

Acute Stress And Intestinal Permeability Systematic Review Search Statement And Strategies for Methods Section

The review team worked with 2 social sciences librarians (SAD & VAR) to create detailed search strings for this systematic review. The librarians constructed and ran the searches, beginning with a preliminary search in PubMed (NLM). The preliminary search for PubMed (NLM) was revised several times and accepted by the PI (AAM) on 2026-05-19. The librarians translated the search strategy for the rest of the databases: Embase (Elsevier), APA PsycINFO (EBSCO), Web of Science Core Collection Science Citation Index Expanded (Clarivate), and BIOSIS Citation Index (Clarivate). Database search strings were constructed using controlled vocabularies available for specific databases as well as keyword, title, and abstract searching. No publication type or language restrictions were applied and all databases were searched from their inception. A grey literature search was conducted in Cochrane Central Register of Controlled Trials (Wiley) and ProQuest Dissertations & Theses Global (ProQuest) with the understanding that the research team would conduct grey literature and hand searches in relevant websites, organizations, and other sources. A final search of databases and grey literature was conducted on 2026-06-05 and found 2,137 results. The librarians exported all results into EndNote 2025, which found 199 duplicates within the results, leaving 1,839 records for the team to screen in Covidence.

Appendix X - Search strategies

PubMed (NLM) Database, last searched 2026-06-05, no limits, 1155 results

Search number	Search strategy	Results
#1	"acute stress*" [tiab] OR "acute stress induced" [tiab:~0] OR "stress* induc*" [tiab] OR "acute stress induction" [tiab:~0] OR "acute stress response" [tiab:~0] OR "elicit acute stress" [tiab:~0] OR "acute stressor response" [tiab:~0] OR "acute mental stress" [tiab:~0] OR "acute psychological stress" [tiab] OR "acute psychosocial stress" [tiab] OR "acute stress conditions" [tiab:~0] OR "Trier Social Stress Test" [tiab] OR "Maastricht Acute Stress Test" [tiab] OR "speech stressor*" [tiab] OR "arithmetic stressor*" [tiab] OR ("acute" [tiab] AND ("stress test*" [tiab] OR "laboratory task*" [tiab] OR "anger recall" [tiab] OR "Mental arithmetic" [tiab] OR "learning task*" [tiab] OR "recall task*" [tiab] OR "mirror trac*" [tiab] OR "Cyberball" [tiab] OR "ball toss*" [tiab]))	87852
#2	"Intestinal Barrier Function" [Mesh] OR permeability [mesh] OR "Intestinal Mucosa Barrier Function" [tiab] OR "Intestinal Permeability" [tiab] OR "Intestinal	74810

	Permeabilities"[tiab:~0] OR "Permeability, Intestinal"[tiab] OR "Intestinal Barrier Permeability"[tiab] OR "intestinal Barrier Permeabilities"[tiab:~0] OR "Intestinal Mucosa Barrier Permeability"[tiab] OR "Intestinal Mucosal Barrier Permeability"[tiab] OR "Intestinal Mucosal Permeability"[tiab] OR "Intestinal Mucosal Permeabilities"[tiab:~0] OR "Intestinal Mucosa Permeability"[tiab] OR "Intestinal Mucosa Permeabilities"[tiab:~0] OR "gut permeability"[tiab] OR "leaky gut"[tiab] OR "microbial translocation"[tiab] or "intestinal epithelial damage"[tiab] or "gut epithelial damage"[tiab]	
#3	#1 AND #2	1155

Search number	Search strategy	Results
#1	'acute stress'/de OR 'trier social stress test'/de OR 'acute stress*':ti,ab,kw OR 'stress, acute':ti,ab,kw OR 'stress*-induc*':ti,ab,kw OR 'acute stress* response':ti,ab,kw OR 'elicit acute stress':ti,ab,kw OR 'acute mental stress':ti,ab,kw OR 'acute psychological stress':ti,ab,kw OR 'acute stress conditions':ti,ab,kw OR 'trier social stress':ti,ab,kw OR 'maastricht acute stress test':ti,ab,kw OR 'speech stressor*':ti,ab,kw OR 'arithmetic stressor*':ti,ab,kw OR ('acute':ti,ab,kw AND ('stress test*':ti,ab,kw OR 'laboratory task*':ti,ab,kw OR 'anger recall':ti,ab,kw OR 'mental arithmetic'/de OR 'mental arithmetic':ti,ab,kw OR 'mental calculation':ti,ab,kw OR 'learning task*':ti,ab,kw OR 'recall task*':ti,ab,kw OR 'mirror trac*':ti,ab,kw OR 'cyberball':ti,ab,kw OR 'ball toss*':ti,ab,kw))	115,125
#2	'intestinal barrier function'/de OR 'intestinal mucosa barrier function'/de OR 'intestinal permeability'/de OR 'intestinal permeabilities':ti,ab,kw OR 'permeability intestinal':ti,ab,kw OR 'intestinal barrier permeability'/de OR 'intestinal barrier permeabilities':ti,ab,kw OR 'intestinal mucosa barrier permeability'/de OR 'intestinal mucosal barrier permeability'/de OR 'intestinal mucosal permeability'/de OR 'intestinal mucosal permeabilities':ti,ab,kw OR 'intestinal mucosa permeability'/de OR 'intestinal mucosa permeabilities':ti,ab,kw OR 'gut permeability'/de OR 'leaky gut'/de OR 'microbial translocation'/de OR 'intestinal epithelial damage':ti,ab,kw OR 'gut epithelial damage':ti,ab,kw	16,513
#3	#1 AND #2	241

Embase (Elsevier), Database, last searched 2026-06-05, 241 results

Search number	Search strategy	Results
S1	DE ("acute stress" OR "Academic Stress" OR "Digital Stress" OR "Perceived Stress" OR "Psychological Stress" OR "Social Stress" OR "Stress Reactions" OR "Posttraumatic Stress" OR "Burnout" OR "Compassion Fatigue" OR "Hypervigilance" OR "Psychophysiological Stress Response" OR "Stress Resilience" OR "Athletic Burnout" OR "Job Burnout" OR "Fight-or-Flight Response")	45,438
S2	XB (acute N3 (stress OR "Academic Stress" OR "Digital Stress" OR "Perceived Stress" OR "Psychological Stress" OR "Social Stress" OR "Stress Reactions" OR "Posttraumatic Stress" OR "Burnout" OR "Compassion Fatigue" OR "Hypervigilance" OR "Psychophysiological Stress Response" OR "Stress Resilience" OR "Athletic Burnout" OR "Job Burnout" OR "Fight-or-Flight Response" OR distress OR agitation))	9,482
S3	XB ("Trier Social Stress Test" OR "Maastricht Acute Stress Test" OR "speech stressor*" OR "arithmetic stressor*" OR (acute AND ("stress test*" OR "laboratory task*" OR "anger recall" OR "Mental arithmetic" OR "learning task*" OR "recall task*" OR "mirror trac*" OR "Cyberball" OR "ball toss*")))	2,400
S4	S1 OR S2 OR S3	52,605
S5	DE "Gut-Brain Axis" OR DE "Gastrointestinal System" OR DE "Gastrointestinal Microbiota"	3,219
S6	XB ("Gut-Brain Axis" OR "brain-gut axis" OR "Gastrointestinal System" OR "Gastrointestinal Microbiota" OR "Intestinal Barrier Function" OR "Intestinal Mucosa Barrier Function" OR "Intestinal Permeability" OR "Intestinal Permeabilities" OR "Permeability, Intestinal" OR "Intestinal Barrier Permeability" OR "intestinal Barrier Permeabilities" OR "Intestinal Mucosa Barrier Permeability" OR "Intestinal Mucosal Barrier Permeability" OR "Intestinal Mucosal Permeability" OR "Intestinal Mucosal Permeabilities" OR "Intestinal Mucosa Permeability" OR "Intestinal Mucosa Permeabilities" OR "gut permeability" OR "leaky gut" OR "microbial translocation" OR "intestinal epithelial damage" OR "gut epithelial damage")	1,767
S7	S5 OR S6	4,169
S8	S4 AND S7	119

APA PsycInfo (EBSCO) Database, last searched 2026-06-05, no limits, 119 results

Web of Science, Science Citation Index: Database, last searched 2026-06-05, no limits, 337 results

Search number	Search strategy	Results
#1	TS=("acute stress*" OR "acute stress induced" OR "stress* induc*" OR "acute stress induction" OR "acute stress response" OR "elicit acute stress" OR "acute stressor response" OR "acute mental stress" OR "acute psychological stress" OR "acute stress conditions" OR "Trier Social Stress Test" OR "Maastricht Acute Stress Test" OR "speech stressor*" OR "arithmetic stressor*" OR ("acute" NEAR/5 ("stress test*" OR "laboratory task*" OR "anger recall" OR "Mental arithmetic" OR "learning task*" OR "recall task*" OR "frustration recall" OR "mirror trac*" OR "Cyberball" OR "ball toss*")))	115809
#2	TS=("Intestinal Barrier Function" OR "Intestinal Mucosa Barrier Function" OR "Intestinal Permeability" OR "Intestinal Permeabilities" OR "permeability intestinal" OR "Intestinal Barrier Permeability" OR "intestinal Barrier Permeabilities" OR "Intestinal Mucosa Barrier Permeability" OR "Intestinal Mucosal Barrier Permeability" OR "Intestinal Mucosal Permeability" OR "Intestinal Mucosal Permeabilities" OR "Intestinal Mucosa Permeability" OR "Intestinal Mucosa Permeabilities" OR "gut permeability" OR "leaky gut" OR "microbial translocation" OR "intestinal epithelial damage" OR "gut epithelial damage")	22,915
#3	#1 AND #2	337

Web of Science, BIOSIS Citation Index: Database, last searched 2026-06-05, no limits, 250 results

Search#	Search strategy	Results
1	TS=("acute stress*" OR "acute stress induced" OR "stress* induc*" OR "acute stress induction" OR "acute stress response" OR "elicit acute stress" OR "acute stressor response" OR "acute mental stress" OR "acute psychological stress" OR	85,021

	"acute stress conditions" OR "Trier Social Stress Test" OR "Maastricht Acute Stress Test" OR "speech stressor*" OR "arithmetic stressor*" OR ("acute" NEAR/5 ("stress test*" OR "laboratory task*" OR "anger recall" OR "Mental arithmetic" OR "learning task*" OR "recall task*" OR "frustration recall" OR "mirror trac*" OR "Cyberball" OR "ball toss*"))	
2	TS=("Intestinal Barrier Function" OR "Intestinal Mucosa Barrier Function" OR "Intestinal Permeability" OR "Intestinal Permeabilities" OR "permeability intestinal" OR "Intestinal Barrier Permeability" OR "intestinal Barrier Permeabilities" OR "Intestinal Mucosa Barrier Permeability" OR "Intestinal Mucosal Barrier Permeability" OR "Intestinal Mucosal Permeability" OR "Intestinal Mucosal Permeabilities" OR "Intestinal Mucosa Permeability" OR "Intestinal Mucosa Permeabilities" OR "gut permeability" OR "leaky gut" OR "microbial translocation" OR "intestinal epithelial damage" OR "gut epithelial damage")	14,306
3	#1 AND #2	<u>250</u>

Cochrane Central Register of Controlled Trials (Wiley), Database, last searched 2026-06-05, limit to trials, 8 results

Search number	Search strategy	Results
#1	"acute stress" OR "acute stress induced" OR "acute stress induction" OR "acute stress response" OR "elicit acute stress" OR "acute stressor response" OR "acute mental stress" OR "acute psychological stress" OR "acute stress conditions" OR "Trier Social Stress Test" OR "Maastricht Acute Stress Test" OR "speech stressor" OR "arithmetic stressor" OR ("acute" NEAR ("stress test" OR "laboratory task" OR "anger recall" OR "Mental arithmetic" OR "learning task" OR "recall task" OR "frustration recall" OR "mirror tracing" OR Cyberball OR "ball toss")):ti,ab,kw	1902
#2	("Intestinal Barrier Function" OR "Intestinal Mucosa Barrier Function" OR "Intestinal Permeability" OR "Intestinal Permeabilities" OR "permeability intestinal" OR "Intestinal Barrier Permeability" OR "intestinal Barrier Permeabilities" OR "Intestinal Mucosa Barrier Permeability" OR "Intestinal Mucosal Barrier Permeability" OR "Intestinal Mucosal Permeability" OR "Intestinal Mucosal Permeabilities" OR "Intestinal Mucosa Permeability" OR "Intestinal Mucosa Permeabilities" OR "gut permeability" OR "leaky gut" OR "microbial translocation" OR "intestinal epithelial damage" OR "gut epithelial damage")	1745

#3	#1 AND #2	8
#4	Limit: Trials	8

ProQuest Dissertations & Theses Global (ProQuest), Database, last searched 2026-06-05, no limits, 35 results

Search number	Search strategy	Results
1	title("acute stress*" OR "acute stress induced" OR "stress* induc*" OR "acute stress induction" OR "acute stress response" OR "elicit acute stress" OR "acute stressor response" OR "acute mental stress" OR "acute psychological stress" OR "acute psychosocial stress" OR "acute stress conditions" OR "Trier Social Stress Test" OR "Maastricht Acute Stress Test" OR "speech stressor*" OR "arithmetic stressor*" OR ("acute" AND ("stress test*" OR "laboratory task*" OR "anger recall" OR "Mental arithmetic" OR "learning task*" OR "recall task*" OR "mirror trac*" OR "Cyberball" OR "ball toss*")) OR (acute NEAR/3 (stress OR "Academic Stress" OR "Digital Stress" OR "Perceived Stress" OR "Psychological Stress" OR "Social Stress" OR "Stress Reactions" OR "Posttraumatic Stress" OR "Burnout" OR "Compassion Fatigue" OR "Hypervigilance" OR "Psychophysiological Stress Response" OR "Stress Resilience" OR "Athletic Burnout" OR "Job Burnout" OR "Fight-or-Flight Response" OR distress OR agitation))) OR abstract("acute stress*" OR "acute stress induced" OR "stress* induc*" OR "acute stress induction" OR "acute stress response" OR "elicit acute stress" OR "acute stressor response" OR "acute mental stress" OR "acute psychological stress" OR "acute psychosocial stress" OR "acute stress conditions" OR "Trier Social Stress Test" OR "Maastricht Acute Stress Test" OR "speech stressor*" OR "arithmetic stressor*" OR ("acute" AND ("stress test*" OR "laboratory task*" OR "anger recall" OR "Mental arithmetic" OR "learning task*" OR "recall task*" OR "mirror trac*" OR "Cyberball" OR "ball toss*")) OR (acute NEAR/3 (stress OR "Academic Stress" OR "Digital Stress" OR "Perceived Stress" OR "Psychological Stress" OR "Social Stress" OR "Stress Reactions" OR "Posttraumatic Stress" OR "Burnout" OR "Compassion Fatigue" OR "Hypervigilance" OR "Psychophysiological Stress Response" OR "Stress Resilience" OR "Athletic Burnout" OR "Job Burnout" OR "Fight-or-Flight Response" OR distress OR agitation)))	10246
2	title("Gut-Brain Axis" OR "brain-gut axis" OR "Gastrointestinal System" OR "Gastrointestinal Microbiota" OR "Intestinal Barrier Function" OR "Intestinal	1634

	Mucosa Barrier Function" OR "Intestinal Permeability" OR "Intestinal Permeabilities" OR "Permeability, Intestinal" OR "Intestinal Barrier Permeability" OR "intestinal Barrier Permeabilities" OR "Intestinal Mucosa Barrier Permeability" OR "Intestinal Mucosal Barrier Permeability" OR "Intestinal Mucosal Permeability" OR "Intestinal Mucosal Permeabilities" OR "Intestinal Mucosa Permeability" OR "Intestinal Mucosa Permeabilities" OR "gut permeability" OR "leaky gut" OR "microbial translocation" OR "intestinal epithelial damage" OR "gut epithelial damage") OR abstract("Gut-Brain Axis" OR "brain-gut axis" OR "Gastrointestinal System" OR "Gastrointestinal Microbiota" OR "Intestinal Barrier Function" OR "Intestinal Mucosa Barrier Function" OR "Intestinal Permeability" OR "Intestinal Permeabilities" OR "Permeability, Intestinal" OR "Intestinal Barrier Permeability" OR "intestinal Barrier Permeabilities" OR "Intestinal Mucosa Barrier Permeability" OR "Intestinal Mucosal Barrier Permeability" OR "Intestinal Mucosal Permeability" OR "Intestinal Mucosal Permeabilities" OR "Intestinal Mucosa Permeability" OR "Intestinal Mucosa Permeabilities" OR "gut permeability" OR "leaky gut" OR "microbial translocation" OR "intestinal epithelial damage" OR "gut epithelial damage")	
3	1 AND 2	35