

Tobacco in Australia

Facts & Issues

Relevant news and research

6.11 Tolerance, dependence and withdrawal

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Research:

Buzzi, B, Koseli, E, Alkhlaif, Y, Parker, A, Mustafa, MA, Lichtman, AH et al. (2023). Differential roles of diacylglycerol lipase (DAGL) enzymes in nicotine withdrawal. *Brain Res*, 1817, 148483. Retrieved from <https://www.ncbi.nlm.nih.gov/pubmed/37442250>

Galiatsatos, P, Kaplan, B, Lansey, DG, & Ellison-Barnes, A. (2023). Tobacco Use and Tobacco Dependence Management. *Clin Chest Med*, 44(3), 479-488. Retrieved from <https://www.ncbi.nlm.nih.gov/pubmed/37517828>

Reed, BW, Doran, N, & Courtney, KE. (2023). Associations between nicotine product use and craving among stable daily and non-daily users. *Addict Behav*, 146, 107803. Retrieved from <https://www.ncbi.nlm.nih.gov/pubmed/37423069>

Strong, DR, Pierce, JP, White, M, Stone, MD, Abrams, DB, Glasser, AM et al. (2023). Changes in Tobacco Dependence and Association with Onset and Progression of Use by Product Type from Wave 1 to Wave 3 of the Population Assessment of Tobacco and Health (PATH) Study. *Nicotine Tob Res*. Retrieved from <https://www.ncbi.nlm.nih.gov/pubmed/37410879>

Carrette, LLG, Kimbrough, A, Davoudian, PA, Kwan, AC, Collazo, A, & George, O. (2023). Hyperconnectivity of two separate long-range cholinergic systems contributes to the reorganization of the brain functional connectivity during nicotine withdrawal in male mice. *bioRxiv*. Retrieved from <https://www.ncbi.nlm.nih.gov/pubmed/37034602>

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Gallagher, R, & Williscroft, D. (2022). Nicotine withdrawal as an unusual cause of terminal delirium. *Can Fam Physician*, 68(8), 591-593. Retrieved from <https://www.ncbi.nlm.nih.gov/pubmed/35961719>

Arakaki, S, & Minami, M. (2022). Role of noradrenergic transmission within the ventral bed nucleus of the stria terminalis in nicotine withdrawal-induced aversive behavior. *Neuropsychopharmacol Rep*. Retrieved from <https://www.ncbi.nlm.nih.gov/pubmed/35437943>

Tapia, MA, Jin, XT, Tucker, BR, Thomas, LN, Walker, NB, Kim, VJ et al. (2022). Relapse-like behavior and nAChR sensitization following intermittent access nicotine self-administration. *Neuropharmacology*, 212, 109066. Retrieved from <https://www.ncbi.nlm.nih.gov/pubmed/35461879>

Al-Shatnawi, SF, Alzoubi, KH, & Khabour, OF. (2021). Withdrawal Symptoms among Cigarette and Waterpipe Smokers: A Study in Natural Setting. *Clin Pract Epidemiol Ment Health*, 17, 114-120. Retrieved from <https://www.ncbi.nlm.nih.gov/pubmed/34733350>

Liautaud, MM, Kechter, A, Bello, MS, Guillot, CR, Oliver, JA, Banks, DE et al. (2021). Anhedonia in tobacco withdrawal among African-American smokers. *Exp Clin Psychopharmacol*. Retrieved from <https://www.ncbi.nlm.nih.gov/pubmed/34110886>

Taniguchi, C, Saka, H, Oze, I, Nakamura, S, Nozaki, Y, & Tanaka, H. (2020). Relationship between the strength of craving as assessed by the Tobacco Craving Index and success of quitting smoking in Japanese smoking cessation therapy. *PLoS One*, 15(12), e0243374. Retrieved from <https://www.ncbi.nlm.nih.gov/pubmed/33284809>

Klemperer, EM, Hughes, JR, Peasley-Miklus, CE, Callas, PW, Cook, JW, Streck, JM, & Morley, NE. (2020). Possible New Symptoms of Tobacco Withdrawal III: Reduced Positive Affect-A Review and Meta-analysis. *Nicotine Tob Res*. Available from: <https://www.ncbi.nlm.nih.gov/pubmed/32188995>

Ardeshiripur, M, Rhein, M, Frieling, H, Bleich, S, Hillemacher, T, Muschler, M, Glahn, A. Desacylghrelin but not acylghrelin is reduced during smoking cessation. *J Neural Transm (Vienna)*. 2018 Sep 24. pii: 10.1007/s00702-018-1930-0. Available from: <https://www.ncbi.nlm.nih.gov/pubmed/30251224>

Weigard, A, Huang-Pollock, C, Heathcote, A, Hawk, L, Schlienz, NJ. A cognitive model-based approach to testing mechanistic explanations for neuropsychological decrements during tobacco abstinence. *Psychopharmacology (Berl)*. 2018 Sep 4. pii: 10.1007/s00213-018-5008-3. Available from: <https://www.ncbi.nlm.nih.gov/pubmed/30182252>

Oberleitner LMS, Moore KE, Verplaetse T, Roberts W, and McKee SA. Developing a laboratory model of smoking lapse targeting stress and brief nicotine deprivation. *Experimental and Clinical Psychopharmacology*, 2018; 26(3):244-50. Available from: <https://www.ncbi.nlm.nih.gov/pubmed/29863382>

Schlienz NJ and Hawk LW. Probing the behavioral and neurophysiological effects of acute smoking abstinence on drug and nondrug reinforcement during a cognitive task. *Nicotine Tob Res*, 2017; 19(6):729-37. Available from: <http://www.ncbi.nlm.nih.gov/pubmed/28486713>

Frandsen M, Thorpe M, Shiffman S, and Ferguson S. A clinical overview of nicotine dependence and withdrawal, in *Negative affective states and cognitive impairments in nicotine dependence*. Hall S YJ, Der-Avakian A, Editor San Diego: Academic Press; 2017.

Bobashev G, Holloway J, Solano E, and Gutkin B. A Control theory model of smoking. *Methods Rep RTI Press*, 2017; 2017. Available from: <https://www.ncbi.nlm.nih.gov/pubmed/28868531>

Ben Taleb Z, Ward KD, Asfar T, Jaber R, Auf R, et al. Predictors of nicotine withdrawal symptoms: Findings from the first randomized smoking cessation trial in a low-income country setting. *Int J Public Health*, 2016. Available from: <http://www.ncbi.nlm.nih.gov/pubmed/27083449>

Bello MS, Pang RD, Chasson GS, Ray LA, and Leventhal AM. Obsessive-compulsive symptoms and negative affect during tobacco withdrawal in a non-clinical sample of african American smokers. *J Anxiety Disord*, 2016. Available from: <http://www.ncbi.nlm.nih.gov/pubmed/27769664>

Guillot CR, Stone MD, Geary BA, Kirkpatrick MG, Tidey JW, et al. Pharmacological, sensorimotor, and expectancy effects on tobacco withdrawal: A preliminary study. *Hum Psychopharmacol*, 2015. Available from: <http://www.ncbi.nlm.nih.gov/pubmed/26010521>

Bello MS, Pang RD, Cropsey KL, Zvolensky MJ, Reitzel LR, et al. Tobacco withdrawal amongst african American, hispanic, and white smokers. *Nicotine Tob Res*, 2015. Available from: <http://www.ncbi.nlm.nih.gov/pubmed/26482061>

Thompson-Lake DG, Cooper KN, Mahoney JJ, 3rd, Bordnick PS, Salas R, et al. Withdrawal symptoms and nicotine dependence severity predict virtual reality craving in cigarette-deprived smokers. *Nicotine Tob Res*, 2014. Available from: <http://www.ncbi.nlm.nih.gov/pubmed/25475087>

Pergadia M, Der-Avakian A, D'Souza M, Madden P, Health A, et al. Association between nicotine withdrawal and reward responsiveness in humans and rats. *JAMA Psychiatry*, 2014; 71:1238–45. Available from: <https://www.ncbi.nlm.nih.gov/pubmed/25208057>

Nakajima M and Al'Absi M. Nicotine withdrawal and stress-induced changes in pain sensitivity: A cross-sectional investigation between abstinent smokers and nonsmokers. *Psychophysiology*, 2014; 51(10):1015-22. Available from: <http://www.ncbi.nlm.nih.gov/pubmed/24934193>

Lazary J, Dome P, Csala I, Kovacs G, Faludi G, et al. Massive withdrawal symptoms and affective vulnerability are associated with variants of the chrna4 gene in a subgroup of smokers. *PLoS One*, 2014; 9(1):e87141. Available from: <http://www.ncbi.nlm.nih.gov/pubmed/24498031>

Hughes JR, Dash M, and Callas P. Is impulsivity a symptom of initial Tobacco withdrawal? A meta-analysis and qualitative systematic review. *Nicotine Tob Res*, 2014. Available from: <http://www.ncbi.nlm.nih.gov/pubmed/25335950>

Evans DE, Sutton SK, Oliver JA, and Drobles DJ. Cortical activity differs during nicotine deprivation versus satiation in heavy smokers. *Psychopharmacology (Berl)*, 2014. Available from: <http://www.ncbi.nlm.nih.gov/pubmed/25491928>

Cook JW, Piper ME, Leventhal AM, Schlam TR, Fiore MC, et al. Anhedonia as a component of the Tobacco withdrawal syndrome. *J Abnorm Psychol*, 2014. Available from: <http://www.ncbi.nlm.nih.gov/pubmed/25384069>

Advocat C, Comaty J, and Julien R, Julien's primer of drug action. 13 ed New York: Worth Publishers; 2014. Available from: <http://www.ncbi.nlm.nih.gov/nlmcatalog/101666863>.

McKim W and Hancock S, Drugs and behaviour: An introduction to behavioural pharmacology. 7 ed New York: Pearson; 2013.

American Psychiatric Association, *Diagnostic and statistical manual of mental disorders*. 5th ed Arlington, VA: American Psychiatric Association; 2013.

Ursprung WSA, Morello P, Gershenson B, and DiFranza JR. Development of a measure of the latency to needing a cigarette Journal of Adolescent Health, 2010; [Epub ahead of print]. Available from: <http://www.jahonline.org/article/PIIS1054139X10003423/fulltext>

Hughes J. Craving among long-abstinent smokers: An internet survey. Nicotine and Tobacco Research, 2010; 12(4):459-6. Available from: <http://ntr.oxfordjournals.org/cgi/content/full/ntq009v1>

Awaisu A, Samsudin S, Amir N, Omar C, Hashim M, et al. Measurement of nicotine withdrawal symptoms: Linguistic validation of the wisconsin smoking withdrawal scale (wsws) in malay. BMC Medical Research Methodology, 2010; 10(1):46. Available from: <http://www.ncbi.nlm.nih.gov/pmc/articles/PMC2882374/?tool=pubmed>

Perkins K, Briski J, Fonte C, Scott J, and Lerman C. Severity of tobacco abstinence symptoms varies by time of day. Nicotine and Tobacco Research, 2009; 11(1):84–91. Available from: <http://ntr.oxfordjournals.org/cgi/content/full/11/1/84>

Xu J, Azizian A, Monterosso J, Domier CP, Brody AL, et al. Gender effects on mood and cigarette craving during early abstinence and resumption of smoking. Nicotine and Tobacco Research, 2008; 10(11):1653–61. Available from: <http://www.informaworld.com/smpp/content~content=a905082643~db=all~order=page>

Rzetelny A, Gilbert DG, Hammersley J, Radtke R, Rabinovich NE, et al. Nicotine decreases attentional bias to negative-affect-related stroop words among smokers. Nicotine and Tobacco Research, 2008; 10(6):1029–36. Available from: <http://www.informaworld.com/smpp/content~content=a794493641~db=all~order=page>

Ríos-Bedoya CF, Snedecor SM, Pomerleau CS, and Pomerleau OF. Association of withdrawal features with nicotine dependence as measured by the Fagerström test for nicotine dependence (ftnd). Addictive Behaviors, 2008; 33(8):1086–9. Available from: http://www.sciencedirect.com/science?_ob=ArticleURL&_udi=B6VC9-4S7J5R5-6&_user=10&_rdoc=1&_fmt=&_orig=search&_sort=d&_view=c&_acct=C000050221&_version=1&_urlVersion=0&_userid=10&md5=c09c6303bcad0f2e6c98b84ece9301e6

McClernon F, Kozink R, Lutz A, and Rose J. 24-h smoking abstinence potentiates fmri-bold activation to smoking cues in cerebral cortex and dorsal striatum Psychopharmacology, 2008; 204(1):25-35. Available from: <http://www.springerlink.com/content/d61j1282h57wj780/>

Leventhal A, Waters A, Breitmeyer B, Miller E, Tapia E, et al. Subliminal processing of smoking-related and affective stimuli in tobacco addiction. Experimental and Clinical Psychopharmacology, 2008; 16(4):301–12. Available from:

http://www.ncbi.nlm.nih.gov/pubmed/18729684?ordinalpos=32&itool=EntrezSystem2.PEntrez.Pubmed.Pubmed_ResultsPanel.Pubmed_RVBrief

Hughes JR. Effects of abstinence from tobacco: Etiology, animal models, epidemiology, and significance: A subjective review. *Nicotine and Tobacco Research*, 2007; 9(3):329-39. Available from: <http://www.ncbi.nlm.nih.gov/pubmed/17365765>

Baumann S and Sayette M. Smoking cues in a virtual world provoke craving in cigarette smokers. *Psychology of Addictive Behaviors*, 2006; 20(4):484–9. Available from: <http://psycnet.apa.org/index.cfm?fa=main.landing>

Pizzagalli DA, Jahn AL, and O'Shea JP. Toward an objective characterization of an anhedonic phenotype: A signal-detection approach. *Biol Psychiatry*, 2005; 57(4):319–27. Available from: <https://www.ncbi.nlm.nih.gov/pubmed/15705346>

Bordnick P, Graap K, Copp H, Brooks J, and Ferrer M. Virtual reality cue reactivity assessment in cigarette smokers. *Cyberpsychology & Behavior*, 2005; 8(5):487–92. Available from: <http://www.liebertonline.com/doi/abs/10.1089/cpb.2005.8.487>

Godding V, Bonnier C, Fiasse L, Michel M, Longueville E, et al. Does in utero exposure to heavy maternal smoking induce nicotine withdrawal symptoms in neonates? *Pediatric Research*, 2004; 55(4):645-51. Available from: <http://www.ncbi.nlm.nih.gov/pubmed/14739371>

Piasecki T, Jorenby D, Smith S, Fiore M, and Baker T. Smoking withdrawal dynamics: Iii. Correlates of withdrawal heterogeneity. *Experimental and Clinical Psychopharmacology*, 2003; 11(4):276–85. Available from: <http://psycnet.apa.org/index.cfm?fa=main.landing>

Perkins KA. Chronic tolerance to nicotine in humans and its relationship to tobacco dependence. *Nicotine Tob Res*, 2002; 4(4):405–22. Available from: <https://www.ncbi.nlm.nih.gov/pubmed/12521400>

Shadel W, Niaura R, and Abrams D. Effect of different cue stimulus delivery channels on craving reactivity: Comparing in vivo and video cues in regular cigarette smokers. *Journal of Behavior Therapy and Experimental Psychiatry*, 2001; 32(4):203–9. Available from: <http://cat.inist.fr/?aModele=afficheN&cpsidt=13721862>

Hughes J, Higgins S, and Bickel W. Nicotine withdrawal versus other drug withdrawal syndromes: Similarities and dissimilarities. *Addiction*, 1994; 89(11):1461-70. Available from: <http://www.ncbi.nlm.nih.gov/pubmed/7841857>

Hughes J. Tobacco withdrawal in self-quitters. *Journal of Consulting and Clinical Psychology*, 1992; 60:689-97. Available from: <http://www.ncbi.nlm.nih.gov/pubmed/1401384>

News reports:

Malm S. Airline passenger is tied up after arguing with cabin crew who kept catching him trying to smoke a cigarette during 7½ hour flight. *Daily Mail*, 2014. Available from:

<http://www.mailonsunday.co.uk/news/article-2532551/Airline-passenger-tied-arguing-cabin-crew-kept-catching-trying-smoke-cigarette-7-flight.html>