

Tobacco in Australia

Facts & Issues

Relevant news and research

3.6 Reproductive health

Last updated December 2024

Research:	2
3.6.1 Menstrual function, menarche and menopause	5
3.6.2 Fertility	9
3.6.3 Treatment of infertility including assisted reproduction	19
3.6.4 Contraception.....	20
3.6.5 Sexual function	20
3.6.6 Sexually transmitted diseases (see instead 3.9.7 Infections of reproductive organs)	22
News reports:	22
3.6 Reproductive health	22
3.6.1 Menstrual function, menarche and menopause	22
3.6.2 Fertility	22
3.6.3 Treatment of infertility including assisted reproduction	23
3.6.4 Contraception.....	23
3.6.5 Sexual function	23
3.6.6 Sexually transmitted diseases (see instead 3.9.7 Infections of reproductive organs)	23

Research:

White, AM, Craig, AJ, Richie, DL, Corley, C, Sadek, SM, Barton, HN, & Gipson, CD. (2024). Nicotine is an Immunosuppressant: Implications for Women's Health and Disease. *J Neuroimmunol*, 397, 578468. Retrieved from <https://www.ncbi.nlm.nih.gov/pubmed/39461120>

Yang, Y, Zhang, H, Huang, BY, Lu, YH, Fukuzawa, I, Yang, S et al. (2024). Relationship between smoking, excessive androgen and negative emotions in women with polycystic ovary syndrome (PCOS). *J Ovarian Res*, 17(1), 211. Retrieved from <https://www.ncbi.nlm.nih.gov/pubmed/39472904>

Mueller, L, & Ciervo, CA. (1998). Smoking in women. *J Osteopath Med*, 98(s12), s7-s10. Nagaria, T, Singh, N, Punshi, H, Dengani, M, Agrawal, S, Jain, K et al. (2022). The Outcome of Pregnancy Among Tobacco Users in Tertiary Care Hospital of Chhattisgarh Province of India. *Cureus*, 14(12), e32877. Retrieved from <https://www.ncbi.nlm.nih.gov/pubmed/36699785>

Merklinger-Gruchala, A, Jasienska, G, Thune, I, & Kapiszewska, M. (2022). Joint effect of particulate matter and cigarette smoke on women's sex hormones. *BMC Womens Health*, 22(1), 3. Retrieved from <https://www.ncbi.nlm.nih.gov/pubmed/34996432>

Rehman, K, Haider, K, & Akash, MSH. (2021). Cigarette smoking and nicotine exposure contributes for aberrant insulin signaling and cardiometabolic disorders. *Eur J Pharmacol*, 909, 174410. Retrieved from <https://www.ncbi.nlm.nih.gov/pubmed/34375672>

Kim, HJ, Lee, HS, Kazmi, SZ, Hann, HJ, Kang, T, Cha, J et al (2021). Familial Risk for Endometriosis and its Interaction with Smoking, Age At Menarche and Body Mass Index: A Population-Based Cohort Study Among Siblings. *BJOG*. Retrieved from <https://www.ncbi.nlm.nih.gov/pubmed/34028167>

Konstantinidou, F, Stuppia, L, & Gatta, V. (2020). Looking Inside the World of Granulosa Cells: The Noxious Effects of Cigarette Smoke. *Biomedicines*, 8(9). Retrieved from <https://www.ncbi.nlm.nih.gov/pubmed/32867029>

Elhalawani, H, Mohamed, ASR, Elgohari, B, Lin, TA, Sikora, AG, Lai, SY et al (2020). Tobacco exposure as a major modifier of oncologic outcomes in human papillomavirus (HPV) associated oropharyngeal squamous cell carcinoma. *BMC Cancer*, 20(1), 912. Retrieved from <https://www.ncbi.nlm.nih.gov/pubmed/32967643>

Corona, G, Sansone, A, Pallotti, F, Ferlin, A, Pivonello, R, Isidori, AM et al. (2020). People smoke for nicotine, but lose sexual and reproductive health for tar: a narrative review on the effect of cigarette smoking on male sexuality and reproduction. *J Endocrinol Invest*. Available from: <https://www.ncbi.nlm.nih.gov/pubmed/32323225>

Rehan, M, Ahmad, E, & Beg, MA. (2020). Structural binding perspectives of a major tobacco alkaloid, nicotine, and its metabolite cotinine with sex-steroid nuclear receptors. *J Appl Toxicol*. Available from: <https://www.ncbi.nlm.nih.gov/pubmed/32346888>

Szkup M, Jurczak A, Karakiewicz B, Kotwas A, Kopec J, et al. Influence of cigarette smoking on hormone and lipid metabolism in women in late reproductive stage. *Clinical Interventions in Aging*, 2018; 13:109-15. Available from: <https://www.ncbi.nlm.nih.gov/pubmed/29398911>

Pajovic B, Pajovic L, and Vukovic M. Effectiveness of antibiotic treatment in infertile patients with sterile leukocytospermia induced by tobacco use. *Syst Biol Reprod Med*, 2017;1-6. Available from: <https://www.ncbi.nlm.nih.gov/pubmed/28886262>

Jandikova H, Duskova M, and Starka L. The influence of smoking and cessation on the human reproductive hormonal balance. *Physiological Research*, 2017; 66(Supplementum 3):S323-S31. Available from: <https://www.ncbi.nlm.nih.gov/pubmed/28948816>

Rzymski P, Niedzielski P, Rzymski P, Tomczyk K, Kozak L, et al. Metal accumulation in the human uterus varies by pathology and smoking status. *Fertility and Sterility*, 2016. Available from: <http://www.ncbi.nlm.nih.gov/pubmed/26921623>

Hyland A, Piazza K, Hovey KM, Tindle HA, Manson JE, et al. Associations between lifetime tobacco exposure with infertility and age at natural menopause: The women's health initiative observational study. *Tobacco Control*, 2016; 25(6):706-14. Available from: <https://www.ncbi.nlm.nih.gov/pubmed/26666428>

Akison LK, Andraweera PH, Bertoldo MJ, Brown HM, Cuffe JS, et al. The current state of reproductive biology research in australia and new zealand: Core themes from the society for reproductive biology annual meeting, 2016. *Reproduction, Fertility, and Development*, 2016. Available from: <http://www.ncbi.nlm.nih.gov/pubmed/27918727>

Xu B, Chen M, Yao M, Ji X, Mao Z, et al. Metabolomics reveals metabolic changes in male reproductive cells exposed to thirdhand smoke. *Sci Rep*, 2015; 5:15512. Available from: <http://www.ncbi.nlm.nih.gov/pubmed/26489853>

Xirofotou D, Trakakis E, Peppas M, Chrelias C, Panagopoulos P, et al. The amount and duration of smoking is associated with aggravation of hormone and biochemical profile in women with pcos. *Gynecological Endocrinology*, 2015:1-4. Available from: <http://www.ncbi.nlm.nih.gov/pubmed/26507209>

Stramova X and Kandar R. Determination of seminal plasma malondialdehyde by high-performance liquid chromatography in smokers and non-smokers. *Bratislavske Lekarske Listy*, 2015; 116(1):20-4. Available from: <http://www.ncbi.nlm.nih.gov/pubmed/25666957>

Metzler-Guillemain C, Victorero G, Lepoivre C, Bergon A, Yammine M, et al. Sperm mrnas and micrnas as candidate markers for the impact of toxicants on human spermatogenesis: An application to tobacco smoking. *Syst Biol Reprod Med*, 2015:1-11. Available from: <http://www.ncbi.nlm.nih.gov/pubmed/25821920>

Lotti F, Corona G, Vitale P, Maseroli E, Rossi M, et al. Current smoking is associated with lower seminal vesicles and ejaculate volume, despite higher testosterone levels, in male subjects of infertile couples. *Human Reproduction*, 2015; 30(3):590-602. Available from: <http://www.ncbi.nlm.nih.gov/pubmed/25567620>

Lingappa HA, Govindashetty AM, Puttaveerachary AK, Manchaiah S, Krishnamurthy A, et al. Evaluation of effect of cigarette smoking on vital seminal parameters which influence fertility. *J Clin Diagn Res*, 2015; 9(7):EC13-5. Available from: <https://www.ncbi.nlm.nih.gov/pubmed/26393133>

Kovac JR, Khanna A, and Lipshultz LI. The effects of cigarette smoking on male fertility. *Postgraduate Medicine*, 2015; 127(3):338-41. Available from: <https://www.ncbi.nlm.nih.gov/pubmed/25697426>

Kim SK, Jee BC, and Kim SH. Histone methylation and acetylation in ejaculated human sperm: Effects of swim-up and smoking. *Fertility and Sterility*, 2015. Available from: <http://www.ncbi.nlm.nih.gov/pubmed/25910569>

Jandikova H, Duskova M, Simunkova K, Racz B, Hill M, et al. The steroid spectrum during and after quitting smoking. *Physiological Research*, 2015; 64 Suppl 2:S211-8. Available from: <http://www.ncbi.nlm.nih.gov/pubmed/26680482>

Gallicchio L, Miller SR, Kiefer J, Greene T, Zacur HA, et al. The associations between body mass index, smoking, and alcohol intake with ovarian volume in midlife women. *J Womens Health (Larchmt)*, 2015. Available from: <http://www.ncbi.nlm.nih.gov/pubmed/26667258>

Chiaffarino F, Ricci E, Cipriani S, Chiantera V, and Parazzini F. Cigarette smoking and risk of uterine myoma: Systematic review and meta-analysis. *European Journal of Obstetrics, Gynecology, and Reproductive Biology*, 2015; 197:63-71. Available from: <http://www.ncbi.nlm.nih.gov/pubmed/26706924>

Radin RG, Hatch EE, Rothman KJ, Mikkelsen EM, Sorensen HT, et al. Active and passive smoking and fecundability in danish pregnancy planners. *Fertility and Sterility*, 2014; 102(1):183-91 e2. Available from: <https://www.ncbi.nlm.nih.gov/pubmed/24746741>

Omurtag K, Esakky P, Debosch BJ, Schoeller EL, Chi MM, et al. Modeling the effect of cigarette smoke on hexose utilization in spermatocytes. *Reprod Sci*, 2014. Available from: <http://www.ncbi.nlm.nih.gov/pubmed/24803506>

Morotti E, Battaglia B, Fabbri R, Paradisi R, Venturoli S, et al. Cigarette smoking and cardiovascular risk in young women with polycystic ovary syndrome. *Int J Fertil Steril*, 2014; 7(4):301-12. Available from: <http://www.ncbi.nlm.nih.gov/pubmed/24520500>

Jeng HA, Chen YL, and Kantaria KN. Association of cigarette smoking with reproductive hormone levels and semen quality in healthy adult men in taiwan. *J Environ Sci Health A Tox Hazard Subst Environ Eng*, 2014; 49(3):262-8. Available from: <http://www.ncbi.nlm.nih.gov/pubmed/24279617>

Harte CB. Concurrent relations among cigarette smoking status, resting heart rate variability, and erectile response. *Journal of Sexual Medicine*, 2014; 11(5):1230-9. Available from: <http://www.ncbi.nlm.nih.gov/pubmed/24576257>

Camlin NJ, McLaughlin EA, and Holt JE. Through the smoke: Use of in vivo and in vitro cigarette smoking models to elucidate its effect on female fertility. *Toxicology and Applied Pharmacology*, 2014; 281(3):266-75. Available from: <http://www.ncbi.nlm.nih.gov/pubmed/25448442>

Brotman RM, He X, Gajer P, Fadrosch D, Sharma E, et al. Association between cigarette smoking and the vaginal microbiota: A pilot study. *BMC Infectious Diseases*, 2014; 14:471. Available from: <http://www.ncbi.nlm.nih.gov/pubmed/25169082>

Bravi F, Parazzini F, Cipriani S, Chiaffarino F, Ricci E, et al. Tobacco smoking and risk of endometriosis: A systematic review and meta-analysis. *BMJ Open*, 2014; 4(12):e006325. Available from: <http://www.ncbi.nlm.nih.gov/pubmed/25534211>

Anifandis G, Bounartzi T, Messini CI, Dafopoulos K, Sotiriou S, et al. The impact of cigarette smoking and alcohol consumption on sperm parameters and sperm DNA fragmentation (sdf) measured by halosperm((r)). *Archives of Gynecology and Obstetrics*, 2014; 290(4):777-82. Available from: <https://www.ncbi.nlm.nih.gov/pubmed/24840110>

Merritt T, Mazela J, and Merritt A. Tobacco smoking and its consequences on reproductive health: The impact of a lifestyle choices including cigarette smoke exposure on fertility and birth defects. *Przegląd Lekarski*, 2013; 70(10):779-83. Available from: <http://www.ncbi.nlm.nih.gov/pubmed/24501794>

Ghaffari MA and Rostami M. The effect of cigarette smoking on human sperm creatine kinase activity: As an atp buffering system in sperm. *Int J Fertil Steril*, 2013; 6(4):258-65. Available from: <http://www.ncbi.nlm.nih.gov/pubmed/24520449>

Khan A, Freeman-Wang T, Pisal N, and Singer A. Smoking and multicentric vulval intraepithelial neoplasia. *Journal of Obstetrics and Gynaecology*, 2009; 29(2):123–5. Available from: <http://www.informaworld.com/smpp/content~db=all?content=10.1080/01443610802668938>

Sherman J, Mount S, Evans M, Skelly J, Simmons-Arnold L, et al. Smoking increases the risk of high-grade vaginal intraepithelial neoplasia in women with oncogenic human papillomavirus. *Gynecologic Oncology*, 2008; 110(3):396-401. Available from: <http://www.ncbi.nlm.nih.gov/pubmed/18586314>

US Department of Health and Human Services. Women and smoking. A report of the US Surgeon General, Atlanta, Georgia: US Department of Health and Human Services, Centers for Disease Control and Prevention, National Center for Chronic Disease Prevention and Health Promotion, Office on Smoking and Health, 2001. Available from: http://www.cdc.gov/tobacco/data_statistics/sgr/sgr_2001/index.htm.

3.6.1 Menstrual function, menarche and menopause

Cui, J, & Wang, Y. (2024). Premature ovarian insufficiency: a review on the role of tobacco smoke, its clinical harm, and treatment. *J Ovarian Res*, 17(1), 8. Retrieved from <https://www.ncbi.nlm.nih.gov/pubmed/38191456>

Jiang, Z, He, R, Wu, H, Yu, J, Zhu, K, Luo, Q et al. (2023). The causal association between smoking initiation, alcohol and coffee consumption, and women's reproductive health: A two-sample Mendelian randomization analysis. *Front Genet*, 14, 1098616. Retrieved from <https://www.ncbi.nlm.nih.gov/pubmed/37091804>

Joachim, GE, Bohnert, KM, As-Sanie, S, Harris, HR, & Upson, K. (2023). Cannabis smoking, tobacco cigarette smoking, and adenomyosis risk. *Fertil Steril*. Retrieved from <https://www.ncbi.nlm.nih.gov/pubmed/36716812>

Rizvanovic, M, Begic, Z, Kamic, L, Cerovac, A, Rizvanovic, S, Begic, M, & Habek, D. (2022). The influence of body mass index and smoking on the age of onset of menopause in women in Bosnia and Herzegovina: a cross-sectional multicentric study. *Prz Menopausalny*, 21(3), 180-184. Retrieved from <https://www.ncbi.nlm.nih.gov/pubmed/36254125>

Zhai, T, Diergaarde, B, Wilson, DO, Kang, H, Sood, A, Bayliss, SH et al. (2022). Early natural menopause is associated with poor lung health and increased mortality among female smokers. *Am J Obstet Gynecol*. Retrieved from <https://www.ncbi.nlm.nih.gov/pubmed/35934119>

Baker, NL, Ramakrishnan, V, Gray, KM, Carpenter, MJ, McClure, EA, Tomko, RL, & Saladin, ME. (2022). Characterization of salivary progesterone in female smokers. *Nicotine Tob Res*. Retrieved from <https://www.ncbi.nlm.nih.gov/pubmed/35533342>

Huang, Z, Chang, X, Wang, L, Liu, J, Heng, CK, Khor, CC et al. (2022). Interaction between cigarette smoking and genetic polymorphisms on the associations with age of natural menopause and reproductive lifespan: the Singapore Chinese Health Study. *Hum Reprod*. Retrieved from <https://www.ncbi.nlm.nih.gov/pubmed/35413122>

Ihenacho, U, Sriprasert, I, Mack, WJ, Hamilton, AS, Unger, JB, Press, MF, & Wu, AH. (2022). A Systematic Review and Meta-Analysis of Smoking and Circulating Sex Hormone Levels Among Premenopausal Women. *Nicotine Tob Res*. Retrieved from <https://www.ncbi.nlm.nih.gov/pubmed/35291014>

Yeo, JH, & Kim, MT. (2022). Association of weight, smoking, and alcohol consumption with age at natural menopause. *J Women Aging*, 1-11. Retrieved from <https://www.ncbi.nlm.nih.gov/pubmed/35312401>

Florek, E, Piekoszewski, W, Czarnywojtek, A, Sedziak, A, Jawien, W, Dera-Szymanowska, A et al. (2021). Differences in the sex hormone levels in the menstrual cycle due to tobacco smoking - a myth or reality? *Endokrynol Pol*. Retrieved from <https://www.ncbi.nlm.nih.gov/pubmed/34855194>

Dotlic, J, Markovic, N, & Gazibara, T. (2021). Patterns of smoking and menopause-specific quality of life: smoking duration matters more. *Behav Med*, 1-11. Retrieved from <https://www.ncbi.nlm.nih.gov/pubmed/34818993>

Qin, LL, Hu, Z, Kaminga, AC, Luo, BA, Xu, HL, Feng, XL, & Liu, JH. (2020). Association between cigarette smoking and the risk of dysmenorrhea: A meta-analysis of observational studies. *PLoS One*, 15(4), e0231201. Available from: <https://www.ncbi.nlm.nih.gov/pubmed/32294123>

Peltier MR, Flores JM, Smith PH, Roberts W, Verplaetse TL, et al. Smoking across the menopausal transition in a 10-year longitudinal sample: The role of sex hormones and depressive symptoms. *Nicotine and Tobacco Research*, 2019. Available from: <https://www.ncbi.nlm.nih.gov/pubmed/31058288>

Malek AM, Vladutiu CJ, Meyer ML, Cushman M, Newman R, et al. The association of age at menopause and all-cause and cause-specific mortality by race, postmenopausal hormone use, and smoking status. *Prev Med Rep*, 2019; 15:100955. Available from: <https://www.ncbi.nlm.nih.gov/pubmed/31367516>

Jenabi E, Khazaei SP, and Veisani YP. The relationship between smoking and dysmenorrhea: A meta-analysis. *Women and Health*, 2019; 59(5):524-33. Available from: <https://www.ncbi.nlm.nih.gov/pubmed/30481133>

Fernandez MDM, Montes-Martinez A, Pineiro-Lamas M, Regueira-Mendez C, and Takkouche B. Tobacco consumption and premenstrual syndrome: A case-control study. *PLoS ONE*, 2019; 14(6):e0218794. Available from: <https://www.ncbi.nlm.nih.gov/pubmed/31226148>

Anderson DJ, Chung HF, Seib CA, Dobson AJ, Kuh D, et al. Obesity, smoking, and risk of vasomotor menopausal symptoms: A pooled analysis of eight cohort studies. *American Journal of Obstetrics and Gynecology*, 2019. Available from: <https://www.ncbi.nlm.nih.gov/pubmed/31705884>

Zhu D, Chung HF, Pandeya N, Dobson AJ, Cade JE, et al. Relationships between intensity, duration, cumulative dose, and timing of smoking with age at menopause: A pooled analysis of individual data from 17 observational studies. *PLoS Medicine*, 2018; 15(11):e1002704. Available from: <https://www.ncbi.nlm.nih.gov/pubmed/30481189>

Whitcomb BW, Purdue-Smithe AC, Szegda KL, Boutot ME, Hankinson SE, et al. Cigarette smoking and risk of early natural menopause. *American Journal of Epidemiology*, 2018; 187(4):696-704. Available from: <https://www.ncbi.nlm.nih.gov/pubmed/29020262>

Mishra GD, Chung HF, Gelaw YA, and Loxton D. The role of smoking in the relationship between intimate partner violence and age at natural menopause: A mediation analysis. *Womens Midlife Health*, 2018; 4:1. Available from: <https://www.ncbi.nlm.nih.gov/pubmed/30766712>

Menstrual cycle in women who co-use marijuana and tobacco: Erratum. *J Addict Med*, 2018; 12(6):501. Available from: <https://www.ncbi.nlm.nih.gov/pubmed/30383618>

Kosmider L, Delijewski M, Koszowski B, Sobczak A, Benowitz NL, et al. Slower nicotine metabolism among postmenopausal polish smokers. *Pharmacological Reports*, 2017; 70(3):434-8. Available from: <https://www.ncbi.nlm.nih.gov/pubmed/29627689>

Jasinska-Starczewska M, Szydłowska I, Mroczek B, Laszczynska M, Chlubek D, et al. The influence of cigarette smoke exposure on the copper concentration in the serum depending on the use of menopausal hormone therapy. *Biomed Res Int*, 2017; 2017:5732380. Available from: <https://www.ncbi.nlm.nih.gov/pubmed/28884126>

Jung AN, Park JH, Kim J, Kim SH, Jee BC, et al. Detrimental effects of higher body mass index and smoking habits on menstrual cycles in korean women. *J Womens Health (Larchmt)*, 2016. Available from: <http://www.ncbi.nlm.nih.gov/pubmed/27603944>

Ju H, Jones M, and Mishra GD. Smoking and trajectories of dysmenorrhoea among young australian women. *Tobacco Control*, 2016; 25(2):195-202. Available from: <https://www.ncbi.nlm.nih.gov/pubmed/25403655>

Yang HJ, Suh PS, Kim SJ, and Lee SY. Effects of smoking on menopausal age: Results from the korea national health and nutrition examination survey, 2007 to 2012. *J Prev Med Public Health*, 2015; 48(4):216-24. Available from: <https://www.ncbi.nlm.nih.gov/pubmed/26265667>

Weinberger AH, Smith PH, Allen SS, Cosgrove KP, Saladin ME, et al. Systematic and meta-analytic review of research examining the impact of menstrual cycle phase and ovarian hormones on smoking and cessation. *Nicotine and Tobacco Research*, 2015; 17(4):407-21. Available from: <http://www.ncbi.nlm.nih.gov/pubmed/25762750>

Tawfik H, Kline J, Jacobson J, Tehranifar P, Protacio A, et al. Life course exposure to smoke and early menopause and menopausal transition. *Menopause*, 2015. Available from: <http://www.ncbi.nlm.nih.gov/pubmed/25803667>

Smith RL, Flaws JA, and Gallicchio L. Does quitting smoking decrease the risk of midlife hot flashes? A longitudinal analysis. *Maturitas*, 2015; 82(1):123-7. Available from: <https://www.ncbi.nlm.nih.gov/pubmed/26149340>

Sagan D, Stepniak J, Gesing A, Lewinski A, and Karbownik-Lewinska M. Higher lipid peroxidation in former-smokers vs. Never-smokers - study in postmenopausal women. *Neuro Endocrinol Lett*, 2015; 36(6):557-63. Available from: <http://www.ncbi.nlm.nih.gov/pubmed/26812290>

Mayor S. Smoking worsens effect of early menopause on mortality, study finds. *BMJ (Clinical Research Ed.)*, 2015; 351:h4292. Available from: <http://www.ncbi.nlm.nih.gov/pubmed/26254444>

Jenabi E and Poorolajal J. The association between hot flushes and smoking in midlife women: A meta-analysis. *Climacteric*, 2015; 18(6):797-801. Available from: <https://www.ncbi.nlm.nih.gov/pubmed/26488934>

Goletiani NV, Siegel AJ, Lukas SE, and Hudson JI. The effects of smoked nicotine on measures of subjective states and hypothalamic-pituitary-adrenal axis hormones in women during the follicular and luteal phases of the menstrual cycle. *J Addict Med*, 2015. Available from: <http://www.ncbi.nlm.nih.gov/pubmed/25783522>

Bellavia A, Wolk A, and Orsini N. Differences in age at death according to smoking and age at menopause. *Menopause*, 2015. Available from: <http://www.ncbi.nlm.nih.gov/pubmed/26240946>

Rzymiski P, Rzymiski P, Tomczyk K, Niedzielski P, Jakubowski K, et al. Metal status in human endometrium: Relation to cigarette smoking and histological lesions. *Environmental Research*, 2014; 132:328-33. Available from: <http://www.ncbi.nlm.nih.gov/pubmed/24834829>

Pru JK. Genetic predisposition to ovotoxic effects of smoking may hasten time to menopause. *Menopause*, 2014; 21(7):685-6. Available from: <http://www.ncbi.nlm.nih.gov/pubmed/24915508>

Cochran CJ, Gallicchio L, Miller SR, Zacur H, and Flaws JA. Cigarette smoking, androgen levels, and hot flushes in midlife women. *Obstetrics and Gynecology*, 2008; 112(5):1037-44. Available from: <https://www.ncbi.nlm.nih.gov/pubmed/18978103>

Bertone-Johnson ER, Hankinson SE, Johnson SR, and Manson JE. Cigarette smoking and the development of premenstrual syndrome. *American Journal of Epidemiology*, 2008; 168(8):938-45. Available from: <https://www.ncbi.nlm.nih.gov/pubmed/18701443>

Keeling D. Combined oral contraceptives and the risk of myocardial infarction. *Annals of Medicine*, 2003; 35:413-18. Available from: <http://www.ncbi.nlm.nih.gov/pubmed/14572165>

US Department of Health and Human Services. Women and smoking. A report of the surgeon general. Atlanta, Georgia: US Department of Health and Human Services, Centers for Disease Control and Prevention, National Center for Chronic Disease Prevention and Health Promotion, Office on Smoking and Health, 2001. Available from:

http://www.cdc.gov/tobacco/data_statistics/sgr/sgr_2001/index.htm.

3.6.2 Fertility

Zhang, X, Zhu, Z, Shen, C, & Tang, G. (2024). Causal relationship between smoking and male infertility: A two-sample mendelian randomization study. *Asian J Surg*. Retrieved from <https://www.ncbi.nlm.nih.gov/pubmed/39592339>

Wang, C, Zhang, J, Gao, F, Zheng, M, Fu, X, & Yang, K. (2024). Investigating the effects of COVID-19 on sperm in male smokers: A prospective integrated proteomic and metabolomic study. *Reprod Toxicol*, 130, 108734. Retrieved from <https://www.ncbi.nlm.nih.gov/pubmed/39406274>

Barbagallo, F, Assenza, MR, Torrisi, F, Buonacquisti, A, & Pallotti, F. (2024). The Smoky Impact of Nicotinic Acetylcholine Receptors on Testicular Function. *J Clin Med*, 13(17). Retrieved from <https://www.ncbi.nlm.nih.gov/pubmed/39274310>

Bhardwaj, JK, Siwach, A, & Sachdeva, SN. (2024). Nicotine as a female reproductive toxicant-A review. *J Appl Toxicol*. Retrieved from <https://www.ncbi.nlm.nih.gov/pubmed/39323358>

Hua, X, Hu, R, Chen, C, Sun, J, Feng, X, & Zhang, X. (2024). Joint effects of tobacco smoke exposure and heavy metals on serum sex hormones in adult males. *Hormones (Athens)*. Retrieved from <https://www.ncbi.nlm.nih.gov/pubmed/39269601>

Albeitawi, S, Hamadneh, J, Alnatsheh, M, Soudah, O, Marar, EA, Ayasrah, L et al (2024). Effect of dual tobacco smoking of hookah and cigarettes on semen parameters of infertile men. *Tob Induc Dis*, 22. Retrieved from <https://www.ncbi.nlm.nih.gov/pubmed/39105165>

Budihastuti, UR, Melinawati, E, Prakosa, T, Angelia Ratnasari, A, Hadi, C, Laqif, A et al. (2024). Influence of Age, Obesity, Smoking, Sleep duration, and Sleep Quality on Concentration, Morphology, and Sperm Motility: A Cross-Sectional Study. *Int J Fertil Steril*, 18(3), 240-247. Retrieved from <https://www.ncbi.nlm.nih.gov/pubmed/38973277>

Firouzabadi, AM, Henkel, R, Tofighi Niaki, M, & Fesahat, F. (2024). Adverse Effects of Nicotine on Human Sperm Nuclear Proteins. *World J Mens Health*. Retrieved from <https://www.ncbi.nlm.nih.gov/pubmed/39028130>

Zhang, Z, Jiang, Z, Cheng, J, Price, CA, Yang, L, & Li, Q. (2024). Nicotine induces senescence in spermatogonia stem cells by disrupting homeostasis between circadian oscillation and rhythmic mitochondrial dynamics via the SIRT6/Bmal1 pathway. *Life Sci*, 122860. Retrieved from <https://www.ncbi.nlm.nih.gov/pubmed/38936603>

Dhage, VD, Nagtode, N, Kumar, D, & Bhagat, AK. (2024). A Narrative Review on the Impact of Smoking on Female Fertility. *Cureus*, 16(4), e58389. Retrieved from <https://www.ncbi.nlm.nih.gov/pubmed/38756292>

- Fan, S, Zhang, Z, Wang, H, Luo, L, & Xu, B. (2024). Associations between tobacco inhalation and semen parameters in men with primary and secondary infertility: a cross-sectional study. *Front Endocrinol (Lausanne)*, 15, 1396793. Retrieved from <https://www.ncbi.nlm.nih.gov/pubmed/38808116>
- Naeimi, N, Mohseni Kouchesfehiani, H, Heidari, Z, & Mahmoudzadeh-Sagheb, H. (2024). Effect of smoking on methylation and semen parameters. *Environ Mol Mutagen*. Retrieved from <https://www.ncbi.nlm.nih.gov/pubmed/38299759>
- Farag, AGA, Badr, EA, Kholif, AOA, Khalifa, MN, & Ghanem, MMM. (2024). Serum and Seminal Plasma Levels of Lead and Arsenic in Cigarette Smokers and Their Relation to the Semen Parameters. *Biol Trace Elem Res*. Retrieved from <https://www.ncbi.nlm.nih.gov/pubmed/38180596>
- Practice Committee of the American Society for Reproductive Medicine. Electronic address, j. a. o. (2024). Tobacco or marijuana use and infertility: a committee opinion. *Fertil Steril*. Retrieved from <https://www.ncbi.nlm.nih.gov/pubmed/38284953>
- Cui, J, & Wang, Y. (2024). Premature ovarian insufficiency: a review on the role of tobacco smoke, its clinical harm, and treatment. *J Ovarian Res*, 17(1), 8. Retrieved from <https://www.ncbi.nlm.nih.gov/pubmed/38191456>
- Osadchuk, L, Kleshchev, M, & Osadchuk, A. (2023). Effects of cigarette smoking on semen quality, reproductive hormone levels, metabolic profile, zinc and sperm DNA fragmentation in men: results from a population-based study. *Front Endocrinol (Lausanne)*, 14, 1255304. Retrieved from <https://www.ncbi.nlm.nih.gov/pubmed/37920251>
- Henriques, MC, Santiago, J, Patricio, A, Herdeiro, MT, Loureiro, S, & Fardilha, M. (2023). Smoking Induces a Decline in Semen Quality and the Activation of Stress Response Pathways in Sperm. *Antioxidants (Basel)*, 12(10). Retrieved from <https://www.ncbi.nlm.nih.gov/pubmed/37891907>
- Amor, H, Alkhaled, Y, Bibi, R, Hammadeh, ME, & Jankowski, PM. (2023). The Impact of Heavy Smoking on Male Infertility and Its Correlation with the Expression Levels of the PTPRN2 and PGAM5 Genes. *Genes (Basel)*, 14(8). Retrieved from <https://www.ncbi.nlm.nih.gov/pubmed/37628668>
- Galanti, F, Licata, E, Paciotti, G, Gallo, M, Riccio, S, Miriello, D et al. (2023). Impact of different typologies of smoking on ovarian reserve and oocyte quality in women performing ICSI cycles: an observational prospective study. *Eur Rev Med Pharmacol Sci*, 27(11), 5190-5199. Retrieved from <https://www.ncbi.nlm.nih.gov/pubmed/37318508>
- Chua, SC, Yovich, SJ, Hinchliffe, PM, & Yovich, JL. (2023). Male Clinical Parameters (Age, Stature, Weight, Body Mass Index, Smoking History, Alcohol Consumption) Bear Minimal Relationship to the Level of Sperm DNA Fragmentation. *J Pers Med*, 13(5). Retrieved from <https://www.ncbi.nlm.nih.gov/pubmed/37240929>
- He, S, & Wan, L. (2023). Associations between smoking status and infertility: a cross-sectional analysis among USA women aged 18-45 years. *Front Endocrinol (Lausanne)*, 14, 1140739. Retrieved from <https://www.ncbi.nlm.nih.gov/pubmed/37181041>

Laqqan, MM, & Yassin, MM. (2023). Effect of hubble-bubble smoking on global DNA methylation and transcription levels of protamine and histone genes in human spermatozoa. *J Environ Sci Health A Tox Hazard Subst Environ Eng*, 1-8. Retrieved from <https://www.ncbi.nlm.nih.gov/pubmed/36744325>

Tofighi Niaki, M, Hasan Sheikhha, M, Ali Khalili, M, Fesahat, F, Nabi, A, Izadi, M et al. (2023). Possible Harmful Effects of Smoking Hookah on Sperm DNA Fragmentation Index and Protamine Genes Expression in Normozoospermic Men. *Subst Abuse*, 17, 11782218221144547. Retrieved from <https://www.ncbi.nlm.nih.gov/pubmed/36618126>

Oladipupo, I, Ali, T, Hein, DW, Pagidas, K, Bohler, H, Doll, MA et al. (2022). Association between cigarette smoking and ovarian reserve among women seeking fertility care. *PLoS One*, 17(12), e0278998. Retrieved from <https://www.ncbi.nlm.nih.gov/pubmed/36512605>

Arshad, MA, Zil, EAA, Iqbal, MT, & Majzoub, A. (2022). The two-tales of smoking: aberrations in sperm parameters and failure in assisted reproduction. *Arab J Urol*, 20(4), 195-196. Retrieved from <https://www.ncbi.nlm.nih.gov/pubmed/36353471>

Amor, H, Jankowski, PM, Dahadhah, FW, Al Zoubi, MS, & Hammadeh, ME. (2022). Impact of tobacco smoking in association with H2BFWT, PRM1 and PRM2 genes variants on male infertility. *Andrologia*, e14611. Retrieved from <https://www.ncbi.nlm.nih.gov/pubmed/36217675>

Hernaes, A, Wootton, RE, Page, CM, Skara, KH, Fraser, A, Rogne, T et al. (2022). Smoking and infertility: multivariable regression and Mendelian randomization analyses in the Norwegian Mother, Father and Child Cohort Study. *Fertil Steril*. Retrieved from <https://www.ncbi.nlm.nih.gov/pubmed/35562204>

Amor, H, Hammadeh, ME, Mohd, I, & Jankowski, PM. (2022). Impact of heavy alcohol consumption and cigarette smoking on sperm DNA integrity. *Andrologia*, e14434. Retrieved from <https://www.ncbi.nlm.nih.gov/pubmed/35484935>

Basic, M, Mitic, D, Krstic, M, & Cvetkovic, J. (2022). Tobacco and alcohol as factors for male infertility-a public health approach. *J Public Health (Oxf)*. Retrieved from <https://www.ncbi.nlm.nih.gov/pubmed/35485418>

Tong, E, McDonnell, C, Hunter, K, Sheahan, K, & Torreggiani, WC. (2022). Can smoking cause impotence? a radiological retrospective cohort study comparing internal pudendal artery calcification on CT in male smokers versus non-smokers. *Ir J Med Sci*. Retrieved from <https://www.ncbi.nlm.nih.gov/pubmed/35178666>

Bortoletto, P, & Prabhu, M. (2022). Impact of Tobacco and Marijuana on Infertility and Early Reproductive Wastage. *Clin Obstet Gynecol*. Retrieved from <https://www.ncbi.nlm.nih.gov/pubmed/35125388>

Liu, Y, Chen, S, Pang, D, Zhou, J, Xu, X, Yang, S et al. (2022). Effects of paternal exposure to cigarette smoke on sperm DNA methylation and long-term metabolic syndrome in offspring. *Epigenetics Chromatin*, 15(1), 3. Retrieved from <https://www.ncbi.nlm.nih.gov/pubmed/35063005>

Laqqan, MM, & Yassin, MM. (2021). Cigarette heavy smoking alters DNA methylation patterns and gene transcription levels in humans spermatozoa. *Environ Sci Pollut Res Int*. Retrieved from <https://www.ncbi.nlm.nih.gov/pubmed/34855177>

Engel, KM, Baumann, S, Blaurock, J, Rolle-Kampczyk, U, Schiller, J, Bergen, M, & Grunewald, S. (2021). Differences in the sperm metabolomes of smoking and nonsmoking men. *Biol Reprod*. Retrieved from <https://www.ncbi.nlm.nih.gov/pubmed/34554205>

Khan, N, Shah, M, Malik, MO, Badshah, H, Habib, SH, Shah, I, & Shah, FA. (2021). The effects of tobacco and cannabis use on semen and endocrine parameters in infertile males. *Hum Fertil (Camb)*, 1-9. Retrieved from <https://www.ncbi.nlm.nih.gov/pubmed/34583622>

Nwonuma, CO, Osemwegie, OO, Irokanulo, EO, Alejolowo, OO, Kayode, OT, Olaolu, TD et al. (2021). Comparative effects of combined use of alcohol with cannabis and tobacco on testicular function in rats. *Toxicol Res (Camb)*, 10(4), 761-770. Retrieved from <https://www.ncbi.nlm.nih.gov/pubmed/34484667>

Omolaoye, TS, El Shahawy, O, Skosana, BT, Boillat, T, Loney, T, & du Plessis, SS. (2021). The mutagenic effect of tobacco smoke on male fertility. *Environ Sci Pollut Res Int*. Retrieved from <https://www.ncbi.nlm.nih.gov/pubmed/34536221>

Sansone, M, Zaami, S, Cetta, L, Costanzi, F, & Signore, F. (2021). Ovotoxicity of smoking and impact on AMH levels: a pilot study. *Eur Rev Med Pharmacol Sci*, 25(16), 5255-5260. Retrieved from <https://www.ncbi.nlm.nih.gov/pubmed/34486701>

Bjurlin, MA, Kamecki, H, Gordon, T, Krajewski, W, Matulewicz, RS, Malkiewicz, B et al. (2021). Alternative tobacco products use and its impact on urologic health - will the lesser evil still be evil? A commentary and review of literature. *Cent European J Urol*, 74(2), 152-160. Retrieved from <https://www.ncbi.nlm.nih.gov/pubmed/34336232>

Tao, Y, Liu, B, Chen, Y, Hu, Y, Zhu, R, Ye, D et al (2021). Genetically Predicted Cigarette Smoking in Relation to Risk of Polycystic Ovary Syndrome. *Clin Epidemiol*, 13, 527-532. Retrieved from <https://www.ncbi.nlm.nih.gov/pubmed/34239329>

Budani, MC, Carletti, E, & Tiboni, GM. (2021). In Vivo Cigarette Smoke Exposure to Examine the Expression of Genes Involved in the Inflammatory Response in the Mouse Uterus. *Curr Protoc*, 1(6), e172. Retrieved from <https://www.ncbi.nlm.nih.gov/pubmed/34170627>

El-Dighidy, MA, Sherief, MH, Shamaa, MA, & El-Sakka, AI. (2021). Smoking and obesity negatively affect the favourable outcome of varicocelelectomy in sub-fertile men. *Andrologia*, e14131. Retrieved from <https://www.ncbi.nlm.nih.gov/pubmed/34117798>

Bazid, HAS, Attia, AM, Yousef, A. M., Fawal, A. N., & Mostafa, M. I. (2021). Evaluating the Serum and Seminal Plasma Levels of Zinc and Cadmium in Smokers and Their Relation to the Semen Parameters. *Biological Trace Element Research*. Retrieved from <https://www.ncbi.nlm.nih.gov/pubmed/33860457>

He, L, Gong, H, You, S, Zhang, C, Zhong, C, & Li, L. (2021). miRNA-138-5p suppresses cigarette smoke-induced apoptosis in testicular cells by targeting Caspase-3 through the Bcl-2 signaling pathway. *J Biochem Mol Toxicol*, e22783. Retrieved from <https://www.ncbi.nlm.nih.gov/pubmed/33856081>

Amor, H, Zeyad, A, & Hammadeh, ME. (2021). Tobacco smoking and its impact on the expression level of sperm nuclear protein genes: H2BFWT, TNP1, TNP2, PRM1 and PRM2. *Andrologia*, e13964. Retrieved from <https://www.ncbi.nlm.nih.gov/pubmed/33440036>

Kida, N, Matsuo, Y, Hashimoto, Y, Nishi, K, Tsuzuki-Nakao, T, Bono, H et al (2021). Cigarette Smoke Extract Activates Hypoxia-Inducible Factors in a Reactive Oxygen Species-Dependent Manner in Stroma Cells from Human Endometrium. *Antioxidants (Basel)*, 10(1). Retrieved from <https://www.ncbi.nlm.nih.gov/pubmed/33401600>

Kida, N, Nishigaki, A, Kakita-Kobayashi, M, Tsubokura, H, Hashimoto, Y, Yoshida, A et al (2021). Exposure to cigarette smoke affects endometrial maturation including angiogenesis and decidualization. *Reprod Med Biol*, 20(1), 108-118. Retrieved from <https://www.ncbi.nlm.nih.gov/pubmed/33488290>

Kole, E, Ozkan, SO, Eraldemir, C, Akar, FY, Ozbek, SK, Kole, MC et al(2020). Effects of melatonin on ovarian reserve in cigarette smoking: an experimental study. *Arch Med Sci*, 16(6), 1376-1386. Retrieved from <https://www.ncbi.nlm.nih.gov/pubmed/33224337>

Yardimci, A, Akkoc, RF, Tektemur, A, Ulker, N, Kaya Tektemur, N, Erdem Guzel, E et al. (2020). Chronic Maternal Tobacco Smoke Exposure and/or Alpha-Lipoic Acid Treatment Causes Long-Term Deterioration of Testis and Sexual Behavior in Adult Male Rats. *J Sex Med*. Retrieved from <https://www.ncbi.nlm.nih.gov/pubmed/32798198>

De Brucker, S, Drakopoulos, P, Dhooghe, E, De Geeter, J, Uvin, V, Santos-Ribeiro, S et al (2020). The effect of cigarette smoking on the semen parameters of infertile men. *Gynecol Endocrinol*, 1-4. Retrieved from <https://www.ncbi.nlm.nih.gov/pubmed/32608274>

Padidar, K, Vahidi, E, Sabbaghian, M, Behmanesh, A, & Shams, R. (2020). Identification of miRNAs and the target genes related to male infertility and smoking using bioinformatics approaches. *Hum Fertil (Camb)*, 1-10. Retrieved from <https://www.ncbi.nlm.nih.gov/pubmed/32614269>

Emekci Ozay, O, & Ozay, AC. (2020). Smoking reduces ovarian stromal blood flow in polycystic ovary syndrome patients. *Ginekol Pol*, 91(4), 201-206. Available from: <https://www.ncbi.nlm.nih.gov/pubmed/32374020>

Ou, Z, Wen, Q, Deng, Y, Yu, Y, Chen, Z, & Sun, L. (2020). Cigarette smoking is associated with high level of ferroptosis in seminal plasma and affects semen quality. *Reprod Biol Endocrinol*, 18(1), 55. Available from: <https://www.ncbi.nlm.nih.gov/pubmed/32460768>

Ozbakir, B, & Tulay, P. (2020). Does cigarette smoking really have a clinical effect on folliculogenesis and oocyte maturation? *Zygote*, 1-4. Available from: <https://www.ncbi.nlm.nih.gov/pubmed/32338250>

Sadaghiani, S, Fallahi, S, Heshmati, H, Teshnizi, SH, Chaijan, HA, Ebrahimi, FFA et al (2020). Effect of antioxidant supplements on sperm parameters in infertile male smokers: a single-blinded clinical

trial. *AIMS Public Health*, 7(1), 92-99. Available from:

<https://www.ncbi.nlm.nih.gov/pubmed/32258192>

Antoniassi, MP, Belardin, LB, Camargo, M, Intasqui, P, Carvalho, VM, Cardozo, KHM, & Bertolla, RP. (2020). Seminal plasma protein networks and enriched functions in varicocele: Effect of smoking. *Andrologia*, e13562. Available from: <https://www.ncbi.nlm.nih.gov/pubmed/32150769>

de Angelis, C, Nardone, A, Garifalos, F, Pivonello, C, Sansone, A, Conforti, A et al (2020). Smoke, alcohol and drug addiction and female fertility. *Reprod Biol Endocrinol*, 18(1), 21. Available from: <https://www.ncbi.nlm.nih.gov/pubmed/32164734>

Li, F, Ding, J, Cong, Y, Liu, B, Miao, J, Wu, D, & Wang, L. (2020). Trichostatin A alleviated ovarian tissue damage caused by cigarette smoke exposure. *Reproductive Toxicology*. Available from: <https://www.ncbi.nlm.nih.gov/pubmed/31987896>

Wesselink AK, Hatch EE, Rothman KJ, Mikkelsen EM, Aschengrau A, et al. Prospective study of cigarette smoking and fecundability. *Human Reproduction*, 2019; 34(3):558-67. Available from: <https://www.ncbi.nlm.nih.gov/pubmed/30576495>

Tang Q, Pan F, Wu X, Nichols CE, Wang X, et al. Semen quality and cigarette smoking in a cohort of healthy fertile men. *Environ Epidemiol*, 2019; 3(4):e055. Available from: <https://www.ncbi.nlm.nih.gov/pubmed/31538136>

Shrem G, Brudner Y, Atzmon Y, Michaeli M, Ellenbogen A, et al. The influence of obesity, smoking, and serum follicular stimulating hormone in azoospermic patients on testicular sperm extraction-intra cytoplasmic sperm injection outcomes: A retrospective cohort study. *Medicine*, 2019; 98(4):e14048. Available from: <https://www.ncbi.nlm.nih.gov/pubmed/30681561>

Rehman R, Zahid N, Amjad S, Baig M, and Gazzaz ZJ. Relationship between smoking habit and sperm parameters among patients attending an infertility clinic. *Front Physiol*, 2019; 10:1356. Available from: <https://www.ncbi.nlm.nih.gov/pubmed/31736779>

Niederberger C. Re: Metabolic syndrome and smoking are independent risk factors of male idiopathic infertility. *Journal of Urology*, 2019:101097JU000000000000066901. Available from: <https://www.ncbi.nlm.nih.gov/pubmed/31829808>

Niederberger C. Re: Tobacco smoking and semen quality in infertile males: A systematic review and meta-analysis. *Journal of Urology*, 2019:10109701JU00005744007188627. Available from: <https://www.ncbi.nlm.nih.gov/pubmed/31232628>

Hamad M, Shelko N, Montenarh M, and Hammadeh ME. The impact of cigarette smoking on protamines 1 and 2 transcripts in human spermatozoa. *Hum Fertil (Camb)*, 2019; 22(2):104-10. Available from: <https://www.ncbi.nlm.nih.gov/pubmed/28969455>

Dupont C, Faure C, Daoud F, Gautier B, Czernichow S, et al. Metabolic syndrome and smoking are independent risk factors of male idiopathic infertility. *Basic Clin Androl*, 2019; 29:9. Available from: <https://www.ncbi.nlm.nih.gov/pubmed/31304019>

Bundhun PK, Janoo G, Bhurtu A, Teeluck AR, Soogund MZS, et al. Tobacco smoking and semen quality in infertile males: A systematic review and meta-analysis. *BMC Public Health*, 2019; 19(1):36. Available from: <https://www.ncbi.nlm.nih.gov/pubmed/30621647>

Boeri L, Capogrosso P, Ventimiglia E, Pederzoli F, Cazzaniga W, et al. Heavy cigarette smoking and alcohol consumption are associated with impaired sperm parameters in primary infertile men. *Asian Journal of Andrology*, 2019; 21(5):478-85. Available from: <https://www.ncbi.nlm.nih.gov/pubmed/30829290>

Sansone A, Di Dato C, de Angelis C, Menafrà D, Pozza C, et al. Smoke, alcohol and drug addiction and male fertility. *Reproductive Biology and Endocrinology*, 2018; 16(1):3. Available from: <https://www.ncbi.nlm.nih.gov/pubmed/29334961>

Ranganathan P, Rao KA, Sudan JJ, and Balasundaram S. Cadmium effects on sperm morphology and semenogelin with relates to increased ros in infertile smokers: An in vitro and in silico approach. *Reproductive Biology*, 2018. Available from: <https://www.ncbi.nlm.nih.gov/pubmed/29729841>

Practice Committee of the American Society for Reproductive Medicine. Electronic address aao and Practice Committee of the American Society for Reproductive M. Smoking and infertility: A committee opinion. *Fertility and Sterility*, 2018; 110(4):611-8. Available from: <https://www.ncbi.nlm.nih.gov/pubmed/30196946>

Mostafa RM, Nasrallah YS, Hassan MM, Farrag AF, Majzoub A, et al. The effect of cigarette smoking on human seminal parameters, sperm chromatin structure and condensation. *Andrologia*, 2018; 50(3). Available from: <https://www.ncbi.nlm.nih.gov/pubmed/29124782>

Hamad MF, Dayyih WAA, Laqqan M, AlKhaled Y, Montenarh M, et al. The status of global DNA methylation in the spermatozoa of smokers and non-smokers. *Reproductive Biomedicine Online*, 2018; 37(5):581-9. Available from: <https://www.ncbi.nlm.nih.gov/pubmed/30366840>

Gunes S, Metin Mahmutoglu A, Arslan MA, and Henkel R. Smoking-induced genetic and epigenetic alterations in infertile men. *Andrologia*, 2018:e13124. Available from: <https://www.ncbi.nlm.nih.gov/pubmed/30132931>

Freour T, Massart P, Garcia D, Vassena R, and Rodriguez A. Revisiting the association between smoking and female fertility using the oocyte donation model. *Reproductive Biomedicine Online*, 2018. Available from: <https://www.ncbi.nlm.nih.gov/pubmed/30366838>

Alkhaled Y, Laqqan M, Tierling S, Lo Porto C, Amor H, et al. Impact of cigarette-smoking on sperm DNA methylation and its effect on sperm parameters. *Andrologia*, 2018. Available from: <https://www.ncbi.nlm.nih.gov/pubmed/29315717>

Aboulmaouahib S, Madkour A, Kaarouch I, Sefrioui O, Saadani B, et al. Impact of alcohol and cigarette smoking consumption in male fertility potential: Looks at lipid peroxidation, enzymatic antioxidant activities and sperm DNA damage. *Andrologia*, 2018; 50(3). Available from: <https://www.ncbi.nlm.nih.gov/pubmed/29164649>

Silva JV, Cruz D, Gomes M, Correia BR, Freitas MJ, et al. Study on the short-term effects of increased alcohol and cigarette consumption in healthy young men's seminal quality. *Sci Rep*, 2017; 7:45457. Available from: <https://www.ncbi.nlm.nih.gov/pubmed/28367956>

Sahin Ersoy G, Zhou Y, Inan H, Taner CE, Cosar E, et al. Cigarette smoking affects uterine receptivity markers. *Reprod Sci*, 2017; 24(7):989-95. Available from: <http://www.ncbi.nlm.nih.gov/pubmed/28285568>

Mohamad Al-Ali B and Eredics K. Synergistic effects of cigarette smoking and varicocele on semen parameters in 715 patients. *Wiener Klinische Wochenschrift*, 2017. Available from: <http://www.ncbi.nlm.nih.gov/pubmed/28439698>

Laqqan M, Tierling S, Alkhaled Y, Porto CL, Solomayer EF, et al. Aberrant DNA methylation patterns of human spermatozoa in current smoker males. *Reproductive Toxicology*, 2017; 71:126-33. Available from: <https://www.ncbi.nlm.nih.gov/pubmed/28576685>

Al Khaled Y, Tierling S, Laqqan M, Lo Porto C, and Hammadeh ME. Cigarette smoking induces only marginal changes in sperm DNA methylation levels of patients undergoing intracytoplasmic sperm injection treatment. *Andrologia*, 2017. Available from: <http://www.ncbi.nlm.nih.gov/pubmed/28503748>

Zhang M, Zhang QS, Zheng HS, Wang XY, Feng SQ, et al. Clinical, demographic and psychological characteristics of infertile male smokers in northeast china. *Journal of International Medical Research*, 2016; 44(1):75-80. Available from: <https://www.ncbi.nlm.nih.gov/pubmed/26647076>

Yang F, Li L, Chen JP, Liu XQ, Zhong CL, et al. Couple's infertility in relation to male smoking in a chinese rural area. *Asian Journal of Andrology*, 2016. Available from: <http://www.ncbi.nlm.nih.gov/pubmed/26763542>

Ventimiglia E, Montorsi F, and Salonia A. Re: Reecha sharma, avi harlev, ashok agarwal, sandro c. Esteves. Cigarette smoking and semen quality: A new meta-analysis examining the effect of the 2010 world health organization laboratory methods for the examination of human semen. *Eur urol*. In press. <http://dx.doi.org/10.1016/j.eururo.2016.04.010>. *European Urology*, 2016. Available from: <http://www.ncbi.nlm.nih.gov/pubmed/27317089>

Thompson J. Active and passive smoking linked to infertility and early menopause. *Practitioner*, 2016; 260(1789):5. Available from: <http://www.ncbi.nlm.nih.gov/pubmed/27180496>

Sharma R, Harlev A, Agarwal A, and Esteves SC. Cigarette smoking and semen quality: A new meta-analysis examining the effect of the 2010 world health organization laboratory methods for the examination of human semen. *European Urology*, 2016; 70(4):635-45. Available from: <https://www.ncbi.nlm.nih.gov/pubmed/27113031>

Sapra KJ, Barr DB, Maisog JM, Sundaram R, and Buck Louis GM. Time-to-pregnancy associated with couples' use of tobacco products. *Nicotine and Tobacco Research*, 2016; 18(11):2154-61. Available from: <https://www.ncbi.nlm.nih.gov/pubmed/27190399>

Ozmen S, Dulger S, Coban S, Ozmen OA, Guzelsoy M, et al. Olfactory and erectile dysfunction association in smoking and non-smoking men. *Physiology and Behavior*, 2016; 160:1-5. Available from: <http://www.ncbi.nlm.nih.gov/pubmed/27037193>

Oboni JB, Marques-Vidal P, Bastardot F, Vollenweider P, and Waeber G. Impact of smoking on fertility and age of menopause: A population-based assessment. *BMJ Open*, 2016; 6(11):e012015. Available from: <https://www.ncbi.nlm.nih.gov/pubmed/27864244>

Marom-Haham L and Shulman A. Cigarette smoking and hormones. *Current Opinion in Obstetrics and Gynecology*, 2016; 28(4):230-5. Available from: <https://www.ncbi.nlm.nih.gov/pubmed/27285958>

Leiber C and Wetterauer U. The cigarette and the sperm: A fatal liaison? *European Urology*, 2016. Available from: <http://www.ncbi.nlm.nih.gov/pubmed/27181831>

Kline J, Tang A, and Levin B. Smoking, alcohol and caffeine in relation to two hormonal indicators of ovarian age during the reproductive years. *Maturitas*, 2016; 92:115-22. Available from: <http://www.ncbi.nlm.nih.gov/pubmed/27621248>

Keskin MZ, Budak S, Gubari S, Durmaz K, Yoldas M, et al. Do cigarette and alcohol affect semen analysis? *Archivio Italiano di Urologia, Andrologia*, 2016; 88(1):56-9. Available from: <http://www.ncbi.nlm.nih.gov/pubmed/27072177>

Hawkins Bressler L, Bernardi LA, De Chavez PJ, Baird DD, Carnethon MR, et al. Alcohol, cigarette smoking, and ovarian reserve in reproductive-age african-american women. *American Journal of Obstetrics and Gynecology*, 2016. Available from: <http://www.ncbi.nlm.nih.gov/pubmed/27418446>

Harlev A, Esteves SC, Sharma R, and Agarwal A. Reply from authors re: Lieber c, wetterauer u. The cigarette and the sperm: A fatal liaison? *Eur urol*. In press: The cigarette and the sperm: Causality dilemma no more? *European Urology*, 2016. Available from: <http://www.ncbi.nlm.nih.gov/pubmed/27210459>

Esteves SC, Agarwal A, Sharma R, and Harlev A. Reply to eugenio ventimiglia, montorsi francesco, and andrea salonia's letter to the editor re: Reecha sharma, avi harlev, ashok agarwal, sandro c. Esteves. Cigarette smoking and semen quality: A new meta-analysis examining the effect of the 2010 world health organization laboratory methods for the examination of human semen. *Eur urol*. In press. [Http://dx.Doi.Org/10.1016/j.Eururo.2016.04.010](http://dx.doi.org/10.1016/j.Eururo.2016.04.010). *European Urology*, 2016. Available from: <http://www.ncbi.nlm.nih.gov/pubmed/27289568>

Dong H, Wang Y, Zou Z, Chen L, Shen C, et al. Abnormal methylation of imprinted genes and cigarette smoking: Assessment of their association with the risk of male infertility. *Reprod Sci*, 2016. Available from: <http://www.ncbi.nlm.nih.gov/pubmed/27247128>

DeLay KJ and Hellstrom WJ. Semen proteome alterations in the smoking male: A non-generalizable study. *BJU International*, 2016; 118(5):673-4. Available from: <http://www.ncbi.nlm.nih.gov/pubmed/27753465>

Cui X, Jing X, Wu X, Wang Z, and Li Q. Potential effect of smoking on semen quality through DNA damage and the downregulation of chk1 in sperm. *Mol Med Rep*, 2016; 14(1):753-61. Available from: <https://www.ncbi.nlm.nih.gov/pubmed/27221653>

Asare-Anane H, Bannison SB, Ofori EK, Ateko RO, Bawah AT, et al. Tobacco smoking is associated with decreased semen quality. *Reprod Health*, 2016; 13(1):90. Available from: <https://www.ncbi.nlm.nih.gov/pubmed/27496053>

Antoniassi MP, Intasqui P, Camargo M, Zylbersztejn DS, Carvalho VM, et al. Analysis of the functional aspects and seminal plasma proteomic profile of sperm from smokers. *BJU International*, 2016; 118(5):814-22. Available from: <https://www.ncbi.nlm.nih.gov/pubmed/27208688>

Antoniassi MP, Intasqui Lopes P, Camargo M, Zylbersztejn DS, Carvalho VM, et al. Analysis of the sperm functional aspects and seminal plasma proteomic profile from male smokers. *BJU International*, 2016. Available from: <http://www.ncbi.nlm.nih.gov/pubmed/27208688>

Yousefniapasha Y, Jorsaraei G, Gholinezhadchari M, Mahjoub S, Hajiahmadi M, et al. Nitric oxide levels and total antioxidant capacity in the seminal plasma of infertile smoking men. *Cell J*, 2015; 17(1):129-36. Available from: <http://www.ncbi.nlm.nih.gov/pubmed/25870842>

Harlev A, Agarwal A, Gunes SO, Shetty A, and du Plessis SS. Smoking and male infertility: An evidence-based review. *World J Mens Health*, 2015; 33(3):143-60. Available from: <https://www.ncbi.nlm.nih.gov/pubmed/26770934>

Dai JB, Wang ZX, and Qiao ZD. The hazardous effects of tobacco smoking on male fertility. *Asian Journal of Andrology*, 2015; 17(6):954-60. Available from: <https://www.ncbi.nlm.nih.gov/pubmed/25851659>

Yu B, Qi Y, Liu D, Gao X, Chen H, et al. Cigarette smoking is associated with abnormal histone-to-protamine transition in human sperm. *Fertility and Sterility*, 2014; 101(1):51-7 e1. Available from: <http://www.ncbi.nlm.nih.gov/pubmed/24112532>

Yarosh SL, Kokhtenko EV, Churnosov MI, Solodilova MA, and Polonikov AV. Joint effect of glutathione s-transferase genotypes and cigarette smoking on idiopathic male infertility. *Andrologia*, 2014. Available from: <http://www.ncbi.nlm.nih.gov/pubmed/25348056>

Stramova X, Cegan A, Hampl R, and Kandar R. Effects of smoking on fatty acid composition of phospholipid sperm membrane and the malondialdehyde levels in human seminal plasma. *Andrologia*, 2014. Available from: <http://www.ncbi.nlm.nih.gov/pubmed/25311153>

Shrivastava V, Marmor H, Chernyak S, Goldstein M, Feliciano M, et al. Cigarette smoke affects posttranslational modifications and inhibits capacitation-induced changes in human sperm proteins. *Reproductive Toxicology*, 2014; 43:125-9. Available from: <http://www.ncbi.nlm.nih.gov/pubmed/24345728>

Niederberger C. Re: Cigarette smoking is associated with abnormal histone-to-protamine transition in human sperm. *Journal of Urology*, 2014; 192(4):1193. Available from: <http://www.ncbi.nlm.nih.gov/pubmed/25304589>

Lee HD, Lee HS, Lee JS, Park YS, and Seo JT. Do cigarette smoking and obesity affect semen abnormality in idiopathic infertile males? *World J Mens Health*, 2014; 32(2):105-9. Available from: <https://www.ncbi.nlm.nih.gov/pubmed/25237661>

La Maestra S, De Flora S, and Micale RT. Effect of cigarette smoke on DNA damage, oxidative stress, and morphological alterations in mouse testis and spermatozoa. *International Journal of Hygiene and Environmental Health*, 2014. Available from: <http://www.ncbi.nlm.nih.gov/pubmed/25260855>

Battaglia C, Battaglia B, Mancini F, Persico N, Nappi RE, et al. Cigarette smoking decreases the genital vascularization in young healthy, eumenorrhic women. *Journal of Sexual Medicine*, 2011; 8(6):1717-25. Available from: <https://www.ncbi.nlm.nih.gov/pubmed/21477023>

Waylen A, Metwally M, Jones G, Wilkinson A, and Ledger W. Effects of cigarette smoking upon clinical outcomes of assisted reproduction: A meta-analysis. *Human Reproduction Update*, 2009; 15(1):31–44. Available from: <http://humupd.oxfordjournals.org/content/15/1/31.long>

Klonoff-Cohen H, Natarajan L, Marrs R, and Yee B. Effects of female and male smoking on success rates of ivf and gamete intra-fallopian transfer. *Human Reproduction*, 2001; 16(7):1382–90. Available from: <http://humrep.oxfordjournals.org/cgi/content/full/16/7/1382>

Barbieri RL. The initial fertility consultation: Recommendations concerning cigarette smoking, body mass index, and alcohol and caffeine consumption. *American Journal of Obstetrics and Gynecology*, 2001; 185(5):1168–73. Available from: http://www.sciencedirect.com/science?_ob=ArticleURL&_udi=B6W9P-45SR5B8-40&_user=10&_rdoc=1&_fmt=&_orig=search&_sort=d&_view=c&_version=1&_urlVersion=0&_userid=10&md5=3513a812898f93109316929b2526c6fc

Howe G, Westhoff C, Vessey M, and Yeates D. Effects of age, cigarette smoking, and other factors on fertility: Findings in a large prospective study. *British Medical Journal (Clinical Research Edition)*, 1985; 290(6483):1697-700. Available from: <https://www.ncbi.nlm.nih.gov/pubmed/3924219>

3.6.3 Treatment of infertility including assisted reproduction

Redon, C, Chaillot, M, Reignier, A, Caillet, P, Lefebvre, T, & Freour, T. (2024). Female smoking does not affect live birth rate after frozen thawed blastocyst transfer cycle. *J Gynecol Obstet Hum Reprod*, 53(7), 102793. Retrieved from <https://www.ncbi.nlm.nih.gov/pubmed/38705240>

Taniguchi, R, Hatakeyama, S, Ohgi, S, & Yanaihara, A. (2024). Effect of Male Cigarette Smoking on In Vitro Fertilization (IVF) Outcomes and Embryo Morphokinetic Parameters. *Cureus*, 16(1), e52788. Retrieved from <https://www.ncbi.nlm.nih.gov/pubmed/38389644>

Galanti, F, Licata, E, Paciotti, G, Gallo, M, Riccio, S, Miriello, D et al. (2023). Impact of different typologies of smoking on ovarian reserve and oocyte quality in women performing ICSI cycles: an observational prospective study. *Eur Rev Med Pharmacol Sci*, 27(11), 5190-5199. Retrieved from <https://www.ncbi.nlm.nih.gov/pubmed/37318508>

Arshad, MA, Zil, EAA, Iqbal, MT, & Majzoub, A. (2022). The two-tales of smoking: aberrations in sperm parameters and failure in assisted reproduction. *Arab J Urol*, 20(4), 195-196. Retrieved from <https://www.ncbi.nlm.nih.gov/pubmed/36353471>

Frappier, J, Martinaud, A, Barberet, J, Bruno, C, Guilleman, M, Amblot, C et al. (2022). Effect of paternal smoking on pre-implantation embryonic development: a prospective cohort study. *Reprod Fertil Dev*. Retrieved from <https://www.ncbi.nlm.nih.gov/pubmed/36031716>

Bhide, P, Timlick, E, Kulkarni, A, Gudi, A, Shah, A, Homburg, R, & Acharya, G. (2022). Effect of cigarette smoking on serum anti-Mullerian hormone and antral follicle count in women seeking fertility treatment: a prospective cross-sectional study. *BMJ Open*, 12(3), e049646. Retrieved from <https://www.ncbi.nlm.nih.gov/pubmed/35361635>

Konstantinidou, F, Budani, MC, Sarra, A, Stuppia, L, Tiboni, GM, & Gatta, V. (2021). Impact of Cigarette Smoking on the Expression of Oxidative Stress-Related Genes in Cumulus Cells Retrieved from Healthy Women Undergoing IVF. *Int J Mol Sci*, 22(23). Retrieved from <https://www.ncbi.nlm.nih.gov/pubmed/34884952>

Hoek, J, Schoenmakers, S, Baart, EB, Koster, MPH, Willemsen, SP, van Marion, ES et al (2020). Preconceptional Maternal Vegetable Intake and Paternal Smoking Are Associated with Pre-implantation Embryo Quality. *Reprod Sci*. Available from: <https://www.ncbi.nlm.nih.gov/pubmed/32542536>

3.6.4 Contraception

Hunninghake, J, Murray, BP, Ferraro, D, Gancayco, J. Acute intestinal ischaemia from a portal vein thrombosis in a young female smoker on an oral contraceptive. *BMJ Case Rep*. 2018 Aug 4;2018. Available from: <https://www.ncbi.nlm.nih.gov/pubmed/30077981>

Velasquez MM, von Sternberg KL, Floyd RL, Parrish D, Kowalchuk A, et al. Preventing alcohol and tobacco exposed pregnancies: Choices plus in primary care. *Am J Prev Med*, 2017; 53(1):85-95. Available from: <http://www.ncbi.nlm.nih.gov/pubmed/28427955>

3.6.5 Sexual function

Li, X, Li, Y, Xiang, B, Liu, L, Zhang, C, Li, Z, & Li, D. (2024). Interaction of smoking and spicy habits modifies the risk of erectile dysfunction. *Transl Androl Urol*, 13(7), 1206-1218. Retrieved from <https://www.ncbi.nlm.nih.gov/pubmed/39100824>

Hassan, MA, Mohamed, IA, Omar, AA, Adan, ZM, Garba, B, & Badawi, OH. (2024). Sildenafil Use and Cigarette Smoking Associated with Intracerebral Hemorrhage: A Rare Case Report. *Vasc Health Risk Manag*, 20, 21-26. Retrieved from <https://www.ncbi.nlm.nih.gov/pubmed/38222901>

Salari, N, Hasheminezhad, R, Abdolmaleki, A, Kiaei, A, Shohaimi, S, Akbari, H et al. (2022). The effects of smoking on female sexual dysfunction: a systematic review and meta-analysis. [MS Top Pick]. *Arch Womens Ment Health*. Retrieved from <https://www.ncbi.nlm.nih.gov/pubmed/36445469>

Mima, M, Huang, JB, Andriole, GL, Freedland, SJ, Ohlander, SJ, & Moreira, DM. (2022). The impact of smoking on sexual function. *BJU Int*. Retrieved from <https://www.ncbi.nlm.nih.gov/pubmed/35166438>

Zaghloul, AS, Mahmoud ElNashar, AER, GamalEl Din, SF, Zaki Said, S, Saad, HM, Refaat Eldebs, H, & Abdel Latif Osman, I. (2021). Smoking status and the baseline international index of erectile function score can predict satisfactory response to platelet-rich plasma in patients with erectile dysfunction: A prospective pilot study. *Andrologia*, e14162. Retrieved from <https://www.ncbi.nlm.nih.gov/pubmed/34196015>

Ju, R, Ruan, X, Xu, X, Yang, Y, Cheng, J, Zhang, L et al (2021). Importance of active and passive smoking as one of the risk factors for female sexual dysfunction in Chinese women. *Gynecol Endocrinol*, 1-5. Retrieved from <https://www.ncbi.nlm.nih.gov/pubmed/34027789>

J, T, B, F, J, M, J, K, & T, D. (2021). Smoking in women with chronic vaginal discomfort is not associated with decreased abundance of Lactobacillus spp. but promotes Mobiluncus and Gardnerella spp. overgrowth - secondary analysis of trial data including microbio-me analysis. *Ceska Gynekol*, 86(1), 22-29. Retrieved from <https://www.ncbi.nlm.nih.gov/pubmed/33752405>

Liu, Q, Peng, X, Gu, Y, Shang, X, Zhou, Y, Zhang, H et al (2021). Associations between smoking, sex hormone levels and late-onset hypogonadism in men differ depending on age. *Aging (Albany NY)*, 12. Retrieved from <https://www.ncbi.nlm.nih.gov/pubmed/33535188>

Da Ros, CT, & Facio, FN. (2020). Editorial Comment: Effect of smoking cessation on sexual function in men aged 30 to 60 years. *Int Braz J Urol*, 46(4), 649-650. Available from: <https://www.ncbi.nlm.nih.gov/pubmed/32374128>

Lin, JH, Ho, DR, Shi, CS, Chen, CS, Li, JM, & Huang, YC. (2020). The influence of smoking exposure and cessation on penile hemodynamics and corporal tissue in a rat model. *Transl Androl Urol*, 9(2), 637-645. Available from: <https://www.ncbi.nlm.nih.gov/pubmed/32420170>

Azab, SS, Salem, A, Ismail, NN, El Khat, Y, & El Gebally, MA. (2020). Penile hemodynamics study in erectile dysfunction men: the influence of smoking obesity on the parameters of penile duplex. *Int Urol Nephrol*. Available from: <https://www.ncbi.nlm.nih.gov/pubmed/32072389>

Aykurt Karlibel I, Dulger S, Kasapoglu Aksoy M, Guzelsoy M, Turkoglu AR, et al. Effect of cigarette smoking on sexual functions, psychological factors, and disease activity in male patients with ankylosing spondylitis. *Aging Male*, 2018:1-7. Available from: <https://www.ncbi.nlm.nih.gov/pubmed/29863428>

Wen LM, Rissel C, Cheng Y, Richters J, and de Visser RO. Tobacco smoking and sexual difficulties among australian adults: A cross-sectional study. *Sexual Health*, 2017; 14(4):313-9. Available from: <https://www.ncbi.nlm.nih.gov/pubmed/28514995>

Rew KT and Heidelbaugh JJ. Erectile dysfunction. *American Family Physician*, 2016; 94(10):820-7. Available from: <https://www.ncbi.nlm.nih.gov/pubmed/27929275>

Biebel MG, Burnett AL, and Sadeghi-Nejad H. Male sexual function and smoking. *Sex Med Rev*, 2016; 4(4):366-75. Available from: <https://www.ncbi.nlm.nih.gov/pubmed/27872030>

Aggarwal N, Kherada S, Gocher S, and Sohu M. A study of assessment of sexual dysfunction in male subjects with opioid dependence. *Asian J Psychiatr*, 2016; 23:17-23. Available from: <https://www.ncbi.nlm.nih.gov/pubmed/27969072>

Kovac JR, Labbate C, Ramasamy R, Tang D, and Lipshultz LI. Effects of cigarette smoking on erectile dysfunction. *Andrologia*, 2015; 47(10):1087-92. Available from: <https://www.ncbi.nlm.nih.gov/pubmed/25557907>

Huang YC, Chin CC, Chen CS, Shindel AW, Ho DR, et al. Chronic cigarette smoking impairs erectile function through increased oxidative stress and apoptosis, decreased nnos, endothelial and smooth muscle contents in a rat model. *PLoS ONE*, 2015; 10(10):e0140728. Available from: <http://www.ncbi.nlm.nih.gov/pubmed/26491965>

Costa RM and Peres L. Smoking is unrelated to female sexual function. *Substance Use and Misuse*, 2015; 50(2):189-94. Available from: <https://www.ncbi.nlm.nih.gov/pubmed/25290661>

Choi J, Shin DW, Lee S, Jeon MJ, Kim SM, et al. Dose-response relationship between cigarette smoking and female sexual dysfunction. *Obstet Gynecol Sci*, 2015; 58(4):302-8. Available from: <https://www.ncbi.nlm.nih.gov/pubmed/26217601>

Bolat MS, Akdeniz E, Ozkaya S, Batur AF, Kutman KG, et al. Smoking and lower urinary tract symptoms. *Urol J*, 2015; 12(6):2447-51. Available from: <http://www.ncbi.nlm.nih.gov/pubmed/26706744>

Tengs T and Osgood N. The link between smoking and impotence: Two decades of evidence. *Preventive Medicine*, 2001; 32(6):447–52. Available from: <https://pubmed.ncbi.nlm.nih.gov/11394947>

3.6.6 Sexually transmitted diseases (see instead 3.9.7 Infections of reproductive organs)

News reports:

3.6 Reproductive health

Smoking, pregnancy and fertility. (2021). Retrieved from <https://ash.org.uk/wp-content/uploads/2019/10/Smoking-Reproduction.pdf>

3.6.1 Menstrual function, menarche and menopause

No authors listed. Swedish study reveals combined effects of smoking and early menopause on overall mortality, in *News Medical* 2015. Available from: <http://www.news-medical.net/news/20150805/Swedish-study-reveals-combined-effects-of-smoking-and-early-menopause-on-overall-mortality.aspx>.

3.6.2 Fertility

Hamzelou J. Sperm age calculator tells men how decrepit their sperm are, in New Scientist2017. Available from: <https://www.newscientist.com/article/mg23631481-500-sperm-age-calculator-tells-men-how-decrepit-their-sperm-are/>.

Borrelli L. 6 ways cigarette smoking can lead to fertility problems. International Business Times, 2017. Available from: <http://www.ibtimes.com/6-ways-cigarette-smoking-can-lead-fertility-problems-2556871>

No authors listed. Smoking may have negative effects on sperm quality, in Medical News Today2016. Available from: <http://www.medicalnewstoday.com/releases/311119.php>.

Doyle K. More evidence that smoking worsens semen quality, in Reuters2016. Available from: <http://www.reuters.com/article/us-health-smoking-semen-idUSKCN0XQ280>.

Davies M. Even passive smoking may raise the risk of infertility by 20% and bring forward the menopause by 2 years. Mail on Sunday, 2015. Available from: <http://www.mailonsunday.co.uk/health/article-3360927/Even-PASSIVE-smoking-raise-risk-infertility-20-bring-forward-menopause-2-YEARS.html>

3.6.3 Treatment of infertility including assisted reproduction

3.6.4 Contraception

3.6.5 Sexual function

3.6.6 Sexually transmitted diseases (see instead 3.9.7 Infections of reproductive organs)