

Supplementary Material

Table S1: Complete Search Strategies by Database.

Database	Terms	Observations*
PubMed	(("Caffeine"[Mesh] OR "Caffeine"[tw] OR "caffeinated"[tw] OR "coffee"[tw] OR "tea"[tw]) AND ("Cognition"[Mesh] OR "Cognition Disorders"[Mesh] OR "Memory"[Mesh] OR "Attention"[Mesh] OR "cognitive function"[tw] OR "cognitive performance"[tw] OR "executive function*"[tw] OR "memory"[tw] OR "attention"[tw] OR "reaction time"[tw]) AND ("Healthy Volunteers"[Mesh] OR "Adult"[Mesh] OR "healthy adult*"[tw] OR "healthy volunteers"[tw] OR "healthy people"[tw])) AND ("Randomized Controlled Trial"[ptyp] OR "Observational Study"[ptyp] OR "Cohort Studies"[Mesh])	Filters applied: Time period 2015–2025, Language English, Adults 18–60 years. Exclusions: athletes, children, elderly, non-cognitive outcomes.
Embase	('caffeine'/exp OR caffeine:ti,ab OR caffeinated:ti,ab OR coffee:ti,ab) AND ('cognition'/exp OR 'cognitive function*':ti,ab OR 'cognitive performance':ti,ab OR 'executive function*':ti,ab OR memory:ti,ab OR attention:ti,ab OR 'reaction time':ti,ab) AND ('healthy volunteer'/exp OR 'healthy adult*':ti,ab OR 'healthy people':ti,ab OR 'healthy volunteers':ti,ab) AND ('randomized controlled trial'/exp OR 'observational study'/exp OR 'cohort analysis'/exp)	Filters applied: Time period 2015–2025, Language English, Population healthy adults 18–60 years. Exclusions: sports, pediatric or geriatric populations.
Scopus	(TITLE-ABS-KEY(caffeine OR caffeinated OR coffee) AND TITLE-ABS-KEY("cognitive function" OR "cognitive performance" OR "executive function*" OR memory OR attention OR "reaction time") AND TITLE-ABS-KEY("healthy adult*" OR "healthy people" OR "healthy volunteers") AND TITLE-ABS-KEY("randomized controlled trial" OR "observational study" OR cohort))	Filters applied: Time period 2015–2025, Language English, Subject area: health sciences, neuroscience, psychology. Exclusions: athletes, children, elderly.
Web of Science	TS=(caffeine OR caffeinated OR coffee) AND TS=("cognitive function" OR "cognitive performance" OR "executive function*" OR memory OR attention OR "reaction time") AND TS=("healthy adult*" OR "healthy people" OR "healthy volunteers") AND TS=("randomized controlled trial" OR "observational study" OR cohort)	Filters applied: Time period 2015–2025, Language English, Research areas: clinical research, neuroscience, psychology. Exclusions: athletes, children, elderly participants.

*The search strategy was developed and verified independently by two reviewers using the PICO framework. Duplicates were automatically removed in Covidence based on author, title, and year. Manual checks were performed to confirm duplicate removal.

Table S2: Full-text Articles Excluded with Reasons.

N°	Author(s) (year)	Reference	Reasons for exclusion
1	Ansari SM et al. (2017)	Effect of caffeine on cognition in young adults. 61(5):108–109.	Congress abstract
2	Aust F et al. (2020)	The enhancing effect of 200 mg caffeine on mnemonic discrimination is at best small. Memory 28(7):858–869. doi:10.1080/09658211.2020.1781899	Wrong study design
3	Avvenuti G et al. (2020)	Self-control performance, but not subjective vigilance level, decreases after brief periods of task practice and increases following caffeine intake. J Sleep Res 29(Suppl 1). doi:10.1111/jsr.13181	Wrong study design
4	Balcı C et al. (2025)	The effects of caffeine mouth rinsing on selective attention... Psychopharmacology 242(3):579–592. doi:10.1007/s00213-024-06710-w	Wrong patient population
5	Ben Waer F et al. (2023)	Effects of 12 weeks of caffeine supplementation and Zumba training... Health Care Women Int 44(12):1601–1621. doi:10.1080/07399332.2023.2219991	Wrong intervention
6	Berg J et al. (2021)	Acute caffeine intake in humans reduces post-exercise performance in learning and memory. Hum Psychopharmacol 36(3):e2775. doi:10.1002/hup.2775	Wrong outcomes
7	Bessman SC et al. (2015)	Exploring the influence of sleep inertia severity on utility of a caffeine gum countermeasure. 38:A97.	Wrong setting
8	Boolani A et al. (2020)	Caffeine-containing, adaptogenic-rich drink modulates the effects of caffeine... Nutrients 12(7). doi:10.3390/nu12071922	Wrong intervention
9	Bougrine H et al. (2024)	Effects of various caffeine doses on cognitive abilities in female athletes with low caffeine consumption. Brain Sci 14(3):0280. doi:10.3390/brainsci14030280	Wrong patient population
10	Carswell AT et al. (2020)	The effect of caffeine on cognitive performance is influenced by CYP1A2... Eur J Appl Physiol 120(7):1495–1508. doi:10.1007/s00421-020-04384-8	Wrong comparator
11	Cooper RK et al. (2021)	Caffeine enhances sustained attention among adolescents. Exp Clin Psychopharmacol 29(1):82–89. doi:10.1037/pha0000364	Wrong patient population
12	Cornelis MC et al. (2020)	Recent caffeine drinking associates with cognitive function in the UK Biobank. Nutrients 12(7). doi:10.3390/nu12071969	Wrong study design
13	de Almeida RF et al. (2023)	Effects of acute caffeine ingestion... in professional soccer players. Nutrients 15(14). doi:10.3390/nu15143094	Wrong patient population
14	De Pauw K et al. (2015)	Effects of caffeine and maltodextrin mouth rinsing on P300, brain imaging, and cognitive performance. J Appl Physiol 118(6):776–782. doi:10.1152/jappphysiol.01050.2014	Wrong outcomes
15	Fuller DT et al. (2021)	Trait energy and fatigue modify the effects of caffeine... Nutrients 13(2). doi:10.3390/nu13020412	Wrong study design
16	Haskell-Ramsay CF et al. (2018)	Acute effects of three doses of caffeine on attention, motor speed and mood over 8 hours. Appetite 130:306–307. doi:10.1016/j.appet.2018.05.197	Congress abstract
17	Häusser JA et al. (2014)	The effects of caffeine on option generation and subsequent choice. Psychopharmacology 231(18):3719–3727. doi:10.1007/s00213-014-3506-5	Wrong outcomes
18	Huertas F et al. (2019)	Caffeine intake modulates the functioning of attentional networks... Sci Rep 9:10043. doi:10.1038/s41598-019-46524-x	Wrong patient population

19	Jackson PA et al. (2022)	Acute cognitive performance and mood effects of coffee berry and apple extracts. <i>Nutr Neurosci</i> 25(11):2335–2343. doi:10.1080/1028415X.2021.1963068	Wrong intervention
20	Kahathuduwa CN et al. (2018)	L-theanine and caffeine improve target-specific attention... <i>Nutr Res</i> 49:67–78. doi:10.1016/j.nutres.2017.11.002	Wrong study design
21	Karayigit R et al. (2020)	Effects of different doses of caffeinated coffee... in caffeine-naive female athletes. <i>Nutrients</i> 13(1). doi:10.3390/nu13010002	Wrong patient population
22	Kline GM; Millard JT (2019)	Effect of genotype on the ergogenic effects of caffeine in collegiate distance runners. <i>FASEB J</i> 33(Suppl 1):469.1. Cognitive performance and mood following ingestion of a theacrine-containing dietary supplement, caffeine, or placebo. <i>Nutrients</i> 7(11):9618–9632. doi:10.3390/nu7115484	Congress abstract
23	Kuhman DJ et al. (2015)	Can caffeine intake combined with aerobic exercise improve attention and psychomotor performance? <i>IBROR</i> 8:76–81. doi:10.1016/j.ibror.2020.01.002	Wrong intervention
24	Machado S et al. (2020)	Stress response to VR-based active shooter training: impact of caffeine consumption. <i>Psychoneuroendocrinology</i> 161:106923. doi:10.1016/j.psyneuen.2023.106923	Wrong outcomes
25	McAllister MJ et al. (2024)	The effect of caffeinated chewing gum on cognitive performance in night-shift emergency physicians. <i>Acute beneficial effects of a functional energy shot on cognitive performance and mood... Front Nutr</i> 11:1496092. doi:10.3389/fnut.2024.1496092	Wrong setting
26	NCT06693505 (2024)	Effect of caffeine on attention and alertness measured in a home-setting, using web-based cognition tests. <i>Early absorption sources of caffeine to improve table tennis performance. J Int Soc Sports Nutr</i> 20(1):2282051. doi:10.1080/15502783.2023.2282051	Wrong intervention
27	O’Shea OK et al. (2024)	Moderate doses of caffeine improve intermittent exercise performance and executive function in female team athletes... <i>Science & Sports</i> . doi:10.1016/j.scispo.2024.02.005	Congress abstract
28	Pasman W et al. (2015)	Effects of different doses of caffeine on cognitive performance in healthy physically active individuals. <i>Eur J Nutr</i> 63(8):3025–3035. doi:10.1007/s00394-024-03486-9	Wrong patient population
29	Pirmohammadi S et al. (2023)	Effects of caffeine ingestion on dynamic visual acuity. <i>Psychopharmacology</i> 238(12):3391–3398. doi:10.1007/s00213-021-05953-1	Wrong patient population
30	Quan L et al. (2025)	Whole coffee cherry extract improves working memory and response inhibition. <i>Nutrients</i> 16(14):2348. doi:10.3390/nu16142348	Wrong outcomes
31	Ramírez-de la Cruz M et al. (2024)	Study of neurophysiological impact of caffeine using Stroop task. <i>Indian J Physiol Pharmacol</i> 60(5 Suppl 1):69. Effects of caffeine on simulated match, Wingate test, and cognition in elite taekwondo athletes. <i>Nutrients</i> 14(16). doi:10.3390/nu14163398	Wrong intervention
32	Redondo B et al. (2021)	Acute guarana ingestion vs. low-dose caffeine: mental performance and vagal modulation. <i>Nutrients</i> 16(12). doi:10.3390/nu16121892	Congress abstract
33	Robinson JL et al. (2024)	Acute effects of caffeine on threat-selective attention. <i>Biol Psychol</i> 136:100–110. doi:10.1016/j.biopsycho.2018.05.006	Wrong patient population
34	Srivastava N; Sarkar D (2016)	Effect of prior caffeine consumption on neuropsychological test performance: placebo-controlled study. <i>Dement Geriatr Cogn Disord</i> 41(3–4):146–151. doi:10.1159/000443952	Wrong study design
35	Sun F et al. (2022)		Wrong outcomes
36	Talik TN et al. (2024)		Wrong patient population
37	van Son D et al. (2018)		Wrong patient population
38	Walters ER; Lesk VE (2016)		Wrong patient population

39	Wang C et al. (2020)	Effects of various doses of caffeine ingestion on intermittent exercise performance and cognition. <i>Brain Sci</i> 10(9):1–12. doi:10.3390/brainsci10090595	Wrong patient population
40	Wu SH et al. (2024)	Caffeine improves cognitive abilities and shooting performance of elite e-sports players: crossover trial. <i>Sci Rep</i> 14:2074. doi:10.1038/s41598-024-52599-y	Wrong patient population
41	Yoo C et al. (2024)	Paraxanthine provides greater improvement in cognitive function than caffeine after a 10-km run. <i>J Int Soc Sports Nutr</i> 21(1):2352779. doi:10.1080/15502783.2024.2352779	Wrong patient population

This table lists all records excluded during full-text screening, with specific reasons, as recommended by the Cochrane Handbook and PRISMA 2020. Data was exported from Covidence and verified by two independent reviewers.