota and sediments from Lake Pontchartrain. *Chemosphere* 14:1561-1569.
- McKee RH. 2000. The role of inhibition of gap junctional intercellular communication in rodent liver tumor induction by phthalates: review of data on selected phthalates and the potential relevance to man. *Regul Toxicol Pharmacol* 32(1):51-55. <http://doi.org/10.1006/rtp.2000.1407>.
- Meeker JD, Ferguson KK. 2011. Relationship between urinary phthalate and bisphenol A concentrations and serum thyroid measures in U.S. adults and adolescents from the National Health and Nutrition Examination Survey (NHANES) 2007-2008. *Environ Health Perspect* 119(10):1396-1402. <http://doi.org/10.1289/ehp.1103582>.
- Meeker JD, Calafat AM, Hauser R. 2007. Di(2-ethylhexyl) phthalate metabolites may alter thyroid hormone levels in men. *Environ Health Perspect* 115(7):1029-1034. <http://doi.org/10.1289/ehp.9852>.
- Meeker JD, Hu H, Cantonwine DE, et al. 2009a. Urinary phthalate metabolites in relation to preterm birth in Mexico city. *Environ Health Perspect* 117(10):1587-1592. <http://doi.org/10.1289/ehp.0800522>.
- Meeker JD, Calafat AM, Hauser R. 2009b. Urinary metabolites of di(2-ethylhexyl) phthalate are associated with decreased steroid hormone levels in adult men. *J Androl* 30(3):287-297. <http://doi.org/10.2164/jandrol.108.006403>.
- Meeker JD, Ferguson KK. 2014. Urinary phthalate metabolites are associated with decreased serum testosterone in men, women, and children from NHANES 2011-2012. *J Clin Endocrinol Metab* 99(11):4346-4352. <http://doi.org/10.1210/jc.2014-2555>.
- Melnick RL. 2001. Is peroxisome proliferation an obligatory precursor step in the carcinogenicity of di(2-ethylhexyl) phthalate (DEHP)? *Environ Health Perspect* 109(5):437-442.
- Mendiola J, Jørgensen N, Andersson AM, et al. 2011. Associations between urinary metabolites of di(2-ethylhexyl) phthalate and reproductive hormones in fertile men. *Int J Androl* 34(4 Pt. 1):369-378. <http://doi.org/10.1111/j.1365-2605.2010.01095.x>.
- Mendiola J, Meeker JD, Jørgensen N, et al. 2012. Urinary concentrations of di(2-ethylhexyl) phthalate metabolites and serum reproductive hormones: Pooled analysis of fertile and infertile men. *J Androl* 33(3):488-498. <http://doi.org/10.2164/jandrol.111.013557>.
- Meng F, Yin X, Ma X, et al. 2013. Assessment of the value of serum cholinesterase as a liver function test for cirrhotic patients. *Biomed Rep* 1:265-268. <http://doi.org/10.3892/br.2013.60>.

## 8. REFERENCES

- Mérida-Ortega Á, Hernández-Alcaraz C, Hernández-Ramírez RU, et al. 2016. Phthalate exposure, flavonoid consumption and breast cancer risk among Mexican women. *Environ Int* 96:167-172. <http://doi.org/10.1016/j.envint.2016.08.023>.
- Merkle J, Klimisch HJ, Jäckh R. 1988. Developmental toxicity in rats after inhalation exposure of di-2-ethylhexylphthalate (DEHP). *Toxicol Lett* 42(2):215-223. [http://doi.org/10.1016/0378-4274\(88\)90080-x](http://doi.org/10.1016/0378-4274(88)90080-x).
- Mes J, Coffin DE, Campbell DS. 1974. Di-n-butyl- and di-2-ethylhexyl phthalate in human adipose tissue. *Bull Environ Contam Toxicol* 12:721-725.
- Messerlian C, Souter I, Gaskins AJ, et al. 2016a. Urinary phthalate metabolites and ovarian reserve among women seeking infertility care. *Hum Reprod* 31(1):75-83. <http://doi.org/10.1093/humrep/dev292>.
- Messerlian C, Wylie BJ, Minguez-Alarcon L, et al. 2016b. Urinary concentrations of phthalate metabolites and pregnancy loss among women conceiving with medically assisted reproduction. *Epidemiology* 27(6):879-888. <http://doi.org/10.1097/ede.0000000000000525>.
- Messerlian C, Braun JM, Minguez-Alarcon L, et al. 2017a. Paternal and maternal urinary phthalate metabolite concentrations and birth weight of singletons conceived by subfertile couples. *Environ Int* 107:55-64. <http://doi.org/10.1016/j.envint.2017.06.015>.
- Messerlian C, Mustieles V, Wylie BJ, et al. 2017b. Ultrasound gel as an unrecognized source of exposure to phthalates and phenols among pregnant women undergoing routine scan. *Int J Hyg Environ Health* 220:1285-1294.
- Meylan WM, Howard PH. 1993. Computer estimation of the atmospheric gas-phase reaction rate of organic compounds with hydroxyl radicals and ozone. *Chemosphere* 26(12):2293-2299.
- Miao H, Liu X, Li J, et al. 2020. Associations of urinary phthalate metabolites with risk of papillary thyroid cancer. *Chemosphere* 241:125093. <http://doi.org/10.1016/j.chemosphere.2019.125093>.
- Mikalsen S-O, Holen I, Sanner T. 1990. Morphological transformation and catalase activity of Syrian hamster embryo cells treated with hepatic peroxisome proliferators, TPA and nickel sulphate. *Cell Biol Toxicol* 6(1):1-14.
- Minguez-Alarcon L, Williams PL, Chiu YH, et al. 2018a. Secular trends in semen parameters among men attending a fertility center between 2000 and 2017: Identifying potential predictors. *Environ Int* 121(Pt 2):1297-1303. <http://doi.org/10.1016/j.envint.2018.10.052>.
- Minguez-Alarcon L, Williams PL, Chiu YH, et al. 2018b. Supplementary data: Secular trends in semen parameters among men attending a fertility center between 2000 and 2017: Identifying potential predictors. *Environ Int* 121(Pt 2) <http://doi.org/10.1016/j.envint.2018.10.052>.
- Miodovnik A, Engel SM, Zhu C, et al. 2011. Endocrine disruptors and childhood social impairment. *Neurotoxicology* 32(2):261-267. <http://doi.org/10.1016/j.neuro.2010.12.009>.
- Miodovnik A, Edwards A, Bellinger DC, et al. 2014. Developmental neurotoxicity of ortho-phthalate diesters: review of human and experimental evidence. *Neurotoxicology* 41:112-122. <http://doi.org/10.1016/j.neuro.2014.01.007>.
- Mitchell FE, Price SC, Hinton RH, et al. 1985. Time and dose-response study of the effects on rats of the plasticizer di(2-ethylhexyl) phthalate. *Toxicol Appl Pharmacol* 81(3 Pt. 1):371-392.
- Mittermeier A, Volkel W, Fromme H. 2016. Kinetics of the phthalate metabolites mono-2-ethylhexyl phthalate (MEHP) and mono-n-butyl phthalate (MnBP) in male subjects after a single oral dose. *Toxicol Lett* 252:22-28. <http://doi.org/10.1016/j.toxlet.2016.04.009>.
- Morelli-Cardoso MHW, Lachter ER, Tabak D, et al. 1999. Determination of the specific migration of DEHP into food simulants using high performance liquid chromatography. *J High Resolut Chromatogr* 22(1):70-72.
- Morgan M, Deoraj A, Felty Q, et al. 2017. Environmental estrogen-like endocrine disrupting chemicals and breast cancer. *Mol Cell Endocrinol* 457:89-102. <http://doi.org/10.1016/j.mce.2016.10.003>.
- Morgenstern R, Whyatt RM, Insel BJ, et al. 2017. Phthalates and thyroid function in preschool age children: Sex specific associations. *Environ Int* 106:11-18. <http://doi.org/10.1016/j.envint.2017.05.007>.

## 8. REFERENCES

- Morrissey RE, CLJ, Schwetz BA, et al. 1988. Association of sperm, vaginal cytology, and reproductive organ weight data with results of continuous breeding reproduction studies in swiss (CD-1) mice. *Fundam Appl Toxicol* 11(2):359-371.
- Moser VC, Cheek BM, Macphail RC. 1995. A multidisciplinary approach to toxicological screening: III. Neurobehavioral toxicity. *J Toxicol Environ Health* 45(2):173-210. <http://doi.org/10.1080/15287399509531988>.
- Moser VC, Macphail RC, Gennings C. 2003. Neurobehavioral evaluations of mixtures of trichloroethylene, heptachlor, and di(2-ethylhexyl)phthalate in a full-factorial design. *Toxicology* 188(2-3):125-137. [http://doi.org/10.1016/s0300-483x\(03\)00083-0](http://doi.org/10.1016/s0300-483x(03)00083-0).
- Moss EJ, Cook MW, Thomas LV, et al. 1988. The effect of mono-(2-ethylhexyl) phthalate and other phthalate esters on lactate production by Sertoli cells in vitro. *Toxicol Lett* 40(1):77-84. [http://doi.org/10.1016/0378-4274\(88\)90185-3](http://doi.org/10.1016/0378-4274(88)90185-3).
- Mu D, Gao F, Fan Z, et al. 2015a. Levels of phthalate metabolites in urine of pregnant women and risk of clinical pregnancy loss. *Environ Sci Technol* 49(17):10651-10657. <http://doi.org/10.1021/acs.est.5b02617>.
- Mu X, Liao X, Chen X, et al. 2015b. DEHP exposure impairs mouse oocyte cyst breakdown and primordial follicle assembly through estrogen receptor-dependent and independent mechanisms. *J Hazard Mater* 298:232-240. <http://doi.org/10.1016/j.jhazmat.2015.05.052>.
- Muhlenkamp CR, Gill SS. 1998. A glucose-regulated protein, GRP58, is down-regulated in C57B6 mouse liver after diethylhexyl phthalate exposure. *Toxicol Appl Pharmacol* 148(1):101-108. <http://doi.org/10.1006/taap.1997.8323>.
- Murphy CJ, Stermer AR, Richburg JH. 2014. Age- and species-dependent infiltration of macrophages into the testis of rats and mice exposed to mono-(2-Ethylhexyl) phthalate (MEHP). *Biol Reprod* 91(1):18. <http://doi.org/10.1095/biolreprod.113.115527>.
- Murray HE, Ray LE, Giam CS. 1981. Analysis of marine sediment, water and biota for selected organic pollutants. *Chemosphere* 10:1327-1334.
- Mustieles V, Minguez-Alarcon L, Christou G, et al. 2019. Placental weight in relation to maternal and paternal preconception and prenatal urinary phthalate metabolite concentrations among subfertile couples. *Environ Res* 169:272-279. <http://doi.org/10.1016/j.envres.2018.11.022>.
- Myers BA. 1992a. A subchronic (4-week) dietary oral toxicity study of di(2-ethylhexyl)phthalate in B6C3F1 mice (final report) with attachments and cover letter dated 040392. Eastman Kodak Company. Submitted to the U.S. Environmental Protection Agency under TSCA Section 8D. OTS0535432. EPA 86-920000874.
- Myers BA. 1992b. Subchronic (13-week) dietary oral toxicity study of di(2-ethylhexyl)phthalate in Fischer 344 rats (final report) w-attachments and letter dated 040392 (missing pages 304 to 386). Eastman Kodak Company. Submitted to the U.S. Environmental Protection Agency under TSCA Section 8D. OTS0535433. 86-920000875.
- Nair N, Kurup CKR. 1986. Investigations on the mechanism of the hypocholesterolemic action of diethylhexyl phthalate in rats. *Biochem Pharmacol* 35(20):3441-3447.
- Nair N, Kurup CK. 1987a. Effect of administration of diethylhexyl phthalate on the function and turnover of rat hepatic mitochondria. *Biochim Biophys Acta* 925(3):332-340. [http://doi.org/10.1016/0304-4165\(87\)90199-1](http://doi.org/10.1016/0304-4165(87)90199-1).
- Nair N, Kurup CKR. 1987b. Increase in hepatic ubiquinone on administration of diethylhexyl phthalate to the rat. *J Biosci* 11(1-4):391-397.
- Nakamura Y, Yagi Y, Tomita I, et al. 1979. Teratogenicity of di-(2-ethylhexyl)phthalate in mice. *Toxicol Lett* 4(2):113-117. [http://doi.org/10.1016/0378-4274\(79\)90084-5](http://doi.org/10.1016/0378-4274(79)90084-5).
- Nardelli TC, Albert O, Lalancette C, et al. 2017. In utero and lactational exposure study in rats to identify replacements for di(2-ethylhexyl) phthalate. *Sci Rep* 7(1):3862. <http://doi.org/10.1038/s41598-017-03979-0>.

## 8. REFERENCES

- Narotsky MG, Kavlock RJ. 1995. A multidisciplinary approach to toxicological screening: II. Developmental toxicity. *J Toxicol Environ Health* 45(2):145-171. <http://doi.org/10.1080/15287399509531987>.
- NAS. 2008. Phthalates and cumulative risk assessment. The tasks ahead. National Academy of Sciences. [http://dels.nas.edu/dels/rpt\\_briefs/phthalates\\_final.pdf](http://dels.nas.edu/dels/rpt_briefs/phthalates_final.pdf). June 19, 2018.
- NAS. 2017. NAS systematic review: Application of systematic review methods in overall strategy for evaluating low-dose toxicity from endocrine active chemicals. Washington, DC: National Academy of Sciences. <http://nap.edu/24758>. June 05, 2018.
- NAS/NRC. 1989. Report of the oversight committee. Biologic markers in reproductive toxicology. Washington, DC: National Academy of Sciences. National Research Council. 15-35.
- Nasu M, Goto M, Oshima Y, et al. 2001. Study on endocrine disrupting chemicals in wastewater treatment plants. *Water Sci Technol* 43(2):101-208.
- Ng KME, Chu I, Bronaugh RL, et al. 1992. Percutaneous absorption and metabolism of pyrene, benzo[a]pyrene, and di(2-ethylhexyl) phthalate: comparison of in vitro and in vivo results in the hairless guinea pig. *Toxicol Appl Pharmacol* 115(2):216-223. [http://doi.org/10.1016/0041-008x\(92\)90326-n](http://doi.org/10.1016/0041-008x(92)90326-n).
- Niino T, Ishibashi T, Itho T, et al. 2001. Monoester formation by hydrolysis of dialkyl phthalate migrating from polyvinyl chloride products in human saliva. *J Health Sci* 47(3):318-322.
- NIOSH. 2001. Di-sec octyl phthalate. NIOSH pocket guide to chemical hazards. National Institute for Occupational Safety and Health.
- NIOSH. 2016. Di-sec octyl phthalate. NIOSH pocket guide to chemical hazards. National Institute for Occupational Safety and Health.
- NIOSH. 2019. Di-sec octyl phthalate. NIOSH pocket guide to chemical hazards. Atlanta, GA: National Institute for Occupational Safety and Health. <https://www.cdc.gov/niosh/npg/npgd0236.html>. August 26, 2020.
- NOES. 1990. National occupational exposure survey. Cincinnati, OH: National Institute of Occupational Safety and Health.
- Noriega NC, Howdeshell KL, Furr J, et al. 2009. Pubertal administration of DEHP delays puberty, suppresses testosterone production, and inhibits reproductive tract development in male Sprague-Dawley and Long-Evans rats. *Toxicol Sci* 111(1):163-178. <http://doi.org/10.1093/toxsci/kfp129>.
- NPS. 2016. Screening for contaminants of emerging concern in waters of the northern Colorado plateau network. 2015 Surface water data. National Park Service. NPS 960/133371, June 2016.
- NTP. 1982. Carcinogenesis bioassay of di(2-ethylhexyl)phthalate (CAS No. 117-81-7) in F344 rats and B6C3F1 mice (feed studies). Research Triangle Park, NC: National Toxicology Program. NTP-TR-217. NTP-80-37. NIH Publication No. 82-1773.
- NTP. 1984. Diethylhexyl phthalate (DEHP). Reproduction and fertility assessment in CD-1 mice when administered in the feed. Research Triangle Park, NC: National Toxicology Program. PB84181734.
- NTP. 1988. Reproduction and fertility evaluation of diethylhexyl phthalate (CAS no 117-81-7) in CD-1 mice exposed during gestation. NTP 88. Jefferson, AK: U.S. National Toxicology Program. PB88204300. <https://ntrl.ntis.gov/NTRL/dashboard/searchResults/titleDetail/PB88204300.xhtml>. April 15, 2020.
- NTP. 1989. Fifth annual report on carcinogens: Summary 1989. Research Triangle Park, NC: National Toxicology Program.
- NTP. 2000. NTP-CERHR expert panel report on di(2-ethylhexyl)phthalate. National Toxicology Program. NTP-CERHR-DEHP-00. <http://cerhr.niehs.nih.gov/news/index.html>. May 11, 2000.
- NTP. 2005. Diethylhexylphthalate: Multigenerational reproductive assessment by continuous breeding when administered to Sprague-Dawley rats in the diet. Research Triangle Park, NC: National Toxicology Program. PB2005107575. TRC Study No 7244-200. NTP-RACB-98-004.
- NTP. 2006. NTP-CERHR monograph on the potential human reproductive and developmental effects of di(2-ethylhexyl) phthalate (DEHP). National Toxicology Program. NIH Publication No. 06-4476.

## 8. REFERENCES

- NTP. 2016. Di(2-ethylhexyl) phthalate. In: Report on carcinogens. 14th ed. Research Triangle Park, NC: National Toxicology Program, <https://ntp.niehs.nih.gov/ntp/roc/content/profiles/diethylhexylphthalate.pdf>. August 27, 2020.
- NYDEC. 2014. Water quality monitoring data for pesticides on Long Island, NY. New York State Department of Environmental Conservation.
- Nyssen GA, Miller EC, Glass TF, et al. 1987. Solubilities of hydrophobic compounds in aqueous-organic solvent mixtures. *Environ Monit Assess* 9:1-11.
- Oberly T, Bewsey B, Probst G. 1985. Tests for the induction of forward mutation at the thymidine kinase locus of L5178Y mouse lymphoma cells in culture. *Prog Mutat Res* 5:569-582.
- O'Connor GA. 1996. Organic compounds in sludge-amended soils and their potential for uptake by crop plants. *Sci Total Environ* 185(1-3):71-81. [http://doi.org/10.1016/0048-9697\(95\)05043-4](http://doi.org/10.1016/0048-9697(95)05043-4).
- O'Connor OA, Rivera MD, Young LY. 1989. Toxicity and biodegradation of phthalic acid esters under methanogenic conditions. *Environ Toxicol Chem* 8(7):569-576.
- O'Grady DP, Howard PH, Werner AF. 1985. Activated sludge biodegradation of 12 commercial phthalate esters. *Appl Environ Microbiol* 49(2):443-445.
- Oie L, Hersoug LG, Madsen JO. 1997. Residential exposure to plasticizers and its possible role in the pathogenesis of asthma. *Environ Health Perspect* 105(9):972-978.
- Oishi S. 1989. Effects of co-administration of di(2-ethylhexyl)phthalate and testosterone on several parameters in the testis and pharmacokinetics of its mono-de-esterified metabolite. *Arch Toxicol* 63(4):289-295.
- Oishi S. 1990. Effects of phthalic acid esters on testicular mitochondrial functions in the rat. *Arch Toxicol* 64(2):143-147.
- Okai Y, Higashi-Okai K. 2000. Enhancing effect of a plastic plasticizer, di-2-ethylhexyl phthalate on umu C gene expression in *Salmonella typhimurium* (TA 1535/pSK 1002). *J UOEH* 22(4):305-315.
- Olesen TS, Bleses D, Andersen HR, et al. 2018a. Prenatal phthalate exposure and language development in toddlers from the Odense Child Cohort. *Neurotoxicol Teratol* 65:34-41. <http://doi.org/10.1016/j.ntt.2017.11.004>.
- Olesen TS, Bleses D, Andersen HR, et al. 2018b. Supplementary data: Prenatal phthalate exposure and language development in toddlers from the Odense Child Cohort. *Neurotoxicol Teratol* 65. <http://doi.org/10.1016/j.ntt.2017.11.004>.
- OSHA. 1994. Method 104. Dimethyl Phthalate (DMP), diethyl phthalate (DEP), dibutyl phthalate (DBP), di-2-ethylhexyl phthalate (DEHP), di-n-octyl phthalate (DNOP). Sampling and analytical methods. Occupational Safety and Health Administration.
- OSHA. 2019a. Occupational safety and health standards. Subpart Z - Toxic and hazardous substances. Air contaminants. Table Z-1: Limits for air contaminants. Occupational Safety and Health Administration. Code of Federal Regulations. 29 CFR 1910.1000. <https://www.osha.gov/laws-regs/regulations/standardnumber/1910/1910.1000TABLEZ1>. October 25, 2019.
- OSHA. 2019b. Occupational safety and health standards for shipyard employment. Subpart Z - Toxic and hazardous substances. Air contaminants. Occupational Safety and Health Administration. Code of Federal Regulations. 29 CFR 1915.1000. <https://www.osha.gov/laws-regs/regulations/standardnumber/1915/1915.1000>. October 25, 2019.
- OSHA. 2019c. Safety and health regulations for construction. Subpart D - Occupational health and environment controls. Gases, vapors, fumes, dusts, and mists. Occupational Safety and Health Administration. Code of Federal Regulations. 29 CFR 1926.55 Appendix A. <https://www.osha.gov/laws-regs/regulations/standardnumber/1926/1926.55AppA>. October 25, 2019.
- Otake T, Yoshinaga J, Yanagisawa Y. 2001. Analysis of organic esters of plasticizer in indoor air by GC-MS and GC-FPD. *Environ Sci Technol* 2001(35):3099-3102.
- Oudir M, Chader H, Bouzid B, et al. 2018. Male rat exposure to low dose of di(2-ethylhexyl) phthalate during pre-pubertal, pubertal and post-pubertal periods: Impact on sperm count, gonad histology and testosterone secretion. *Reprod Toxicol* 75:33-39. <http://doi.org/10.1016/j.reprotox.2017.11.004>.

## 8. REFERENCES

- Ozaki H, Sugihara K, Watanabe Y, et al. 2017. Comparative study of hydrolytic metabolism of dimethyl phthalate, dibutyl phthalate and di(2-ethylhexyl) phthalate by microsomes of various rat tissues. *Food Chem Toxicol* 100:217-224. <http://doi.org/10.1016/j.fct.2016.12.019>.
- Pan G, Hanaoka T, Yoshimura M, et al. 2006. Decreased serum free testosterone in workers exposed to high levels of di-n-butyl phthalate (DBP) and di-2-ethylhexyl phthalate (DEHP), a cross-sectional study in China. *Environ Health Perspect* 114(11):1643-1648. <http://doi.org/10.1289/ehp.9016>.
- Pan Y, Jing J, Dong F, et al. 2015. Association between phthalate metabolites and biomarkers of reproductive function in 1066 Chinese men of reproductive age. *J Hazard Mater* 300:729-736. <http://doi.org/10.1016/j.jhazmat.2015.08.011>.
- Pant K, Sly J, Bruce S, et al. 2010. Syrian Hamster Embryo (SHE) cell transformation assay with and without X-ray irradiation of feeder cells using di(2-ethylhexyl)phthalate (DEHP) and N-nitroso-N-methylnitroguanidine (MNNG). *Mutat Res* 698(1-2):6-10. <http://doi.org/10.1016/j.mrgentox.2010.02.017>.
- Park SY, Choi J. 2007. Cytotoxicity, genotoxicity and ecotoxicity assay using human cell and environmental species for the screening of the risk from pollutant exposure. *Environ Int* 33(6):817-822. <http://doi.org/10.1016/j.envint.2007.03.014>.
- Park HY, Kim JH, Lim YH, et al. 2013. Influence of genetic polymorphisms on the association between phthalate exposure and pulmonary function in the elderly. *Environ Res* 122:18-24. <http://doi.org/10.1016/j.envres.2012.11.004>.
- Park S, Kim BN, Cho SC, et al. 2014. Association between urine phthalate levels and poor attentional performance in children with attention-deficit hyperactivity disorder with evidence of dopamine gene-phthalate interaction. *Int J Environ Res Public Health* 11(7):6743-6756. <http://doi.org/10.3390/ijerph110706743>.
- Park C, Choi W, Hwang M, et al. 2017. Associations between urinary phthalate metabolites and bisphenol A levels, and serum thyroid hormones among the Korean adult population - Korean National Environmental Health Survey (KoNEHS) 2012-2014. *Sci Total Environ* 584-585:950-957. <http://doi.org/10.1016/j.scitotenv.2017.01.144>.
- Parks LG, Ostby JS, Lambright CR, et al. 2000. The plasticizer diethylhexyl phthalate induces malformations by decreasing fetal testosterone synthesis during sexual differentiation in the male rat. *Toxicol Sci* 58:339-349.
- Parmar D, Srivastava SP, Srivastava SP, et al. 1985. Hepatic mixed function oxidases and cytochrome P-450 contents in rat pups exposed to di-(2-ethylhexyl)phthalate through mother's milk. *Drug Metab Dispos* 13(3):368-370.
- Parmar D, Srivastava SP, Singh GB, et al. 1987. Effect of testosterone on the testicular atrophy caused by di(2-ethylhexyl)phthalate (DEHP). *Toxicol Lett* 36(3):297-308. [http://doi.org/10.1016/0378-4274\(87\)90199-8](http://doi.org/10.1016/0378-4274(87)90199-8).
- Parmar D, Srivastava SP, Seth PK. 1988. Effect of di(2-ethylhexyl)phthalate (DEHP) on hepatic mixed function oxidases in different animal species. *Toxicol Lett* 40(3):209-217.
- Parmar D, Srivastava SP, Seth PK. 1994. Age related effects of di(2-ethylhexyl)phthalate on hepatic cytochrome P450 monooxygenases in Wistar rats. *Pharmacol Toxicol* 75:177-180.
- Parmar D, Srivastava SP, Singh GB, et al. 1995. Testicular toxicity of di(2-ethylhexyl)phthalate in developing rats. *Vet Hum Toxicol* 37(4):310-313.
- Parra-Forero LY, Veloz-Contreras A, Vargas-Marín S, et al. 2019. Alterations in oocytes and early zygotes following oral exposure to di(2-ethylhexyl) phthalate in young adult female mice. *Reprod Toxicol* 90:53-61. <http://doi.org/10.1016/j.reprotox.2019.08.012>.
- Parry JM, Arni P, Brooks TM, et al. 1985. Summary report on the performance of the yeast and *Aspergillus* assays. *Prog Mutat Res* 5:25-46.
- Parsanathan R, Maria Joseph A, Karundevi B. 2019. Postnatal exposure to di-(2-ethylhexyl)phthalate alters cardiac insulin signaling molecules and GLUT4(Ser488) phosphorylation in male rat offspring. *J Cell Biochem* 120(4):5802-5812. <http://doi.org/10.1002/jcb.27866>.



## 8. REFERENCES

- Peck J, Sweeney A, Symanski E, et al. 2010. Intra- and inter-individual variability of urinary phthalate metabolite concentrations in Hmong women of reproductive age. *J Expo Sci Environ Epidemiol* 20(1):90-100. <http://doi.org/10.1038/jes.2009.4>.
- Pegg D. 1982. Disposition of di-2-ethylhexyl phthalate following inhalation and peroral exposure in rats. Submitted to the U.S. Environmental Protection Agency under TSCA Section 8D. EPA86910000683. OTS0530339.
- Percy Z, Xu Y, Sucharew H, et al. 2016. Gestational exposure to phthalates and gender-related play behaviors in 8-year-old children: An observational study. *Environ Health* 15:87. <http://doi.org/10.1186/s12940-016-0171-7>.
- Perera MIR, Katyal SL, Shinozuka H. 1986. Suppression of choline-deficient diet-induced hepatocyte membrane lipid peroxidation in rats by the peroxisome proliferators 4-chloro-6-(2,3-xylidino)-2-pyrimidinylthio(N-beta-hydroxyethyl)acetamide and di(2-ethylhexyl)phthalate. *Cancer Res* 46:3304-3308.
- Pérez PA, Toledo J, Sosa LDV, et al. 2020. The phthalate DEHP modulates the estrogen receptors  $\alpha$  and  $\beta$  increasing lactotroph cell population in female pituitary glands. *Chemosphere* 258:127304. <http://doi.org/10.1016/j.chemosphere.2020.127304>.
- Perng W, Watkins DJ, Cantoral A, et al. 2017. Exposure to phthalates is associated with lipid profile in peripubertal Mexican youth. *Environ Res* 154:311-317. <http://doi.org/10.1016/j.envres.2017.01.033>.
- Perng W, Kasper NM, Watkins DJ, et al. 2020. Exposure to endocrine-disrupting chemicals during pregnancy is associated with weight change through 1 year postpartum among women in the early-life exposure in Mexico to Environmental Toxicants Project. *J Womens Health* 29(11):1419-1426. <http://doi.org/10.1089/jwh.2019.8078>.
- Peters JM, Cheung C, Gonzalez FJ. 2005. Peroxisome proliferator-activated receptor- $\alpha$  and liver cancer: where do we stand? *J Mol Med* 83:774-785. <http://doi.org/10.1007/s00109-005-0678-9>.
- Petersen JH, Breindahl T. 2000. Plasticizers in total diet samples, baby food and infant formulae. *Food Addit Contam* 17(2):133-141.
- Philippat C, Bennett DH, Krakowiak P, et al. 2015. Phthalate concentrations in house dust in relation to autism spectrum disorder and developmental delay in the CHildhood Autism Risks from Genetics and the Environment (CHARGE) study. *Environ Health* 14:56. <http://doi.org/10.1186/s12940-015-0024-9>.
- Phillips BJ, James TE, Gangolli SD. 1982. Genotoxicity studies of di(2-ethylhexyl)phthalate and its metabolites in CHO cells. *Mutat Res* 102(3):297-304. [http://doi.org/10.1016/0165-1218\(82\)90139-2](http://doi.org/10.1016/0165-1218(82)90139-2).
- Phillips BJ, Anderson D, Gangolli SD. 1986. Studies on the genetic effects of phthalic acid esters on cells in culture. *Environ Health Perspect* 65:263-266. <http://doi.org/10.2307/3430192>.
- Piepenbrink M, Hussain I, Marsh J, et al. 2005. Developmental immunotoxicology of di-(2-Ethylhexyl)phthalate (DEHP): Age-based assessment in the female rat. *J Immunotoxicol* 2(1):21-31. <http://doi.org/10.1080/15363750490429435>.
- Plichta V, Volkel W, Fembacher L, et al. 2019. Bioavailability of phthalate and DINCH(R) plasticizers, after oral administration of dust to piglets. *Toxicol Lett* 314:82-88. <http://doi.org/10.1016/j.toxlet.2019.07.018>.
- Plonait SL, Nau H, Maier RF, et al. 1993. Exposure of newborn infants to di-(2-ethylhexyl)-phthalate and 2-ethylhexanoic acid following exchange transfusion with polyvinylchloride catheters. *Transfusion* 33:598-605.
- Plumb RH. 1987. A comparison of ground water monitoring data from CERCLA and RCRA sites. *Ground Water Monit Rev* 7:94-100.
- Pocar P, Fiandanese N, Secchi C, et al. 2012. Exposure to di(2-ethyl-hexyl) phthalate (DEHP) in utero and during lactation causes long-term pituitary-gonadal axis disruption in male and female mouse offspring. *Endocrinology* 153(2):937-948. <http://doi.org/10.1210/en.2011-1450>.

## 8. REFERENCES

- Pocar P, Fiandanese N, Berrini A, et al. 2017. Maternal exposure to di(2-ethylhexyl)phthalate (DEHP) promotes the transgenerational inheritance of adult-onset reproductive dysfunctions through the female germline in mice. *Toxicol Appl Pharmacol* 322:113-121. <http://doi.org/10.1016/j.taap.2017.03.008>.
- Podlecka D, Gromadzińska J, Mikołajewska K, et al. 2020. Longitudinal effect of phthalates exposure on allergic diseases in children. *Ann Allergy Asthma Immunol* 125(1):84-89. <http://doi.org/10.1016/j.anai.2020.03.022>.
- Pogribny I, Tryndyak V, Boureiko A, et al. 2008. Mechanisms of peroxisome proliferator-induced DNA hypomethylation in rat liver. *Mutat Res* 644(1-2):17-23. <http://doi.org/10.1016/j.mrfmmm.2008.06.009>.
- Polanska K, Ligocka D, Sobala W, et al. 2014. Phthalate exposure and child development: the Polish Mother and Child Cohort Study. *Early Hum Dev* 90(9):477-485. <http://doi.org/10.1016/j.earlhumdev.2014.06.006>.
- Pollack GM, Li RCK, Ermer JC, et al. 1985a. Effects of route of administration and repetitive dosing on the disposition kinetics of di(2-ethylhexyl) phthalate and its mono-de-esterified metabolite in rats. *Toxicol Appl Pharmacol* 79:246-256.
- Pollack GM, Buchanan JF, Slaughter RL, et al. 1985b. Circulating concentrations of di(2-ethylhexyl) phthalate and its de-esterified phthalic acid products following plasticizer exposure in patients receiving hemodialysis. *Toxicol Appl Pharmacol* 79(2):257-267. [http://doi.org/10.1016/0041-008x\(85\)90347-3](http://doi.org/10.1016/0041-008x(85)90347-3).
- Pollack AZ, Buck Louis GM, Chen Z, et al. 2015. Bisphenol A, benzophenone-type ultraviolet filters, and phthalates in relation to uterine leiomyoma. *Environ Res* 137:101-107. <http://doi.org/10.1016/j.envres.2014.06.028>.
- Poon R, Lecavalier P, Mueller R, et al. 1997. Subchronic oral toxicity of di-n-octyl phthalate and di(2-ethylhexyl) phthalate in the rat. *Food Chem Toxicol* 35(2):225-239. [http://doi.org/10.1016/s0278-6915\(96\)00064-6](http://doi.org/10.1016/s0278-6915(96)00064-6).
- Poulin P, Theil FP. 2002. Prediction of pharmacokinetics prior to in vivo studies. 1. Mechanism-based prediction of volume of distribution. *J Pharm Sci* 91(1):129-156.
- Pradeep S, Josh MK, Binod P, et al. 2015. *Achromobacter denitrificans* strain SP1 efficiently remediates di(2-ethylhexyl)phthalate. *Ecotoxicol Environ Saf* 112:114-121. <http://doi.org/10.1016/j.ecoenv.2014.10.035>.
- Preston MR, Al-Omran LA. 1989. Phthalate ester speciation in estuarine water, suspended particulates and sediments. *Environ Pollut* 62(2-3):183-193. [http://doi.org/10.1016/0269-7491\(89\)90186-3](http://doi.org/10.1016/0269-7491(89)90186-3).
- Price SC, Ochieng W, Weaver R, et al. 1987. Studies on the mechanisms of changes produced in the liver, thyroid, pancreas, and kidney by hypolipidemic drugs and di(2-ethylhexyl)phthalate. In: Reid E, Cook GM, Luzzi JP, eds. *Cells membranes, and disease, including renal*. New York, NY: Plenum Press, 67-78.
- Price SC, Chescoe D, Grasso P, et al. 1988. Alterations in the thyroids of rats treated for long periods with di-(2-ethylhexyl) phthalate or with hypolipidaemic agents. *Toxicol Lett* 40(1):37-46. [http://doi.org/10.1016/0378-4274\(88\)90181-6](http://doi.org/10.1016/0378-4274(88)90181-6).
- Priston RAJ, Dean BJ. 1985. Tests for the induction of chromosome aberrations, polyploidy and sister-chromatid exchanges in rat liver (RL4) cells. *Prog Mutat Res* 5:387-395.
- Probst GS, Hill LE. 1985. Tests for the induction of DNA-repair synthesis in primary cultures of adult rat hepatocytes. *Prog Mutat Res* 5:381-386.
- Pugh G, Isenberg J, Kamendulis L, et al. 2000. Effects of di-isononyl phthalate, di-2-ethylhexyl phthalate, and clofibrate in cynomolgus monkeys. *Toxicol Sci* 56(1):181-188. <http://doi.org/10.1093/toxsci/56.1.181>.
- Putman DL, Moore WA, Schechtman LM, et al. 1983. Cytogenic evaluation of di-(2-ethylhexyl)phthalate and its major metabolites in Fischer 344 rats. *Environ Mutagen* 5:227-231.

## 8. REFERENCES

- Qi W, Zhou L, Zhao T, et al. 2019. Effect of the TYK-2/STAT-3 pathway on lipid accumulation induced by mono-2-ethylhexyl phthalate. *Mol Cell Endocrinol* 484:52-58. <http://doi.org/10.1016/j.mce.2019.01.012>.
- Qian X, Li J, Xu S, et al. 2019a. Prenatal exposure to phthalates and neurocognitive development in children at two years of age. *Environ Int* 131:105023. <http://doi.org/10.1016/j.envint.2019.105023>.
- Qian X, Li J, Xu S, et al. 2019b. Supplementary data: Prenatal exposure to phthalates and neurocognitive development in children at two years of age. *Environ Int* 131. <http://doi.org/10.1016/j.envint.2019.105023>.
- Quinnies KM, Doyle TJ, Kim KH, et al. 2015. Transgenerational effects of di-(2-ethylhexyl) phthalate (DEHP) on stress hormones and behavior. *Endocrinology* 156(9):3077-3083. <http://doi.org/10.1210/en.2015-1326>.
- Quintana-Belmares RO, Kraus AM, Esfahani BK, et al. 2018. Phthalate esters on urban airborne particles: Levels in PM(10) and PM(2.5) from Mexico City and theoretical assessment of lung exposure. *Environ Res* 161:439-445. <http://doi.org/10.1016/j.envres.2017.11.039>.
- Rajagopal G, Bhaskaran RS, Karundevi B. 2019a. Maternal di-(2-ethylhexyl) phthalate exposure alters hepatic insulin signal transduction and glucoregulatory events in rat F(1) male offspring. *J Appl Toxicol* 39(5):751-763. <http://doi.org/10.1002/jat.3764>.
- Rajagopal G, Bhaskaran RS, Karundevi B. 2019b. Developmental exposure to DEHP alters hepatic glucose uptake and transcriptional regulation of GLUT2 in rat male offspring. *Toxicology* 413:56-64. <http://doi.org/10.1016/j.tox.2018.12.004>.
- Rajesh P, Balasubramanian K. 2014. Phthalate exposure in utero causes epigenetic changes and impairs insulin signalling. *J Endocrinol* 223(1):47-66. <http://doi.org/10.1530/JOE-14-0111>.
- Rajesh P, Sathish S, Srinivasan C, et al. 2013. Phthalate is associated with insulin resistance in adipose tissue of male rat: Role of antioxidant vitamins (C & E). *J Cell Biochem* 114(3):558-569. <http://doi.org/10.1002/jcb.24399>.
- Ran D, Luo Y, Gan Z, et al. 2019. Neural mechanisms underlying the deficit of learning and memory by exposure to di(2-ethylhexyl) phthalate in rats. *Ecotoxicol Environ Saf* 174:58-65. <http://doi.org/10.1016/j.ecoenv.2019.02.043>.
- Rao MS, Usuda N, Subbarao V, et al. 1987. Absence of gamma-glutamyl transpeptidase activity in neoplastic lesions induced in the liver of male F-344 rats by di-(2-ethylhexyl)phthalate, a peroxisome proliferator. *Carcinogenesis* 8(9):1347-1350. <http://doi.org/10.1093/carcin/8.9.1347>.
- Rao MS, Yeldandi AV, Subbarao V. 1990. Quantitative analysis of hepatocellular lesions induced by di(2-ethylhexyl)phthalate in F-344 rats. *J Toxicol Environ Health* 30(2):85-89. <http://doi.org/10.1080/15287399009531413>.
- Rattan S, Brehm E, Gao L, et al. 2017. Prenatal exposure to di(2-ethylhexyl) phthalate disrupts ovarian function in a transgenerational manner in female mice. *Biol Reprod* 98(1):130-145. <http://doi.org/10.1093/biolre/iox154>.
- Rattan S, Brehm E, Gao L, et al. 2018. Di(2-ethylhexyl) phthalate exposure during prenatal development causes adverse transgenerational effects on female fertility in mice. *Toxicol Sci* 163(2):420-429. <http://doi.org/10.1093/toxsci/kfy042>.
- Rattan S, Beers HK, Kannan A, et al. 2019. Prenatal and ancestral exposure to di(2-ethylhexyl) phthalate alters gene expression and DNA methylation in mouse ovaries. *Toxicol Appl Pharmacol* 379:114629. <http://doi.org/10.1016/j.taap.2019.114629>.
- Ray LE, Murray HE, Giam CS. 1983. Organic pollutants in marine samples from Portland, Maine. *Chemosphere* 12(7-8):7-8.
- Reddy JK, Moody DE, Azarnoff DL, et al. 1976. Di-(2-ethylhexyl)phthalate: an industrial plasticizer induces hypolipidemia and enhances hepatic catalase and carnitine acetyltransferase activities in rat and mice. *Life Sci* 18(9):941-945. [http://doi.org/10.1016/0024-3205\(76\)90412-4](http://doi.org/10.1016/0024-3205(76)90412-4).
- Reddy BS, Rozati R, Reddy BV, et al. 2006. Association of phthalate esters with endometriosis in Indian women. *BJOG* 113(5):515-520. <http://doi.org/10.1111/j.1471-0528.2006.00925.x>.

## 8. REFERENCES

- Reeves KW, Diaz Santana M, Manson JE, et al. 2019. Urinary phthalate biomarker concentrations and postmenopausal breast cancer risk. *J Natl Cancer Inst* 111(10):1059-1067. <http://doi.org/10.1093/jnci/djz002>.
- RePORTER. 2021. Di(2-ethylhexyl)phthalate (DEHP). National Institutes of Health, Research Portfolio Online Reporting Tools. <http://projectreporter.nih.gov/reporter.cfm>. March 16, 2021.
- Rhodes C, Orton TC, Pratt IS, et al. 1986. Comparative pharmacokinetics and subacute toxicity of di(2-ethylhexyl) phthalate (DEHP) in rats and marmosets: extrapolation of effects in rodents to man. *Environ Health Perspect* 65:299-307.
- Ritsema R, Cofino WP, Frintrop P CM, et al. 1989. Trace-level analysis of phthalate esters in surface water and suspended particulate matter by means of capillary gas chromatography with electron-capture and mass-selective detection. *Chemosphere* 18(11-12):11-12.
- Ritter EJ, Scott WJ, Randall JL, et al. 1987. Teratogenicity of di(2-ethylhexyl) phthalate, 2-ethylhexanol, 2-ethylhexanoic acid, and valproic acid, and potentiation by caffeine. *Teratology* 35(1):41-46. <http://doi.org/10.1002/tera.1420350107>.
- Roberts RA, Ganey PE, Ju C, et al. 2007. Role of the Kupffer cell in mediating hepatic toxicity and carcinogenesis. *Toxicol Sci* 96(1):2-15.
- Robledo CA, Peck JD, Stoner J, et al. 2015. Urinary phthalate metabolite concentrations and blood glucose levels during pregnancy. *Int J Hyg Environ Health* 218(3):324-330. <http://doi.org/10.1016/j.ijheh.2015.01.005>.
- Rock G, Secours VE, Franklin CA, et al. 1978. The accumulation of mono-2-ethylhexylphthalate (MEHP) during storage of whole blood and plasma. *Transfusion* 18(5):553-558.
- Romani F, Tropea A, Scarinci E, et al. 2014. Endocrine disruptors and human reproductive failure: The invitro effect of phthalates on human luteal cells. *Fertil Steril* 102(3):831-837. <http://doi.org/10.1016/j.fertnstert.2014.05.041>.
- Roth B, Herkenrath P, Lehmann HJ, et al. 1988. Di-(2-ethylhexyl)-phthalate as plasticizer in PVC respiratory tubing systems: indications of hazardous effects on pulmonary function in mechanically ventilated, preterm infants. *Eur J Pediatr* 147(1):41-46. <http://doi.org/10.1007/bf00442609>.
- Rowland IR. 1974. Metabolism of di-(2-ethylhexyl) phthalate by the contents of the alimentary tract of the rat. *Food Cosmet Toxicol* 12(3):293-303. [http://doi.org/10.1016/0015-6264\(74\)90001-7](http://doi.org/10.1016/0015-6264(74)90001-7).
- Rowland IR, Cottrell RC, Phillips JC. 1977. Hydrolysis of phthalate esters by the gastro-intestinal contents of the rat. *Food Chem Toxicol* 15(1):17-21. [http://doi.org/10.1016/s0015-6264\(77\)80257-5](http://doi.org/10.1016/s0015-6264(77)80257-5).
- Roy WR. 1994. Groundwater contamination from municipal landfills in the USA. In: Adriano DC, Iskandar AK, Murarka IP, eds. *Contamination of groundwaters*. Northwood, England: Science Reviews, 411-446.
- RTECS. 2013. Phthalic acid, bis(2-ethylhexyl) ester. Registry of Toxic Effects on Chemical Substances. National Institute of Occupational Safety and Health. MDL Information Systems, Inc.
- Ruddick JA, Villeneuve DC, Chu I, et al. 1981. An assessment of the teratogenicity in the rat and mutagenicity in Salmonella of mono-2-ethylhexyl phthalate. *Bull Environ Contam Toxicol* 27(2):181-186. <http://doi.org/10.1007/bf01611005>.
- Rudel RA, Brody JG, Spengler JD, et al. 2001. Identification of selected hormonally active agents and animal mammary carcinogens in commercial and residential air and dust samples. *J Air Waste Manage Assoc* 51:499-513.
- Rushbrook CJ, Jorgenson TA, Hodgson JR. 1982. Dominant lethal study of di(2-ethylhexyl)phthalate and its major metabolites in ICR/SIM mice. *Environ Mutagen* 4:387.
- Russell DJ, McDuffie B. 1983. Analysis for phthalate esters in environmental samples: Separation from polychlorinated biphenyls and pesticides using dual column liquid chromatography. *Int J Environ Anal Chem* 15(3):165-184.
- Rusyn I, Corton JC. 2012. Mechanistic considerations for human relevance of cancer hazard of di(2-ethylhexyl) phthalate. *Mutat Res* 750(2):141-158. <http://doi.org/10.1016/j.mrrev.2011.12.004>.

## 8. REFERENCES

- Rusyn I, Peters JM, Cunningham ML. 2006. Modes of action and species-specific effects of di-(2-ethylhexyl)phthalate in the liver. *Crit Rev Toxicol* 36(5):459-479. <http://doi.org/10.1080/10408440600779065>.
- Sadakane K, Ichinose T, Takano H, et al. 2014. Effects of oral administration of di-(2-ethylhexyl) and diisononyl phthalates on atopic dermatitis in NC/Nga mice. *Immunopharmacol Immunotoxicol* 36(1):61-69. <http://doi.org/10.3109/08923973.2013.866678>.
- Saillenfait AM, Sabaté JP, Robert A, et al. 2013. Dose-dependent alterations in gene expression and testosterone production in fetal rat testis after exposure to di-n-hexyl phthalate. *J Appl Toxicol* 33(9):1027-1035. <http://doi.org/10.1002/jat.2896>.
- Sanchez JH, Abernethy DJ, Boreiko CJ. 1987. Lack of di-(2-ethylhexyl) phthalate activity in the C3H/10T1/2 cell transformation system. *Toxicol in Vitro* 1(1):49-53.
- Sanner T, Rivedal E. 1985. Tests with the Syrian hamster embryo (SHE) cell transformation assay. *Prog Mutat Res* 5:665-671.
- Sarath Josh MK, Pradeep S, Vijayalekshmy Amma KS, et al. 2016. Human ketosteroid receptors interact with hazardous phthalate plasticizers and their metabolites: an in silico study. *J Appl Toxicol* 36(6):836-843. <http://doi.org/10.1002/jat.3221>.
- Sasaki T, Yoshikawa K, Harada H, et al. 2003. No immunotoxic effect on T cells with di (2-ethylhexyl) phthalate in male C57BL/6 mice. *Environ Health Prev Med* 8(2):59-63. <http://doi.org/10.1007/bf02897928>.
- Satake S, Nakamura C, Minamide Y, et al. 2010. Effect of a large dose of di (2-ethylhexyl) phthalate (DEHP) on hepatic peroxisome in cynomolgus monkeys (*Macaca fascicularis*). *J Toxicol Pathol* 23(2):75-83. <http://doi.org/10.1293/tox.23.75>.
- Sathyanarayana S, Barrett E, Butts S, et al. 2014. Phthalate exposure and reproductive hormone concentrations in pregnancy. *Reproduction* 147(4):401-409. <http://doi.org/10.1530/rep-13-0415>.
- Sathyanarayana S, Grady R, Barrett ES, et al. 2016a. First trimester phthalate exposure and male newborn genital anomalies. *Environ Res* 151:777-782. <http://doi.org/10.1016/j.envres.2016.07.043>.
- Sathyanarayana S, Barrett E, Nguyen R, et al. 2016b. First trimester phthalate exposure and infant birth weight in the infant development and environment study. *Int J Environ Res Public Health* 13(10):945. <http://doi.org/10.3390/ijerph13100945>.
- Sathyanarayana S, Butts S, Wang C, et al. 2017. Early prenatal phthalate exposure, sex steroid hormones, and birth outcomes. *J Clin Endocrinol Metab* 102(6):1870-1878. <http://doi.org/10.1210/jc.2016-3837>.
- Sato T, Nagase H, Sato K, et al. 1994. Enhancement of the mutagenicity of amino acid pyrolysates by phthalate esters. *Environ Mol Mutagen* 24:325-331.
- SCENIHR. 2016. Opinion on the safety of medical devices containing DEHP-plasticized PVC or other plasticizers on neonates and other groups possibly at risk (2015 update). Revision February 2016. Scientific Committee on Emerging and Newly-Identified Health Risks. European Commission. [http://ec.europa.eu/health/scientific\\_committees/policy/index\\_en.htm](http://ec.europa.eu/health/scientific_committees/policy/index_en.htm). June 18, 2018.
- Schaedlich K, Gebauer S, Hunger L, et al. 2018. DEHP deregulates adipokine levels and impairs fatty acid storage in human SGBS-adipocytes. *Sci Rep* 8(1):3447. <http://doi.org/10.1038/s41598-018-21800-4>.
- Schechter A, Lorber M, Guo Y, et al. 2013. Phthalate concentrations and dietary exposure from food purchased in New York State. *Environ Health Perspect* 121(4):473-494. <http://doi.org/10.1289/ehp.1206367>.
- Schilling K, Deckardt K, Gembardt C, et al. 1999. Support: Di-2-ethylhexyl phthalate -two-generation reproduction toxicity range-finding study in Wistar rats - continuous dietary administration, with cover letter dated 09/16/1999. Eastman Chemical Co. Submitted under TSCA Section 8E. OTS0530371-6. 89990000316.
- Schilling K, Deckardt K, Gembardt C, et al. 2001. Support: Di-2-ethylhexyl phthalate -two-generation reproduction toxicity study in Wistar rats continuous dietary administration, with cover letter dated

## 8. REFERENCES

- 04/2/2001. Eastman Chemical Co. Submitted under TSCA Section 8E. OTS0574025-1. 89010000147.
- Schmezer P, Pool BL, Klein RG, et al. 1988. Various short-term assays and two long-term studies with the plasticizer di(2-ethylhexyl)phthalate in the Syrian golden hamster. *Carcinogenesis* 9(1):37-43. <http://doi.org/10.1093/carcin/9.1.37>.
- Schmid P, Schlatter C. 1985. Excretion and metabolism of di(2-ethylhexyl)-phthalate in man. *Xenobiotica* 15(3):251-256.
- Schmidt JS, Schaedlich K, Fiandanese N, et al. 2012. Effects of di(2-ethylhexyl) phthalate (DEHP) on female fertility and adipogenesis in C3H/N mice. *Environ Health Perspect* 120(8):1123-1129. <http://doi.org/10.1289/ehp.1104016>.
- Schwoppe AD, Reid RC. 1988. Migration to dry foods. *Food Addit Contam* 5(Suppl 1):445-454.
- Scott RC, Dugard PH, Ramsey JD, et al. 1987. In vitro absorption of some o-phthalate diesters through human and rat skin. *Environ Health Perspect* 74:223-227. <http://doi.org/10.2307/3430452>.
- Seed JL. 1982. Mutagenic activity of phthalate esters in bacterial liquid suspension assays. *Environ Health Perspect* 45:111-114.
- Serrano SE, Braun J, Trasande L, et al. 2014. Phthalates and diet: a review of the food monitoring and epidemiology data. *Environ Health* 13(1):43. <http://doi.org/10.1186/1476-069X-13-43>.
- Shaffer CB, Carpenter CP, Smyth HF. 1945. Acute and subacute toxicity of di(2-ethylhexyl)phthalate with note upon its metabolism. *J Ind Hyg Toxicol* 27:130-135.
- Shao P, Wang Y, Zhang M, et al. 2019. The interference of DEHP in precocious puberty of females mediated by the hypothalamic IGF-1/PI3K/Akt/mTOR signaling pathway. *Ecotoxicol Environ Saf* 181:362-369. <http://doi.org/10.1016/j.ecoenv.2019.06.017>.
- Shapiro GD, Dodds L, Arbuckle TE, et al. 2015. Exposure to phthalates, bisphenol A and metals in pregnancy and the association with impaired glucose tolerance and gestational diabetes mellitus: The MIREC study. *Environ Int* 83:63-71. <http://doi.org/10.1016/j.envint.2015.05.016>.
- Sharma R, Lake BG, Gibson GG. 1988. Co-induction of microsomal cytochrome P-452 and the peroxisomal fatty acid  $\beta$ -oxidation pathway in the rat by clofibrate and di-(2-ethylhexyl) phthalate. *Biochem Pharmacol* 37(7):1203-1206. [http://doi.org/10.1016/0006-2952\(88\)90771-x](http://doi.org/10.1016/0006-2952(88)90771-x).
- Sharma RK, Lake BG, Makowski R, et al. 1989. Differential induction of peroxisomal and microsomal fatty-acid-oxidising enzymes by peroxisome proliferators in rat liver and kidney. Characterisation of a renal cytochrome P-450 and implications for peroxisome proliferation. *Eur J Biochem* 184(1):69-78. <http://doi.org/10.1111/j.1432-1033.1989.tb14991.x>.
- Sharma RP, Schuhmacher M, Kumar V. 2018. Development of a human physiologically based pharmacokinetic (PBPK) model for phthalate (DEHP) and its metabolites: A bottom up modeling approach. *Toxicol Lett* 296:152-162. <http://doi.org/10.1016/j.toxlet.2018.06.1217>.
- She Y, Jiang L, Zheng L, et al. 2017. The role of oxidative stress in DNA damage in pancreatic  $\beta$  cells induced by di-(2-ethylhexyl) phthalate. *Chem Biol Interact* 265:8-15. <http://doi.org/10.1016/j.cbi.2017.01.015>.
- Sheikh IA, Turki RF, Abuzenadah AM, et al. 2016. Endocrine disruption: Computational perspectives on human sex hormone-binding globulin and phthalate plasticizers. *PLoS ONE* 11(3):e0151444. <http://doi.org/10.1371/journal.pone.0151444>.
- Sheldon LS, Hites RA. 1979. Sources and movement of organic chemicals in the Delaware River. *Environ Sci Technol* 13(5):574-579.
- Shen R, Zhao LL, Yu Z, et al. 2017. Maternal di-(2-ethylhexyl) phthalate exposure during pregnancy causes fetal growth restriction in a stage-specific but gender-independent manner. *Reprod Toxicol* 67:117-124. <http://doi.org/10.1016/j.reprotox.2016.12.003>.
- Shen L, Tang X, Wei Y, et al. 2018. Vitamin E and vitamin C attenuate di-(2-ethylhexyl) phthalate-induced blood-testis barrier disruption by p38 MAPK in immature SD rats. *Reprod Toxicol* 81:17-27. <http://doi.org/10.1016/j.reprotox.2018.06.015>.

## 8. REFERENCES

- Shin M, Ohnishi M, Iguchi S, et al. 1999. Peroxisome-proliferator regulates key enzymes of the tryptophan-NAD<sup>+</sup> pathway. *Toxicol Appl Pharmacol* 158(1):71-80. <http://doi.org/10.1006/taap.1999.8683>.
- Shinohara N, Uchino K. 2020. Diethylhexyl phthalate (DEHP) emission to indoor air and transfer to house dust from a PVC sheet. *Sci Total Environ* 711:134573. <http://doi.org/10.1016/j.scitotenv.2019.134573>.
- Shinohara N, Mizukoshi A, Uchiyama M, et al. 2019. Emission characteristics of diethylhexyl phthalate (DEHP) from building materials determined using a passive flux sampler and micro-chamber. *PLoS ONE* 14(9):e0222557. <http://doi.org/10.1371/journal.pone.0222557>.
- Shintani H. 2000. Pretreatment and chromatographic analysis of phthalate esters, and their biochemical behavior in blood products. *Chromatographia* 52(11/12):721-726.
- Shiota K, Nishimura H. 1982. Teratogenicity of di(2-ethylhexyl) phthalate (DEHP) and di-n-butyl phthalate (DBP) in mice. *Environ Health Perspect* 45(0):65-70. <http://doi.org/10.2307/3429385>.
- Shiota K, Chou MJ, Nishimura H. 1980. Embryotoxic effects of di-2-ethylhexyl phthalate (DEHP) and di-n-butyl phthalate (DBP) in mice. *Environ Res* 22(1):245-253. [http://doi.org/10.1016/0013-9351\(80\)90136-x](http://doi.org/10.1016/0013-9351(80)90136-x).
- Shiue I. 2015a. Urinary heavy metals, phthalates, perchlorate, nitrate, thiocyanate, hydrocarbons, and polyfluorinated compounds are associated with adult hearing disturbance: USA NHANES, 2011-2012. *Environ Sci Pollut Res Int* 22(24):20306-20311. <http://doi.org/10.1007/s11356-015-5546-8>.
- Shiue I. 2015b. Arsenic, heavy metals, phthalates, pesticides, hydrocarbons and polyfluorinated compounds but not parabens or phenols are associated with adult remembering condition: US NHANES, 2011-2012. *Environ Sci Pollut Res Int* 22(8):6381-6386. <http://doi.org/10.1007/s11356-015-4261-9>.
- Shiue I. 2015c. Urinary heavy metals, phthalates and polyaromatic hydrocarbons independent of health events are associated with adult depression: USA NHANES, 2011-2012. *Environ Sci Pollut Res Int* 22(21):17095-17103. <http://doi.org/10.1007/s11356-015-4944-2>.
- Shiue I, Hristova K. 2014. Higher urinary heavy metal, phthalate and arsenic concentrations accounted for 3-19% of the population attributable risk for high blood pressure: US NHANES, 2009-2012. *Hypertens Res* 37(12):1075-1081. <http://doi.org/10.1038/hr.2014.121>.
- Shneider B, Cronin J, Van Marter L, et al. 1991. A prospective analysis of cholestasis in infants supported with extracorporeal membrane oxygenation. *J Pediatr Gastroenterol Nutr* 13(3):285-289.
- Shoaff JR, Romano ME, Yolton K, et al. 2016. Prenatal phthalate exposure and infant size at birth and gestational duration. *Environ Res* 150:52-58. <http://doi.org/10.1016/j.envres.2016.05.033>.
- Shoaff J, Papandonatos GD, Calafat AM. 2017a. Early-life phthalate exposure and adiposity at 8 years of age. *Environ Health Perspect* 215(9) <http://doi.org/28935615>.
- Shoaff J, Papandonatos GD, Calafat AM, et al. 2017b. Supplementary data: Early-life phthalate exposure and adiposity at 8 years of age. *Environ Health Perspect* 125. <http://doi.org/10.1289/EHP1022>.
- Short RD, Robinson EC, Lington AW, et al. 1987. Metabolic and peroxisome proliferation studies with di(2-ethylhexyl)phthalate in rats and monkeys. *Toxicol Ind Health* 3(2):185-195. <http://doi.org/10.1177/074823378700300213>.
- Silva MJ, Barr DB, Reidy JA, et al. 2003. Glucuronidation patterns of common urinary and serum monoester phthalate metabolites. *Arch Toxicol* 77(10):561-567. <http://doi.org/10.1007/s00204-003-0486-3>.
- Silva MJ, Reidy JA, Preau JL, et al. 2006. Oxidative metabolites of diisononyl phthalate as biomarkers for human exposure assessment. *Environ Health Perspect* 114(8):1158-1161. <http://doi.org/10.1289/ehp.8865>.
- Simmon VF, Kauhanen K, Tardiff RG. 1977. Mutagenic activity of chemicals identified in drinking water. In: *Progress in genetic toxicology: Proceedings of the Second International Conference on Environmental Mutagens*. Edinburgh, London: Elsevier/North Holland Press, 249-258.

## 8. REFERENCES

- Simmons J, Yeatts S, Zhao J, et al. 2005. Evaluation of systemic toxicity in mixtures of trichloroethylene (TCE), heptachlor (HEPT), and di(2-ethylhexyl)phthalate (DEHP) assessed in a 5x5x5 design. *Toxicologist* 84:395.
- Singh S, Li SS. 2011. Phthalates: Toxicogenomics and inferred human diseases. *Genomics* 97(3):148-157. <http://doi.org/10.1016/j.ygeno.2010.11.008>.
- Singh AR, Lawrence WH, Autian J. 1974. Mutagenic and antifertility sensitivities of mice to di-2-ethylhexyl phthalate (DEHP) and dimethoxyethyl phthalate (DMEP). *Toxicol Appl Pharmacol* 29:35-46.
- Singh AR, Lawrence WH, Autian J. 1975. Maternal-fetal transfer of 14C-di-2-ethylhexyl phthalate and 14C-diethyl phthalate in rats. *J Pharm Sci* 64(8):1347-1350. <http://doi.org/10.1002/jps.2600640819>.
- Sjoberg P, Bondesson U, Hammarlund M. 1985a. Non-linearities in the pharmacokinetics of di-(2-ethylhexyl) phthalate and metabolites in male rats. *Arch Toxicol* 58(2):72-77.
- Sjoberg P, Bondesson U, Kjellen L, et al. 1985b. Kinetics of di-(2-ethylhexyl) phthalate in immature and mature rats and effect on testis. *Acta Pharmacol Toxicol (Copenh)* 56:30-37.
- Sjoberg P, Bondesson U, Sedin G, et al. 1985c. Dispositions of di- and mono-(2-ethylhexyl) phthalate in newborn infants subjected to exchange transfusions. *Eur J Clin Invest* 15(6):430-436. <http://doi.org/10.1111/j.1365-2362.1985.tb00297.x>.
- Sjoberg P, Lindqvist NG, Ploen L. 1986. Age-dependent response of the rat testes to di(2-ethylhexyl) phthalate. *Environ Health Perspect* 65:237-242.
- Sjoberg P, Egestad B, Klasson-Wehler E, et al. 1991. Glucuronidation of mono(2-ethylhexyl)phthalate. *Biochem Pharmacol* 41(10):1493-1496.
- Smith CA, Holahan MR. 2014. Reduced hippocampal dendritic spine density and BDNF expression following acute postnatal exposure to di(2-ethylhexyl) phthalate in male Long Evans rats. *PLoS ONE* 9(10):e109522. <http://doi.org/10.1371/journal.pone.0109522>.
- Smith CA, MacDonald A, Holahan MR. 2011. Acute postnatal exposure to di(2-ethylhexyl) phthalate adversely impacts hippocampal development in the male rat. *Neuroscience* 193:100-108. <http://doi.org/10.1016/j.neuroscience.2011.06.082>.
- Smith-Oliver T, Butterworth BE. 1987. Correlation of the carcinogenic potential of di(2-ethylhexyl)phthalate (DEHP) with induced hyperplasia rather than with genotoxic activity. *Mutat Res* 188(1):21-28. [http://doi.org/10.1016/0165-1218\(87\)90110-8](http://doi.org/10.1016/0165-1218(87)90110-8).
- Sobol Z, Homiski ML, Dickinson DA, et al. 2012. Development and validation of an in vitro micronucleus assay platform in TK6 cells. *Mutat Res* 746(1):29-34. <http://doi.org/10.1016/j.mrgentox.2012.02.005>.
- Sol CM, Santos S, Asimakopoulos AG, et al. 2020. Associations of maternal phthalate and bisphenol urine concentrations during pregnancy with childhood blood pressure in a population-based prospective cohort study. *Environ Int* 138:105677. <http://doi.org/10.1016/j.envint.2020.105677>.
- Song Y, Hauser R, Hu FB, et al. 2014. Urinary concentrations of bisphenol A and phthalate metabolites and weight change: A prospective investigation in US women. *Int J Obes* 38(12):1532-1537. <http://doi.org/10.1038/ijo.2014.63>.
- Souter I, Bellavia A, Williams PL, et al. 2020a. Urinary concentrations of phthalate metabolite mixtures in relation to serum biomarkers of thyroid function and autoimmunity among women from a fertility center. *Environ Health Perspect* 128(6):67007. <http://doi.org/10.1289/ehp6740>.
- Souter I, Bellavia A, Williams PL, et al. 2020b. Supplemental material: Urinary concentrations of phthalate metabolite mixtures in relation to serum biomarkers of thyroid function and autoimmunity among women from a fertility center. *Environ Health Perspect* 128. <http://doi.org/10.1289/ehp6740>.
- Specht IO, Bonde JP, Toft G, et al. 2015. Serum phthalate levels and time to pregnancy in couples from Greenland, Poland and Ukraine. *PLoS ONE* 10(3):e0120070. <http://doi.org/10.1371/journal.pone.0120070>.
- Stahlhut RW, van Wijngaarden E, Dye TD, et al. 2007. Concentrations of urinary phthalate metabolites are associated with increased waist circumference and insulin resistance in adult U.S. males. *Environ Health Perspect* 115(6):876-882. <http://doi.org/10.1289/ehp.9882>.



## 8. REFERENCES

- Stalling DL, Hogan JW, Johnson JL. 1973. Phthalate ester residues - their metabolism and analysis in fish. *Environ Health Perspect* 3(3):159-173.
- Staples CA, Werner AF, Hoogheem TJ. 1985. Assessment of priority pollutant concentrations in the United States using STORET database. *Environ Toxicol Chem* 4:131-142.
- Staples CA, Peterson DR, Parkerton TF, et al. 1997. The environmental fate of phthalate esters: A literature review. *Chemosphere* 35(4):667-749.
- Stein TP, Schluter MD, Steer RA, et al. 2013. Autism and phthalate metabolite glucuronidation. *J Autism Dev Disord* 43(11):2677-2685. <http://doi.org/10.1007/s10803-013-1822-y>.
- Steiner I, Scharf L, Fiala F, et al. 1998. Migration of di-(2-ethylhexyl) phthalate from PVC child articles into saliva and saliva simulant. *Food Addit Contam* 15(7):812-817. <http://doi.org/10.1080/02652039809374715>.
- Stelmach I, Majak P, Jerzynska J, et al. 2015. The effect of prenatal exposure to phthalates on food allergy and early eczema in inner-city children. *Allergy Asthma Proc* 36(4):72-78. <http://doi.org/10.2500/aap.2015.36.3867>.
- Stenchever MA, Allen MA, Jerominski L, et al. 1976. Effects of bis(2-ethylhexyl) phthalate on chromosomes of human leukocytes and human fetal lung cells. *J Pharm Sci* 65:1648-1651.
- Stermer AR, Murphy CJ, Ghaffari R, et al. 2017. Mono-(2-ethylhexyl) phthalate-induced Sertoli cell injury stimulates the production of pro-inflammatory cytokines in Fischer 344 rats. *Reprod Toxicol* 69:150-158. <http://doi.org/10.1016/j.reprotox.2017.02.013>.
- Strassle PD, Smit LAM, Hoppin JA. 2018. Endotoxin enhances respiratory effects of phthalates in adults: Results from NHANES 2005-6. *Environ Res* 162:280-286. <http://doi.org/10.1016/j.envres.2018.01.017>.
- Stringer R, Labunska I, Santillo D, et al. 2000. Concentrations of phthalate esters and identification of other additives in PVC children's toys. *Environ Sci Pollut Res Int* 7(1):27-36. <http://doi.org/10.1065/espr199910.00>.
- Stroheker T, Cabaton N, Nourdin G, et al. 2005. Evaluation of anti-androgenic activity of di-(2-ethylhexyl)phthalate. *Toxicology* 208(1):115-121. <http://doi.org/10.1016/j.tox.2004.11.013>.
- Stroheker T, Regnier JF, Lassarguere J, et al. 2006. Effect of in utero exposure to di-(2-ethylhexyl)phthalate: distribution in the rat fetus and testosterone production by rat fetal testis in culture. *Food Chem Toxicol* 44(12):2064-2069. <http://doi.org/10.1016/j.fct.2006.07.007>.
- Stubin AI, Brosnan TM, Porter KD, et al. 1996. Organic priority pollutants in New York City municipal wastewaters: 1989-1993. *Water Environ Res* 68(6):1037-1044.
- Su PH, Chen JY, Lin CY, et al. 2014. Sex steroid hormone levels and reproductive development of eight-year-old children following in utero and environmental exposure to phthalates. *PLoS ONE* 9(9):e102788. <http://doi.org/10.1371/journal.pone.0102788>.
- Su PH, Chang CK, Lin CY, et al. 2015. Prenatal exposure to phthalate ester and pubertal development in a birth cohort in central Taiwan: a 12-year follow-up study. *Environ Res* 136:324-330. <http://doi.org/10.1016/j.envres.2014.10.026>.
- Suemizu H, Sota S, Kuronuma M, et al. 2014. Pharmacokinetics and effects on serum cholinesterase activities of organophosphorus pesticides acephate and chlorpyrifos in chimeric mice transplanted with human hepatocytes. *Regul Toxicol Pharmacol* 70(2):468-473. <http://doi.org/10.1016/j.yrtph.2014.08.010>.
- Sugatt RH, O'Grady DP, Banerjee S, et al. 1984. Shake flask biodegradation of 14 commercial phthalate esters. *Appl Environ Microbiol* 47(4):601-606.
- Sullivan KF, Atlas EL, Glam CS. 1982. Adsorption of phthalic esters from seawater. *Environ Sci Technol* 16:428-432.
- Sumner RN, Tomlinson M, Craigon J, et al. 2019. Independent and combined effects of diethylhexyl phthalate and polychlorinated biphenyl 153 on sperm quality in the human and dog. *Sci Rep* 9(1):3409. <http://doi.org/10.1038/s41598-019-39913-9>.

## 8. REFERENCES

- Sun W, Ban JB, Zhang N, et al. 2014a. Perinatal exposure to di-(2-ethylhexyl)-phthalate leads to cognitive dysfunction and phospho-tau level increase in aged rats. *Environ Toxicol* 29(5):596-603. <http://doi.org/10.1002/tox.21785>.
- Sun Q, Cornelis MC, Townsend MK, et al. 2014b. Association of urinary concentrations of bisphenol A and phthalate metabolites with risk of type 2 diabetes: a prospective investigation in the Nurses' Health Study (NHS) and NHSII cohorts. *Environ Health Perspect* 122(6):616-623. <http://doi.org/10.1289/ehp.1307201>.
- Sun J, Chen B, Zhang L, et al. 2016. Phthalate ester concentrations in blood serum, urine and endometrial tissues of Chinese endometriosis patients *Int J Clin Exp Med* 9(2):3808-3819.
- Sun X, Li J, Jin S, et al. 2018. Associations between repeated measures of maternal urinary phthalate metabolites during pregnancy and cord blood glucocorticoids. *Environ Int* 121(Pt 1):471-479. <http://doi.org/10.1016/j.envint.2018.09.037>.
- Sun X, Chen W, Weng S, et al. 2020. Effects of the environmental endocrine disruptors di-2-ethylhexyl phthalate and mono-2-ethylhexyl phthalate on human sperm function in vitro. *Reprod Fertil Dev* 32(6):629-636. <http://doi.org/10.1071/rd19164>.
- Supornsilchai V, Soder O, Svechnikov K. 2007. Stimulation of the pituitary-adrenal axis and of adrenocortical steroidogenesis ex vivo by administration of di-2-ethylhexyl phthalate to prepubertal male rats. *J Endocrinol* 192(1):33-39. <http://doi.org/10.1677/joe-06-0004>.
- Suzuki Y, Yoshinaga J, Mizumoto Y, et al. 2012. Foetal exposure to phthalate esters and anogenital distance in male newborns. *Int J Androl* 35(3):236-244. <http://doi.org/10.1111/j.1365-2605.2011.01190.x>.
- Swan SH. 2008. Environmental phthalate exposure in relation to reproductive outcomes and other health endpoints in humans. *Environ Res* 108(2):177-184. <http://doi.org/10.1016/j.envres.2008.08.007>.
- Swan SH, Main KM, Liu F, et al. 2005. Decrease in anogenital distance among male infants with prenatal phthalate exposure. *Environ Health Perspect* 113(8):1056-1061.
- Swan SH, Liu F, Hines M, et al. 2010. Prenatal phthalate exposure and reduced masculine play in boys. *Int J Androl* 33(2):259-269. <http://doi.org/10.1111/j.1365-2605.2009.01019.x>.
- Swan SH, Sathyanarayana S, Barrett ES, et al. 2015. First trimester phthalate exposure and anogenital distance in newborns. *Hum Reprod* 30(4):963-972. <http://doi.org/10.1093/humrep/deu363>.
- Swartz RC, Schults DW, Ditsworth GR, et al. 1985. Sediment toxicity, contamination, and macrobenthic communities near a large sewage outfall. In: Boyle TP, ed. *Validation and predictability of laboratory methods for assessing the fate and effects of contaminants in aquatic ecosystems*. Philadelphia, PA: American Society for Testing and Materials, 152-175.
- Szewczyńska M, Pośniak M, Dobrzyńska E. 2020. Determination of phthalates in particulate matter and gaseous phase emitted into the air of the working environment. *Int J Environ Sci Technol* 17(1):175-186. <http://doi.org/10.1007/s13762-019-02435-y>.
- Tabak HH, Quave SA, Mashni CI, et al. 1981. Biodegradability studies with organic priority pollutant compounds. *J Water Pollut Control Fed* 53:1503-1518.
- Takagi A, Sai K, Umemura T, et al. 1990. Significant increase of 8-hydroxydeoxyguanosine in liver DNA of rats following short-term exposure to the peroxisome proliferators di(2-ethylhexyl)phthalate and di(2-ethylhexyl)adipate. *Jpn J Cancer Res* 81(3):213-215.
- Tamura H, Iida T, Watanabe T, et al. 1990. Long-term effects of hypolipidemic peroxisome proliferator administration on hepatic hydrogen peroxide metabolism in rats. *Carcinogenesis* 11(3):445-450. <http://doi.org/10.1093/carcin/11.3.445>.
- Tamura H, Iida T, Watanabe T, et al. 1991. Lack of induction of hepatic DNA damage on long-term administration of peroxisome proliferators in male F-344 rats. *Toxicology* 69(1):55-62.
- Tanaka T. 2002. Reproductive and neurobehavioural toxicity study of bis(2-ethylhexyl) phthalate (DEHP) administered to mice in the diet. *Food Chem Toxicol* 40(10):1499-1506. [http://doi.org/10.1016/s0278-6915\(02\)00073-x](http://doi.org/10.1016/s0278-6915(02)00073-x).

## 8. REFERENCES

- Tanaka A, Adachi T, Takahashi T, et al. 1975. Biochemical studies on phthalic esters I. Elimination, distribution and metabolism of di-(2-ethylhexyl)phthalate in rats. *Toxicology* 4(2):253-264. [http://doi.org/10.1016/0300-483x\(75\)90105-5](http://doi.org/10.1016/0300-483x(75)90105-5).
- Tanaka A, Matsumoto A, Yamaha T. 1978. Biochemical studies on phthalic esters. III. Metabolism of dibutyl phthalate (DBP) in animals. *Toxicology* 9(1-2):109-123.
- Tang C, Luo C, Hua Y, et al. 2019. Placental P-glycoprotein inhibition enhances susceptibility to di-(2-ethylhexyl)-phthalate induced cardiac malformations in mice: A possibly promising target for congenital heart defects prevention. *PLoS ONE* 14(5):e0214873. <http://doi.org/10.1371/journal.pone.0214873>.
- Tanida T, Warita K, Ishihara K, et al. 2009. Fetal and neonatal exposure to three typical environmental chemicals with different mechanisms of action: mixed exposure to phenol, phthalate, and dioxin cancels the effects of sole exposure on mouse midbrain dopaminergic nuclei. *Toxicol Lett* 189(1):40-47. <http://doi.org/10.1016/j.toxlet.2009.04.005>.
- Teirlinck OA, Belpaire F. 1985. Disposition of orally administered di-(2-ethylhexyl) phthalate and mono-(2-ethylhexyl) phthalate in the rat. *Arch Toxicol* 57:226-230.
- Teirlinck O, Kaufman JM, Bogaert MG, et al. 1988. Testicular toxicity induced by single dosing of di- and mono-(2-ethylhexyl) phthalate in the rat. *Toxicol Lett* 40(1):85-91. [http://doi.org/10.1016/0378-4274\(88\)90186-5](http://doi.org/10.1016/0378-4274(88)90186-5).
- Teitelbaum SL, Mervish N, Moshier EL, et al. 2012. Associations between phthalate metabolite urinary concentrations and body size measures in New York City children. *Environ Res* 112:186-193. <http://doi.org/10.1016/j.envres.2011.12.006>.
- Téllez-Rojo MM, Cantoral A, Cantonwine DE, et al. 2013. Prenatal urinary phthalate metabolites levels and neurodevelopment in children at two and three years of age. *Sci Total Environ* 461-462:386-390. <http://doi.org/10.1016/j.scitotenv.2013.05.021>.
- Tennant RW, Margolin BH, Shelby MD, et al. 1987. Prediction of chemical carcinogenicity in rodents from in vitro genetic toxicity assays. *Science* 236:933-941.
- Testa C, Nuti F, Hayek J, et al. 2012. Di-(2-ethylhexyl) phthalate and autism spectrum disorders. *ASN Neuro* 4(4):223-229. <http://doi.org/10.1042/an20120015>.
- Thiess A, Fleig I. 1978. [Chromosomal studies in workers exposed to di-2-ethylhexylphthalate (DOP)]. *Zentralbl Arbeitsmed* 28:351-355. (German)
- Thomas JM, Yordy JR, Amador JA, et al. 1986. Rates of dissolution and biodegradation of water-insoluble organic compounds. *Appl Environ Microbiol* 52(2):290-296.
- Thomsen AML, Riis AH, Olsen J, et al. 2017. Female exposure to phthalates and time to pregnancy: A first pregnancy planner study. *Hum Reprod* 32(1):232-238. <http://doi.org/10.1093/humrep/dew291>.
- Thuren A, Larsson P. 1990. Phthalate esters in the Swedish atmosphere. *Environ Sci Technol* 24(4):554-559.
- Tian M, Liu L, Zhang J, et al. 2019. Positive association of low-level environmental phthalate exposure with sperm motility was mediated by DNA methylation: A pilot study. *Chemosphere* 220:459-467. <http://doi.org/10.1016/j.chemosphere.2018.12.155>.
- Tickner J, Schettler T, Guidotti T, et al. 2001. Health risks posed by use of di-2-ethylhexyl phthalate (DEHP) in PVC medical devices: A critical review. *Am J Ind Med* 39(1):100-111.
- Toft G, Jonsson BA, Lindh CH, et al. 2012. Association between pregnancy loss and urinary phthalate levels around the time of conception. *Environ Health Perspect* 120(3):458-463. <http://doi.org/10.1289/ehp.1103552>.
- Tomaszewski KE, Montgomery CA, Melnick RL. 1988. Modulation of 2,3,7,8-tetrachlorodibenzo-p-dioxin toxicity in F344 rats by di(2-ethylhexyl)phthalate. *Chem Biol Interact* 65(3):205-222. [http://doi.org/10.1016/0009-2797\(88\)90107-x](http://doi.org/10.1016/0009-2797(88)90107-x).
- Tomita I, Nakamura Y, Yagi Y, et al. 1982a. Teratogenicity/fetotoxicity of DEHP in mice. *Environ Health Perspect* 45:71-75.
- Tomita I, Nakamura Y, Aoki N, et al. 1982b. Mutagenic/carcinogenic potential of DEHP and MEHP. *Environ Health Perspect* 45:119-125.

## 8. REFERENCES

- Tomonari Y, Kurata Y, David RM, et al. 2006. Effect of di(2-ethylhexyl) phthalate (DEHP) on genital organs from juvenile common marmosets: I. Morphological and biochemical investigation in 65-week toxicity study. *J Toxicol Environ Health* 69(17):1651-1672. <http://doi.org/10.1080/15287390600630054>.
- Tonk EC, Verhoef A, Gremmer ER, et al. 2012. Relative sensitivity of developmental and immune parameters in juvenile versus adult male rats after exposure to di(2-ethylhexyl) phthalate. *Toxicol Appl Pharmacol* 260(1):48-57. <http://doi.org/10.1016/j.taap.2012.01.018>.
- Toyosawa K, Okimoto K, Kobayashi I, et al. 2001. Di(2-ethylhexyl)phthalate induces hepatocellular adenoma in transgenic mice carrying a human prototype c-Ha-ras gene in a 26-week carcinogenicity study. *Toxicol Pathol* 29(4):458-466.
- Trasande L, Attina TM. 2015. Association of exposure to di-2-ethylhexylphthalate replacements with increased blood pressure in children and adolescents. *Hypertension* 66(2):301-308. <http://doi.org/10.1161/hypertensionaha.115.05603>.
- Trasande L, Sathyanarayana S, Spanier AJ, et al. 2013a. Urinary phthalates are associated with higher blood pressure in childhood. *J Pediatr* 163(3):747-753. <http://doi.org/10.1016/j.jpeds.2013.03.072>.
- Trasande L, Spanier AJ, Sathyanarayana S, et al. 2013b. Urinary phthalates and increased insulin resistance in adolescents. *Pediatrics* 132(3):e646-e655. <http://doi.org/10.1542/peds.2012-4022>.
- Trasande L, Sathyanarayana S, Trachtman H. 2014. Dietary phthalates and low-grade albuminuria in US children and adolescents. *Clin J Am Soc Nephrol* 9(1):100-109. <http://doi.org/10.2215/cjn.04570413>.
- TRI18. 2020. TRI explorer: Providing access to EPA's toxics release inventory data. U.S. Environmental Protection Agency. [https://enviro.epa.gov/triexplorer/tri\\_release.chemical](https://enviro.epa.gov/triexplorer/tri_release.chemical). May 5, 2020.
- Tripathi A, Pandey V, Sahu AN, et al. 2019. Di-(2-ethylhexyl) phthalate (DEHP) inhibits steroidogenesis and induces mitochondria-ROS mediated apoptosis in rat ovarian granulosa cells. *Toxicology Research* 8(3):381-394. <http://doi.org/10.1039/c8tx00263k>.
- Trosko JE. 1997. Challenge to the simple paradigm that 'carcinogens' are 'mutagens' and to the in vitro and in vivo assays used to test the paradigm. *Mutat Res* 373:245-249.
- Trosko JE. 2001. Commentary: Is the concept of "tumor promotion" a useful paradigm? *Mol Carcinog* 30:131-137.
- Tsai YA, Lin CL, Hou JW, et al. 2016. Effects of high di(2-ethylhexyl) phthalate (DEHP) exposure due to tainted food intake on pre-pubertal growth characteristics in a Taiwanese population. *Environ Res* 149:197-205. <http://doi.org/10.1016/j.envres.2016.05.005>.
- Tsai YA, Tsai MS, Hou JW, et al. 2018a. Evidence of high di(2-ethylhexyl) phthalate (DEHP) exposure due to tainted food intake in Taiwanese pregnant women and the health effects on birth outcomes. *Sci Total Environ* 618:635-644. <http://doi.org/10.1016/j.scitotenv.2017.07.175>.
- Tsai YA, Tsai MS, Hou JW, et al. 2018b. Supplemental material: Evidence of high di(2-ethylhexyl) phthalate (DEHP) exposure due to tainted food intake in Taiwanese pregnant women and the health effects on birth outcomes. *Sci Total Environ* 618. <http://doi.org/10.1016/j.scitotenv.2017.07.175>.
- Tsukada A, Suemizu H, Murayama N, et al. 2013. Plasma concentrations of melengestrol acetate in humans extrapolated from the pharmacokinetics established in in vivo experiments with rats and chimeric mice with humanized liver and physiologically based pharmacokinetic modeling. *Regul Toxicol Pharmacol* 65(3):316-324. <http://doi.org/10.1016/j.yrtph.2013.01.008>.
- Tsumura Y, Ishimitsu S, Kaihara A, et al. 2001. Di(2-ethylhexyl) phthalate contamination of retail packed lunches caused by PVC gloves in the preparation of foods. *Food Addit Contam* 18(6):569-579.
- Tsutsui T, Watanabe E, Barrett JC. 1993. Ability of peroxisome proliferators to induce cell transformation, chromosome aberrations and peroxisome proliferation in cultured Syrian hamster embryo cells. *Carcinogenesis* 14(4):611-618.
- Tully K, Kupfer D, Dopico AM, et al. 2000. A plasticizer released from IV drip chambers elevates calcium levels in neurosecretory terminals. *Toxicol Appl Pharmacol* 168:183-188.

## 8. REFERENCES

- TURI. 2006. Five chemicals alternatives assessment study. Toxics Use Reduction Institute. University of Massachusetts Lowell.
- Turner JH, Petricciani JC, Crouch ML, et al. 1974. An evaluation of the effects of diethylhexyl phthalate (DEHP) on mitotically capable cells in blood packs. *Transfusion* 14(6):560-566. <http://doi.org/10.1111/j.1537-2995.1974.tb04577.x>.
- Turunen M, Dallner G. 1998. Elevation of ubiquinone content by peroxisomal inducers in rat liver during aging. *Chem Biol Interact* 116:79-91.
- Tyl RW, Price CJ, Marr MC, et al. 1988. Developmental toxicity evaluation of dietary di(2-ethylhexyl)phthalate in Fischer 344 rats and CD-1 mice. *Fundam Appl Toxicol* 10(3):395-412. [http://doi.org/10.1016/0272-0590\(88\)90286-2](http://doi.org/10.1016/0272-0590(88)90286-2).
- Uhde E, Bednarek M, Fuhrmann F, et al. 2001. Phthalic esters in the indoor environment--test chamber studies on PVC-coated wallcoverings. *Indoor Air* 11(3):150-155.
- Ungewitter E, Rotgers E, Bantukul T, et al. 2017. Teratogenic effects of in utero exposure to di-(2-ethylhexyl)-phthalate (DEHP) in B6:129S4 mice. *Toxicol Sci* 157(1):8-19. <http://doi.org/10.1093/toxsci/kfx019>.
- Upton K, Sathyanarayana S, De Roos AJ, et al. 2013. Phthalates and risk of endometriosis. *Environ Res* 126:91-97. <http://doi.org/10.1016/j.envres.2013.07.003>.
- USGS. 2006. Determination of semivolatile organic compounds and polycyclic aromatic hydrocarbons in solids by gas chromatography/mass spectrometry. U.S. Geological Survey. Techniques and Methods 5-B3.
- Vafeiadi M, Myridakis A, Roumeliotaki T, et al. 2018a. Association of early life exposure to phthalates with obesity and cardiometabolic traits in childhood: Sex specific associations. *Front Public Health* 6:327. <http://doi.org/10.3389/fpubh.2018.00327>.
- Vafeiadi M, Myridakis A, Roumeliotaki T, et al. 2018b. Supplementary data: Association of early life exposure to phthalates with obesity and cardiometabolic traits in childhood: Sex specific associations. *Front Public Health* 6. <http://doi.org/10.3389/fpubh.2018.00327>.
- Valvi D, Casas M, Romaguera D, et al. 2015. Prenatal phthalate exposure and childhood growth and blood pressure: Evidence from the Spanish INMA-Sabadell birth cohort study. *Environ Health Perspect* 123(10):1022-1029. <http://doi.org/10.1289/ehp.1408887>.
- Van Vliet ED, Reitano EM, Chhabra JS, et al. 2011. A review of alternatives to di (2-ethylhexyl) phthalate-containing medical devices in the neonatal intensive care unit. *J Perinatol* 31(8):551-560. <http://doi.org/10.1038/jp.2010.208>.
- Velez MP, Arbuckle TE, Fraser WD. 2015. Female exposure to phenols and phthalates and time to pregnancy: the Maternal-Infant Research on Environmental Chemicals (MIREC) Study. *Fertil Steril* 103(4):1011-1020. <http://doi.org/10.1016/j.fertnstert.2015.01.005>.
- Velinsky DJ, Riedel G, Ashley JTF, et al. 2011. Historical contamination of the Anacostia River, Washington, D.C. *Environ Monit Assess* 183:307-328.
- Venturelli AC, Fischer SV, Nogueira de Morais R, et al. 2015. Effects of exposure to di-(2-ethylhexyl) phthalate (DEHP) during lactation and puberty on sexual maturation and glycemic homeostasis in males rats. *Clin Nutr ESPEN* 10(1):e5-e12. <http://doi.org/10.1016/j.clnme.2014.10.002>.
- Venturelli AC, Meyer KB, Fischer SV, et al. 2019. Effects of in utero and lactational exposure to phthalates on reproductive development and glycemic homeostasis in rats. *Toxicology* 421:30-40. <http://doi.org/10.1016/j.tox.2019.03.008>.
- Vessman J, Rietz G. 1974. Determination of di(ethylhexyl) phthalate in human plasma and plasma proteins by electron capture gas chromatography. *J Chromatogr* 100(1):153-163.
- Villanger GD, Drover SSM, Nethery RC, et al. 2020a. Associations between urine phthalate metabolites and thyroid function in pregnant women and the influence of iodine status. *Environ Int* 137:105509. <http://doi.org/10.1016/j.envint.2020.105509>.
- Villanger GD, Drover SSM, Nethery RC, et al. 2020b. Supplemental material: Associations between urine phthalate metabolites and thyroid function in pregnant women and the influence of iodine status. *Environ Int* 137. <http://doi.org/10.1016/j.envint.2020.105509>.

## 8. REFERENCES

- Vo T, Jung E, Dang V, et al. 2009a. Differential effects of flutamide and di-(2-ethylhexyl) phthalate on male reproductive organs in a rat model. *J Reprod Dev* 55(4):400-411.
- Vo TT, Jung EM, Dang VH, et al. 2009b. Di-(2 ethylhexyl) phthalate and flutamide alter gene expression in the testis of immature male rats. *Reprod Biol Endocrinol* 7:104. <http://doi.org/10.1186/1477-7827-7-104>.
- Vogel EW, Nivard MJ. 1993. Performance of 181 chemicals in a Drosophila assay predominantly monitoring interchromosomal mitotic recombination. *Mutagenesis* 8(1):57-81. <http://doi.org/10.1093/mutage/8.1.57>.
- Von Daniken A, Lutz WK, Jackh R, et al. 1984. Investigation of the potential for binding of di(2-ethylhexyl) phthalate (DEHP) and di(2-ethylhexyl)adipate (DEHA) to liver DNA in vivo. *Toxicol Appl Pharmacol* 73:373-387.
- Voss C, Zerban H, Bannasch P, et al. 2005. Lifelong exposure to di-(2-ethylhexyl)-phthalate induces tumors in liver and testes of Sprague-Dawley rats. *Toxicology* 206(3):359-371. <http://doi.org/10.1016/j.tox.2004.07.016>.
- Voss J, Stermer AR, Ghaffari R, et al. 2018. MEHP-induced rat testicular inflammation does not exacerbate germ cell apoptosis. *Reproduction* 156(1):35-46. <http://doi.org/10.1530/rep-18-0093>.
- Walker C, Ghazisaeidi S, Collet B, et al. 2020. In utero exposure to low doses of genistein and di-(2-ethylhexyl) phthalate (DEHP) alters innate immune cells in neonatal and adult rat testes. *Andrology* 8(4):943-964. <http://doi.org/10.1111/andr.12840>.
- Wallin RF, Klamer B, Nicora RW, et al. 1974. Di (2-ethylhexyl) phthalate (DEHP) metabolism in animals and post-transfusion tissue levels in man. *Bull Parenter Drug Assoc* 28(6):278-287.
- Wams TJ. 1987. Diethylhexylphthalate as an environmental contaminant - A review. *Sci Total Environ* 66:1-16.
- Wang JJ, Karmaus WJ. 2015. The effect of phthalate exposure and filaggrin gene variants on atopic dermatitis. *Environ Res* 136:213-218. <http://doi.org/10.1016/j.envres.2014.09.032>.
- Wang H, Zhou Y, Tang C, et al. 2013. Urinary phthalate metabolites are associated with body mass index and waist circumference in Chinese school children. *PLoS ONE* 8(2):e56800. <http://doi.org/10.1371/journal.pone.0056800>.
- Wang JJ, Lin CC, Lin YJ, et al. 2014. Early life phthalate exposure and atopic disorders in children: a prospective birth cohort study. *Environ Int* 62:48-54. <http://doi.org/10.1016/j.envint.2013.09.002>.
- Wang W, Xu X, Fan CQ. 2015. Health hazard assessment of occupationally di-(2-ethylhexyl)-phthalate-exposed workers in China. *Chemosphere* 120:37-44. <http://doi.org/10.1016/j.chemosphere.2014.05.053>.
- Wang YX, Zeng Q, Sun Y, et al. 2016. Phthalate exposure in association with serum hormone levels, sperm DNA damage and spermatozoa apoptosis: A cross-sectional study in China. *Environ Res* 150:557-565. <http://doi.org/10.1016/j.envres.2015.11.023>.
- Wang X, Wang Y, Song Q, et al. 2017a. In utero and lactational exposure to di(2-ethylhexyl) phthalate increased the susceptibility of prostate carcinogenesis in male offspring. *Reprod Toxicol* 69:60-67. <http://doi.org/10.1016/j.reprotox.2017.01.008>.
- Wang S, Zhang P, Liu R, et al. 2017b. A DEHP plasticizer alters synaptic proteins via peroxidation. *Toxicology Research* 6(1):89-97. <http://doi.org/10.1039/c6tx00361c>.
- Wang B, Liu F, Dong J, et al. 2018. Maternal exposure to environmental DEHP exacerbated OVA-induced asthmatic responses in rat offspring. *Sci Total Environ* 615:253-261. <http://doi.org/10.1016/j.scitotenv.2017.09.276>.
- Wang G, Chen Q, Tian P, et al. 2020. Gut microbiota dysbiosis might be responsible to different toxicity caused by di-(2-ethylhexyl) phthalate exposure in murine rodents. *Environ Pollut* 261:114164. <http://doi.org/10.1016/j.envpol.2020.114164>.
- Ward JM, Hagiwara A, Anderson LM, et al. 1988. The chronic hepatic or renal toxicity of di(2-ethylhexyl) phthalate, acetaminophen, sodium barbital, and phenobarbital in male B6C3F1 mice: Autoradiographic, immunohistochemical, and biochemical evidence for levels of DNA synthesis not

## 8. REFERENCES

- associated with carcinogenesis or tumor promotion. *Toxicol Appl Pharmacol* 96(3):494-506. [http://doi.org/10.1016/0041-008x\(88\)90009-9](http://doi.org/10.1016/0041-008x(88)90009-9).
- Watkins DJ, Tellez-Rojo MM, Ferguson KK, et al. 2014. In utero and peripubertal exposure to phthalates and BPA in relation to female sexual maturation. *Environ Res* 134:233-241. <http://doi.org/10.1016/j.envres.2014.08.010>.
- Watkins DJ, Peterson KE, Ferguson KK, et al. 2016. Relating phthalate and BPA exposure to metabolism in peripubescence: The role of exposure timing, sex, and puberty. *J Clin Endocrinol Metab* 101(1):79-88. <http://doi.org/10.1210/jc.2015-2706>.
- Wei Z, Song L, Wei J, et al. 2012. Maternal exposure to di-(2-ethylhexyl)phthalate alters kidney development through the renin-angiotensin system in offspring. *Toxicol Lett* 212(2):212-221. <http://doi.org/10.1016/j.toxlet.2012.05.023>.
- Wei N, Feng X, Xie Z, et al. 2017. Long-term di (2-ethylhexyl)-phthalate exposure promotes proliferation and survival of HepG2 cells via activation of NFκB. *Toxicol in Vitro* 42:86-92. <http://doi.org/10.1016/j.tiv.2017.04.015>.
- Wen HJ, Chen CC, Wu MT, et al. 2017. Phthalate exposure and reproductive hormones and sex-hormone binding globulin before puberty - Phthalate contaminated-foodstuff episode in Taiwan. *PLoS ONE* 12(4):e0175536. <http://doi.org/10.1371/journal.pone.0175536>.
- Weng TI, Chen MH, Lien GW, et al. 2017. Effects of gender on the association of urinary phthalate metabolites with thyroid hormones in children: A prospective cohort study in Taiwan. *Int J Environ Res Public Health* 14(2):123. <http://doi.org/10.3390/ijerph14020123>.
- Wenzel AG, Bloom MS, Butts CD, et al. 2018. Influence of race on prenatal phthalate exposure and anogenital measurements among boys and girls. *Environ Int* 110:61-70.
- Werner EF, Braun JM, Yolton K, et al. 2015. The association between maternal urinary phthalate concentrations and blood pressure in pregnancy: The HOME Study. *Environ Health* 14:75. <http://doi.org/10.1186/s12940-015-0062-3>.
- Wester RC, Melendres J, Sedik L, et al. 1998. Percutaneous absorption of salicylic acid, theophylline, 2,4-dimethylamine, diethyl hexyl phthalic acid, and p-aminobenzoic acid in the isolated perfused porcine skin flap compared to man in vivo. *Toxicol Appl Pharmacol* 151:159-165.
- Weuve J, Hauser R, Calafat AM, et al. 2010. Association of exposure to phthalates with endometriosis and uterine leiomyomata: findings from NHANES, 1999-2004. *Environ Health Perspect* 118(6):825-832. <http://doi.org/10.1289/ehp.0901543>.
- White PD, Carter DE, Earnest D, et al. 1980. Absorption and metabolism of 3 phthalate diesters by the rat small intestine. *Food Cosmet Toxicol* 18(4):383-386.
- WHO. 2010. Guidelines for indoor air quality: Selected pollutants. Geneva, Switzerland: World Health Organization. [http://www.euro.who.int/\\_\\_data/assets/pdf\\_file/0009/128169/e94535.pdf](http://www.euro.who.int/__data/assets/pdf_file/0009/128169/e94535.pdf). April 25, 2012.
- WHO. 2017. Guidelines for drinking-water quality. Fourth edition incorporating the first addendum. Geneva, Switzerland: World Health Organization. <http://apps.who.int/iris/bitstream/10665/254637/1/9789241549950-eng.pdf?ua=1>. February 28, 2017.
- Whyatt RM, Adibi JJ, Calafat AM, et al. 2009. Prenatal di(2-ethylhexyl)phthalate exposure and length of gestation among an inner-city cohort. *Pediatrics* 124(6):e1213-e1220. <http://doi.org/10.1542/peds.2009-0325>.
- Whyatt RM, Liu X, Rauh VA, et al. 2012. Maternal prenatal urinary phthalate metabolite concentrations and child mental, psychomotor, and behavioral development at 3 years of age. *Environ Health Perspect* 120(2):290-295. <http://doi.org/10.1289/ehp.1103705>.
- Whyatt RM, Perzanowski MS, Just AC, et al. 2014. Asthma in inner-city children at 5-11 years of age and prenatal exposure to phthalates: the Columbia Center for Children's Environmental Health Cohort. *Environ Health Perspect* 122(10):1141-1146. <http://doi.org/10.1289/ehp.1307670>.

## 8. REFERENCES

- Wilkinson CF, Lamb JC. 1999. The potential health effects of phthalate esters in children's toys: a review and risk assessment. *Regul Toxicol Pharmacol* 30(2 Pt 1):140-155. <http://doi.org/10.1006/rtp.1999.133>.
- Williams D. 1973. Dibutyl- and di-(2-ethylhexyl)phthalate in fish. *J Agric Food Chem* 21:1128-1129.
- Williams D, Blanchfield B. 1974. Retention, excretion and metabolism of phthalic acid administered orally to the rat. *Bull Environ Contam Toxicol* 12(1):109-112.
- Wirth J, Rossano M, Potter R, et al. 2008. A pilot study associating urinary concentrations of phthalate metabolites and semen quality. *Syst Biol Reprod Med* 54(3):143-154. <http://doi.org/10.1080/19396360802055921>.
- Wofford HW, Wilsey CD, Neff GS. 1981. Bioaccumulation and metabolism of phthalate esters of oysters, brown shrimp, and sheepshead minnows. *Ecotoxicol Environ Saf* 5:202-210.
- Wolfe NL, Burns LA, Steen WC. 1980. Use of linear free energy relationships and an evaluative model to assess the fate and transport of phthalate esters in the aquatic environment. *Chemosphere* 9:393-402.
- Wolff MS, Engel SM, Berkowitz GS, et al. 2008. Prenatal phenol and phthalate exposures and birth outcomes. *Environ Health Perspect* 116(8):1092-1097. <http://doi.org/10.1289/ehp.11007>.
- Wolff MS, Teitelbaum SL, McGovern K, et al. 2014. Phthalate exposure and pubertal development in a longitudinal study of US girls. *Hum Reprod* 29(7):1558-1566. <http://doi.org/10.1093/humrep/deu081>.
- Woodward MJ, Obsekov V, Jacobson MH, et al. 2020. Phthalates and sex steroid hormones among men from NHANES, 2013-2016. *J Clin Endocrinol Metab* 105(4):e1225-1234. <http://doi.org/10.1210/clinem/dgaa039>.
- Wormuth M, Scheringer M, Vollenweider M, et al. 2006. What are the sources of exposure to eight frequently used phthalic acid esters in Europeans? *Risk Anal* 26(3):803-824. <http://doi.org/10.1111/j.1539-6924.2006.00770>.
- Wu MT, Wu CF, Chen BH, et al. 2013. Intake of phthalate-tainted foods alters thyroid functions in Taiwanese children. *PLoS ONE* 8(1):e55005. <http://doi.org/10.1371/journal.pone.0055005>.
- Wu H, Olmsted A, Cantonwine DE, et al. 2017. Urinary phthalate and phthalate alternative metabolites and isoprostane among couples undergoing fertility treatment. *Environ Res* 153:1-7. <http://doi.org/10.1016/j.envres.2016.11.003>.
- Wu CF, Hsiung CA, Tsai HJ, et al. 2018. Interaction of melamine and di-(2-ethylhexyl) phthalate exposure on markers of early renal damage in children: The 2011 Taiwan food scandal. *Environ Pollut* 235:453-461. <http://doi.org/10.1016/j.envpol.2017.12.107>.
- Wu M, Xu L, Teng C, et al. 2019. Involvement of oxidative stress in di-2-ethylhexyl phthalate (DEHP)-induced apoptosis of mouse NE-4C neural stem cells. *Neurotoxicology* 70:41-47. <http://doi.org/10.1016/j.neuro.2018.10.013>.
- Xie C, Jin R, Zhao Y, et al. 2015. Paraoxonase 2 gene polymorphisms and prenatal phthalates' exposure in Chinese newborns. *Environ Res* 140:354-359. <http://doi.org/10.1016/j.envres.2015.03.028>.
- Xie X, Deng T, Duan J, et al. 2019. Comparing the effects of diethylhexyl phthalate and dibutyl phthalate exposure on hypertension in mice. *Ecotoxicol Environ Saf* 174:75-82. <http://doi.org/10.1016/j.ecoenv.2019.02.067>.
- Xu Y, Agrawal S, Cook TJ, et al. 2007. Di-(2-ethylhexyl)-phthalate affects lipid profiling in fetal rat brain upon maternal exposure. *Arch Toxicol* 81(1):57-62. <http://doi.org/10.1007/s00204-006-0143-8>.
- Xu Y, Agrawal S, Cook T, et al. 2008. Maternal di-(2-ethylhexyl)-phthalate exposure influences essential fatty acid homeostasis in rat placenta. *Placenta* 29(11):962-969. <http://doi.org/10.1016/j.placenta.2008.08.011>.
- Xu C, Chen J, Qiu Z, et al. 2010. Ovotoxicity and PPAR-mediated aromatase downregulation in female Sprague-Dawley rats following combined oral exposure to benzo[a]pyrene and di-(2-ethylhexyl) phthalate. *Toxicol Lett* 199(3):323-332. <http://doi.org/10.1016/j.toxlet.2010.09.015>.



## 8. REFERENCES

- Xu X, Yang Y, Wang R, et al. 2015. Perinatal exposure to di-(2-ethylhexyl) phthalate affects anxiety- and depression-like behaviors in mice. *Chemosphere* 124:22-31. <http://doi.org/10.1016/j.chemosphere.2014.10.056>.
- Xu J, Zhou L, Wang S, et al. 2018. Di-(2-ethylhexyl)-phthalate induces glucose metabolic disorder in adolescent rats. *Environ Sci Pollut Res Int* 25(4):3596-3607. <http://doi.org/10.1007/s11356-017-0738-z>.
- Xu Y, Park SH, Yoon KN, et al. 2019. Effects of citrate ester plasticizers and bis (2-ethylhexyl) phthalate in the OECD 28-day repeated-dose toxicity test (OECD TG 407). *Environ Res* 172:675-683. <http://doi.org/10.1016/j.envres.2019.03.004>.
- Yaghjian L, Sites S, Ruan Y, et al. 2015a. Associations of urinary phthalates with body mass index, waist circumference and serum lipids among females: National Health and Nutrition Examination Survey 1999-2004. *Int J Obes* 39(2):994-1000. <http://doi.org/10.1038/ijo.2015.8>.
- Yaghjian L, Sites S, Ruan Y, et al. 2015b. Supplemental data: Associations of urinary phthalates with body mass index, waist circumference and serum lipids among females: National Health and Nutrition Examination Survey 1999-2004. *Int J Obes* 39.
- Yaghjian L, Ghita GL, Dumont-Driscoll M, et al. 2016. Maternal exposure to di-2-ethylhexylphthalate and adverse delivery outcomes: A systematic review. *Reprod Toxicol* 65:76-86. <http://doi.org/10.1016/j.reprotox.2016.07.002>.
- Yagi Y, Nakamura Y, Tomita I, et al. 1980. Teratogenic potential of di- and mono-(2-ethylhexyl)phthalate in mice. *J Environ Pathol Toxicol* 4(2-3):533-544.
- Yamashita M, Suemizu H, Murayama N, et al. 2014. Human plasma concentrations of herbicidal carbamate molinate extrapolated from the pharmacokinetics established in in vivo experiments with chimeric mice with humanized liver and physiologically based pharmacokinetic modeling. *Regul Toxicol Pharmacol* 70(1):214-221. <http://doi.org/10.1016/j.yrtph.2014.06.028>.
- Yang G, Qiao Y, Li B, et al. 2008. Adjuvant effect of di-(2-ethylhexyl) phthalate on asthma-like pathological changes in ovalbumin-immunised rats. *Food Agric Immunol* 19(4):351-362. <http://doi.org/10.1080/09540100802545869>.
- Yang G, Zhou X, Wang J, et al. 2012. MEHP-induced oxidative DNA damage and apoptosis in HepG2 cells correlates with p53-mediated mitochondria-dependent signaling pathway. *Food Chem Toxicol* 50(7):2424-2431. <http://doi.org/10.1016/j.fct.2012.04.023>.
- Yao HY, Han Y, Gao H, et al. 2016. Maternal phthalate exposure during the first trimester and serum thyroid hormones in pregnant women and their newborns. *Chemosphere* 157:42-48. <http://doi.org/10.1016/j.chemosphere.2016.05.023>.
- Ye H, Ha M, Yang M, et al. 2017. Di2-ethylhexyl phthalate disrupts thyroid hormone homeostasis through activating the Ras/Akt/TRHr pathway and inducing hepatic enzymes. *Sci Rep* 7:40153. <http://doi.org/10.1038/srep40153>.
- Yolton K, Xu Y, Strauss D, et al. 2011. Prenatal exposure to bisphenol A and phthalates and infant neurobehavior. *Neurotoxicol Teratol* 33(5):558-566. <http://doi.org/10.1016/j.ntt.2011.08.003>.
- Yoon JS, Mason JM, Nalencia R, et al. 1985. Chemical mutagenesis testing in drosophila. IV. Results of 45 coded compounds tested for the National Toxicology Program. *Environ Mutagen* 7:349-367.
- Yoshikawa K, Tanaka A, Yamaha T, et al. 1983. Mutagenicity study of nine monoalkyl phthalates and a dialkyl phthalate using *Salmonella typhimurium* and *Escherichia coli*. *Food Chem Toxicol* 21(2):221-223.
- You M, Dong J, Fu Y, et al. 2018. Exposure to di-(2-ethylhexyl) phthalate during perinatal period gender-specifically impairs the dendritic growth of pyramidal neurons in rat offspring. *Front Neurosci* 12:444. <http://doi.org/10.3389/fnins.2018.00444>.
- Yu C, Chu K. 2009. Occurrence of pharmaceuticals and personal care products along the West Prong Little Pigeon River in east Tennessee, USA. *Chemosphere* 75(10):1281-1286. <http://doi.org/10.1016/j.chemosphere.2009.03.043>.

## 8. REFERENCES

- Yu Z, Han Y, Shen R, et al. 2018. Gestational di-(2-ethylhexyl) phthalate exposure causes fetal intrauterine growth restriction through disturbing placental thyroid hormone receptor signaling. *Toxicol Lett* 294:1-10. <http://doi.org/10.1016/j.toxlet.2018.05.013>.
- Yu Q, Xiong X, He J, et al. 2019. Photolysis of bis(2-ethylhexyl) phthalate in aqueous solutions at the presence of natural water photoreactive constituents under simulated sunlight irradiation. *Environ Sci Pollut Res Int* 26(26):26797-26806. <http://doi.org/10.1007/s11356-019-05913-5>.
- Yu Z, Wang F, Han J, et al. 2020. Opposite effects of high- and low-dose di-(2-ethylhexyl) phthalate (DEHP) exposure on puberty onset, oestrous cycle regularity and hypothalamic kisspeptin expression in female rats. *Reprod Fertil Dev* 32(6):610-618. <http://doi.org/10.1071/rd19024>.
- Yuwatini E, Hata N, Kuramitz H, et al. 2013. Effect of salting-out on distribution behavior of di-(2-ethylhexyl) phthalate and its analogues between water and sediment. *SpringerPlus* 2:422. <http://doi.org/10.1186/2193-1801-2-422>.
- Zacharewski TR, Meek MD, Clemons JH, et al. 1998. Examination of the in vitro and in vivo estrogenic activities of eight commercial phthalate esters. *Toxicol Sci* 46(2):282-293. <http://doi.org/10.1093/toxsci/46.2.282>.
- Zeiger E, Haworth S, Mortelmans K, et al. 1985. Mutagenicity testing of di(2-ethylhexyl)phthalate and related chemicals in Salmonella. *Environ Mol Mutagen* 7(2):213-232. <http://doi.org/10.1002/em.2860070209>.
- Zhang YH, Zheng LX, Chen BH. 2006. Phthalate exposure and human semen quality in Shanghai: a cross-sectional study. *Biomed Environ Sci* 19(3):205-209.
- Zhang Y, Lin L, Liu Z, et al. 2008. Disruption effects of monophthalate exposures on inter-Sertoli tight junction in a two-compartment culture model. *Environ Toxicol* 23(3):302-308. <http://doi.org/10.1002/tox.20343>.
- Zhang X-F, Zhang T, Wang L, et al. 2013. Effects of diethylhexyl phthalate (DEHP) given neonatally on spermatogenesis of mice. *Mol Biol Rep* 40(11):6509-6517. <http://doi.org/10.1007/s11033-013-2769-y>.
- Zhang Y, Meng X, Chen L, et al. 2014. Age and sex-specific relationships between phthalate exposures and obesity in Chinese children at puberty. *PLoS ONE* 9(8):e104852. <http://doi.org/10.1371/journal.pone.0104852>.
- Zhang XF, Zhang T, Han Z, et al. 2015. Transgenerational inheritance of ovarian development deficiency induced by maternal diethylhexyl phthalate exposure. *Reprod Fertil Dev* 27(8):1213-1221. <http://doi.org/10.1071/rd14113>.
- Zhang J, Liu L, Wang X, et al. 2016. Low-level environmental phthalate exposure associates with urine metabolome alteration in a Chinese male cohort. *Environ Sci Technol* 50(11):5953-5960. <http://doi.org/10.1021/acs.est.6b00034>.
- Zhang W, Shen XY, Zhang WW, et al. 2017. Di-(2-ethylhexyl) phthalate could disrupt the insulin signaling pathway in liver of SD rats and L02 cells via PPAR $\gamma$ . *Toxicol Appl Pharmacol* 316:17-26. <http://doi.org/10.1016/j.taap.2016.12.010>.
- Zhang L, Li H, Gao M, et al. 2018a. Genistein attenuates di-(2-ethylhexyl) phthalate-induced testicular injuries via activation of Nrf2/HO-1 following prepubertal exposure. *Int J Mol Med* 41(3):1437-1446. <http://doi.org/10.3892/ijmm.2018.3371>.
- Zhang P, Guan X, Yang M, et al. 2018b. Roles and potential mechanisms of selenium in countering thyrotoxicity of DEHP. *Sci Total Environ* 619-620:732-739. <http://doi.org/10.1016/j.scitotenv.2017.11.169>.
- Zhang Y, Mu X, Gao R, et al. 2018c. Foetal-neonatal exposure of di (2-ethylhexyl) phthalate disrupts ovarian development in mice by inducing autophagy. *J Hazard Mater* 358:101-112. <http://doi.org/10.1016/j.jhazmat.2018.06.042>.
- Zhang Y, Gao H, Mao L, et al. 2018d. Effects of the phthalate exposure during three gestation periods on birth weight and their gender differences: A birth cohort study in China. *Sci Total Environ* 613-614:1573-1578. <http://doi.org/10.1016/j.scitotenv.2017.08.319>.

## 8. REFERENCES

- Zhang YZ, Zhang ZM, Zhou LT, et al. 2019. Di (2-ethylhexyl) phthalate disorders lipid metabolism via TYK2/STAT1 and autophagy in rats. *Biomed Environ Sci* 32(6):406-418. <http://doi.org/10.3967/bes2019.055>.
- Zhang Y, Mustieles V, Yland J, et al. 2020a. Association of parental preconception exposure to phthalates and phthalate substitutes with preterm birth. *JAMA Netw Open* 3(4):e202159. <http://doi.org/10.1001/jamanetworkopen.2020.2159>.
- Zhang S, Sun C, Zhao S, et al. 2020b. Exposure to DEHP or its metabolite MEHP promotes progesterone secretion and inhibits proliferation in mouse placenta or JEG-3 cells. *Environ Pollut* 257:113593. <http://doi.org/10.1016/j.envpol.2019.113593>.
- Zhang Y, Zhou L, Zhang Z, et al. 2020c. Effects of di (2-ethylhexyl) phthalate and high-fat diet on lipid metabolism in rats by JAK2/STAT5. *Environ Sci Pollut Res Int* 27(4):3837-3848. <http://doi.org/10.1007/s11356-019-06599-5>.
- Zhang Y, Mustieles V, Yland J, et al. 2020d. Supplementary material: Association of parental preconception exposure to phthalates and phthalate substitutes with preterm birth. *JAMA Netw Open* 3. <http://doi.org/10.1001/jamanetworkopen.2020.2159>.
- Zhang TD, Ma YB, Li HC, et al. 2020e. Low dose of genistein alleviates mono-(2-ethylhexyl) phthalate-induced fetal testis disorder based on organ culture model. *Oxid Med Cell Longev* 2020:4569268. <http://doi.org/10.1155/2020/4569268>.
- Zhao Y, Chen L, Li LX, et al. 2014. Gender-specific relationship between prenatal exposure to phthalates and intrauterine growth restriction. *Pediatr Res* 76(4):401-408. <http://doi.org/10.1038/pr.2014.103>.
- Zhao H, Li J, Zhou Y, et al. 2018. Investigation on metabolism of di(2-ethylhexyl) phthalate in different trimesters of pregnant women. *Environ Sci Technol* 52(21):12851-12858. <http://doi.org/10.1021/acs.est.8b04519>.
- Zhou JL, Liu YP. 2000. Kinetics and equilibria of the interactions between diethylhexyl phthalate and sediment particles in simulated estuarine systems. *Mar Chem* 71:165-176.
- Zhou L, Chen H, Xu Q, et al. 2019. The effect of di-2-ethylhexyl phthalate on inflammation and lipid metabolic disorder in rats. *Ecotoxicol Environ Saf* 170:391-398. <http://doi.org/10.1016/j.ecoenv.2018.12.009>.
- Zhu Y, Wan Y, Zhang B, et al. 2018. Relationship between maternal phthalate exposure and offspring size at birth. *Sci Total Environ* 612:1072-1078. <http://doi.org/10.1016/j.scitotenv.2017.08.207>.
- Zolfaghari M, Drogui P, Seyhi B, et al. 2014. Occurrence, fate and effects of di (2-ethylhexyl) phthalate in wastewater treatment plants: A review. *Environ Pollut* 194C:281-293. <http://doi.org/10.1016/j.envpol.2014.07.014>.