



NOVASYNE

Research Workbench

User Guide

A literature review starts as an idea, a search engine and a folder of PDFs, and ends with a write-up in which no sentence can be traced to the page it came from. The Research Workbench keeps every passage with its page and character range, searches the real catalogues and fetches what is legally available, and lets a literature review, a pooled meta-analysis and a research foundation be assembled only from evidence you have checked, with every citation verified before it is shown.

Contents

Introduction	4
What it is	4
What it does	4
The problems it solves	4
System requirements	5
Before you start	5
A typical session, start to finish	6
The research question and documents used in this guide	7
The workspace	8
The sidebar and the Projects list	8
Editing a project	9
Project history	10
The project overview	10
The Library	14
Importing documents	14
What import reports, and what it refuses	15
Categories	15
Selecting documents for a project	17
Removing a document from the library	17
Finding papers	19
Searching the catalogues	19
What "already held" and "open access" mean here	20
Fetching, and what happens when no PDF can be found	20
A BibTeX or RIS file	21
Pasting identifiers	22
Papers held, and attaching your own PDF	23
Search	26
Keyword search	26

Meaning-based search, and building the index	27
Reading a search result	28
What the charts say about a spread of matches	28
Saving a passage as evidence	29
Evidence and claims	30
Claims, evidence, and the difference between them	30
The arithmetic behind a claim's status	31
Attaching, detaching, rejecting	31
Evidence is verified against its page	32
The research graph	33
Reading the graph	33
Inspecting a node	33
Centring the graph, and the trail	35
Linking two claims	36
The field: who publishes, where, and whether it is still growing	36
The research assistant	39
Grounded or it does not run	39
Summarise, Compare, and Explain the relationship	40
Find contradictions and Find gaps	42
Keeping a finding as evidence	44
Verifying every citation, and the spend meter	44
Study profiles and the literature review	46
Extracting a study profile	46
Correcting a field, and accepting a profile	47
What the review is built from	47
A sentence with no citation is deleted	48
The bibliography	49
Meta-analysis	50
Extracting a finding	50
Checking a finding against its page	50

What "poolable" means	51
Grouping by effect type	51
Pooling: fixed and random effects	52
The forest plot, the funnel plot, leaving one out	54
Every pooling run is kept	55
The research foundation	56
What it is assembled from	56
Introduction, related work, pooled evidence, gaps, aims	56
Exporting to Markdown, LaTeX, Word, and the JSON hand-off	58
Appendix A: Control reference	60
Toolbar (every pane)	60
Projects	60
Library	60
Find papers	61
Search	26
Evidence	61
Graph	62
Research assistant	62
Literature review	62
Meta-analysis	50
Research foundation	63
Appendix B: The statistics behind pooling	64
Appendix C: What this workbench refuses to do	65
Appendix D: Frequently asked questions	66
Appendix E: Sources used in this guide	68
Index	69

Introduction

What it is

The Research Workbench turns an unstructured research question into an evidence-backed hypothesis: a literature review, a pooled meta-analysis and a research foundation document, in which every claim you write down can be traced back to the exact page and passage it came from. It runs in a browser on your own machine, holds one shared library of documents that every project draws on, and keeps each project's claims, evidence and analyses in their own database.

It is the first tool in the Novasyne research chain. It does not run experiments or analyse a dataset. It turns an idea into a hypothesis worth testing, and hands that hypothesis, with every source behind it, to the tools that do.

What it does

- **Reads what you already have.** PDF, Word, plain text and Markdown are imported into a shared library, chunked into passages that each carry their page and character range, and given a subject category from their own text.
- **Finds what you do not.** One query reaches OpenAlex, Crossref, arXiv, PubMed and Europe PMC, fetches whatever full text is legally available, and reads it in through the same pipeline. A BibTeX or RIS file and a list of identifiers go the same way.
- **Searches your own sources.** By keyword at once, and by meaning once the library has been embedded on a small local model, with every result opening back to its page.
- **Keeps evidence and states claims.** A passage becomes evidence with its page, its range and its stance, and a claim's status is arithmetic over the evidence attached to it, never a judgement the software makes.
- **Draws the shape of the project,** as a graph of claims, evidence, documents, papers, authors and fields, and surveys the published field by institution, country, author and year.
- **Answers from your passages only.** A research assistant with six actions that retrieves first and never calls the model when nothing is found, and checks every citation in every answer.
- **Writes from what you have accepted.** Study profiles, an eight-section literature review, a fixed-effect and random-effects meta-analysis, and a research foundation exported to Markdown, LaTeX, Word and a JSON hand-off.

The problems it solves

You have read a great deal and cannot say what any sentence rests on. A folder of PDFs and a page of notes do not record which page a claim came from. Here a passage is kept with its page and character range from the moment it is saved, and that provenance follows it into every review and export.

Finding a paper means Googling it and dragging the PDF in by hand. Find papers searches five catalogues at once, tells you which results are already held and which have a legal full text, fetches that text and reads it in. Nobody types a citation twice.

The assistant makes things up. A model asked a question it has no material for will answer anyway. This assistant retrieves passages first, refuses to call the model when none are found, and verifies every citation in the answer against the passages it was actually given.

The review is written from memory. A literature review assembled here is built from accepted study profiles, claims and evidence, a sentence with no citation is deleted before you see it, and the deletions are shown.

The meta-analysis pools what should not be pooled. Findings are grouped by the kind of number they are, an odds ratio is never averaged with a standardised mean difference, ratios are pooled on the log scale, and the estimate from accepted findings alone is reported beside any pool that includes unchecked ones.

System requirements

Processor	Intel Core i5 or higher, or the equivalent. Embedding the library for meaning-based search is the one slow step, at about thirteen passages a second.
Memory	16 GB of RAM or more.
Disk space	About 1 GB for the application, its environment and the embedding model. The library holds a copy of every document imported, so allow the size of your PDFs again.
Browser	A current version of Chrome, Edge or Firefox
Network	Needed for Find papers and the field survey, which reach the public catalogues, and for the research assistant, the study profiles, the review, the findings and the foundation, which call a language model. Everything else works offline.

Before you start

Nothing is needed to start. The library, search by keyword, references, evidence, claims and the research graph all work with no account, no API key and no internet connection beyond what fetching a paper obviously requires.

Two things are optional, and the workbench works fully without either.

- **Meaning-based search** needs the library embedded once. That runs locally on a small model with no account and no key; the *Search* chapter shows it.
- **The research assistant**, the literature review, the extracted findings and the research foundation all call a language model, Claude or OpenAI as configured, and are switched off with no key set. Nothing else in the workbench needs one.

A contact email, set once, is worth adding even though nothing requires it. Crossref and OpenAlex give a machine that identifies itself much higher rate limits, and Unpaywall, the single most useful source of open-access PDFs, refuses to answer at all without one.

ONE LIBRARY, MANY PROJECTS

Documents are shared. Removing a document from the library removes it for every project that used it, which is why the workbench refuses to do so while any project depends on it unless told to. Where the NeuroStudio Gateway is installed in front of the workbench, each signed-in person gets a workspace of their own.

A typical session, start to finish

The chapters that follow go through the workbench pane by pane, in the order the sidebar lists them, because that is also roughly the order a research line moves through it. It is worth seeing the whole shape once before the detail.

1. **Bring in documents.** Import what you already have, and use **Find papers** to fetch what you do not. Both land in the same shared library, read in through the same pipeline.
2. **Select and search.** Tell a project which documents it draws on, then search across them, by keyword immediately and by meaning once the library has been embedded, to find the passages that bear on your question.
3. **Capture evidence, and make claims.** Save the passages that matter as evidence, and state the claims they support, contradict or leave unsettled. Everything downstream is built from this step.
4. **Look at the shape of it.** The research graph shows how your claims, evidence, documents and papers connect. The field survey shows whether the wider literature agrees with where you have been looking.
5. **Ask, when a question is faster asked than searched.** The research assistant answers from your own passages, with every citation checked.
6. **Read the studies properly.** Extract a structured profile of each one: population, design, method, measure, outcome, limitation. This is the table both the review and the meta-analysis are built from.
7. **Let the review and the meta-analysis write themselves** from what you have accepted, not from a blank page.
8. **Assemble the foundation,** and export it to Markdown, LaTeX, Word or a structured hand-off for whatever tool picks the work up next.

None of these steps is compulsory, and nothing enforces this exact order. A project can sit at step 3 indefinitely, or jump straight to Find papers before a single document has been searched. The project overview's *what this project needs next* panel reads the project you actually have and says which of these steps makes sense to do next.

The research question and documents used in this guide

Every figure in this guide comes from one research line, run for real: **How large is the effect of behavioural interventions on stress and mood outcomes?** That is the project this guide calls **Stress interventions**. Its library selection mixes long-standing neuroscience reference material, such as the *Handbook of EEG Interpretation* and general texts covering the physiology of stress and arousal, with real trial and review literature fetched live through Find papers: a randomised comparison of physical activity, mindfulness meditation and heart-rate variability biofeedback for stress reduction, a feasibility trial of mindfulness-based stress reduction in multiple sclerosis, and a network meta-analysis of exercise for depression covering more than two hundred trials.

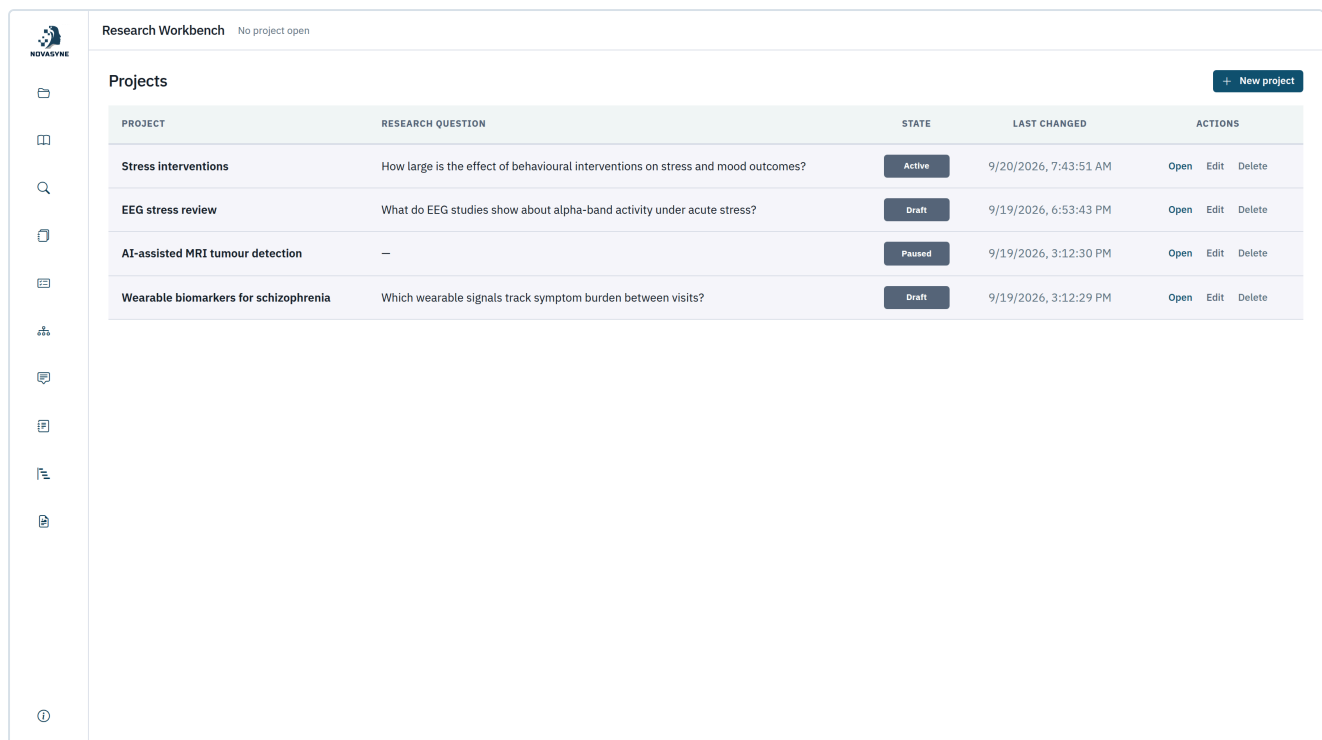
Three supporting projects appear throughout to show the workbench at different stages: a project with nothing in it yet, one with no research question recorded, and one partway through, which uses its own EEG-focused documents to show the research graph and the literature landscape from a second angle.

Every screenshot comes from an actual, unedited run against this material. Every AI answer shown, from the research assistant to the research foundation, is a real call to the configured model, and where a citation count or a cost appears it is the number the workbench reported for that run. Appendix E lists every document and paper the figures draw on.

The workspace

The sidebar and the Projects list

The sidebar down the left is the whole of the workbench's navigation: Projects, Library, Search, Find papers, Evidence, the research Graph, the Assistant, the Literature review, Meta-analysis, and the Research foundation, in the order a project moves through them. The Projects pane is what a fresh visit opens on.



PROJECT	RESEARCH QUESTION	STATE	LAST CHANGED	ACTIONS
Stress interventions	How large is the effect of behavioural interventions on stress and mood outcomes?	Active	9/20/2026, 7:43:51 AM	Open Edit Delete
EEG stress review	What do EEG studies show about alpha-band activity under acute stress?	Draft	9/19/2026, 6:53:43 PM	Open Edit Delete
AI-assisted MRI tumour detection	—	Paused	9/19/2026, 3:12:30 PM	Open Edit Delete
Wearable biomarkers for schizophrenia	Which wearable signals track symptom burden between visits?	Draft	9/19/2026, 3:12:29 PM	Open Edit Delete

Figure 1. The Projects pane.

Four research lines are shown here, each in a different state, *Active*, *Draft* or *Paused*, because a project's state is something you set, not something the workbench infers from how much is in it.

Open takes you into a project. **Edit** changes its name, question or state. **Delete** removes it and everything in it, after a confirmation that names exactly what will be lost. Deleting a project does not touch the library. Documents are shared, and deleting a project only removes that project's own claims, evidence and analyses.

New project needs only a name.

New project

NAME

What you will recognise this line of work by.

RESEARCH QUESTION (OPTIONAL)

It can start vague. The assistant and the review sharpen it as the evidence comes in.

STATE

Draft

Started, but nothing committed to it yet

Save Cancel

Figure 2. Starting a new project.

A research question can be added straight away or left for later. It is common to start a project before the question has fully taken shape, and the workbench does not require you to pretend otherwise.

Editing a project

Edit project

NAME

Stress interventions

What you will recognise this line of work by.

RESEARCH QUESTION (OPTIONAL)

How large is the effect of behavioural interventions on stress and mood outcomes?

It can start vague. The assistant and the review sharpen it as the evidence comes in.

STATE

Active

Currently being worked on

Save Cancel

Figure 3. Editing the hero project: name, question and state.

A project's **name**, **research question** and **state**, which is Draft, Active, Paused, Completed or Archived, can all be changed at any point from the Edit dialog. None of them affects what the project can do. They exist so that a list of a dozen research lines still tells you, at a glance, which ones are live, and the help text under the state field says what each state is for.

Project history

Every project keeps an append-only log of what has happened to it: a claim created, evidence captured, a claim's status recomputed, a review assembled. **History** in the header opens it whenever a project is open.

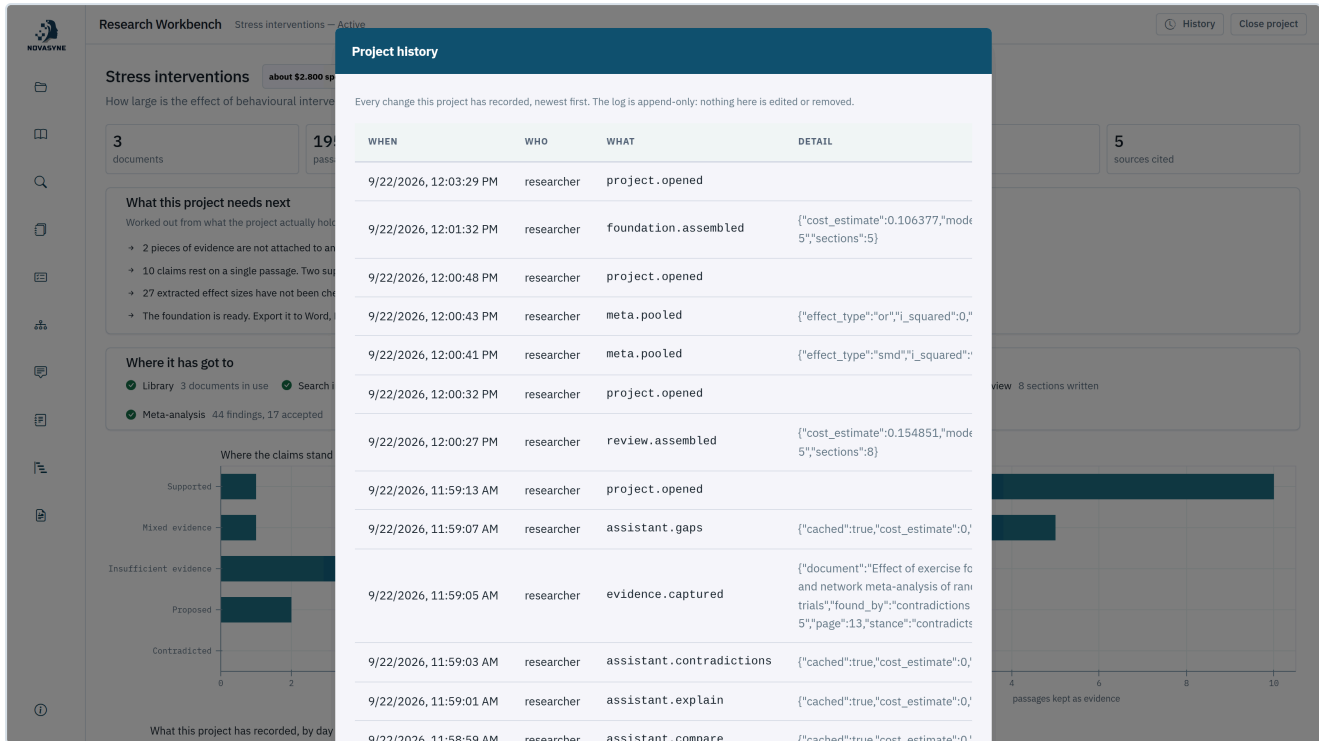


Figure 4. The project's own log, newest first.

Nothing in it is ever edited or removed. It is the audit trail behind everything else in this guide, and the answer to the question "when did this claim change status, and why".

The project overview

Opening a project lands on its overview: counts, a *what needs to happen next* panel worked out from what the project actually holds rather than a fixed checklist, a stage-by-stage progress list, and three charts once there is something to chart. A project with nothing in it yet says so plainly, in both the counts and the single next step.

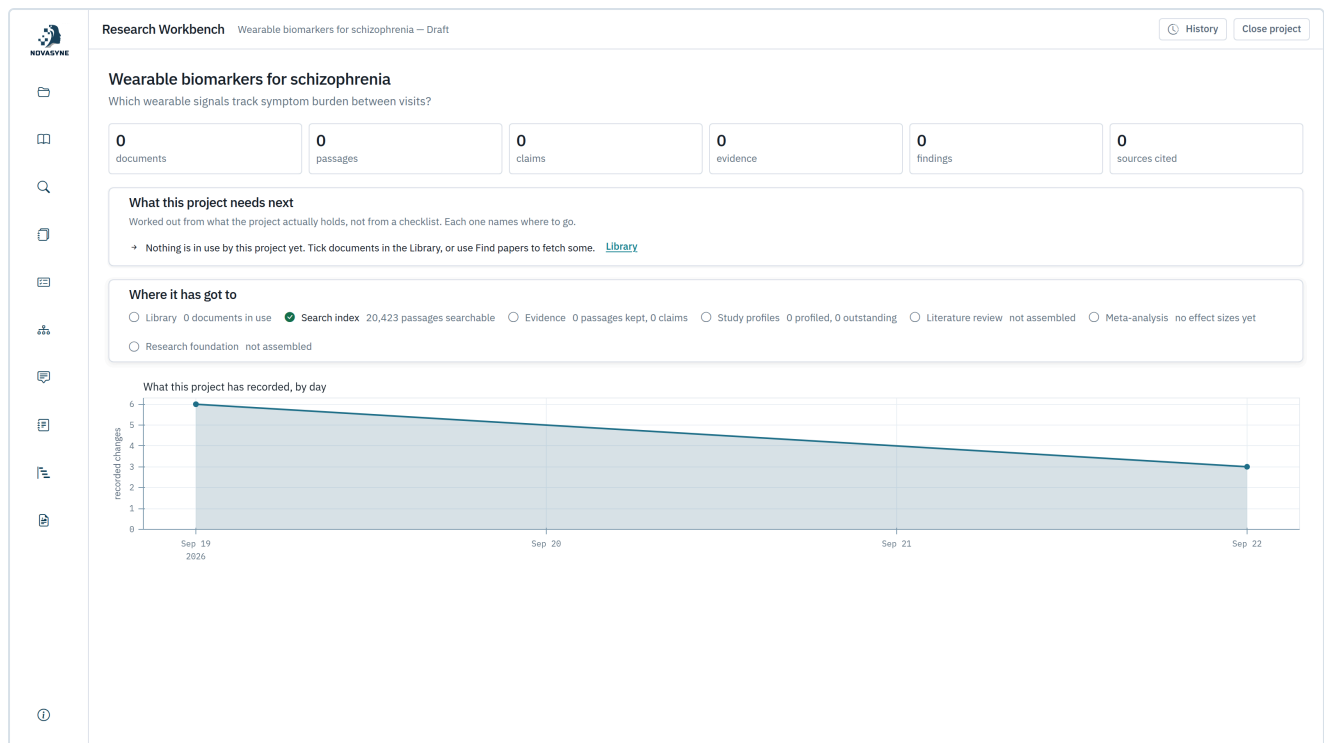


Figure 5. A project with nothing in it yet.

The Evidence pane says the same thing in its own words when a brand-new project's claims-and-evidence view is opened before anything has been kept.

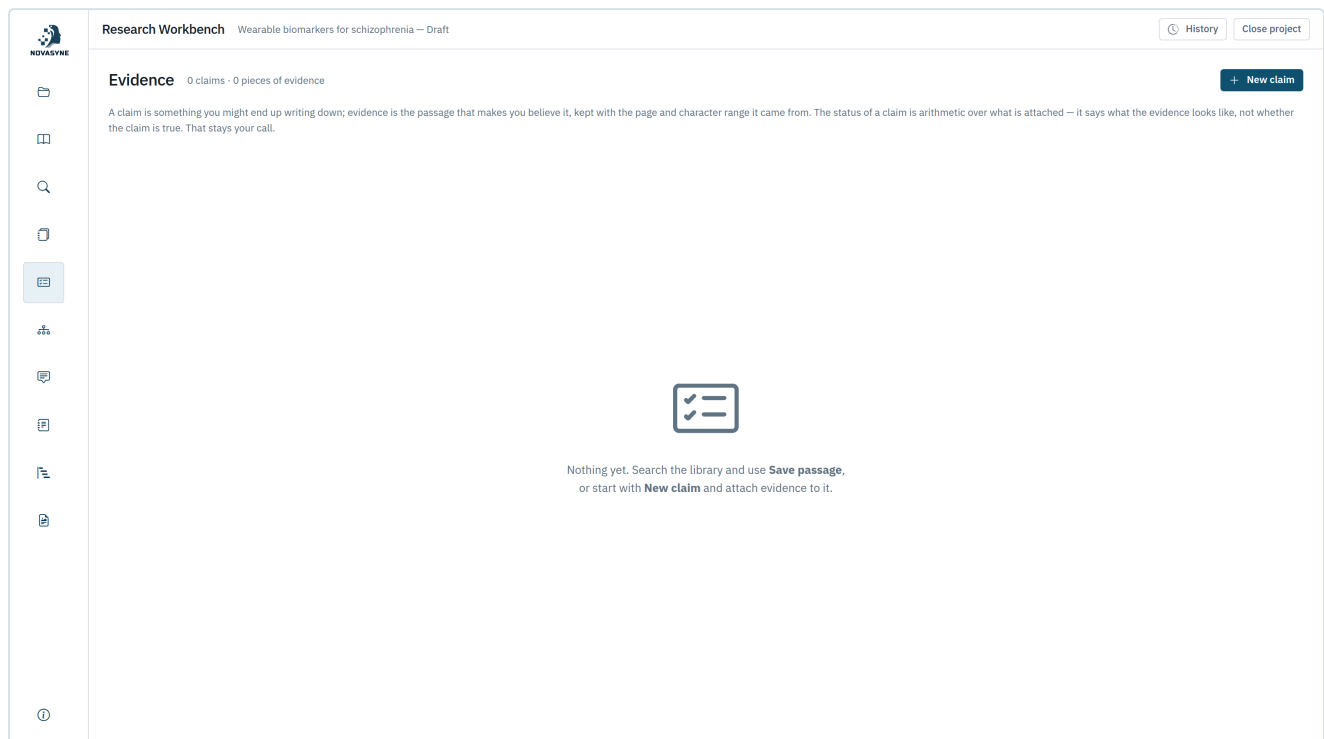


Figure 6. Evidence, before anything is kept.

A research question is optional, and a project that has not recorded one yet says so rather than showing a blank space that might be a rendering fault.

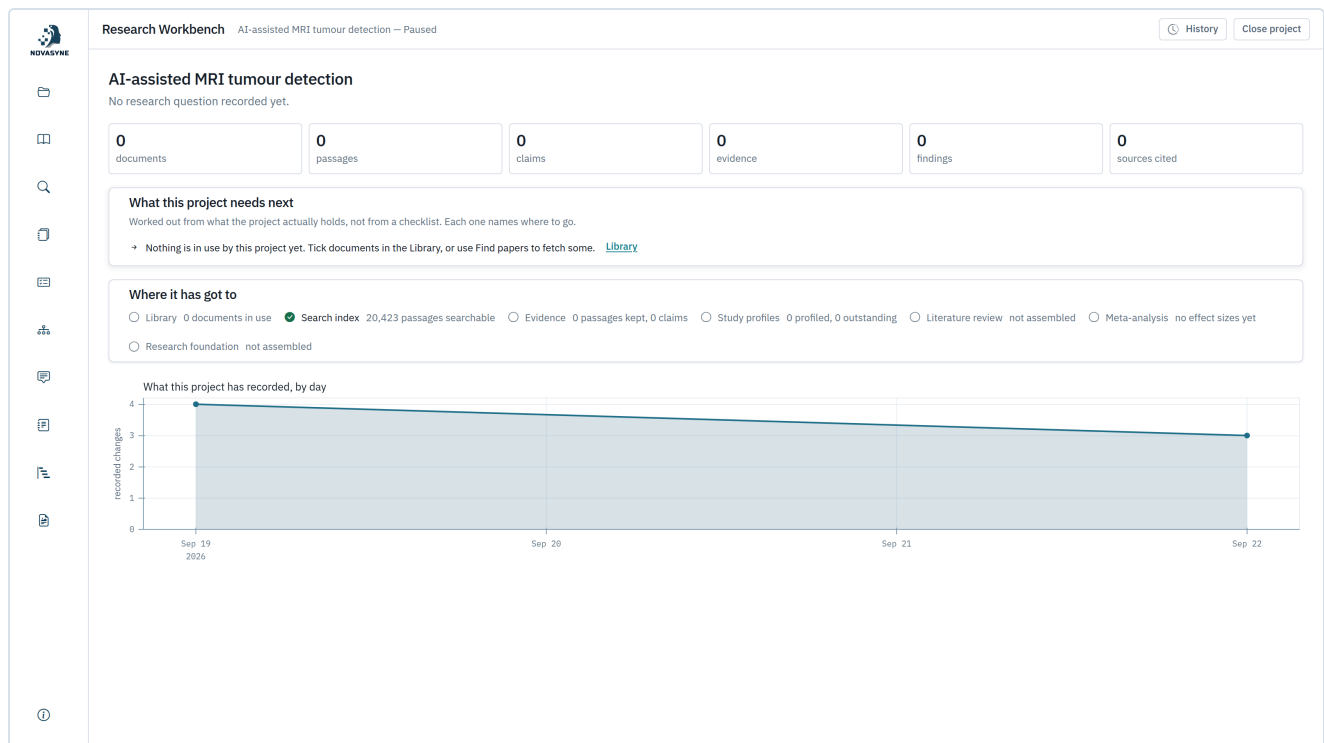


Figure 7. A project with no research question recorded.

A project partway through its work shows exactly that: documents in use, some evidence kept, no literature review or meta-analysis started yet. The stage list below the *what's next* panel is not a progress bar toward a fixed finish line. It names each of the workbench's seven stages and whether this project has reached it.

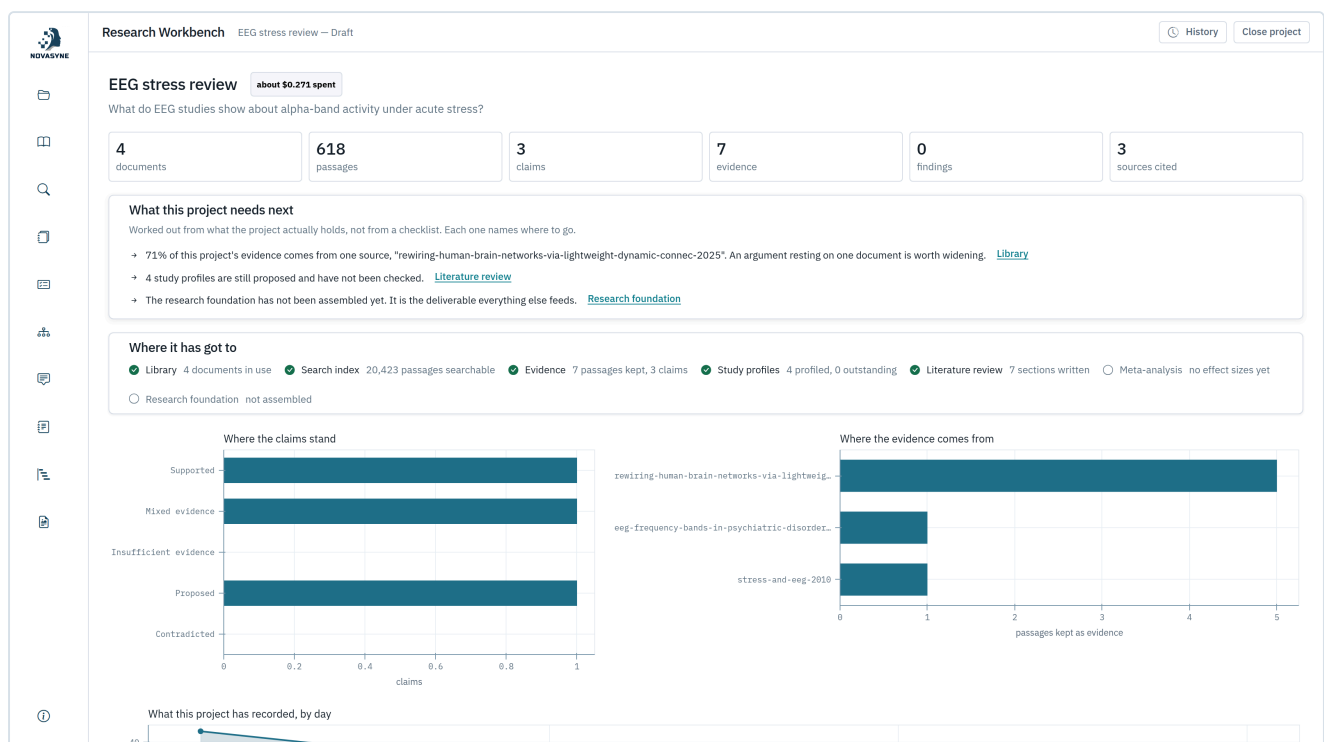


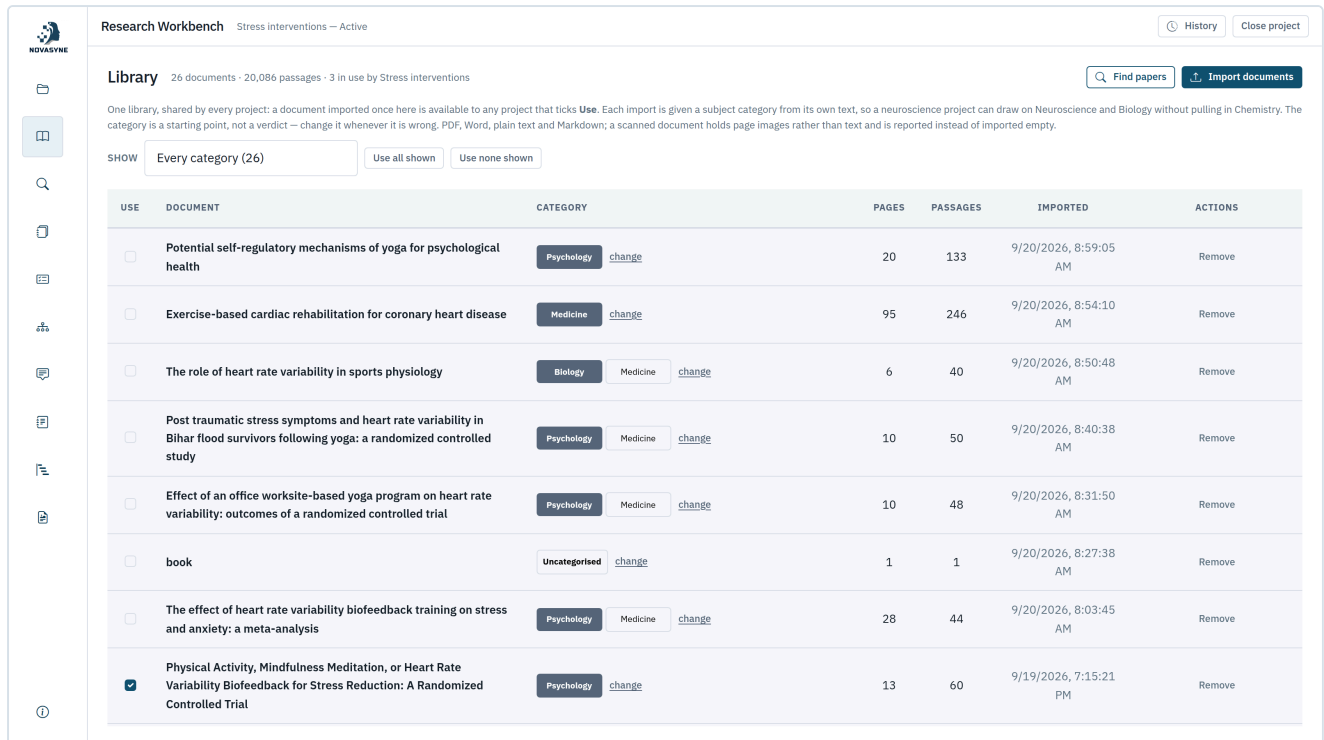
Figure 8. A project partway through.

Read the overview top to bottom. The counts say how many documents the project draws on and how many claims, pieces of evidence and analyses it holds. The *what needs to happen next* panel is computed from those counts, so a project with evidence but no claims is told to state a claim, and one with accepted profiles but no review is told to assemble it. The stage list names the seven stages, and the charts underneath show how evidence is spread across documents and claims. The evidence-concentration check is the one to watch: when more than half a project's evidence comes from a single document, the overview says so by name, because an argument resting on one source is invisible until something counts.

The Library

Importing documents

The library is shared by every project. A book or paper imported once is searchable and available to any project that ticks **Use** for it. There is no per-project copy, and no absolute file path is ever stored, only a copy inside the workbench's own document store.



Research Workbench Stress interventions — Active History Close project

Library 26 documents · 20,086 passages · 3 in use by Stress interventions Find papers Import documents

One library, shared by every project: a document imported once here is available to any project that ticks **Use**. Each import is given a subject category from its own text, so a neuroscience project can draw on Neuroscience and Biology without pulling in Chemistry. The category is a starting point, not a verdict — change it whenever it is wrong. PDF, Word, plain text and Markdown; a scanned document holds page images rather than text and is reported instead of imported empty.

SHOW Use all shown Use none shown

USE	DOCUMENT	CATEGORY	PAGES	PASSAGES	IMPORTED	ACTIONS
☐	Potential self-regulatory mechanisms of yoga for psychological health	Psychology change	20	133	9/20/2026, 8:59:05 AM	Remove
☐	Exercise-based cardiac rehabilitation for coronary heart disease	Medicine change	95	246	9/20/2026, 8:54:10 AM	Remove
☐	The role of heart rate variability in sports physiology	Biology change	6	40	9/20/2026, 8:50:48 AM	Remove
☐	Post traumatic stress symptoms and heart rate variability in Bihar flood survivors following yoga: a randomized controlled study	Psychology change	10	50	9/20/2026, 8:40:38 AM	Remove
☐	Effect of an office worksite-based yoga program on heart rate variability: outcomes of a randomized controlled trial	Psychology change	10	48	9/20/2026, 8:31:50 AM	Remove
☐	book	Uncategorised change	1	1	9/20/2026, 8:27:38 AM	Remove
☐	The effect of heart rate variability biofeedback training on stress and anxiety: a meta-analysis	Psychology change	28	44	9/20/2026, 8:03:45 AM	Remove
☒	Physical Activity, Mindfulness Meditation, or Heart Rate Variability Biofeedback for Stress Reduction: A Randomized Controlled Trial	Psychology change	13	60	9/19/2026, 7:15:21 PM	Remove

Figure 9. The shared library.

Nineteen documents already sit in this library when the tour begins: sixteen real neuroscience textbooks and reference works, and three papers fetched live through Find papers earlier in this same research line. Each row shows the document's category, page and passage counts, and when it was imported. The **Use** column is specific to whichever project is currently open. Ticking or clearing it here is exactly the same action as doing it from a project's own selection screen.

PDF, Word, plain text and Markdown are all read. Importing is a straightforward upload. Pick one file or several, and the workbench chunks, categorises and indexes each one in the background, with progress shown while it works.

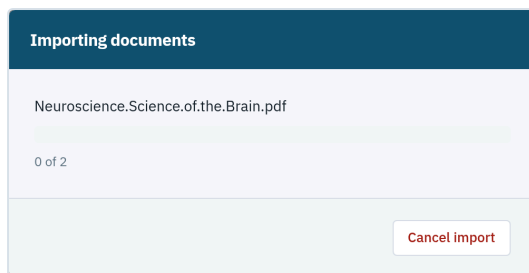


Figure 10. Importing, with progress.

What import reports, and what it refuses

Every file that finishes reports its outcome by name. A silent skip is treated as a defect, not a shortcut. This import brought in one new document and, in the same batch, tried a second one that could not be read at all: a genuinely scanned PDF with no text layer underneath its page images.

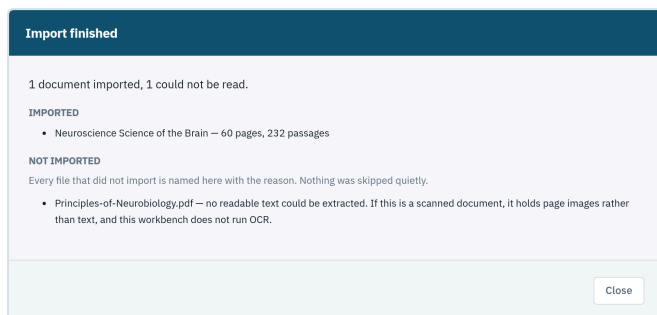


Figure 11. What import reports.

The workbench does not run OCR, on principle. A page image is not text, and guessing at what it might say is not something a research tool should do quietly on your behalf. A scanned document is reported, by name, with that reason, rather than imported as a document with nothing searchable inside it. The same honesty applies to a file that is already held. A second upload of a document whose contents match one already in the library, byte for byte, is refused as a duplicate rather than silently creating a second copy that would fragment which evidence points at which.

Categories

Every import is given a subject category worked out from its own text. No configuration and no manual tagging step is needed before a document becomes useful. A neuroscience project can draw on *Neuroscience* and *Biology* without pulling in *Chemistry*, and the **Show** filter narrows the table to one category at a time.

Research Workbench Stress Interventions — Active History Close project

Library 26 documents · 20,086 passages · 10 shown · 3 in use by Stress Interventions Find papers Import documents

One library, shared by every project: a document imported once here is available to any project that ticks **Use**. Each import is given a subject category from its own text, so a neuroscience project can draw on Neuroscience and Biology without pulling in Chemistry. The category is a starting point, not a verdict — change it whenever it is wrong. PDF, Word, plain text and Markdown; a scanned document holds page images rather than text and is reported instead of imported empty.

SHOW Use all shown Use none shown

USE	DOCUMENT	CATEGORY	PAGES	PASSAGES	IMPORTED	ACTIONS
☐	Potential self-regulatory mechanisms of yoga for psychological health	Psychology change	20	133	9/20/2026, 8:59:05 AM	Remove
☐	Post traumatic stress symptoms and heart rate variability in Bihar flood survivors following yoga: a randomized controlled study	Psychology Medicine change	10	50	9/20/2026, 8:40:38 AM	Remove
☐	Effect of an office worksite-based yoga program on heart rate variability: outcomes of a randomized controlled trial	Psychology Medicine change	10	48	9/20/2026, 8:31:50 AM	Remove
☐	The effect of heart rate variability biofeedback training on stress and anxiety: a meta-analysis	Psychology Medicine change	28	44	9/20/2026, 8:03:45 AM	Remove
☒	Physical Activity, Mindfulness Meditation, or Heart Rate Variability Biofeedback for Stress Reduction: A Randomized Controlled Trial	Psychology change	13	60	9/19/2026, 7:15:21 PM	Remove
☒	Mindfulness-based stress reduction for people with multiple sclerosis – a feasibility randomised controlled trial	Psychology change	12	49	9/19/2026, 7:15:15 PM	Remove
☒	Effect of exercise for depression: systematic review and network meta-analysis of randomised controlled trials	Psychology Medicine change	18	86	9/19/2026, 7:15:06 PM	Remove
☐	Stress and EEG	Psychology Neuroscience change	16	49	9/19/2026, 5:43:11 PM	Remove

Figure 12. Filtering the library by field.

A category is a starting point, not a verdict, and can be corrected by hand at any time from the **change** control beside it.

Neuroscience

Biology
Chemistry
Medicine
Psychology
Physics
Mathematics & statistics
Computing & machine learning
Engineering
Uncategorised

Figure 13. Changing a category by hand.

A document whose content genuinely spans two fields, such as a neuroscience textbook with a strong statistics chapter, can carry a second category as well as its primary one, shown as an extra badge in the table.

Selecting documents for a project

Ticking a document's checkbox adds it to whichever project is currently open. Clearing it removes it from that project's selection without affecting the library itself, or any other project using the same document. **Use all shown** and **Use none shown** apply to whatever the category filter is currently narrowed to, which makes selecting every Neuroscience document and nothing else a two-click operation rather than a long scroll with individual ticks.

Removing a document from the library

Removing a document from the library, as opposed to merely clearing its tick for one project, is permanent, and the workbench checks first whether anything depends on it.

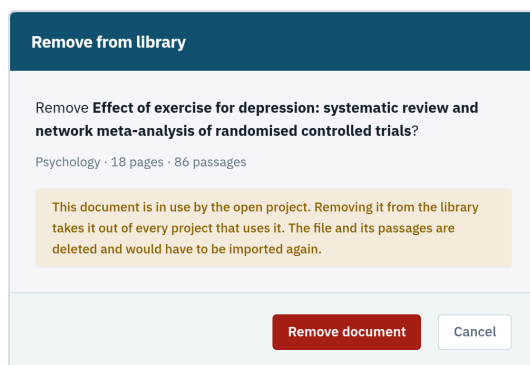


Figure 14. Before removing a document.

Where a document backs evidence, a study profile or extracted findings in one or more projects, removal is refused by name, listing exactly what is at stake, rather than silently orphaning that project's own record of why it believed something.

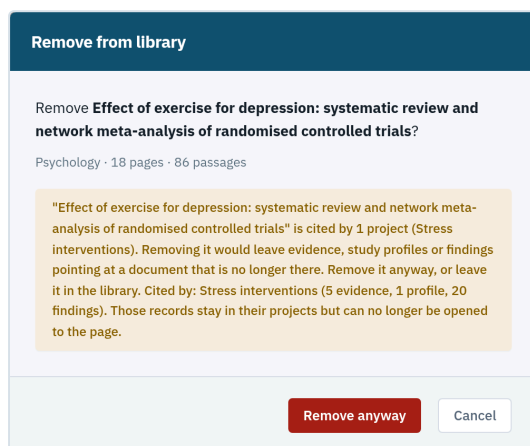


Figure 15. Removing a document a project is using.

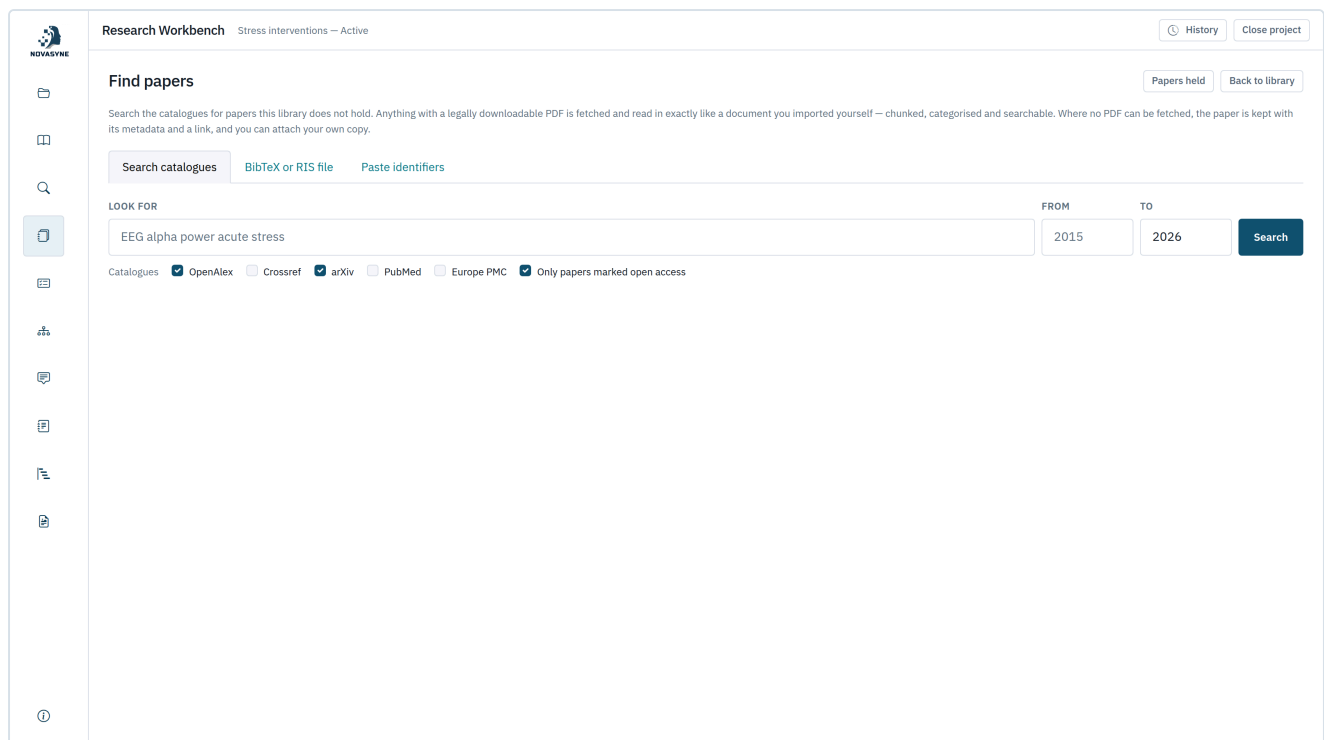
Remove anyway is one click away if that is genuinely what you want. The records that cited the document stay in their projects, with the page they pointed to no longer reachable, rather than disappearing along with the document. A document nothing depends on is removed immediately, with no extra step.

A document that came in through Find papers leaves its paper record behind. The paper returns to **Metadata only** in Papers held, with a note saying its full text was removed from the library, and **Attach PDF** is offered on it again, so the paper is never left claiming a full text the library no longer has.

Finding papers

Searching the catalogues

Find papers is where the workbench goes looking for literature you do not already hold, rather than waiting for you to find it and drag it in. One query reaches OpenAlex, Crossref, arXiv, PubMed and Europe PMC at once. Tick which of the five catalogues you want searched, and optionally require open access only.



Research Workbench Stress interventions — Active History Close project

Find papers

Papers held Back to library

Search the catalogues for papers this library does not hold. Anything with a legally downloadable PDF is fetched and read in exactly like a document you imported yourself — chunked, categorised and searchable. Where no PDF can be fetched, the paper is kept with its metadata and a link, and you can attach your own copy.

Search catalogues BibTeX or RIS file Paste identifiers

LOOK FOR FROM TO

EEG alpha power acute stress 2015 2026 Search

Catalogues ☒ OpenAlex ☐ Crossref ☒ arXiv ☐ PubMed ☐ Europe PMC ☒ Only papers marked open access

Figure 16. Searching the catalogues.

A search returns exactly what each catalogue can offer, labelled plainly: which paper is already held and cannot be fetched twice, which is marked open access by its own record, and which has a PDF the catalogue itself points to. None of it is guessed from the title.

Research Workbench Stress interventions — Active History Close project

Find papers Papers held Back to library

Search the catalogues for papers this library does not hold. Anything with a legally downloadable PDF is fetched and read in exactly like a document you imported yourself — chunked, categorised and searchable. Where no PDF can be fetched, the paper is kept with its metadata and a link, and you can attach your own copy.

LOOK FOR FROM TO

Search

Catalogues ☒ OpenAlex ☐ Crossref ☒ arXiv ☐ PubMed ☐ Europe PMC ☒ Only papers marked open access

50 found · 48 not yet in the library Select all new Clear Fetch selected

- ☐ **The effect of heart rate variability biofeedback training on stress and anxiety: a meta-analysis**
V. C. Goessl, Joshua Curtiss, Stefan G. Hofmann · 2017 · Psychological Medicine
OpenAlex Open access PDF offered Already in the library cited by 614
BACKGROUND: Some evidence suggests that heart rate variability (HRV) biofeedback might be an effective way to treat anxiety and stress symptoms. To examine the effect of HRV biofeedback on symptoms of anxiety and stress, we conducted a meta-analysis of studies extracted from PubMed, PsycINFO and the Cochrane Library. M...
- ☐ **An Overview of Heart Rate Variability Metrics and Norms**
Fred Shaffer, J. P. Ginsberg · 2017 · Frontiers in Public Health
OpenAlex Open access PDF offered cited by 7215
Healthy biological systems exhibit complex patterns of variability that can be described by mathematical chaos. Heart rate variability (HRV) consists of changes in the time intervals between consecutive heartbeats called interbeat intervals (IBIs). A healthy heart is not a metronome. The oscillations of a healthy heart...
- ☐ **Physical Activity, Mindfulness Meditation, or Heart Rate Variability Biofeedback for Stress Reduction: A Randomized Controlled Trial**
Judith Esi van der Zwan, Wieke de Vente, Anja C. Hulzink et al. · 2015 · Applied Psychophysiology and Biofeedback
OpenAlex Open access PDF offered Already in the library cited by 325
In contemporary western societies stress is highly prevalent, therefore the need for stress-reducing methods is great. This randomized controlled trial compared the efficacy of self-help physical activity (PA), mindfulness meditation (MM), and heart rate variability biofeedback (HRV-BF) in reducing stress and its relat...
- ☐ **Effects of Heart Rate Variability Biofeedback in Subjects with Stress-Related Chronic Neck Pain: A Pilot Study**
David Hallman, Erik Olsson, Bo von Schéele et al. · 2011 · Applied Psychophysiology and Biofeedback
OpenAlex Open access cited by 158

Figure 17. What a catalogue search returns.

What "already held" and "open access" mean here

"Already held" is worked out from a fingerprint, a normalised DOI where one exists or title, year and first author where it does not, so the same paper found through two different catalogues is recognised as one paper rather than offered twice. "Open access" reflects what the catalogue itself asserts about the record. A PDF link alone does not make a paper open access, since publishers routinely offer a link that a reader's browser can reach but an automated request cannot. Neither label is inferred by the workbench; both come from the record a real catalogue returned.

Fetching, and what happens when no PDF can be found

Ticking one or more new results and clicking **Fetch selected** starts a real download. The workbench tries each candidate source in turn, repository first, since a publisher's own page routinely answers 403 to an automated request even for a paper it marks open access. It verifies that the bytes it gets back are actually a PDF rather than a login page, and reads the result in through the same import pipeline as anything uploaded by hand.

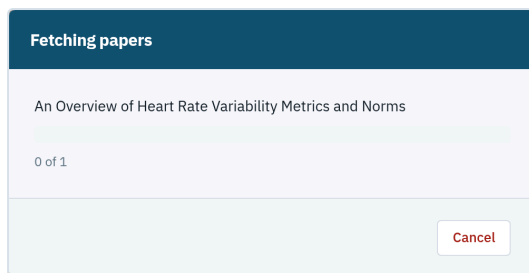


Figure 18. Fetching a legally available PDF.

Every outcome is reported: fetched and added to the library, kept as metadata only because no legal full text could be found, or recognised as a duplicate of something already held. A download can also turn out to be a PDF the library already holds under another name, byte for byte, perhaps imported by hand before anyone searched for it. That paper is counted as fetched and linked to the document already there, and its **In the library** badge in Papers held carries a note naming that document. It is never reported as unreadable, and no second copy is made.

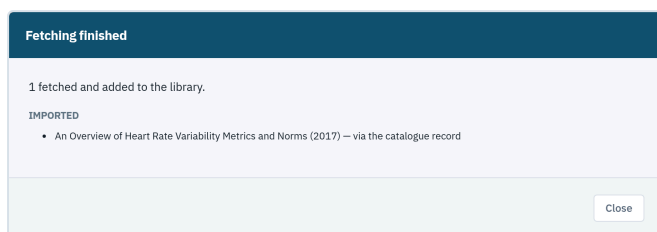


Figure 19. What fetching reports.

Only legally accessible full text is ever fetched: open-access links, arXiv, PubMed Central and similar repositories. There is no shadow-library fallback, and there never will be. A paper behind a paywall is kept with its metadata, its DOI and a link, and you can attach your own legally obtained copy, covered below.

Downloads reach only the public web. A PDF link is followed only over http or https and only to an address on the public internet, and every redirect on the way is checked again. A link that points at a private or local network address, which a BibTeX or RIS file from elsewhere could carry, is never downloaded. The workbench moves on to the next source, and if none is left the paper is kept as metadata only, with that refusal among the reasons it reports.

A BibTeX or RIS file

A `.bib` or `.ris` export from a reference manager, a colleague, or an earlier project can be uploaded directly. Every entry is looked up against the catalogues and the ones with a legally downloadable PDF are fetched exactly as if you had searched for them by hand.

Figure 20. A BibTeX or RIS file.

An entry that resolves to a paper already in the library is recognised as such rather than fetched again. This one entry, from a one-line `.bib` file created for this guide, matched an existing record by its DOI.

Figure 21. A reference file, resolved and checked against the library.

Pasting identifiers

The fastest path, when you already know what you want: one identifier per line, DOIs, arXiv ids, PubMed ids, PMC ids or a plain title, pasted straight in.

Research Workbench Stress interventions — Active

Find papers

Search the catalogues for papers this library does not hold. Anything with a legally downloadable PDF is fetched and read in exactly like a document you imported yourself — chunked, categorised and searchable. Where no PDF can be fetched, the paper is kept with its metadata and a link, and you can attach your own copy.

Search catalogues BibTeX or RIS file Paste identifiers

One per line. DOIs, arXiv ids, PubMed ids, PMC ids, or plain titles.

10.1016/j.neubiorev.2012.12.002
Some Completely Unfindable Working Paper Title

Look these up and fetch

50 found · 48 not yet in the library [Select all new](#) [Clear](#) [Fetch 1 selected](#)

☐ **The effect of heart rate variability biofeedback training on stress and anxiety: a meta-analysis**
V. C. Goessl, Joshua Curtiss, Stefan G. Hofmann · 2017 · Psychological Medicine
[OpenAlex](#) [Open access](#) [PDF offered](#) [Already in the library](#) cited by 614

BACKGROUND: Some evidence suggests that heart rate variability (HRV) biofeedback might be an effective way to treat anxiety and stress symptoms. To examine the effect of HRV biofeedback on symptoms of anxiety and stress, we conducted a meta-analysis of studies extracted from PubMed, PsycINFO and the Cochrane Library. M...

☒ **An Overview of Heart Rate Variability Metrics and Norms**
Fred Shaffer, J. P. Ginsberg · 2017 · Frontiers in Public Health
[OpenAlex](#) [Open access](#) [PDF offered](#) cited by 7215

Healthy biological systems exhibit complex patterns of variability that can be described by mathematical chaos. Heart rate variability (HRV) consists of changes in the time intervals between consecutive heartbeats called interbeat intervals (IBIs). A healthy heart is not a metronome. The oscillations of a healthy heart...

☐ **Physical Activity, Mindfulness Meditation, or Heart Rate Variability Biofeedback for Stress Reduction: A Randomized Controlled Trial**
Judith Esi van der Zwan, Wieke de Vente, Anja C. Huizink et al. · 2015 · Applied Psychophysiology and Biofeedback
[OpenAlex](#) [Open access](#) [PDF offered](#) [Already in the library](#) cited by 325

In contemporary western societies stress is highly prevalent, therefore the need for stress-reducing methods is great. This randomized controlled trial compared the efficacy of self-help physical activity (PA), mindfulness meditation (MM), and heart rate variability biofeedback (HRV-BF) in reducing stress and its relat...

Figure 22. Pasting identifiers.

Every line is resolved independently and the outcome named. A DOI that matches something already held is reported as such. A title with nothing close enough in any catalogue to be sure it is the same paper is reported as unresolved, by name, rather than guessed at. **A title match has to be close enough to be sure.** The workbench compares the words of the title you typed against the words of the catalogue's best hit, and refuses a weak match rather than importing a different paper under a name that looks similar.

Fetching finished

0 fetched and added to the library, 1 kept as metadata only, 1 already held.

KEPT AS METADATA ONLY, OR ALREADY HELD

Every file that did not import is named here with the reason. Nothing was skipped quietly.

- Some Completely Unfindable Working Paper Title — no catalogue record has a title close enough to "Some Completely Unfindable Working Paper Title" to be sure it is the same paper.
- EEG alpha power and creative ideation — already in the library as "EEG alpha power and creative ideation"

Close

Figure 23. What could and could not be resolved.

Papers held, and attaching your own PDF

Papers held lists every paper the workbench has ever found through Find papers, whether or not a legal full text was ever available for it. This is the catalogue-level record, distinct from the library's own document listing.

NOVASYNE

Research Workbench

Stress interventions — Active

HistoryClose project

Find papers

Papers heldBack to library

Search cataloguesBibTeX or RIS filePaste identifiers

One per line. DOIs, arXiv ids, PubMed ids, PMC ids, or plain titles.

10.1016/j.neubiorev.2012.12.002
Some Completely Unfindable Working Paper Title

Look these up and fetch

Papers this library knows about

A paper kept as metadata has no full text yet, usually because the publisher refuses automated downloads even when the paper is open access. Open it, save the PDF, and attach it here — it is then read in exactly like any other import.

PAPER	YEAR	FULL TEXT	ACTIONS
An Overview of Heart Rate Variability Metrics and Norms Fred Shaffer and J. P. Ginsberg (2017). An Overview of Heart Rate Variability Metrics and Norms. <i>Frontiers in Public Health</i> . doi:10.3389/fpubh.2017.00258	2017	In the library	OpenForget
Heart Rate Variability and Pain: A Systematic Review Giuseppe Forte et al. (2022). Heart Rate Variability and Pain: A Systematic Review. <i>Brain Sciences</i> . doi:10.3390/brainsci12020153	2022	Metadata only	OpenAttach PDFForget
Potential self-regulatory mechanisms of yoga for psychological health Tim Gard et al. (2014). Potential self-regulatory mechanisms of yoga for psychological health. <i>Frontiers in Human Neuroscience</i> . doi:10.3389/fnhum.2014.00770	2014	In the library	OpenForget
Exercise-based cardiac rehabilitation for coronary heart disease Balraj S Heran et al. (2011). Exercise-based cardiac rehabilitation for coronary heart disease. <i>Cochrane Database of Systematic Reviews</i> . doi:10.1002/14651858.cd001800.pub2	2011	In the library	OpenForget
The role of heart rate variability in sports physiology JIN-GUO DONG (2016). The role of heart rate variability in sports physiology. <i>Experimental and Therapeutic Medicine</i> . doi:10.3892/etm.2016.3104	2016	In the library	OpenForget

Figure 24. Every paper this library knows about.

A paper kept as metadata only has no full text yet, most often because the publisher refuses automated downloads even for an open-access paper. Open the paper's own page, save the PDF by hand, and **Attach PDF** reads it in exactly like any other import. If the file you attach turns out to already be in the library under its own title, the paper record is linked to that existing document rather than creating a duplicate. This happened live while writing this section, attaching a document already imported earlier in the same run.

NOVASYNE

Research Workbench

Stress interventions — Active

HistoryClose project

Psychiatry. doi:10.1186/1471-244x-10-18

Yoga as a Complementary Treatment of Depression: Effects of Traits and Moods on Treatment Outcome
David Shapiro et al. (2006). Yoga as a Complementary Treatment of Depression: Effects of Traits and Moods on Treatment Outcome. *Evidence-based Complementary and Alternative Medicine*. doi:10.1093/ecam/nel114

Effects of Mind–Body Exercises (Tai Chi/Yoga) on Heart Rate Variability Parameters and Perceived Stress: A Systematic Review with Meta-Analysis of Randomized Controlled Trials
Liye Zou et al. (2018). Effects of Mind–Body Exercises (Tai Chi/Yoga) on Heart Rate Variability Parameters and Perceived Stress: A Systematic Review with Meta-Analysis of Randomized Controlled Trials. *Journal of Clinical Medicine*. doi:10.3390/jcm7110404

Effect of an office worksite-based yoga program on heart rate variability: outcomes of a randomized controlled trial
Birinder S. Cheema et al. (2013). Effect of an office worksite-based yoga program on heart rate variability: outcomes of a randomized controlled trial. *BMC Complementary and Alternative Medicine*. doi:10.1186/1472-6882-13-82

The effect of heart rate variability biofeedback training on stress and anxiety: a meta-analysis
V. C. Goessl et al. (2017). The effect of heart rate variability biofeedback training on stress and anxiety: a meta-analysis. *Psychological Medicine*. doi:10.1017/s0033291717001003

Hippocampal place cells and EEG
Alice Jones (2020). Hippocampal place cells and EEG. *Proceedings of Something*

Effect of Yoga-based Interventions on Heart Rate Variability and Anxiety Among Students: A Systematic Review and Meta-analysis.
Sharma S et al. (2025). Effect of Yoga-based Interventions on Heart Rate Variability and Anxiety Among Students: A Systematic Review and Meta-analysis.. doi:10.1177/09727531251394924

Digital mindfulness- and acceptance-based stress reduction intervention for individuals looking online for help: protocol for the CRISP randomised controlled trial.
Al Ekenstam L et al. (2025). Digital mindfulness- and acceptance-based stress reduction intervention for individuals looking online for help: protocol for the CRISP randomised controlled trial.. doi:10.1136/bmjopen-2024-089707

Effectiveness of online mindfulness-based interventions in improving mental health: A review and meta-analysis of randomised controlled trials
Marcel Spijkerman et al. (2016). Effectiveness of online mindfulness-based interventions in improving mental health: A review and meta-analysis of randomised controlled trials. *Clinical Psychology Review*. doi:10.1016/j.cpr.2016.03.009

Physical Activity, Mindfulness Meditation, or Heart Rate Variability Biofeedback for Stress Reduction: A Randomized Controlled Trial
Judith Esi van der Zwan et al. (2015). Physical Activity, Mindfulness Meditation, or Heart Rate Variability Biofeedback for Stress Reduction: A Randomized Controlled Trial. *Applied Psychophysiology and Biofeedback*. doi:10.1007/s10484-015-9293-x

Mindfulness-based stress reduction for people with multiple sclerosis – a feasibility randomised controlled trial

Figure 25. Attaching a full text.

Forget removes a paper from this list without touching any full text it may already have brought into the library. The two records are independent, by design.

Search

Search answers a different question from Find papers. Find papers asks "what has been published on this?" and reaches out to the world. Search asks "what do *my own* sources say about this?" and answers only from documents already in the library. The two panes look similar and are easy to conflate at first. The distinction is worth keeping in mind, because it is also the distinction the whole workbench is organised around: literature you have not yet looked at, against literature you have.

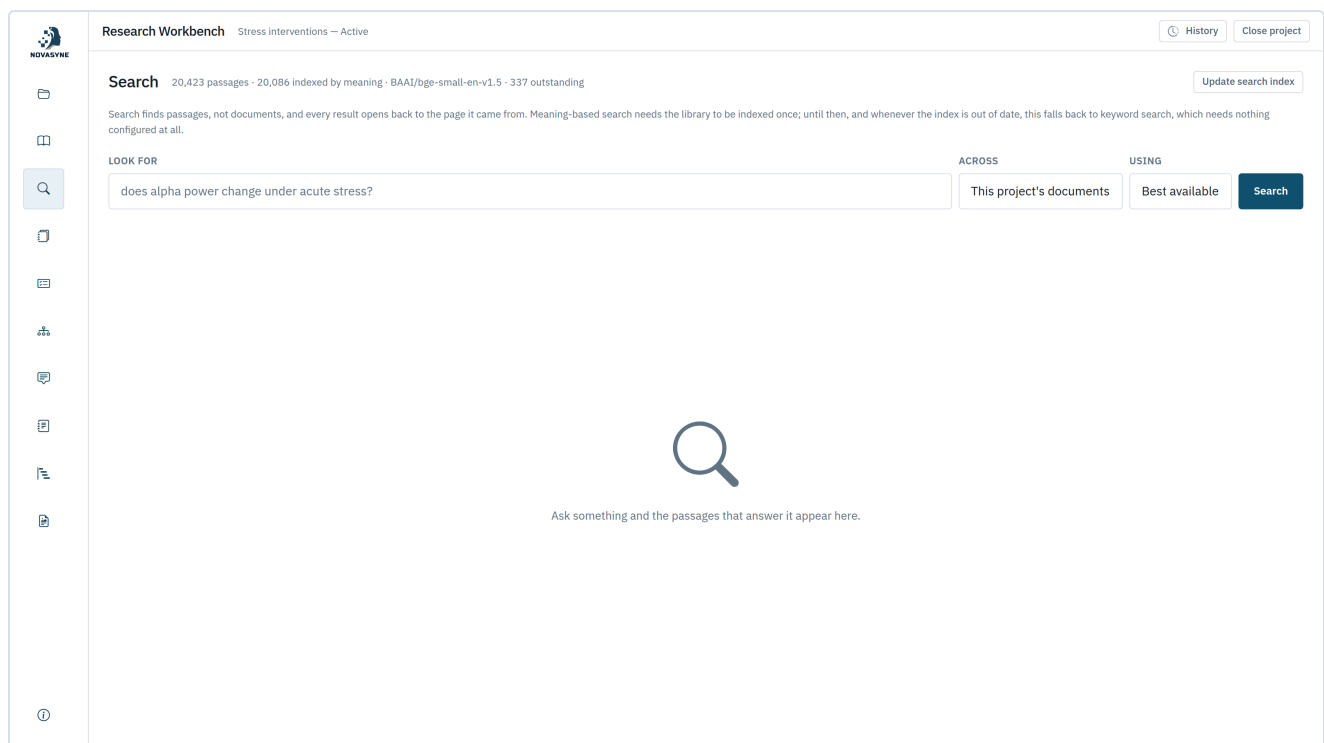


Figure 26. Search, before a query.

The note above the search box keeps a running account of the index: how many passages the library holds in total, and how many of them are currently covered by meaning-based search. It is worth a glance before trusting a "no results" answer, since it can mean the index has fallen behind two new imports rather than that nothing relevant exists. **Across** chooses between this project's selected documents and the whole library, and **Using** chooses keyword, meaning, or whichever is best available.

Keyword search

Search finds passages, not documents, and every result opens straight back to the page it came from. Keyword search needs nothing configured at all. It is built on SQLite's own full-text index and covers the whole library in well under a second.

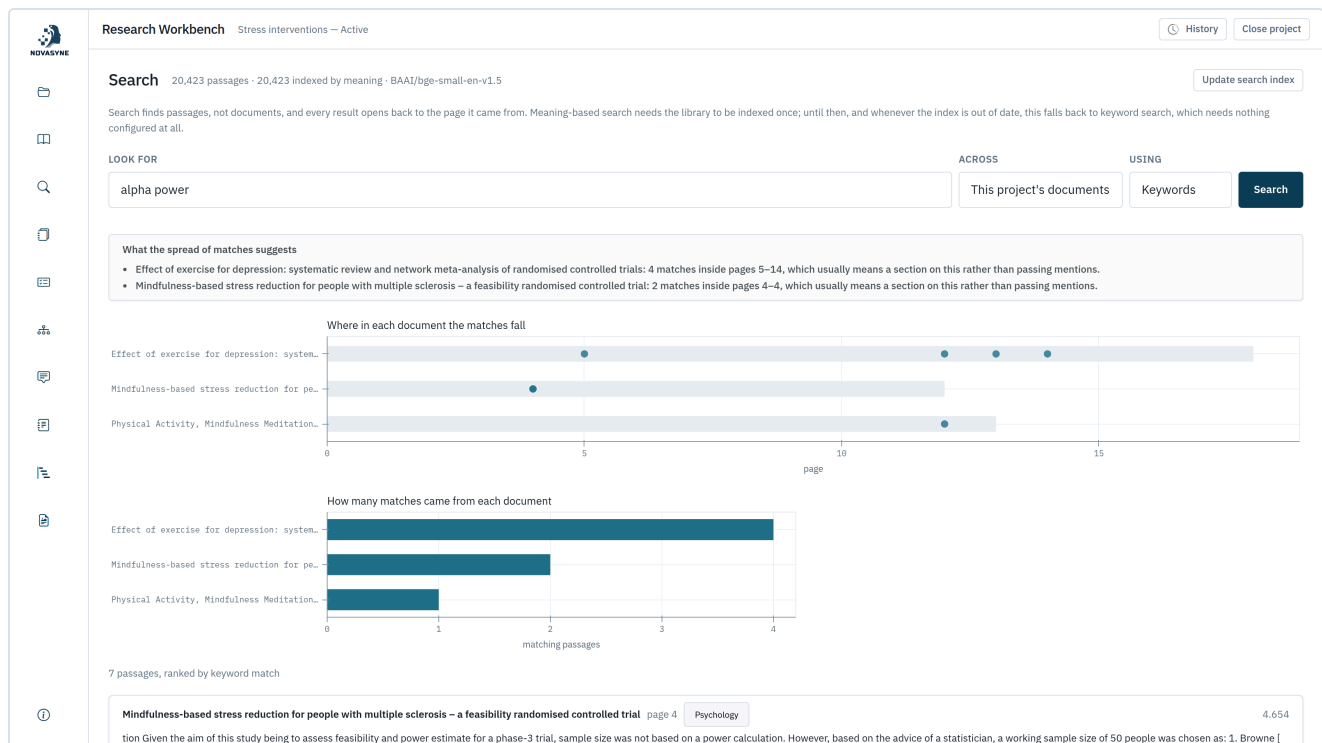


Figure 27. A keyword search.

Meaning-based search, and building the index

Meaning-based search finds passages that answer a question without necessarily containing its words. It needs the library embedded once, a one-time job shown with progress that can be cancelled and resumed without losing what it has already done.

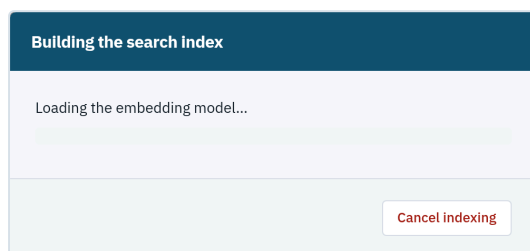


Figure 28. Building the meaning index.

Once built, a search like *does the body calm down on its own after a stressful task*, a sentence with no technical vocabulary at all, returns the passages that actually discuss physiological recovery from a stressor, because the search compares meaning, not words.



Figure 29. Meaning-based search.

Reading a search result

Every result names its document, its page and its category, and carries a relevance score. **Open passage** shows the full passage in its own window, with the exact character range it occupies on that page.

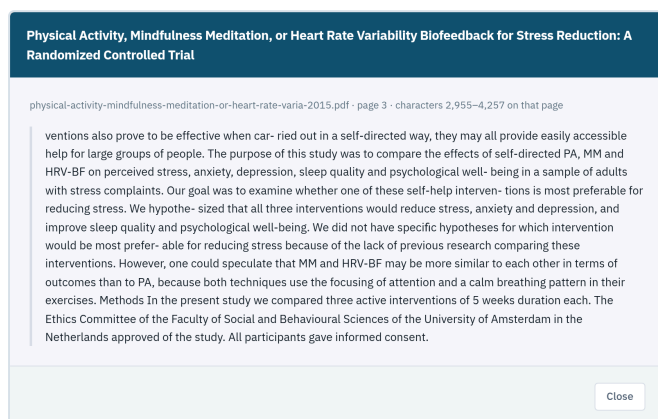


Figure 30. A result opened to its exact passage.

What the charts say about a spread of matches

Three charts accompany a set of results: where in each document the matches fall, how many came from each document, and which fields answered the query. A short reading in plain words sits above them, because a chart nobody reads is not a feature.

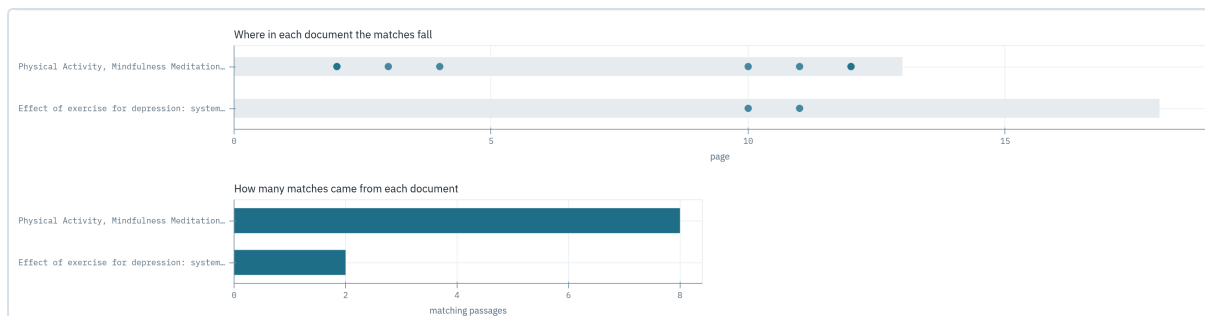


Figure 31. What the spread of matches says.

A tight cluster of matches inside a narrow page range usually means a section actually about the topic. A spread across a whole book usually means passing mentions. Reading the two documents charted here, the matches inside a ten-page span in one trial and the matches on a single page in the other are exactly that distinction made visible.

Saving a passage as evidence

Save passage on any result turns it into evidence, kept with its exact page and character range, and optionally attaches it to a claim on the spot, a new one or one already on the project. The claim created here, that physiological arousal recovers within minutes of a stressor ending, is the one the Evidence chapter picks up.

Figure 32 is a screenshot of the 'Save passage as evidence' dialog box. The dialog has a title bar 'Save passage as evidence'. Below the title bar, there is a preview of a text passage from a document. The preview text is: 'Physical Activity, Mindfulness Meditation, or Heart Rate Variability Biofeedback for Stress Reduction: A Randomized Controlled Trial - page 4 - characters 4,348-5,221. re, participants could vary their activity from day to day because carrying out the same activity each day could increase the risk of sports injuries. To meet the required level of exercise intensity, participants were instructed to attain the follow- ing physical signs after a few minutes of activity: deeper and faster breathing, sweating, an increased heart rate and an increased body temperature. Each participant received a brochure with additional information on stress and the positive effects of PA in reducing stress and its related symptoms, and handouts of the presentation that was given during the meeting. Mindfulness Meditation During the introduction meeting participants took part in a workshop on guided meditation including psycho-educa- tion on how mindfulness is helpful during stressful times. Appl Psychophysiol Biofeedback (2015) 40:257-268 259 123'. Below the preview, there are three sections: 'ATTACH TO' with a dropdown menu showing 'Nothing yet — keep it unattached', 'THIS PASSAGE' with a dropdown menu showing 'Supports', and 'YOUR NOTE (OPTIONAL)' with a text input field containing 'Why this matters, or what to check'. At the bottom of the dialog are two buttons: 'Save evidence' and 'Cancel'.

Figure 32. Keeping a result as evidence.

Evidence and claims

Claims, evidence, and the difference between them

A **claim** is something you might end up writing down. **Evidence** is the specific passage that makes you believe it, kept with the page and character range it came from, and whether it supports, contradicts or merely qualifies the claim it is attached to.

Research Workbench Stress interventions — Active History Close project

Evidence 14 claims · 19 pieces of evidence · from 3 documents + New claim

A claim is something you might end up writing down; evidence is the passage that makes you believe it, kept with the page and character range it came from. The status of a claim is arithmetic over what is attached — it says what the evidence looks like, not whether the claim is true. That stays your call.

Physiological arousal recovers within minutes of a stressor ending. Claim Insufficient evidence

Edit Delete

Supports Physical Activity, Mindfulness Meditation, or Heart Rate Variability Biofeedback for Stress Reduction: A Randomized Controlled Trial · page 4 Captured

re, participants could vary their activity from day to day because carrying out the same activity each day could increase the risk of sports injuries. To meet the required level of exercise intensity, participants were instructed to attain the follow- ing physical signs after a few minutes of activity: deeper and faster breathing, sweating, an increased heart rate and an increased body temperature. Each participant received a brochure with additional information on stress and the positive effects of PA in reducing stress and its related symptoms, and handouts of the presentation that was given during the meeting. Mindfulness Meditation During the introduction meeting participants took part in a workshop on guided meditation including psycho-educat- ion on how mindfulness is helpful during stressful times. Appl Psychophysiol Biofeedback (2015) 40:257–268 259 123

Accept Reject Mark contradicting Detach Discard

The body's stress response recovers within minutes once a stressor ends. Claim Insufficient evidence

Edit Delete

Supports Physical Activity, Mindfulness Meditation, or Heart Rate Variability Biofeedback for Stress Reduction: A Randomized Controlled Trial · page 4 Captured

re, participants could vary their activity from day to day because carrying out the same activity each day could increase the risk of sports injuries. To meet the required level of exercise intensity, participants were instructed to attain the follow- ing physical signs after a few minutes of activity: deeper and faster breathing, sweating, an increased heart rate and an increased body temperature. Each participant received a brochure with additional information on stress and the positive effects of PA in reducing stress and its related symptoms, and handouts of the presentation that was given during the meeting. Mindfulness Meditation During the introduction meeting participants took part in a workshop on guided meditation including psycho-educat- ion on how mindfulness is helpful during stressful times. Appl Psychophysiol Biofeedback (2015) 40:257–268 259 123

Accept Reject Mark contradicting Detach Discard

The body's stress response recovers within minutes once a stressor ends. Claim Insufficient evidence

Edit Delete

Supports Physical Activity, Mindfulness Meditation, or Heart Rate Variability Biofeedback for Stress Reduction: A Randomized Controlled Trial · page 4 Captured

re, participants could vary their activity from day to day because carrying out the same activity each day could increase the risk of sports injuries. To meet the required level of exercise intensity, participants were instructed to attain the follow- ing physical signs after a few minutes of activity: deeper and faster breathing, sweating, an increased heart rate and an increased body temperature. Each participant received a brochure with additional information on stress and the positive effects of PA in reducing stress and its related symptoms, and handouts of the presentation that was given during the meeting. Mindfulness Meditation During the introduction meeting participants took part in a workshop on guided meditation including psycho-educat- ion on how mindfulness is helpful during stressful times. Appl Psychophysiol Biofeedback (2015) 40:257–268 259 123

Accept Reject Mark contradicting Detach Discard

Figure 33. Claims and their evidence.

A new claim needs only its statement and a kind: an ordinary claim, a research question, a hypothesis, or a knowledge gap.

New claim

STATEMENT

Frequency-domain EEG features distinguish acute stress from rest.

THIS IS A NOTE (OPTIONAL)

Claim

Save Cancel

Figure 34. A new claim.

Editing a claim changes its text, kind or note. None of that touches the evidence attached to it.

Edit claim

STATEMENT

Exercise reduces depressive symptoms relative to active control.

THIS IS A

NOTE (OPTIONAL)

Claim

Save Cancel

Figure 35. Editing a claim.

The arithmetic behind a claim's status

A claim's status is never a judgement the workbench makes for you. It is worked out from what is actually attached. Two supporting passages make a claim *Supported*. One makes it *Insufficient*. A contradicting passage on its own makes it *Contradicted*. Support and contradiction together make it *Mixed*. A piece of evidence you mark *Rejected* stops counting toward any of it. The status updates the moment an attachment changes, and it never overwrites a status you have deliberately set yourself.

Attaching, detaching, rejecting

Evidence not yet tied to any claim sits in its own list, ready to be attached. Detaching a piece of evidence from a claim keeps the passage. Only the link is gone, and it moves straight into that unattached list.

Research Workbench Stress interventions — Active

History Close project

mindfulness is helpful during stressful times. Appl Psychophysiol Biofeedback (2015) 40:257–268 259 123

Accept Reject Mark contradicting Detach

Discard

The body's stress response recovers within minutes once a stressor ends.

Edit Delete Claim Insufficient evidence

Supports Physical Activity, Mindfulness Meditation, or Heart Rate Variability Biofeedback for Stress Reduction: A Randomized Controlled Trial - page 4 Captured

re, participants could vary their activity from day to day because carrying out the same activity each day could increase the risk of sports injuries. To meet the required level of exercise intensity, participants were instructed to attain the follow- ing physical signs after a few minutes of activity: deeper and faster breathing, sweating, an increased heart rate and an increased body temperature. Each participant received a brochure with additional information on stress and the positive effects of PA in reducing stress and its related symptoms, and handouts of the presentation that was given during the meeting. Mindfulness Meditation During the introduction meeting participants took part in a workshop on guided meditation including psycho-educat- ion on how mindfulness is helpful during stressful times. Appl Psychophysiol Biofeedback (2015) 40:257–268 259 123

Accept Reject Mark contradicting Detach

Discard

The body's stress response recovers within minutes once a stressor ends.

Edit Delete Claim Insufficient evidence

Supports Physical Activity, Mindfulness Meditation, or Heart Rate Variability Biofeedback for Stress Reduction: A Randomized Controlled Trial - page 4 Captured

re, participants could vary their activity from day to day because carrying out the same activity each day could increase the risk of sports injuries. To meet the required level of exercise intensity, participants were instructed to attain the follow- ing physical signs after a few minutes of activity: deeper and faster breathing, sweating, an increased heart rate and an increased body temperature. Each participant received a brochure with additional information on stress and the positive effects of PA in reducing stress and its related symptoms, and handouts of the presentation that was given during the meeting. Mindfulness Meditation During the introduction meeting participants took part in a workshop on guided meditation including psycho-educat- ion on how mindfulness is helpful during stressful times. Appl Psychophysiol Biofeedback (2015) 40:257–268 259 123

Accept Reject Mark contradicting Detach

Discard

The body's stress response recovers within minutes once a stressor ends.

Edit Delete Claim Insufficient evidence

Supports Physical Activity, Mindfulness Meditation, or Heart Rate Variability Biofeedback for Stress Reduction: A Randomized Controlled Trial - page 4 Captured

re, participants could vary their activity from day to day because carrying out the same activity each day could increase the risk of sports injuries. To meet the required level of exercise intensity, participants were instructed to attain the follow- ing physical signs after a few minutes of activity: deeper and faster breathing, sweating, an increased heart rate and an increased body temperature. Each participant received a brochure with additional information on stress and the positive effects of PA in reducing stress and its related symptoms, and handouts of the presentation that was given during the meeting. Mindfulness Meditation During the introduction meeting participants took part in a workshop on guided meditation including psycho-educat- ion on how mindfulness is helpful during stressful times. Appl Psychophysiol Biofeedback (2015) 40:257–268 259 123

Accept Reject Mark contradicting Detach

Discard

Figure 36. Evidence not attached to anything.

From there, a selector offers every claim on the project by name, and choosing one reattaches the evidence at once; the claim's status is recomputed the moment it lands.

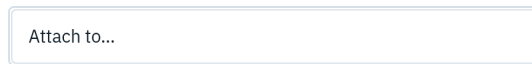


Figure 37. Attaching loose evidence to a claim.

Accept, **Reject** and **Mark contradicting** or **Mark supporting** sit beside every piece of evidence wherever it is shown, so correcting a stance the workbench got wrong, or discounting a passage that turned out not to hold up, is always one click away.

Evidence is verified against its page

A quote kept as evidence has to actually be findable on the page it claims to come from. The workbench checks the exact text against what was extracted from that page at import time, and a mismatch is refused rather than silently accepted. In ordinary use this is invisible, because every passage the interface offers you, from a search result, from the assistant or from an extracted finding, already comes with its real page and character range attached. The check exists as a backstop against a quote and a page number ever drifting apart, not something you will normally see fire.

The research graph

Reading the graph

The research graph draws together everything a project already holds, claims, evidence, documents, papers, authors and the fields they are filed under, as one connected picture. Nothing here is inferred. Every node and every edge comes from a record that already exists elsewhere in the project, and two passages being semantically similar is never, on its own, grounds for an edge.

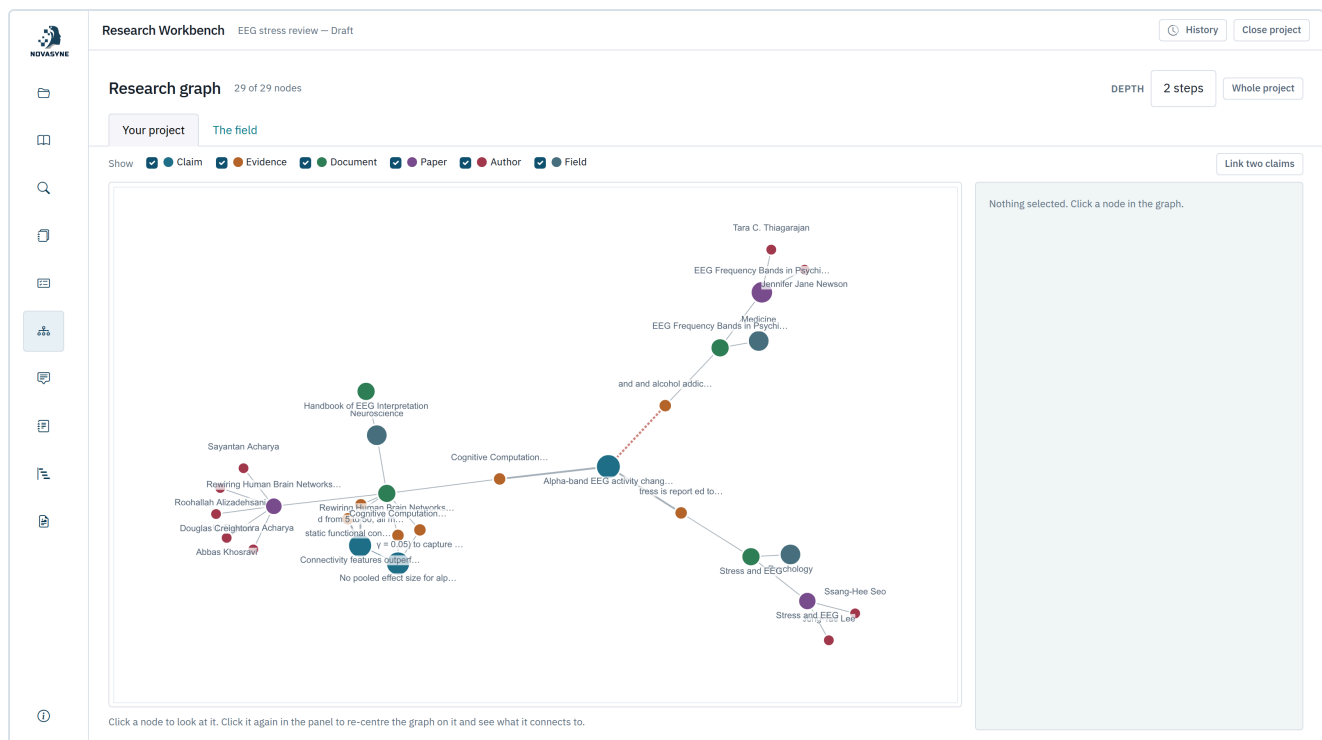


Figure 38. The research graph.

Each kind of node has its own colour, shown in the legend along the top, and any of the six kinds can be hidden to declutter a busy view. A project with several claims, a handful of papers and their real authors produces exactly the kind of graph shown here, dense in places, because a literature review genuinely is a web of connections, not a list.

Inspecting a node

Clicking any node opens it in the panel on the right. A paper shows its authors, year, venue, DOI and citation count, and whether its full text is in the library or held as metadata only.

PAPER

EEG Frequency Bands in Psychiatric Disorders: A Review of Resting State Studies

Authors: Jennifer Jane Newson, Tara C. Thiagarajan

Year: 2019

Venue: Frontiers in Human Neuroscience

DOI: 10.3389/fnhum.2018.00521

Cited by: 889

Full text: in the library

A significant proportion of the electroencephalography (EEG) literature focuses on differences in historically pre-defined frequency bands in the power spectrum that are typically referred to as alpha, beta, gamma, theta and delta waves. Here, we review 184 EEG studies that report differences in frequency bands in the resting state condition (eyes open and closed) across a spectrum of psychiatric...

Open the paper

Centre the graph here

Figure 39. Inspecting a paper.

The inspector is where the graph stops being a picture and becomes a record. A paper's citation count and venue come from the catalogue record Find papers stored, and *metadata only* means the workbench never obtained a legal full text, which is the cue to attach one from the Papers held list. A claim shows its kind, its status, how many passages support and contradict it, and what it rests on.

A claim shows its status, its evidence, and how it stands to any other claims it has been linked to.

CLAIM

Connectivity features outperform spectral power for stress classification.

Kind: Claim

Status: Supported

Evidence: 2 supporting, 0 contradicting

How it stands to other claims

- ← is related to: No pooled effect size for alpha change under acute stress has been re...

What it rests on

Supports · rewiring-human-brain-networks-via-lightweight-dynamic-conne-2025 · page 1

static functional connectivity measures. EEG recordings from the 32 -channel SAM 40 dataset were employed, focusing on mental arithmetic task trials. The dynamic EEG-based TV-DTF ...

Supports · rewiring-human-brain-networks-via-lightweight-dynamic-conne-2025 · page 15

d from 5 to 50, all models demonstrated gradual improvements in F1 score and accuracy, with SVM, GB and XGBoost consistently outperforming the others. For alpha -TV-DTF, these mod...

Centre the graph here

Figure 40. Inspecting a claim.

Centring the graph, and the trail

Centre the graph here, at the bottom of the inspector, re-roots the view on whichever node is currently open. The graph redraws around it out to a chosen number of steps, and a breadcrumb trail along the top makes re-centring on something else, or returning to the whole project, a single click rather than a dead end.

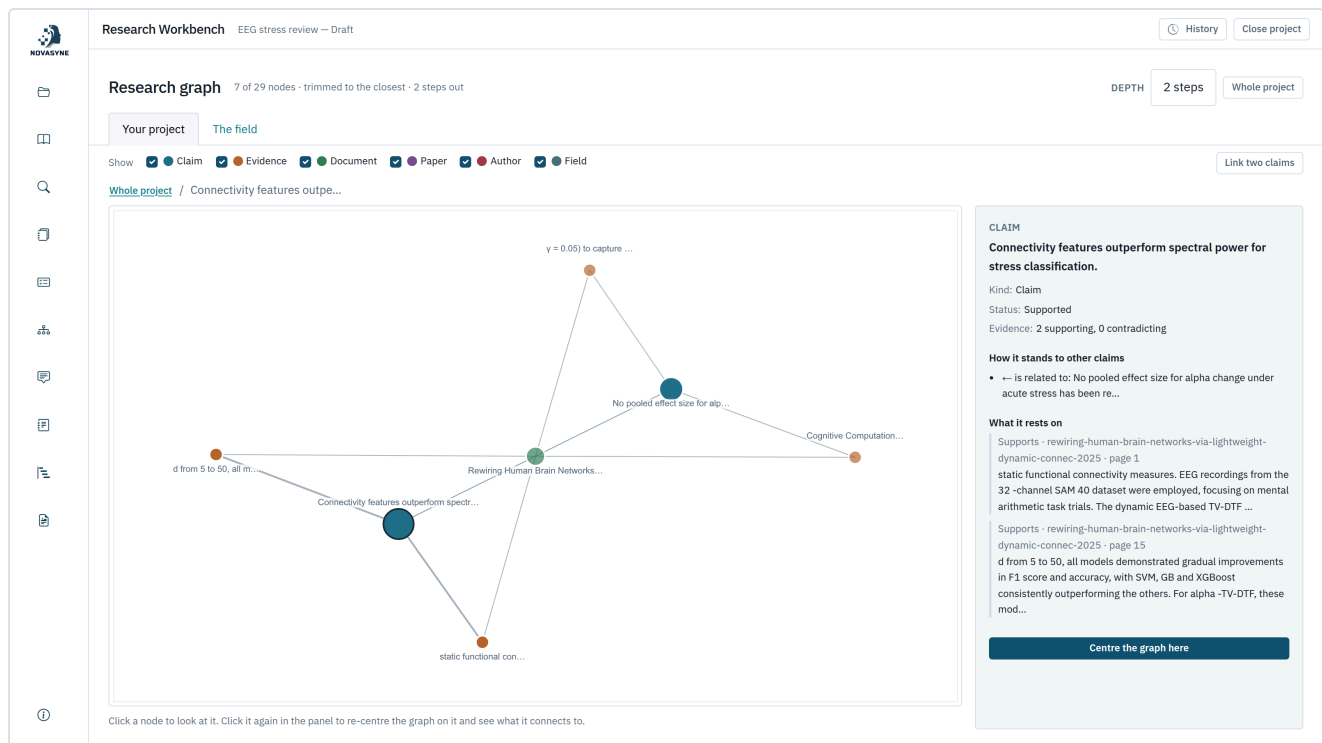


Figure 41. Centred on one claim.

Linking two claims

Two claims can be linked directly, as *supports*, *contradicts*, *extends*, *replicates*, *identifies a gap in* and several others, with an optional note saying why. These links are yours. Nothing in the workbench proposes one on its own, and a link the research assistant does suggest arrives *proposed*, waiting for you to accept it before it counts as anything more than a suggestion.

Link two claims

A link says how one claim stands to another. These are yours — nothing infers them, and nothing draws an edge because two passages happened to look similar.

THIS CLAIM

No pooled effect size for alpha change under acute stress has been reported acr...

RELATION

supports

THAT CLAIM

Connectivity features outperform spectral power for stress classification.

WHY (OPTIONAL)

The studies used different stress paradigms

Save link Cancel

Figure 42. Linking two claims.

The field: who publishes, where, and whether it is still growing

A second mode, **The field**, sets your own library aside and asks a different question of the published literature as a whole: who is working on this, where, and whether the area is still opening up. It runs entirely against OpenAlex's own aggregate counts, tens of thousands of works grouped

by institution, country, author and year, with nothing downloaded. That is the wrong kind of question for a node-and-edge graph, so it answers instead with ranked bars, a publication-year trend, and a short written reading above the charts.

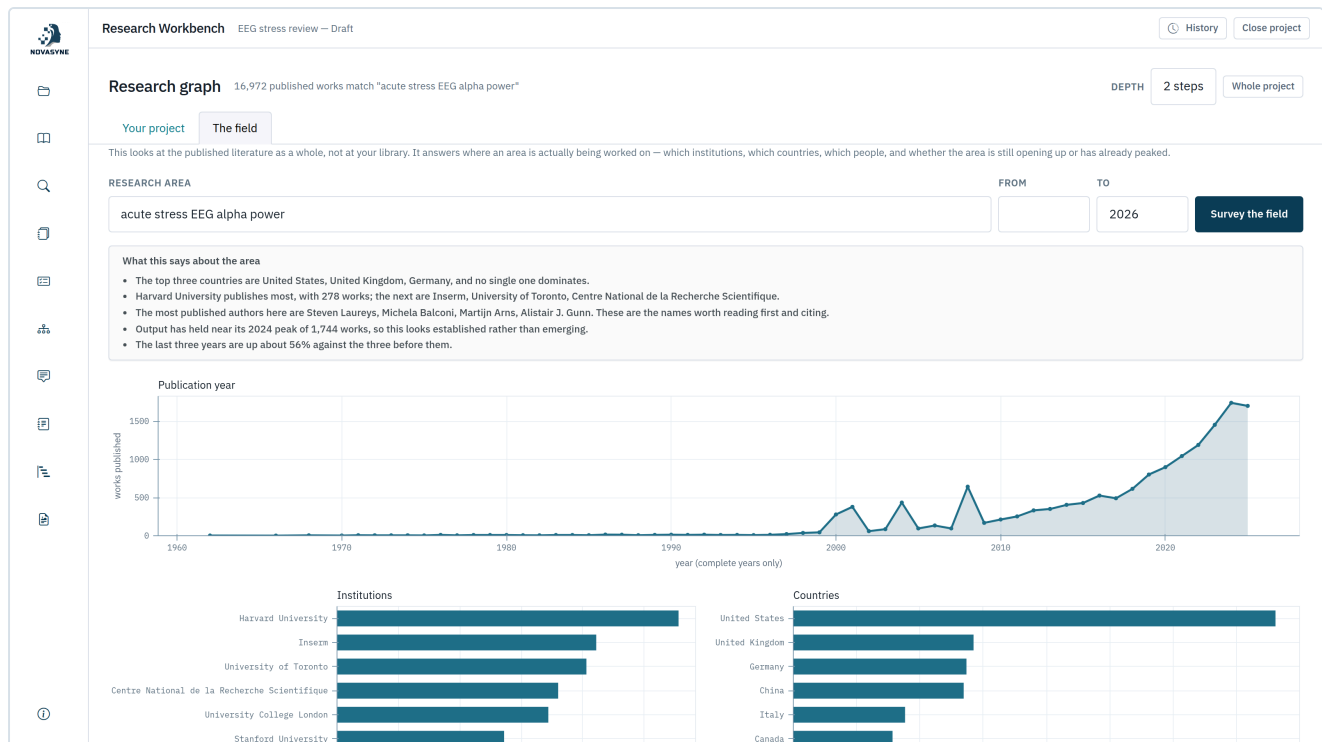


Figure 43. The field, not just this library.

Tens of thousands of published works match *acute stress EEG alpha power*. The reading above the charts names the institution and the country that publish most, and says whether output is still climbing or has settled near its recent peak, read directly off the chart rather than asserted without one.

The same three questions, asked instead of the papers this specific library actually holds, sit alongside the field-wide figures. That is useful precisely because where the two disagree, your own reading is leaning somewhere the literature as a whole does not.

And in your own library

The same three questions asked of the papers you actually hold. Where it differs from the field above, your reading is leaning somewhere the literature as a whole does not.

Institutions		Countries		Authors	
Australian Catholic University	2	US	7	Chris Lonsdale	2
Harvard University	2	NL	4	A. S. Smirnov	1
Institute of Psychology, Chinese Academy of Sciences	2	AU	3	Acharya Balkrishna	1
The University of Sydney	2	CN	3	Albert Yeung	1
University of Jyväskylä	2	GB	3	Alexander J. Scott	1
Vrije Universiteit Amsterdam	2	DE	2	Andrew F. Leuchter	1
Amsterdam Neuroscience	1	FI	2	Andréas Fink	1
Amsterdam Public Health	1	IT	2	Angela L. Wilson	1

Figure 44. The same three questions, asked of what is actually held.

Clicking any institution or country bar drills straight into **Find papers**, pre-filled with a query scoped to that group and ready to select and fetch.



Figure 45. Drilling into one country's output.

The drill is how the survey turns into reading. It opens Find papers with that group's works on your question already listed, the query labelled with the topic and the group, ready to tick and fetch into the same library as everything else. A country that publishes heavily where your library holds nothing is a gap the graph of your own project could never have shown you.

The research assistant

Grounded or it does not run

The research assistant answers six kinds of question, Ask, Summarise, Compare, Explain the relationship, Find contradictions and Find gaps, and every one of them works the same way underneath. Retrieval happens first, against this project's own selected documents, and if nothing relevant comes back the model is never called at all. Paying to be told "I don't know" would be worse than simply saying there is nothing to work from, and it would also invite an answer built from what the model happens to already know rather than from your own sources.

Research Workbench Stress interventions -- Active History Close project

Research assistant claude · claude-sonnet-5 31 runs · about \$0.258 so far

Every answer is written only from passages in this project's own documents, and every statement carries the passage it came from. Where the passages do not settle something, it says so rather than filling the gap. Findings are proposals until you keep them.

Ask Summarise Compare Explain the relationship Find contradictions Find gaps

ASK

does alpha power change under acute stress? Run

Answer a question from the passages this project holds

Earlier runs

ACTION	ABOUT	TOKENS	COST	WHEN
Find contradictions	Exercise reduces depressive symptoms relative to active control.	cached	—	9/22/2026, 11:56:33 AM
Explain the relationship	Exercise reduces depressive symptoms relative to active control. ↔ Ph...	cached	—	9/22/2026, 11:56:31 AM
Compare	An Overview of Heart Rate Variability Metrics and Norms vs Neuroscien...	6808	\$0.0369	9/22/2026, 11:56:28 AM
Summarise	Stress and EEG	cached	—	9/22/2026, 11:56:09 AM
Ask	Do mindfulness-based interventions reduce stress more reliably than e...	cached	—	9/22/2026, 11:56:05 AM
Find gaps	How large is the effect of behavioural interventions on stress and mo...	cached	—	9/20/2026, 9:03:12 AM
Ask	Does the evidence here support mindfulness reducing stress more than ...	cached	—	9/20/2026, 9:03:04 AM
Find gaps	How large is the effect of behavioural interventions on stress and mo...	cached	—	9/20/2026, 8:59:24 AM
Ask	Does the evidence here support mindfulness reducing stress more than ...	cached	—	9/20/2026, 8:59:23 AM
Ask	Does the evidence here support mindfulness reducing stress more than ...	cached	—	9/20/2026, 8:55:03 AM

Figure 46. The research assistant.

Ask answers a question directly from the passages this project holds.

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Every answer is written only from passages in this project's own documents, and every statement carries the passage it came from. Where the passages do not settle something, it says so rather than filling the gap. Findings are proposals until you keep them.

Ask Summarise Compare Explain the relationship Find contradictions Find gaps

ASK

Do mindfulness-based interventions reduce stress more reliably than exercise? Run

Answer a question from the passages this project holds

Ask claude-sonnet-5 · answered from cache, no cost 9 citations, all real

Based on the passages provided, the answer is no—the direct evidence here does not support mindfulness being more reliable than exercise for stress reduction.

The one study that directly compares mindfulness meditation (MM) to physical activity (PA) for stress found **no significant between-intervention difference**: PA, MM, and heart rate variability biofeedback were "equally effective in reducing stress and its related symptoms" [P3]. This RCT randomized 126 participants (76 completers) to one of the three self-help interventions, each involving 5 weeks of daily home exercises [P1]. The authors explicitly note they had no prior hypothesis favoring one intervention over another due to lack of prior comparative research, though they speculated MM and HRV-BF might pattern together against PA because both involve attention-focusing and calm breathing—a speculation not borne out by their results [P6]. The study's overall conclusion is that all three interventions "can all play a positive role" in reducing stress, and the best choice may depend on which one a person can most easily commit to, rather than any inherent superiority of one method [P4].

Some contextual notes from the same paper: prior to this trial, PA already had "accumulating evidence" convincingly demonstrating efficacy for stress reduction, while MM and HRV-BF were described as having "similar advantages but less physical requirements," useful as alternatives for those with physical restrictions [P5], [P10]. This framing treats MM as a substitute option rather than a more effective one.

Separately, [P2], [P9], and [P11] discuss exercise and mindfulness only in the context of "depression" outcomes, not stress specifically, and address exercise's possible mechanisms (including mindfulness as one of several mediating factors within exercise itself, e.g., yoga and qigong) rather than comparing mindfulness interventions against exercise interventions head-to-head. These passages are not comparable to the stress-specific question and I won't treat them as bearing on relative reliability for stress.

Summary for your argument: The only head-to-head comparison in this set [P1], [P3], [P6] indicates equivalence, not mindfulness superiority. If your argument requires evidence that mindfulness reliably outperforms exercise for stress, these passages do not support that claim, and a stronger phrasing might be that mindfulness and exercise appear comparably effective, with choice reasonably driven by individual adherence [P4].

Passages it was given

#	DOCUMENT	PAGE	CITED
P1	Physical Activity, Mindfulness Meditation, or Heart Rate Variability Biofeedback for Stress Reduction: A Randomized Controlled Trial	2	yes

Figure 47. Ask, answered from this project's own passages.

Every statement in an answer that carries a citation, [P3], [P7] and so on, is checked against the passages actually supplied, and the verdict badge above the answer says plainly whether every citation resolved to a real passage or whether one pointed at nothing. The full table of passages the model was given, and which of them it actually used, sits below every answer.

Passages it was given			
#	DOCUMENT	PAGE	CITED
P1	Physical Activity, Mindfulness Meditation, or Heart Rate Variability Biofeedback for Stress Reduction: A Randomized Controlled Trial	2	yes
P2	Effect of exercise for depression: systematic review and network meta-analysis of randomised controlled trials	13	yes
P3	Physical Activity, Mindfulness Meditation, or Heart Rate Variability Biofeedback for Stress Reduction: A Randomized Controlled Trial	2	yes
P4	Physical Activity, Mindfulness Meditation, or Heart Rate Variability Biofeedback for Stress Reduction: A Randomized Controlled Trial	12	yes
P5	Physical Activity, Mindfulness Meditation, or Heart Rate Variability Biofeedback for Stress Reduction: A Randomized Controlled Trial	3	yes
P6	Physical Activity, Mindfulness Meditation, or Heart Rate Variability Biofeedback for Stress Reduction: A Randomized Controlled Trial	3	yes
P7	Physical Activity, Mindfulness Meditation, or Heart Rate Variability Biofeedback for Stress Reduction: A Randomized Controlled Trial	11	—
P8	Physical Activity, Mindfulness Meditation, or Heart Rate Variability Biofeedback for Stress Reduction: A Randomized Controlled Trial	12	—
P9	Effect of exercise for depression: systematic review and network meta-analysis of randomised controlled trials	17	yes
P10	Physical Activity, Mindfulness Meditation, or Heart Rate Variability Biofeedback for Stress Reduction: A Randomized Controlled Trial	3	yes
P11	Effect of exercise for depression: systematic review and network meta-analysis of randomised controlled trials	13	yes
P12	Physical Activity, Mindfulness Meditation, or Heart Rate Variability Biofeedback for Stress Reduction: A Randomized Controlled Trial	4	—

Figure 48. The passages behind the answer.

Summarise, Compare, and Explain the relationship

Summarise says what a single document, or a single claim, amounts to.

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Every answer is written only from passages in this project's own documents, and every statement carries the passage it came from. Where the passages do not settle something, it says so rather than filling the gap. Findings are proposals until you keep them.

Ask **Summarise** Compare Explain the relationship Find contradictions Find gaps

FIRST

Stress and EEG Run

Say what a document or a claim amounts to

Summarise claude-sonnet-5 · answered from cache, no cost 10 citations, all real

This chapter examines whether EEG can serve as a reliable marker of psychological stress, situating this within broader research on the stress response and its physiological correlates. It reviews how stress is conventionally assessed (via self-report scales and biochemical/physiological measures) before presenting an original experiment linking EEG beta activity to established stress indices.

- **Conceptual framing**: Chronic psychological stress is linked to disrupted autonomic nervous system balance between sympathetic and parasympathetic activity, contributing to stress-related health problems [P3], and prior work has used ECG, EEG, and skin conductance to quantify stress, though reliably measuring individual stress levels remains debated [P2]. Standard stress assessment tools include self-report questionnaires (PSS, LECS, SRI) [P4][P5] and biochemical markers such as cortisol [P5].

- **Experimental method**: The authors' own study used 33 healthy adults exposed to eyes-closed/open and pleasant/unpleasant IAPS image conditions, with simultaneous EEG (at FC5, FC6, O1, O2), ECG (for HRV/SDNN), salivary cortisol, and SRI/SAM self-report measures [P7][P8][P9][P10].

- **Key findings**: In the eyes-closed condition, high beta EEG activity at anterior temporal sites (FC5, FC6) correlated negatively with SDNN (an HRV measure) [P11] and positively with salivary cortisol at the same sites [P12], and a k-means cluster analysis based on SDNN identified a "stress" group with significantly higher beta activity at FC5 [P11][P12]. These results are presented as supporting the claim that EEG (specifically high beta activity) can reliably index inter-individual differences in stress [P3].

The passages give a reasonably full picture of this chapter's argument and evidence, though they do not include the introduction/discussion sections that might address limitations or broader implications in more depth.

Passages it was given

#	DOCUMENT	PAGE	CITED
P1	Stress and EEG	1	—
P2	Stress and EEG	1	—

Figure 49. Summarise a document.

Compare puts two documents side by side on whatever dimensions the passages actually support, and says plainly when two documents are not really comparable research outputs at all, rather than forcing a comparison the material cannot bear.

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Every answer is written only from passages in this project's own documents, and every statement carries the passage it came from. Where the passages do not settle something, it says so rather than filling the gap. Findings are proposals until you keep them.

Ask Summarise **Compare** Explain the relationship Find contradictions Find gaps

FIRST SECOND

An Overview of Heart Rate Variability Metric Neuroscience Science of the Brain Run

Put two documents side by side on the same dimensions

Compare claude-sonnet-5 · answered from cache, no cost 12 citations, all real

These two documents are not comparable in any direct empirical sense — they don't share a population, method, or measured outcome that would allow a genuine comparison. One is a focused physiological review article; the other is an introductory public-education booklet on brain science for young students. Rather than force a comparison, I'll lay out what each passage set actually supports and flag where no relationship exists.

Genre and purpose

- A is a peer-reviewed review article published in Frontiers in Public Health, submitted through formal editorial review [P1], aimed at synthesizing HRV metrics and norms for clinical and research use [P2][P3].
- B is an introductory booklet produced by the British Neuroscience Association and the European Dana Alliance for the Brain, explicitly framed as "an introduction for young students" [P7][P8], and describes its own outreach mission (school visits, public exhibitions, awareness campaigns) [P9]. It is not a primary research report or systematic review in the passages given.

Population

- A: addresses "clinical, healthy, and optimal performance populations" [P2][P3], with explicit attention to subject variables like age, sex, health status [P5].
- B: no defined study population — the passages describe general audiences (young students, the public) [P7][P8][P9], and occasionally reference rats/mice in stress research [P11], but this is illustrative content, not a study population for the booklet itself.
- Not comparable — A specifies human research populations for measurement norms; B is a general-audience educational text.

Method

- A: reviews time-domain, frequency-domain, and non-linear HRV metrics, discusses recording period length, detection method (ECG vs. PPG), sampling frequency, and artifact removal as methodological factors affecting measurement [P4][P5][P6].
- B: describes methods used in neuroscience research it surveys, e.g., task-based experimental designs for behavior [P10], and event-related fMRI with subtraction imaging and statistical parametric mapping (SPM) [P12]. These are methods discussed within B's content, not methods B itself deploys as a review.
- Both documents discuss methodology, but for entirely different domains (cardiac signal processing vs. brain imaging/behavioral experiments) — not comparable as if answering the same methodological question.

Measures/Outcomes

- A: HRV metrics (SDNN and others implied), normative values, effects of artifacts on frequency-band power, discrepancies between ECG and PPG detection (~6% general, 29.9% for pNN50) [P5][P6].
- B: no equivalent quantified "measure" of a single construct: content spans cortisol levels and hippocampal decline in aging [P11], decision-making tasks [P10], and fMRI signal analysis [P12] — a range of topics rather than

Figure 50. Compare two documents.

Explain the relationship takes two claims and says how one stands to the other on the evidence at hand, or says, in its first sentence, that no meaningful relationship was identified. Two claims about different phenomena are reported as unrelated rather than forced into a connection the passages do not support.

Research Workbench Stress interventions — Active History Close project

Research assistant claude · claude-sonnet-5 35 runs · about \$0.250 so far

Every answer is written only from passages in this project's own documents, and every statement carries the passage it came from. Where the passages do not settle something, it says so rather than filling the gap. Findings are proposals until you keep them.

[Ask](#) [Summarise](#) [Compare](#) [Explain the relationship](#) [Find contradictions](#) [Find gaps](#)

FIRST SECOND

Exercise reduces depressive symptoms rel... Physiological arousal recovers within minut... Run

Say how two claims stand to each other, or that they do not

[Explain the relationship](#) claude-sonnet-5 · answered from cache, no cost 4 citations, all real

No meaningful evidence-based relationship was identified between claims A and B on this evidence.

The passages provided all come from a single systematic review and network meta-analysis on exercise and depression [P1–P12]. They directly support claim A: exercise, across several modalities (dance, walking/jogging, yoga, strength training, mixed aerobic exercise, tai chi/qigong), produced moderate-to-large reductions in depressive symptoms compared with active controls [P3], with effects proportional to intensity [P2][P7], and comparable to or exceeding some drug and psychotherapy benchmarks [P8].

None of the passages, however, address physiological arousal or its time-course of recovery after a stressor ends. Claim B concerns a distinct physiological/stress-response phenomenon that is not discussed, measured, or implied anywhere in this material. The review's focus is on depressive symptom outcomes from exercise interventions, not on acute stress-arousal recovery kinetics [P1–P12].

Given this, the passages do not support, contradict, extend, or refine claim B in any way — they simply do not bear on it. If the researcher wants to relate these two claims, additional sources specifically addressing physiological arousal recovery would be needed.

Passages it was given

#	DOCUMENT	PAGE	CITED
P1	Effect of exercise for depression: systematic review and network meta-analysis of randomised controlled trials	17	—
P2	Effect of exercise for depression: systematic review and network meta-analysis of randomised controlled trials	13	yes
P3	Effect of exercise for depression: systematic review and network meta-analysis of randomised controlled trials	8	yes

Figure 51. Explain the relationship between two claims.

Find contradictions and Find gaps

Find contradictions looks for passages that argue against a claim, qualify it, or show it holding only under some condition.

Research Workbench Stress interventions — Active History Close project

Research assistant claudie · claudie-sonnet-5 36 runs · about \$0.258 so far

Every answer is written only from passages in this project's own documents, and every statement carries the passage it came from. Where the passages do not settle something, it says so rather than filling the gap. Findings are proposals until you keep them.

[Ask](#) [Summarise](#) [Compare](#) [Explain the relationship](#) [Find contradictions](#) [Find gaps](#)

FIRST

Exercise reduces depressive symptoms relative to active control Run

Look for passages that argue against a claim

Find contradictions claudie-sonnet-5 · answered from cache, no cost 4 citations, all real

Here are the passages that qualify or limit the claim rather than straightforwardly confirm it:

[P3] Notes that "confidence in many of the results was low" and that benefits were proportional to intensity — this suggests the effect size and certainty vary by exercise type and dose, rather than being a uniform, high-confidence finding across all forms of exercise.

[P7] States that "only one study met the Cochrane criteria for low risk of bias" and that "confidence in accordance with CINEMA was low for walking or jogging and very low for other treatments." This directly qualifies the strength of evidence behind the claim — the effect may be real but the underlying trial quality is weak.

[P9] Notes a discrepancy in the literature: "a large overview of reviews found effects on depression to be proportional to intensity... but a later meta-analysis found no such effects." This shows the intensity-dependence of the effect (and possibly the effect's robustness) is not settled even across other reviews the authors cite.

[P10] States "the confidence in the evidence for exercise is less strong than for cognitive behavioural therapy," which qualifies any direct comparison of exercise's effectiveness to other treatments and tempers the strength of the claim.

Nothing here flatly denies that exercise reduces depressive symptoms relative to active control, but these passages complicate the claim by flagging low certainty, inconsistency across reviews, and lower confidence relative to comparator treatments.

Findings you can keep

Each of these cites a passage. Keeping one turns it into evidence on this project, with its page and character range.

Here are the passages that qualify or limit the claim rather than straightforwardly confirm it: [P3] Notes that "confidence in many of the results was low" and that benefits were proportional to intensity — this suggests the effect size and certainty vary by exercise type and dose, rather than being a uniform, high-confidence finding across all forms of exercise. [P7] States that "only one study met the Cochrane criteria for low risk of bias" and that "confidence in accordance with CINEMA was low for walking or jogging and very low for other treatments." This directly qualifies the strength of evidence behind the claim — the effect may be real but the underlying trial quality is weak. [P9] Notes a discrepancy in the literature: "a large overview of reviews found effects on depression to be

Figure 52. Find contradictions.

Find gaps says what a project has not established yet, measured against what it already holds: not a generic list of things a study could investigate, but gaps visible in this project's own accumulated evidence.

Research Workbench Stress interventions — Active History Close project

Research assistant claudie · claudie-sonnet-5 37 runs · about \$0.258 so far

Every answer is written only from passages in this project's own documents, and every statement carries the passage it came from. Where the passages do not settle something, it says so rather than filling the gap. Findings are proposals until you keep them.

[Ask](#) [Summarise](#) [Compare](#) [Explain the relationship](#) [Find contradictions](#) [Find gaps](#)

Run

Say what this project has not established yet

Find gaps claudie-sonnet-5 · answered from cache, no cost 11 citations, all real

Based on the passages, here are the gaps this project has not closed:

- **Effect size magnitude is not consolidated across interventions.** The passages report widely varying effect sizes (e.g., MBSR perceived stress ES 0.93 post-intervention dropping to 0.26 at 3 months [P4]; exercise-depression $g = -0.59$ to -0.63 [P2]; PA/MM/HRV-BF all "substantial" but not quantified with comparable statistics in the same terms [P8]), but nothing here pools or standardizes these into a single answer to "how large." This is a genuine gap, not just an omission — the studies use different scales, populations, and comparators, so the passages themselves show the numbers are not commensurable.

- **Durability of effects is contested, not settled.** [P2] states exercise effects on depression remained steady from post-treatment to six months. But [P4] and [P6] show mindfulness-based interventions' effects on stress specifically fading by 3 months (ES dropping from 0.93 to 0.26 in [P4]), even while other outcomes like mindfulness itself stayed large. This is a real tension between passages about different interventions, not resolvable from what's here — the claim "no trial here reports long-term follow-up" is contradicted by [P2] and [P4]/[P6], which do report follow-up, so that claim itself needs revision rather than being a confirmed gap.

- **Why autonomy/behaviour-change techniques weaken rather than strengthen exercise effects is unexplained.** [P2] and [P5] report the counterintuitive finding that participant autonomy was associated with "weaker" effects, and behaviour change techniques did not moderate effects, but the passages only speculate on mechanisms rather than establish one ([P5]).

- **Head-to-head comparability between intervention types is not established beyond one trial.** [P3]/[P8]/[P9] compare PA, mindfulness meditation, and HRV-biofeedback within a single study and find no significant between-group differences, but [P3] explicitly notes the sample size could only detect medium-to-large effects, so smaller true differences "were not detected" — this is flagged in the passage itself as a power limitation, not a settled equivalence.

- **Generalizability across populations is not addressed.** [P4]/[P6]/[P11] concern people with multiple sclerosis specifically; [P11]/[P2]/[P5]/[P7] concern depression populations generally; [P3]/[P8]/[P9]/[P10] concern self-selected adults with "stress complaints." The passages do not compare these populations to each other, so no claim about effect size holding across populations is supported here.

- **The claim that trials are "small and rarely blinded" is asserted but not evidenced in these passages**, aside from [P11]'s self-described "small size" of one feasibility study. No passage here systematically reports sample sizes or blinding status across the trial base, so this remains a proposal awaiting documentation rather than a demonstrated pattern.

Figure 53. Find gaps.

Keeping a finding as evidence

Contradictions and gaps arrive as a list of individual findings, each one citing the passage it came from. **Keep as evidence** turns one into real evidence on the project, carrying that passage's actual page and character range, with the stance you choose beside the button. A finding that cites no passage at all cannot be kept, because there would be nothing to trace it back to; its button is disabled and says so. Findings are proposals until you keep them. Nothing is added to your evidence base automatically.

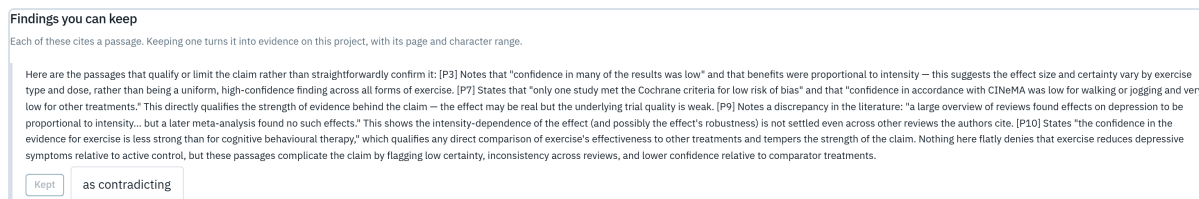


Figure 54. One finding kept as evidence, with the stance chosen beside it.

The kept finding arrives in the Evidence pane as evidence pending your review, exactly as a passage saved from a search result does, and the claim it attaches to has its status recomputed at once.

Verifying every citation, and the spend meter

Every run, whichever of the six actions it was, is recorded with its model, its token counts, its cost, and whether it was served from an earlier identical run rather than costing anything at all. History shows every run so far and reopens any of them exactly as they were answered.

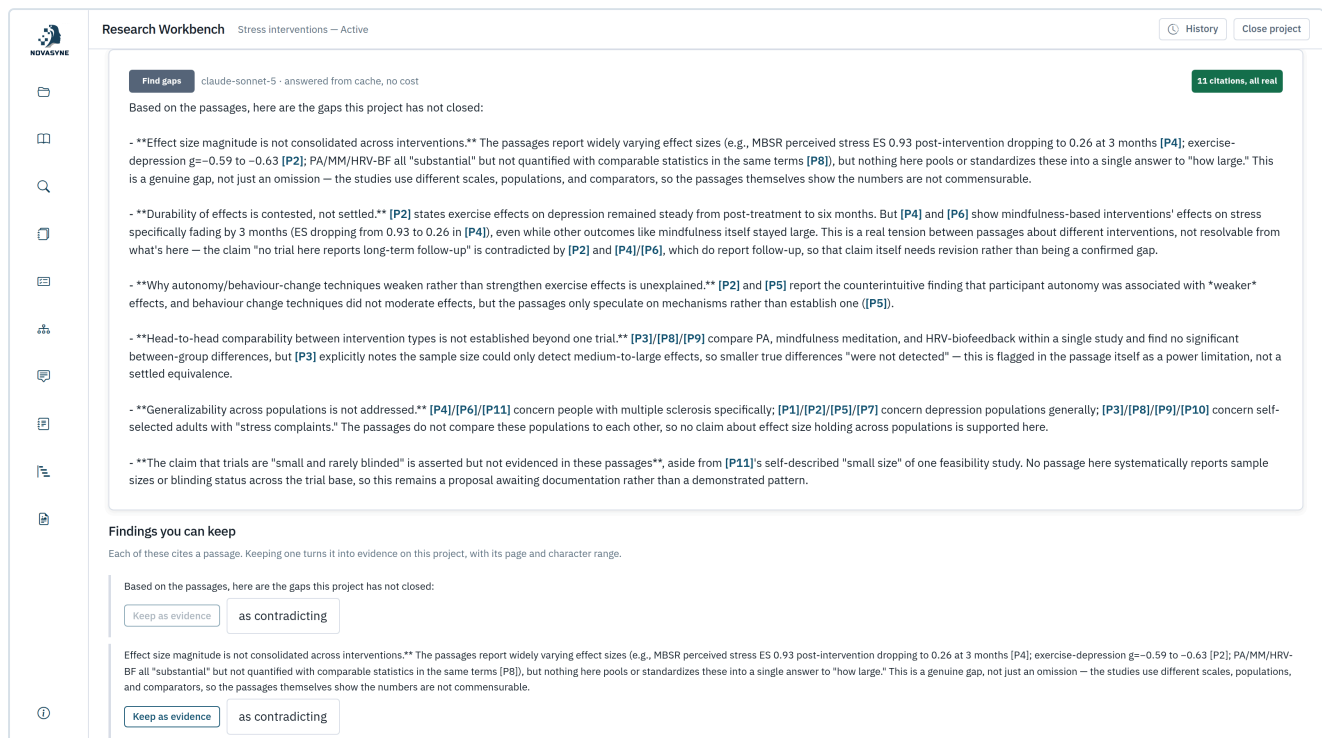


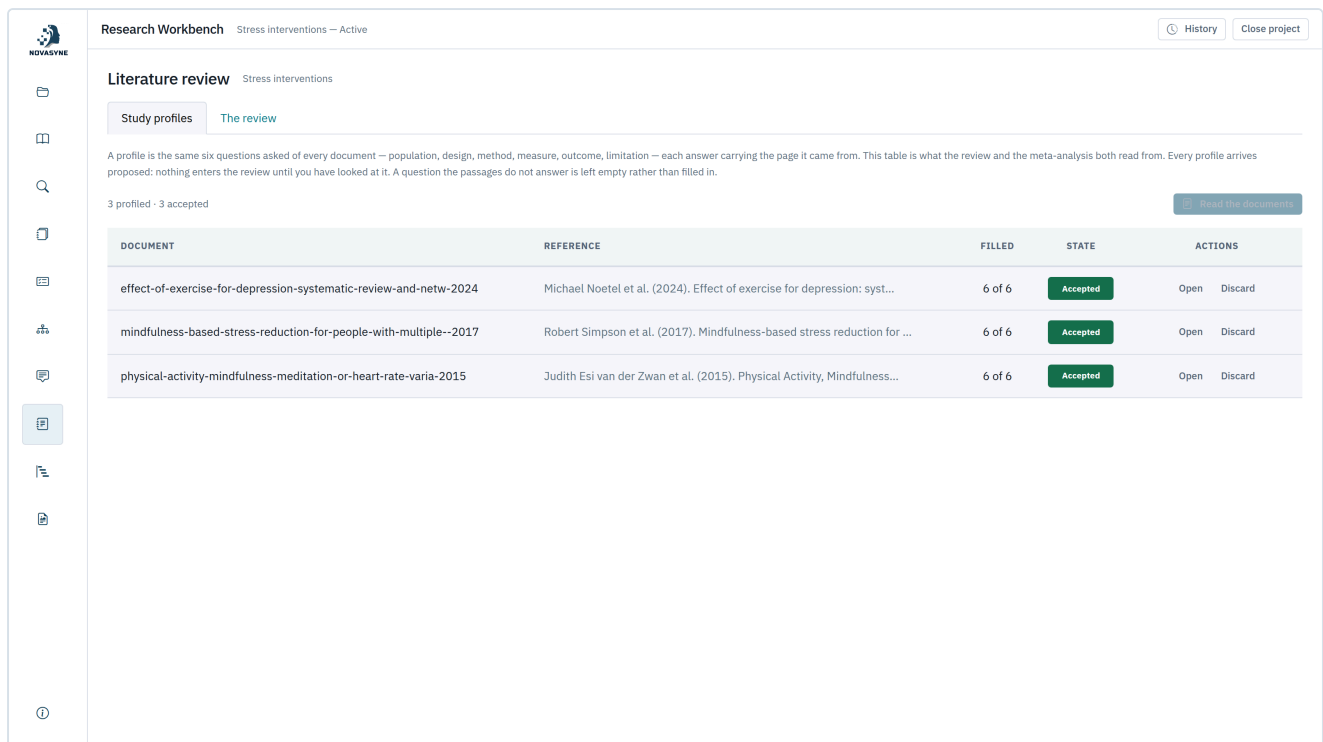
Figure 55. Every earlier run, its cost, and whether it was cached.

The cache is also the provenance record. An action, its question, the model, and the exact set of passage ids supplied all hash to one key. Ask the identical question against unchanged evidence and the answer comes back instantly, at no cost, rather than paying to regenerate something already known to be grounded. Change the underlying evidence, or the question, and a fresh call runs. A visible running total, so many runs and so many cents so far, sits above every answer, because a cost that only shows up on an invoice at the end of the month is not a cost you can manage.

Study profiles and the literature review

Extracting a study profile

A study profile asks the same six questions of every document, its population, design, method, measure, outcome and limitation, with each answer carrying the exact page it came from. **Read the documents** extracts a profile for every selected document that does not have one yet. A document that already has a profile is never read again, so running it after adding new documents to the project leaves every existing profile exactly as it was.



The screenshot shows the 'Research Workbench' interface for 'Stress interventions - Active'. The 'Literature review' section is active, with tabs for 'Study profiles' and 'The review'. A text box explains that a profile is the same six questions asked of every document (population, design, method, measure, outcome, limitation) and that the table below is what the review and meta-analysis both read from. Below this, it states '3 profiled - 3 accepted'. A table lists three documents with their references, filled status, state, and actions.

DOCUMENT	REFERENCE	FILLED	STATE	ACTIONS
effect-of-exercise-for-depression-systematic-review-and-netw-2024	Michael Noetel et al. (2024). Effect of exercise for depression: syst...	6 of 6	Accepted	Open Discard
mindfulness-based-stress-reduction-for-people-with-multiple--2017	Robert Simpson et al. (2017). Mindfulness-based stress reduction for ...	6 of 6	Accepted	Open Discard
physical-activity-mindfulness-meditation-or-heart-rate-varia-2015	Judith Esi van der Zwan et al. (2015). Physical Activity, Mindfulness...	6 of 6	Accepted	Open Discard

Figure 56. Study profiles.

Opening a profile shows every field, cited passage by passage. A question the passages genuinely did not answer is left empty rather than guessed at, with the reason stated plainly.

effect-of-exercise-for-depression-systematic-review-and-netw-2024

Michael Noetel et al. (2024). Effect of exercise for depression: systematic review and network meta-analysis of randomised controlled trials. BMJ. doi:10.1136/bmj-2023-075847

POPULATION

Who or what was studied, and how many of them

Adults meeting criteria for major depressive disorder (clinician diagnosed or self-report exceeding clinical th

[page 4](#)
[page 6](#)

DESIGN

How the study was arranged — controlled, observational, review, and so on

Systematic review and network meta-analysis of randomised controlled trials

[page 4](#)
[page 5](#)

METHOD

What was actually done to or with the participants

Included RCTs testing exercise as a treatment for depression; extracted intervention details (frequency, inte

[page 5](#)
[page 5](#)
[page 5](#)
[page 5](#)

MEASURE

What was measured, with what instrument, and in what units

Depression outcomes (self-report and clinician rated), analysed as Hedges' g effect sizes; energy expenditur

[page 5](#)
[page 5](#)
[page 5](#)
[page 6](#)

OUTCOME

What was found, in the authors' own terms

Exercise showed a large change in before/after scores (Hedges' g -1.16), moderate benefit versus waitlist cr

[page 5](#)
[page 10](#)
[page 10](#)
[page 10](#)
[page 14](#)

LIMITATION

What the authors themselves say limits the finding

Findings for dance are based on a small number of studies with low participant numbers and biased designs

Figure 57. One study, profiled.

Correcting a field, and accepting a profile

Any field can be corrected by hand, which is recorded as your own correction rather than the model's answer. **Accept profile** marks it ready to feed the review and the meta-analysis. Nothing enters either one until you have looked at it. Your corrections and your acceptance are kept for good. Reading the documents again does not replace a profile that already exists, so a checked profile is never quietly swapped for a fresh guess. Study profiles are the table both the literature review's methodological-differences section and the meta-analysis's own extraction read from, which is why Find papers is built to bring in real primary studies with real numbers, not only prose sources.

What the review is built from

The **Review** tab shows exactly what material exists for each of the review's eight sections before you spend anything assembling it: how many items, and how many distinct sources. There are no surprises about what *assemble* is going to write.

Research Workbench Stress interventions — Active History Close project

Literature review Stress interventions

Study profiles The review

The review is assembled from what this project already holds — its claims, the evidence attached to them, the links between them and the study profiles above. Each section is written only from its own material, and a sentence with no citation behind it is deleted before you see it. Sections with nothing to cite are not written at all, and say why.

8 of 8 sections have material · 39 sources available Assemble the review

What it will be built from

- Background 1 item, 10 sources
- Established knowledge 1 item, 2 sources
- Current evidence 10 items, 10 sources
- Competing findings 1 item, 3 sources
- Methodological differences 1 item, 12 sources
- Contradictions 1 item, 1 source
- Knowledge gaps 3 items, 7 sources
- Where this points 1 item, 7 sources

The review claude-sonnet-5 · 27,376 in / 4,630 out · about \$0.1516 24 of 36 sources cited, all real Copy as Markdown

Background

At the smaller end, Simpson et al. conducted a phase-2 exploratory randomised controlled trial of mindfulness-based stress reduction (MBSR) in 50 adults with multiple sclerosis, using a wait-list control design with blinded outcome data entry [E26], recruiting participants from NHS sites in Glasgow with a predominance of relapsing-remitting disease [E25]. This trial was explicitly framed as a feasibility study intended to inform a later definitive phase-3 trial, and it reported both primary outcomes (perceived stress, quality of life) and a range of secondary outcomes including depression, anxiety, positive affect, and self-compassion [E10]. A separate randomised controlled trial by van der Zwan et al. compared three distinct stress-reduction interventions—physical activity, mindfulness meditation, and heart rate variability biofeedback—among stressed adults in Amsterdam selected using a validated Perceived Stress Scale cut-off, with assessments at pre-test, post-test, and six-week follow-up [E31] [E32]. At the other end of the evidence base, Noetel et al. undertook a systematic review and network meta-analysis of exercise as a treatment for depression, drawing on 218 unique studies and 14,170 participants who met criteria for major depressive disorder [E19]. This review used network meta-analytic methods to synthesise both direct and indirect comparisons between exercise modalities and active or control conditions [E20], and it incorporated exploratory analyses of behaviour change techniques and participant autonomy as potential moderators of effect [E11] [E12].

► 2 sentences removed for carrying no citation

Established knowledge

Existing evidence establishes that mindfulness-based interventions are effective in reducing perceived stress [E14] [E15]. This conclusion is supported by randomized controlled trial data comparing mindfulness meditation against other self-help stress-reduction approaches, such as physical activity and heart rate variability biofeedback, in the context of addressing the high prevalence of stress in contemporary populations [E15]. The consistency of this stress-reduction effect across the reviewed work indicates that mindfulness-based approaches can be considered a viable method for lowering perceived stress levels [E14].

Figure 58. What the review will be built from.

Assemble the review writes all eight sections in one pass: background, established knowledge, current evidence, competing findings, methodological differences, contradictions, knowledge gaps, and where the gaps point.

Assembling the review

Background

0 of 8

Cancel

Figure 59. Assembling the review.

A sentence with no citation is deleted

Every sentence in a written section carries at least one citation to a numbered source, and a sentence the model wrote without one is deleted before you ever see it. Not flagged, removed. The deletions are reviewable, not hidden: a disclosure under each section names exactly what was taken out and why.

Research Workbench Stress interventions — Active History Close project

Literature review

 Stress interventions

Study profiles The review

The review is assembled from what this project already holds — its claims, the evidence attached to them, the links between them and the study profiles above. Each section is written only from its own material, and a sentence with no citation behind it is deleted before you see it. Sections with nothing to cite are not written at all, and say why.

8 of 8 sections have material · 39 sources available Assemble the review

What it will be built from

- Background 1 item, 10 sources
- Established knowledge 1 item, 2 sources
- Current evidence 10 items, 10 sources
- Competing findings 1 item, 3 sources
- Methodological differences 1 item, 12 sources
- Contradictions 1 item, 1 source
- Knowledge gaps 3 items, 7 sources
- Where this points 1 item, 7 sources

The review claudes-sonnet-5 · 27,817 in / 4,760 out · about \$0.1549 26 of 39 sources cited, all real Copy as Markdown

Background

Behavioural approaches to reducing stress and improving mood span a heterogeneous set of interventions, including structured exercise programmes, mindfulness-based courses, and biofeedback training, and these have typically been evaluated through randomised controlled trials against inactive or active comparators [E22] [E23] [E29] [E34] [E35]. Trial populations differ substantially; some studies recruit clinical samples defined by a diagnosis, such as adults meeting criteria for major depressive disorder [E22], or people managing a chronic neurological condition such as multiple sclerosis [E28] [E29], while others recruit community or student volunteers selected on the basis of elevated self-reported stress [E34] [E35]. The interventions under study are similarly varied in format and dose, ranging from multi-week mindfulness-based stress reduction courses delivered to clinical groups [E13] [E28] [E29], to parallel-arm comparisons of physical activity, mindfulness meditation, and heart-rate-variability biofeedback in stressed adults [E34] [E35], to large evidence syntheses of exercise trials for depression that pool many modalities and comparator types within a network meta-analysis framework [E14] [E15] [E16] [E22] [E23]. Outcome measurement in this literature is also not uniform, with some trials focusing on perceived stress and quality of life as primary endpoints [E13] [E28] [E29], others tracking depressive symptoms as the central outcome across a network of exercise interventions [E14] [E22] [E23], and still others examining stress reduction as the primary target with mood-related measures assessed alongside it [E34] [E35]. Follow-up windows vary as well, from immediate post-intervention assessment to three-month follow-up in feasibility trials [E13] [E28] [E29], to six-week follow-up in stress-reduction comparisons [E34] [E35], to moderator analyses examining effects measured up to six months after treatment ends in the exercise network meta-analysis [E14].

▼ 1 sentence removed for carrying no citation
Methodological quality and evidentiary strength also differ across this body of work: feasibility trials with small samples report retention and completion rates

Established knowledge

A substantial body of intervention research has focused on establishing whether structured behavioural practices can lower subjectively experienced stress, and this literature converges on mindfulness-based approaches as a well-

Figure 60. The literature review.

A section with genuinely nothing to cite is not written at all, and says so in terms of what the project actually holds, such as *no claim in this project is Supported yet*, rather than a generic placeholder. The verdict badge in the top corner states how many of the sources offered were actually cited, and confirms every one of those citations resolved to a real source. **Copy as Markdown** puts the whole review on the clipboard with its citations intact.

The bibliography

Every source the review actually cited, and only those, appears in the bibliography, each one shown with the section letters it was cited under. A source offered to a section but never used in the final text does not appear here. The bibliography reflects what was written, not what was available.

References

Every source the review actually cited, and nothing else.

- Judith Esi van der Zwan et al. (2015). Physical Activity, Mindfulness Meditation, or Heart Rate Variability Biofeedback for Stress Reduction: A Randomized Controlled Trial. *Applied Psychophysiology and Biofeedback*. doi:10.1007/s10484-015-9293-x (cited as E3, E4, E5, E17, E18, E19, E34, E35, E36, E39)
- Michael Noetel et al. (2024). Effect of exercise for depression: systematic review and network meta-analysis of randomised controlled trials. *BMJ*. doi:10.1136/bmj-2023-075847 (cited as E14, E15, E16, E20, E21, E22, E23, E24, E25, E27)
- Robert Simpson et al. (2017). Mindfulness-based stress reduction for people with multiple sclerosis – a feasibility randomised controlled trial. *BMC Neurology*. doi:10.1186/s12883-017-0880-8 (cited as E13, E28, E29, E30, E31, E33)

Figure 61. The bibliography: everything actually cited, and nothing else.

Meta-analysis

Extracting a finding

A finding is one reported effect size, an actual number printed on an actual page, never something calculated, converted or estimated by the workbench itself. If a study reports a p-value but no effect size, it contributes nothing. An empty result is the common, correct outcome for a textbook or a narrative review, and the workbench says so rather than inventing a number to fill the gap.

Read the documents for numbers can be run again whenever the project gains documents. A finding already extracted from a document is not added a second time, and a finding you rejected stays rejected rather than coming back as a new proposal. The one exception is deliberate. A finding whose numbers you corrected no longer matches what the model first read, so a later run may propose the original reading again, for you to reject.

Research Workbench Stress interventions — Active

History Close project

Meta-analysis Stress interventions

Findings Pooling

A finding is one reported effect size, with the page it was printed on. Nothing here is calculated or converted: if a study reports a p value and no effect size, it contributes nothing. **Every extracted number is a proposal.** An effect size is exactly the kind of thing a model gets subtly wrong, so check each one against its page and accept or correct it before it can be pooled.

44 extracted · 17 accepted · 31 can be weighted

[Read the documents for numbers](#)

STUDY	MEASURE	TYPE	EFFECT	95% CI	N	STATE	ACTIONS
Michael Noetel et al. (2024). Effect of exerc...	Hedges' g (standardised mean change fro...	SMD	-0.960	-1.360 - -0.560	107	Accepted	Check Delete
Michael Noetel et al. (2024). Effect of exerc...	Hedges' g (standardised mean change fro...	SMD	-0.630	-0.800 - -0.460	1210	Accepted	Check Delete
Michael Noetel et al. (2024). Effect of exerc...	Hedges' g (standardised mean change fro...	SMD	-0.550	-0.750 - -0.370	712	Accepted	Check Delete
Michael Noetel et al. (2024). Effect of exerc...	Hedges' g (standardised mean change fro...	SMD	-0.550	-0.730 - -0.360	1047	Accepted	Check Delete
Michael Noetel et al. (2024). Effect of exerc...	Hedges' g (standardised mean change fro...	SMD	-0.550	-0.860 - -0.230	268	Accepted	Check Delete
Michael Noetel et al. (2024). Effect of exerc...	Hedges' g (standardised mean change fro...	SMD	-0.540	-0.760 - -0.320	404	Accepted	Check Delete
Michael Noetel et al. (2024). Effect of exerc...	Hedges' g (standardised mean change fro...	SMD	-0.490	-0.690 - -0.290	643	Accepted	Check Delete
Michael Noetel et al. (2024). Effect of exerc...	Hedges' g (standardised mean change fro...	SMD	-0.440	-0.710 - -0.160	234	Accepted	Check Delete
Michael Noetel et al. (2024). Effect of exerc...	Hedges' g (standardised mean change fro...	SMD	-0.430	-0.610 - -0.250	1286	Accepted	Check Delete
Michael Noetel et al. (2024). Effect of exerc...	Hedges' g (standardised mean change fro...	SMD	-0.420	-0.650 - -0.210	343	Accepted	Check Delete
Michael Noetel et al. (2024). Effect of exerc...	Hedges' g (standardised mean change fro...	SMD	-0.330	-0.500 - -0.160	1036	Accepted	Check Delete

Figure 62. Extracted findings.

Checking a finding against its page

Every extracted number is a proposal, and an effect size is exactly the kind of thing a model can get subtly wrong: a sign flipped, a confidence interval misread. **Check** opens the finding beside the actual passage it came from, every field editable, with a plain warning if the number as it stands cannot yet be pooled. **Accept** marks it verified and **Reject** takes it out of every pool.

A correction that no arithmetic could use is refused when you save it, with the field named. A sample size or group size has to be a whole number above zero, and an effect size, standard error or interval bound has to be a finite number.

Hedges' g (standardised mean change from baseline)

Michael Noetel et al. (2024). Effect of exercise for depression: systematic review and network meta-analysis of randomised controlled trials. BMJ. doi:10.1136/bmj-2023-075847

page 9

MEASURE

Hedges' g (standardised mean change from baseline)

POPULATION

adults with depression

OUTCOME

depression symptoms

COMPARISON

dance vs active control

EFFECT TYPE

Standardised mean difference (d)

EFFECT SIZE

-0.96

STANDARD ERROR

On the pooling scale — log for ratios.

CI LOWER

-1.36

CI UPPER

-0.56

TOTAL N

107

N GROUP A

N GROUP B

DIRECTION

favors dance

THE PASSAGE IT CAME FROM

modalities were not well studied in some groups (eg, tai chi for younger adults), and mean age of the sample was only available for 71% of the studies. Dance Walking or jogging Cognitive behavioural therapy Yoga Exercise + SSRI Aerobic exercise + therapy Strength Relaxation Mixed aerobic exercises Tai chi or qigong Aerobic exercise + strength Cycling SSRI Physical activity counselling Waitlist control -0.96 (-1.36 to -0.56) -0.63 (-0.80 to -0.46) -0.55 (-0.75 to -0.37) -0.55 (-0.73 to -0.36) -0.55 (-0.86 to -0.23) -0.54 (-0.76 to -0.32) -0.49 (-0.69 to -0.29) -0.44 (-0.71 to -0.16) -0.43 (-0.61 to -0.25) -0.42 (-0.65 to -0.21) -0.33 (-0.50 to -0.16) -0.30 (-0.60 to 0.01) -0.26 (-0.50 to -0.01) -0.07 (-0.30 to 0.16) 0.35 (0.19 to 0.51) -1.5 -1.0 0 Equivalent to active control 0.5-0.5 1.5 Hedges' g (95% CrI) Hedges' g (95% CrI) 5 51 20 33 11 15 22 6 51 12 28 11 16 4 53 0.95 0.75 0.58 0.57 0.85 0.62 0.66 0.57 0.41 0.68 0.42 0.25 0.36 0.20 0.01 SUCRA 107 1210 712 1047 268 404 643 234 1286 343 1036 243 432 256 1303 No Clinically important bene/fh.g0330t Poorer outcomes or higher depression Fig 4 | Predicted effects of different exercise modalities on major depression compared with active controls (eg, usual care), with 95% credible intervals.

Accepted

Save corrections

Reject

Close

Figure 63. Checking a finding against its page.

What "poolable" means

A finding is poolable once its variance can be worked out: from a reported confidence interval, a standard error, or, for a standardised mean difference, the two group sizes. A finding with none of those is kept, named, and excluded from pooling with the reason stated, rather than dropped silently or given an invented weight. The same applies to a finding whose numbers could not describe a real study, such as a group of zero people. It is listed as having an unknown variance, not pooled. If the numbers of a whole group are so extreme that the pooled arithmetic overflows, **Pool this group** refuses with a message saying so and asking you to check the effect sizes, intervals and standard errors, rather than drawing a forest plot of numbers that mean nothing.

Grouping by effect type

Findings are grouped by what kind of number they actually are before anything is pooled. A standardised mean difference and an odds ratio are not the same quantity, and averaging across them would produce a figure that means nothing, so mixing them is refused outright, in words, rather than done quietly.

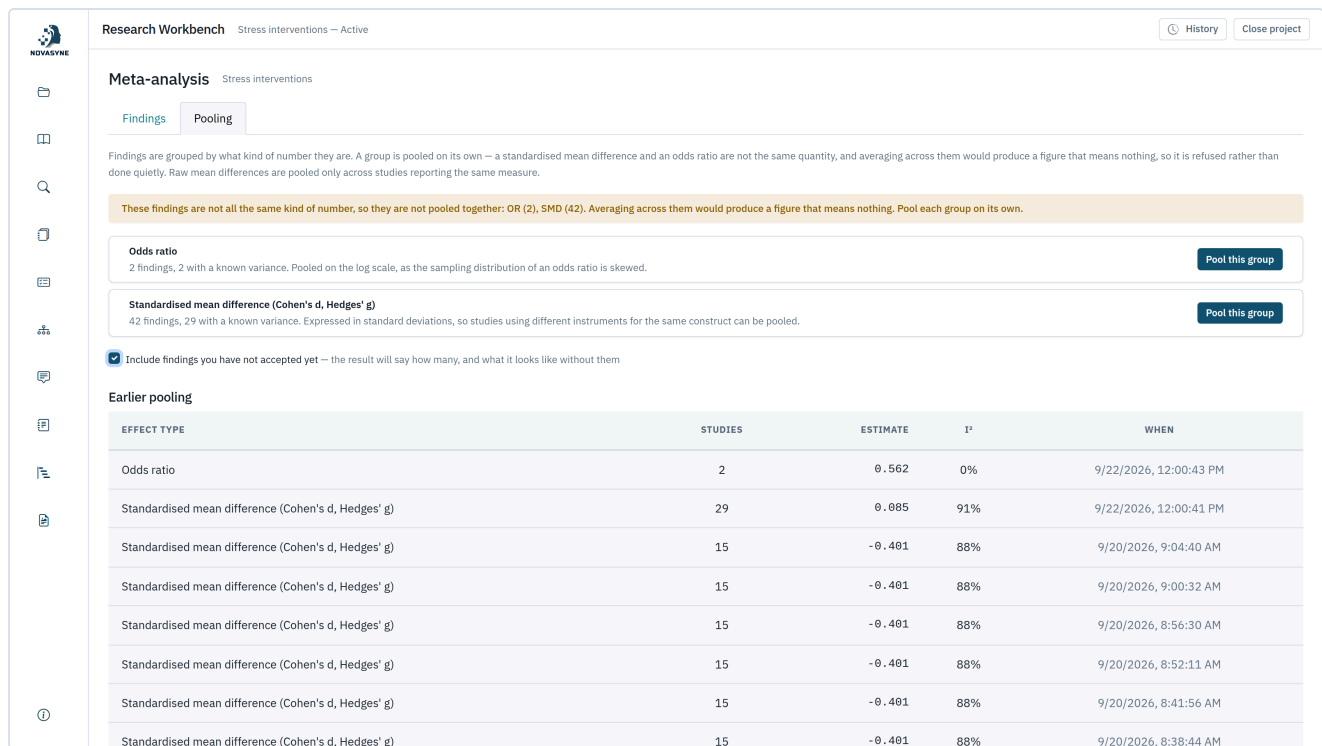


Figure 64. Grouped by kind of number.

Pooling: fixed and random effects

Pool this group runs both a fixed-effect and a random-effects pool, reports which studies are already accepted against which are still proposed, and, if unchecked findings were included, separately reports what the estimate looks like using only the ones you have actually verified, so you can see at a glance whether the unchecked numbers are doing the work.

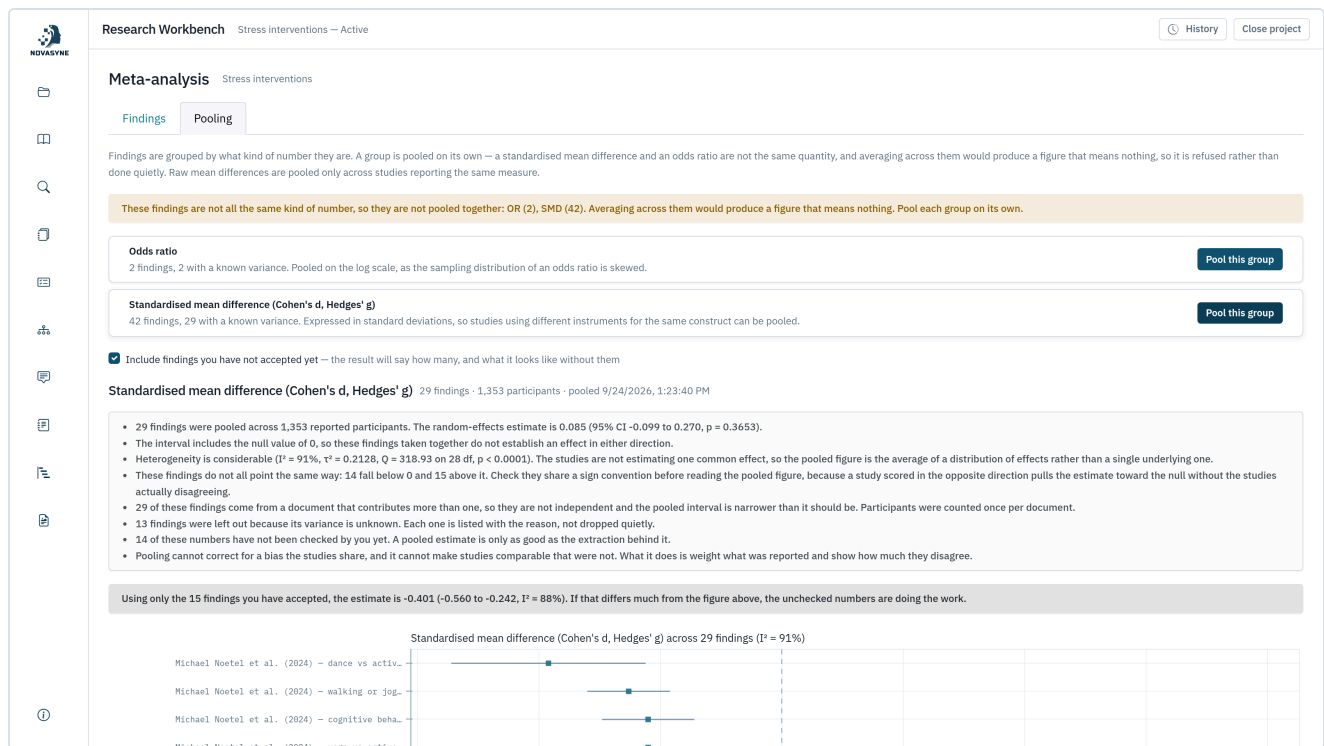


Figure 65. A random-effects pool.

Participants are counted once per document. A network meta-analysis such as the exercise-for-depression review reports many comparisons, and each can become a finding, but the people behind them are not new people each time. The count takes the largest sample any one document reports and adds the documents together, so the 29 standardised mean differences in the figure above come to 1,353 participants, not the ten thousand a finding-by-finding sum would claim. When pooled findings share a document the reading says so in its own line, because findings from one study are not independent and the pooled interval is then narrower than it should be. Both odds ratios in this project come from the same review too, so that pool, shown next, is read as 264 participants with the same warning.

Odds ratios and risk ratios are pooled on the log scale, because their sampling distribution is skewed on the ordinary scale, and the forest and funnel plots that go with them are drawn on that same log axis, not the linear one a standardised mean difference gets.

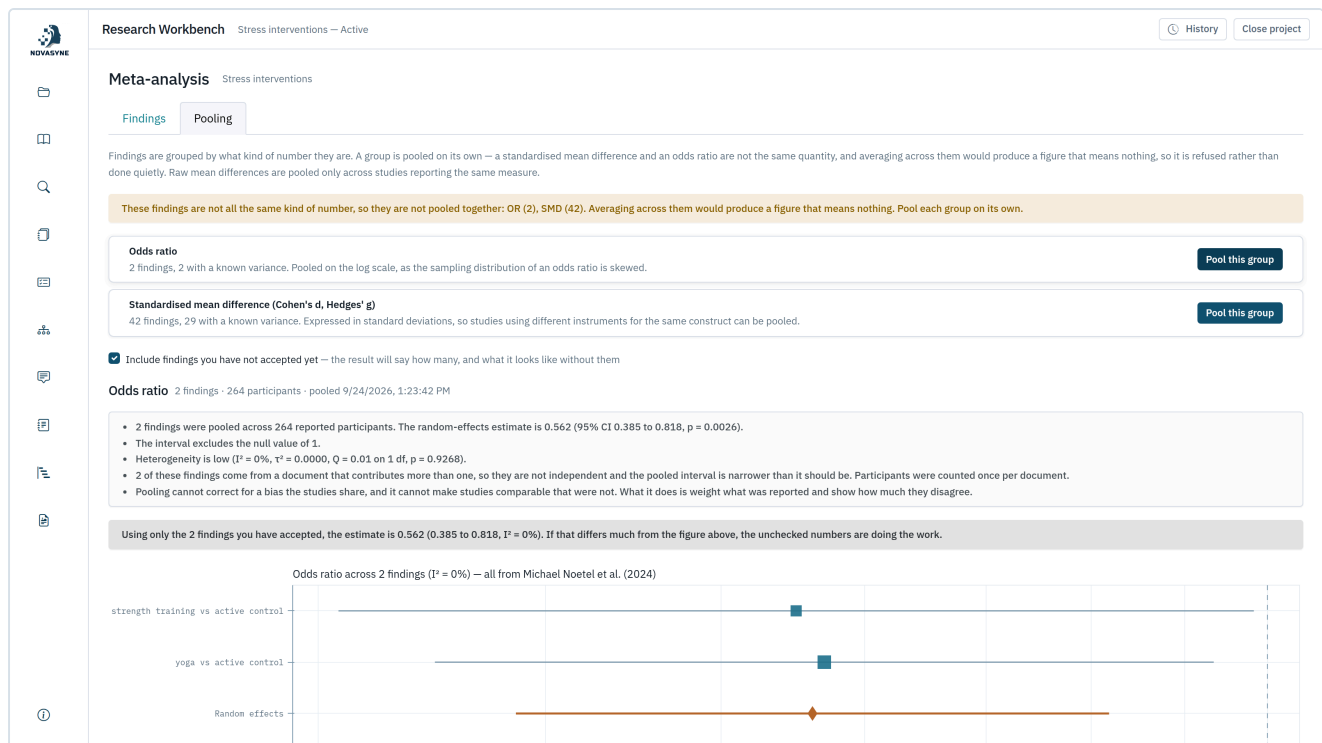


Figure 66. A ratio, pooled and charted on a log axis.

The forest plot, the funnel plot, leaving one out

Every pooled result draws three charts: a forest plot showing each study's own estimate and confidence interval against the pooled figure, a funnel plot for judging asymmetry across study precision, and a sensitivity chart showing what the pooled estimate becomes with each study left out in turn, because a figure that swings wildly when one study is removed is telling you something the headline number alone does not.

A written reading in plain sentences sits above every chart: how many findings were pooled, across how many participants, whether the interval excludes the value that would mean no effect at all, how much heterogeneity there is and what that implies, and whether the studies even agree on which direction the effect runs.

Every pooling run is kept

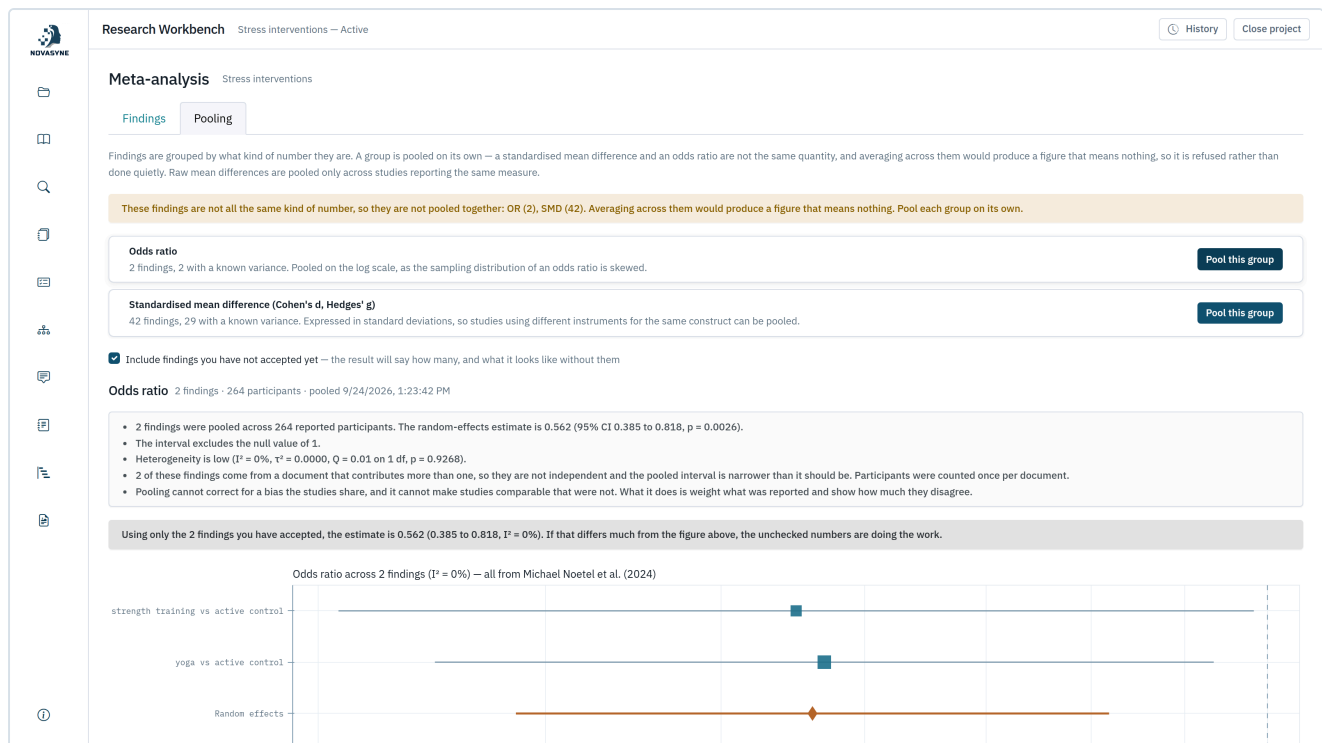


Figure 67. Every pooling run kept, not just the latest.

Every pooling run, whichever effect type, is kept rather than overwritten by the next one, so a project's meta-analysis history is a real record of how the pooled estimate moved as more findings were checked and accepted. Runs made before a finding was corrected keep the numbers they reported at the time, which is why the research foundation checks whether the findings behind the latest run have changed before quoting it.

The research foundation

What it is assembled from

The research foundation is the deliverable this whole workbench exists to produce: an Introduction and Related Work with their citations already in place, what the pooled evidence shows in plain language, the knowledge gaps themselves, and aims and objectives that each name the gap they address. It is assembled from the literature review and the meta-analysis rather than written afresh.

It refuses to run at all until a literature review exists, because an Introduction and Related Work built without one would not be built from anything.

Research Workbench Stress interventions -- Active

History Close project

Research foundation Stress interventions

This is the deliverable: an Introduction and Related Work with their citations already in place, aims and objectives that each name the gap they address, the knowledge gaps themselves, and a reference list built from what the project actually cited. It is assembled from the literature review and the meta-analysis rather than written afresh, so nothing appears here that was not already traceable to a source.

What it will be built from

- Literature review 8 sections written, assembled 9/22/2026, 12:00:27 PM
- Meta-analysis 2 findings pooled, 9/22/2026, 12:00:43 PM

Assemble the foundation

The foundation claudes-sonnet-5 · 19,175 in / 3,350 out · about \$0.1078

5 of 5 sections, 24 sources cited, all real

Markdown LaTeX Word JSON hand-off

Introduction

Stress and low mood are widespread concerns in contemporary populations, and this prevalence has motivated a substantial body of trial evidence testing behavioural interventions, including mindfulness-based programmes, physical activity, and biofeedback, as candidate remedies [E15]. Much of this evidence points toward a genuine capacity of such interventions to reduce perceived stress, with randomised trials comparing mindfulness meditation against alternative self-help approaches such as physical activity and heart rate variability biofeedback lending support to this conclusion [E14] [E15]. Parallel work on exercise has extended this picture to depressive symptoms specifically, with a large network meta-analysis reporting moderate-to-large reductions across modalities including walking or jogging, yoga, strength training, mixed aerobic exercise, and dance when compared against active controls, with several of these effects exceeding thresholds considered clinically meaningful [E18]. Combined treatments pairing aerobic exercise with psychotherapy or with SSRIs were reported to produce similarly moderate, clinically meaningful reductions in the same synthesis, suggesting that behavioural approaches may also hold value alongside established clinical treatments [E18] [E17]. At the smaller and more exploratory end, a phase-2 feasibility trial of mindfulness-based stress reduction in adults with multiple sclerosis, using a wait-list control with blinded outcome data entry, found a large reduction in perceived stress immediately post-intervention, but this trial was explicitly designed to inform a future definitive study rather than to establish effectiveness on its own [E26] [E25]. In contrast, a trial directly comparing physical activity, mindfulness meditation, and heart rate variability biofeedback for stress reduction found no statistically significant between-groups effects on an intention-to-treat basis, complicating any straightforward claim that these interventions reliably outperform one another or produce robust effects at the population level [E16]. Notably, when that same trial restricted analysis to participants who complied with at least 70% of prescribed practice, the estimated effects grew larger, raising the possibility that intention-to-treat estimates understate the effects achievable under adequate engagement, though this compliance-based analysis was not the trial's primary confirmatory test [E16]. The exercise-depression literature has attempted to address such heterogeneity more systematically, using a Bayesian network meta-analytic framework with credibility assessed via the CINeMA tool, in explicit contrast to the single small trial designs that characterise much of the mindfulness literature [E20] [E21] [E22]. The mindfulness-based stress reduction trial in multiple sclerosis found that large post-intervention gains in perceived stress diminished to a small effect by three-month follow-up, directly demonstrating instability in treatment effects over a short observation window rather than merely raising the possibility of such instability [E10]. Similarly, although the exercise-depression network meta-analysis moderated for the lag between treatment end and outcome measurement, finding steady effects up to six months later, the overall confidence in these network estimates was judged low, largely due to substantial within-study bias across the pooled trials [E11] [E13].

3 sentences removed for carrying no citation

Related work

Background. At the smaller end, Simpson et al. conducted a phase-2 exploratory randomised controlled trial of mindfulness-based stress reduction (MBSR) in 50 adults with multiple sclerosis, using a wait-list control design with blinded outcome data entry [E26], recruiting participants from NHS sites in Glasgow with a predominance of relapsing-remitting disease [E25]. This trial was explicitly framed as a feasibility study intended to inform a later definitive phase-3 trial, and it reported both primary outcomes (perceived stress, quality of life) and a range of secondary outcomes including depression, anxiety, positive affect, and self-compassion [E10]. A separate randomised controlled trial by van der Zwan et al. compared three distinct stress-reduction interventions—physical activity, mindfulness meditation, and heart rate variability biofeedback—among stressed adults in Amsterdam selected using a validated Perceived Stress Scale cut-off, with assessments at pre-test, post-test, and six-week follow-up [E31] [E32]. At the other end of the evidence base, Noetel et al. undertook a systematic review and network meta-analysis of exercise as

Figure 68. What the foundation will be built from.

Introduction, related work, pooled evidence, gaps, aims

Assemble the foundation writes all five sections in one pass, following the same rule as the literature review: every sentence carries a citation or it is not shown.

Research Workbench Stress interventions — Active History Close project

Research foundation Stress interventions

This is the deliverable: an Introduction and Related Work with their citations in place, aims and objectives that each name the gap they address, the knowledge gaps themselves, and a reference list built from what the project actually cited. It is assembled from the literature review and the meta-analysis rather than written afresh, so nothing appears here that was not already traceable to a source.

What it will be built from

- Literature review 8 sections written, assembled 9/22/2026, 12:00:27 PM
- Meta-analysis 2 findings pooled, 9/22/2026, 12:00:43 PM

Assemble the foundation

The foundation claudes-sonnet-5 · 18,834 in / 3,325 out · about \$0.1064 5 of 5 sections, 26 sources cited, all real Markdown LaTeX Word JSON hand-off

Introduction

Stress and low mood are pervasive concerns that have motivated a wide range of behavioural interventions, from structured exercise programmes and mindfulness-based courses to biofeedback training, typically evaluated against inactive or active comparators in randomised controlled trials [E22][E23][E29][E34][E35]. These trials draw on markedly different populations, including adults meeting diagnostic criteria for major depressive disorder [E22] and people managing chronic conditions such as multiple sclerosis [E28], which complicates any attempt to generalise about how large the benefits of behavioural approaches actually are. Much of this literature has been organised around the narrower question of whether such practices can lower subjectively experienced stress, and a recurring conclusion is that mindfulness-based approaches are a well-supported means of achieving this [E17][E18]. Randomised comparisons of mindfulness meditation against other self-help stress-reduction strategies have reported reductions in perceived stress associated with mindfulness practice [E18], a pattern echoed elsewhere in the trial literature [E28][E31]. Much of what exists on physical activity, mindfulness meditation, and heart rate variability biofeedback as competing stress-reduction strategies derives from a single randomised controlled trial, whose reporting emphasises intervention protocol detail—exercise intensity targets, mindfulness psychoeducation—over quantified outcome effect sizes [E3][E4]. That same trial found no statistically significant between-groups differences on any outcome variable once treatment effects were corrected for baseline, casting doubt on claims that physical activity reliably outperforms alternative approaches [E19], although effects appeared larger when analysis was restricted to participants who complied with at least 70% of prescribed training time [E19]. By contrast, a large network meta-analysis of exercise trials for depression reported moderate-to-large reductions relative to active controls, ranging from $g = -0.42$ for tai chi or qigong to $g = -0.96$ for dance, with moderate effects when exercise was combined with SSRIs or psychotherapy, and characterised these effects as exceeding the standardised minimum clinically important difference [E21]. This meta-analytic estimate rests on considerably more extensive synthesis, including coded behaviour-change techniques, autonomy support, and dose in metabolic equivalents across many trial arms [E23][E24], with credibility formally assessed through the CINeMA framework [E15], though the authors themselves caution that some comparisons, including dance, rest on a small number of underpowered and potentially biased studies [E27]. A feasibility trial of mindfulness-based stress reduction found that large post-intervention improvements in perceived stress fell to a small effect by three months, even as other secondary outcomes followed different trajectories [E13]. The physical activity, mindfulness, and biofeedback trial could not speak to this question at all, since its design assessed outcomes only up to a six-week follow-up [E3][E35]. Even the network meta-analysis's own finding that exercise effects on depression held steady from immediately post-treatment to six months later was flagged by its authors as resting on high uncertainty [E14], and overall confidence in the network's effect estimates was rated low, driven largely by within-study bias [E16]. Taken together, the literature offers converging but methodologically uneven signals that behavioural interventions can produce meaningful short-term reductions in stress and depressive symptoms [E18][E21], while lea

▼ 2 sentences removed for carrying no citation
Yet the evidence available for directly quantifying effect sizes is thinner than this apparent convergence suggests.
Beyond the question of initial magnitude, it remains unclear how durable these effects are.

Related work

Background. Behavioural approaches to reducing stress and improving mood span a heterogeneous set of interventions, including structured exercise programmes, mindfulness-based courses, and biofeedback training, and these have typically been evaluated through randomised controlled trials against inactive or active comparators [E22] [E23] [E29] [E34] [E35]. Trial populations differ substantially: some studies recruit clinical samples defined by a

Hand-off to the rest of the suite

What the next tool in the chain — EEG, Wearables, Imaging, Analytics — needs to start from. Every field is a proposal drawn from your own sources; nothing here has been tested.

The hand-off came back in a shape this could not read, so nothing was recorded.

Figure 69. Introduction, related work, gaps and aims.

The pooled-evidence section is not a fresh summary of the numbers. It is the meta-analysis's own written reading, copied in verbatim, because asking a model to summarise statistics a second time is asking it for a chance to round them differently. Each objective under Aims names the specific gap number it addresses, and a gap no objective addresses is reported rather than left to go unnoticed.

An out-of-date meta-analysis is not quoted. If any finding behind the latest pooling run has since been rejected, removed, corrected or had its state changed, the foundation writes no pooled numbers at all. The pooled evidence section says instead that the findings have changed since the analysis was run, and asks you to pool again on the Meta-analysis tab and then rebuild the foundation. The aims are then written without the old numbers too. A new finding that was never part of the pool does not count as a change, because the analysis never claimed to include it.

The hand-off section turns the foundation into a structured starting point for whichever Novasyn tool comes next in the chain: a falsifiable hypothesis, the population, the variables and their roles, candidate methods, and confounds to plan for. Every field in it is a proposal drawn from your own sources, and the export says so explicitly. Nothing here has been tested.

Hand-off to the rest of the suite

What the next tool in the chain — EEG, Wearables, Imaging, Analytics — needs to start from. Every field is a proposal drawn from your own sources; nothing here has been tested.

The hand-off came back in a shape this could not read, so nothing was recorded.

Figure 70. The hand-off to the next tool in the chain.

Exporting to Markdown, LaTeX, Word, and the JSON hand-off

Four export formats sit above the assembled foundation, and all four renumber citations to match a proper reference list rather than exposing the internal [E7] -style markers used while it was being written.

Markdown is the plain-text export, ready to paste anywhere that reads it.

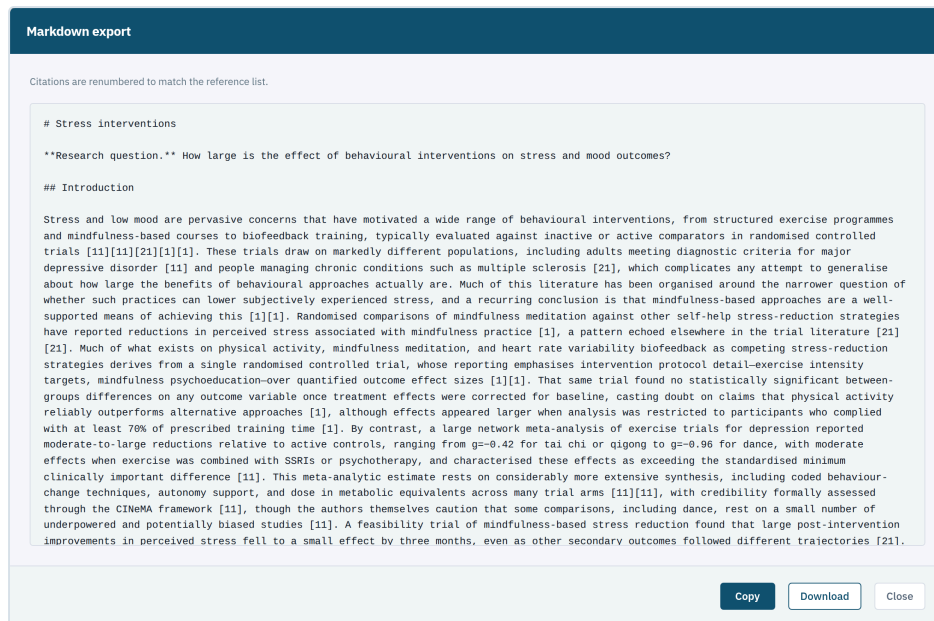


Figure 71. Exporting to Markdown.

LaTeX produces a complete, compilable document, with title, sections, `\cite{}` commands and a bibliography, including the gaps a section's objectives refer to, listed alongside them.

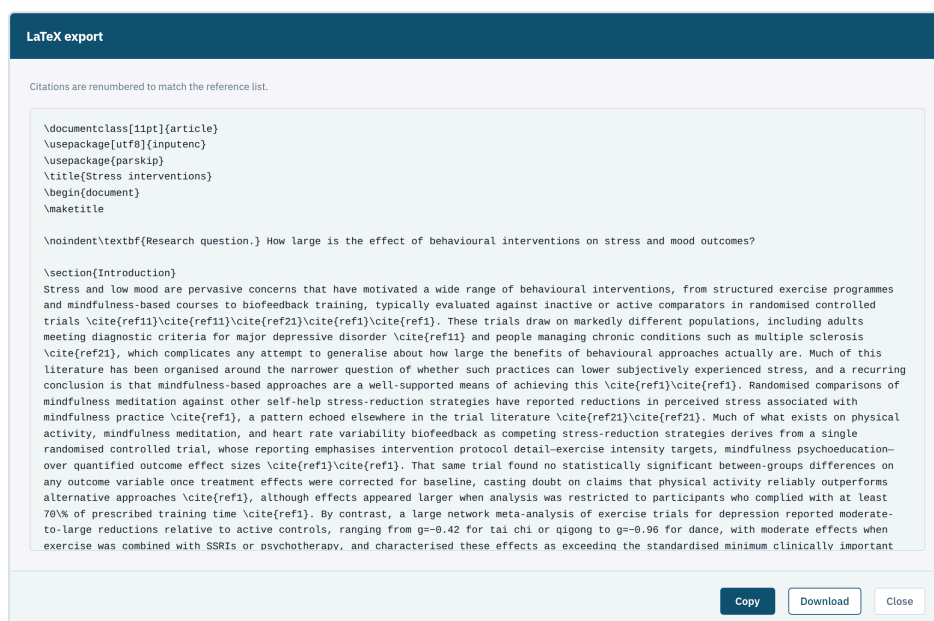


Figure 72. Exporting to LaTeX.

Word downloads a formatted `.docx` directly, with the same sections and the same renumbered reference list, ready to open in a word processor and hand to a supervisor. **The JSON hand-off** exports the same structured data the next tool in the chain would read programmatically: hypothesis, population, variables, methods, confounds, and the full reference list, machine-readable rather than only prose.

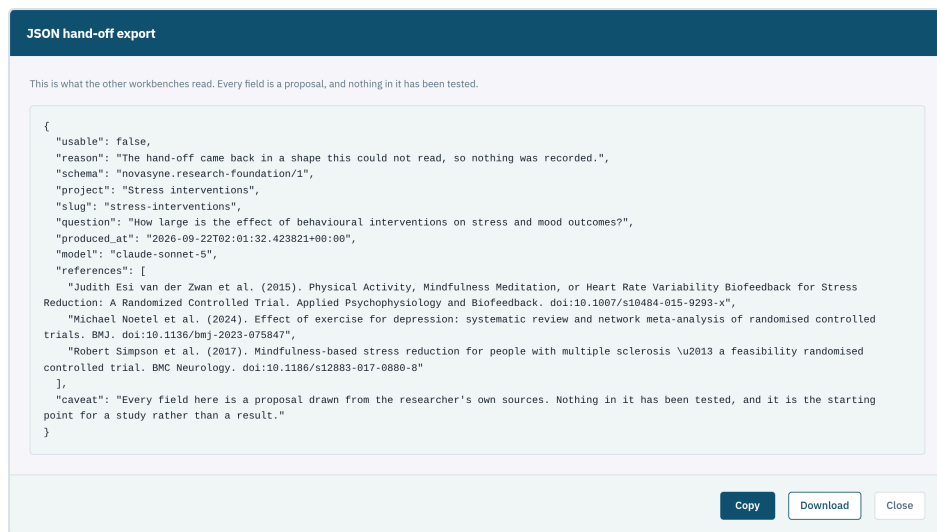


Figure 73. The JSON hand-off.

Every assembly is kept, the same way every review and every pooling run is, so a foundation written earlier in a project's life stays reachable even after a later one supersedes it.

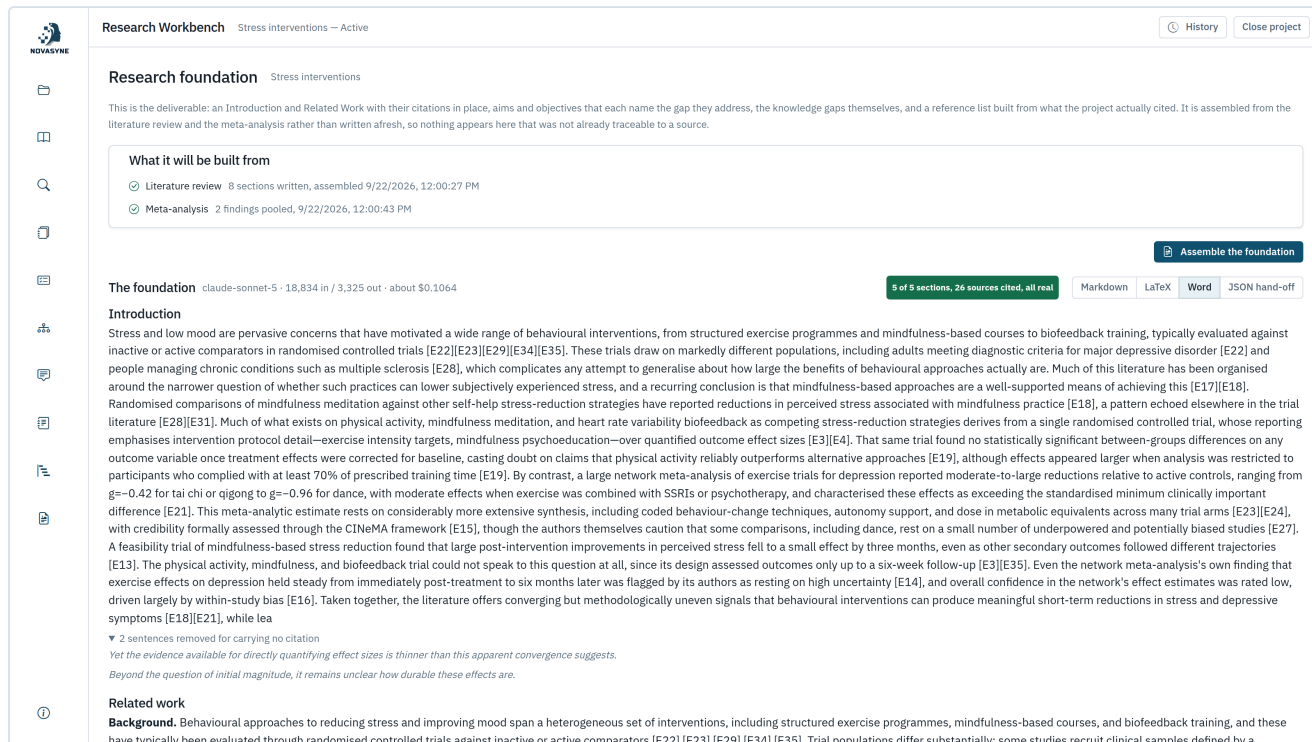


Figure 74. Earlier assemblies, kept.

Appendix A: Control reference

Toolbar (every pane)

Control	Does
Sidebar icons	Switch pane: Projects, Library, Search, Find papers, Evidence, Graph, Assistant, Review, Meta-analysis, Foundation
History	The open project's full, append-only change log
Close project	Returns to the Projects list

Projects

Control	Does
New project	Name and optional research question
Open / Edit / Delete	Per-project actions in the list
State	Draft, Active, Paused, Completed, Archived

Library

Control	Does
Import documents	Upload PDF, Word, text or Markdown
Find papers	Opens the catalogue-search pane
Use (checkbox)	Selects a document for the open project
Use all shown / Use none shown	Selects or clears every document the category filter currently shows
change	Corrects a document's category
Remove	Deletes a document from the library, refused if any project depends on it

Find papers

Control	Does
Search catalogues	Query OpenAlex, Crossref, arXiv, PubMed, Europe PMC
BibTeX or RIS file	Upload a reference-manager export
Paste identifiers	DOIs, arXiv ids, PubMed ids, PMC ids, or titles, one per line
Fetch selected	Downloads legally available full text for ticked results
Papers held	Every paper ever found, fetched or metadata-only
Attach PDF	Adds your own full text to a metadata-only paper
Forget	Removes a paper record without touching any document it brought in

Search

Control	Does
Across	This project's documents, or the whole library
Using	Best available, Meaning, or Keywords
Build/Update search index	Embeds the library for meaning-based search
Save passage	Turns a result into evidence
Open passage	Shows the full passage in context

Evidence

Control	Does
New claim	Statement, kind, optional note
Accept / Reject	Sets a piece of evidence's state
Mark supporting / contradicting	Flips a piece of evidence's stance
Attach to / Detach	Links or unlinks evidence and a claim

Graph

Control	Does
Show (kind checkboxes)	Filters which node kinds are drawn
Depth	How many steps out from a focused node
Whole project	Clears the current focus
Centre the graph here	Re-roots the view on the selected node
Link two claims	Records a relation between two claims
Your project / The field	Switches between your own graph and the published landscape

Research assistant

Control	Does
Ask / Summarise / Compare / Explain the relationship / Find contradictions / Find gaps	The six actions
Run	Sends the request, grounded, or refuses it
Keep as evidence	Turns a finding into real evidence, with the stance chosen beside it
History	Every earlier run, reopened as it was answered

Literature review

Control	Does
Read the documents	Extracts study profiles for outstanding documents
Accept profile	Marks a profile ready for the review
Assemble the review	Writes all eight sections
Copy as Markdown	Copies the review to the clipboard

Meta-analysis

Control	Does
Read the documents for numbers	Extracts findings from selected documents
Check / Accept / Reject	Verifies a finding against its page
Include findings you have not accepted yet	Widens a pool, and reports the accepted-only figure alongside it
Pool this group	Runs the fixed- and random-effects pool for one effect type

Research foundation

Control	Does
Assemble the foundation	Writes all five sections
Markdown / LaTeX / Word / JSON hand-off	The four export formats

Appendix B: The statistics behind pooling

Effect type	Scale it is pooled on	Needs the same measure across studies?
Standardised mean difference (Cohen's d, Hedges' g)	Linear	No; that is the point of standardising it
Raw mean difference	Linear	Yes; only the same instrument in the same units
Odds ratio	Log	No
Risk ratio	Log	No
Hazard ratio	Log	No
Correlation (r)	Fisher's z	No

The normal, chi-square and Student-t distributions behind every p-value, confidence interval and heterogeneity statistic in this guide are computed directly, without a statistics library, and checked against published critical values to within a few parts in ten million. Pooling uses inverse-variance weighting for the fixed-effect estimate and a DerSimonian-Laird estimate of between-study variance for the random-effects one. I^2 and Cochran's Q describe how much the studies disagree. Egger's regression tests funnel asymmetry and is reported as under-powered on fewer than ten studies rather than given a false air of authority.

Appendix C: What this workbench refuses to do

- **It will not run OCR.** A scanned document with no text layer is reported as unreadable, by name, rather than imported empty or guessed at.
- **It will not fetch a paper from anywhere but a legal source.** Open access links, arXiv and PubMed Central only, never a shadow library, regardless of how easy that would be.
- **It will not call the research assistant, or extract a profile or a finding, with nothing to work from.** Retrieval happens first. An empty result means the model is never called at all.
- **It will not keep a finding, from any AI action, that cites no passage.** A finding with nothing to trace it back to is not evidence.
- **It will not pool findings of different kinds together.** A standardised mean difference and an odds ratio are refused as a group, in words, rather than averaged into a number that means nothing.
- **It will not let a written sentence stand without a citation.** In the literature review and the research foundation alike, an uncited sentence is deleted before you see it, and the deletion is shown to you rather than hidden.
- **It will not pool numbers no study could report.** A group size of zero or below, or an error or interval that is not a finite number, is refused when entered, and a group whose pooled arithmetic overflows is refused rather than charted.
- **It will not count the same participants twice.** Findings from one document add its participants once, and the reading says when pooled findings share a document.
- **It will not quote an out-of-date meta-analysis in the foundation.** When the findings behind the latest pool have changed, the pooled numbers are withheld until the group is pooled again.
- **It will not replace a study profile you have checked,** or bring back a finding you rejected, when the documents are read again.
- **It will not download from a private or local network address.** PDF links are followed only to the public web.
- **It will not assemble a research foundation with no literature review behind it.** The Introduction and Related Work are built from the review, not written from nothing.
- **It will not overwrite a status you set yourself.** A claim's status is computed automatically only until you set it by hand. After that, new evidence is recorded but the status stays exactly where you put it, until you explicitly ask for it to be recomputed.
- **It will not import a document already in the library,** or link a fetched paper to a document it does not match closely enough to be sure.
- **It will not remove a document a project depends on** without being told, explicitly, to do it anyway.

Appendix D: Frequently asked questions

Why does my search come back empty when I know the answer is in the library? Check the note at the top of the Search pane first. A search scoped to *This project's documents* only searches whatever the project has actually ticked in the Library. Widen it to *The whole library* to check whether the passage exists at all before assuming the search itself failed.

Why did a meaning-based search fall back to keywords? Either the library has never been embedded, or the index was built with a different embedding model from the one now configured, even one that produces vectors of the same size. Either way the note under the search box says exactly that, rather than leaving you to guess why the ranking looks unfamiliar. A mismatched index is rebuilt with **Build/Update search index**. New documents added since the last build do not cause a fallback. The note says how many passages are not yet covered and the search runs over the rest.

Why is the research assistant showing as switched off? No language model key is configured. Everything else in the workbench works fully without one. Setting a key turns the assistant, study-profile extraction, the literature review, meta-analysis findings and the research foundation on all at once, since they all call the same configured model.

Why did an action answer "from cache, no cost" instead of running? Because the exact same action, on the exact same question, against the exact same set of underlying passages, has already been run once. The cache key is built from all three, so changing any of them, a different question, new evidence or a different model, triggers a fresh call rather than serving a stale one.

Why can't I assemble a research foundation? It refuses to run until a literature review exists for the project, because the Introduction and Related Work are built from that review rather than written from nothing. Assemble the review first.

Why does the foundation's pooled evidence section say the meta-analysis has changed? A finding behind the latest pooling run was rejected, removed, corrected or accepted after that run. Pool the group again on the Meta-analysis tab, then assemble the foundation again.

Why did my meta-analysis refuse to pool everything at once? Because the findings selected are not all the same kind of number. Pool one effect type at a time. The Pooling tab groups them for you and disables nothing you cannot already see the reason for.

Why is a category wrong for a document I imported? Every category is worked out automatically from the document's own text and is a starting point, not a verdict. Use **change** in the Library table to correct it by hand at any time.

Why does a claim's status not match what I expect? It is arithmetic over the evidence currently attached, two supporting passages for *Supported*, one for *Insufficient*, any contradicting evidence pulling it toward *Mixed* or *Contradicted*, recomputed every time an attachment changes. If you have set a status by hand, it stops recomputing until you ask for it to resume.

Why did importing a scanned PDF do nothing? The workbench does not run OCR. A scanned document holds page images, not text, and is reported as unreadable by name rather than imported with nothing searchable inside it.

Why does removing a document ask me to confirm twice? The first confirmation is the ordinary "this cannot be undone" warning every removal gets. The second only appears if another project genuinely depends on the document. It names which project, and what would be affected, before offering to remove it anyway.

How much does using the research assistant actually cost? Whatever the configured model's own published rates come to for the tokens used, shown per run and as a running total on the Assistant pane and again on the project overview. A full pass through this guide's research line, six assistant actions, the study profiles, a literature review, a meta-analysis and a research foundation, costs well under a dollar.

Appendix E: Sources used in this guide

Neuroscience reference material already in the library, a sample of the sixteen used across this guide's figures: *Handbook of EEG Interpretation*, *EEG methods*, *Fundamental Neuroscience*, *Nunez 2ed*, *Neuroscience*, *Computational Neuroscience*, *A Comprehensive Approach*, *Neurobiology* (Amthor), *Metabolic Neuropsychiatry*, and *Neuroscience: Science of the Brain*. The last of these is deliberately removed and re-imported live for the Library chapter, alongside a genuinely scanned PDF, *Principles of Neurobiology*, kept in reserve specifically to demonstrate the no-OCR refusal.

Papers fetched live through Find papers while this guide was written: *Physical Activity, Mindfulness Meditation, or Heart Rate Variability Biofeedback for Stress Reduction: A Randomized Controlled Trial* (2015); *Mindfulness-based stress reduction for people with multiple sclerosis: a feasibility randomised controlled trial* (2017); *Effect of exercise for depression: systematic review and network meta-analysis of randomised controlled trials* (2024); *Stress and EEG* (2010); *EEG Frequency Bands in Psychiatric Disorders: A Review of Resting State Studies* (2019); and *The effect of heart rate variability biofeedback training on stress and anxiety: a meta-analysis* (2017). Each capture of the Find papers chapter fetches one more open-access paper on heart-rate variability biofeedback, so the library grows by one paper per run.

Every figure in this guide is a real, unedited run against this material. No screenshot was staged, and no AI answer was written in advance.

Index

A

Accept profile, [13](#), [47](#), [62](#)
 append-only log, [10](#)
 arXiv, [4](#), [19](#), [21](#), [22](#), [61](#), [65](#)
 assistant, [4](#), [5](#), [6](#), [7](#), [8](#), [32](#), [36](#), [39](#), [60](#), [62](#), [65](#), [66](#), [67](#)
 Ask, [6](#), [26](#), [36](#), [39](#), [40](#), [45](#), [46](#), [57](#), [62](#), [65](#), [66](#), [67](#)
 Compare, [23](#), [27](#), [39](#), [40](#), [41](#), [62](#)
 Explain the relationship, [39](#), [40](#), [42](#), [62](#)
 Find contradictions, [39](#), [42](#), [43](#), [44](#), [48](#), [62](#)
 Find gaps, [39](#), [42](#), [43](#), [44](#), [48](#), [56](#), [57](#), [58](#), [62](#)
 Summarise, [39](#), [40](#), [41](#), [57](#), [62](#)
 Attach PDF, [18](#), [24](#), [61](#)

B

bibliography, [49](#), [58](#)
 BibTeX, [4](#), [21](#), [22](#), [61](#)

C

cache, [44](#), [45](#), [66](#)
 categories, [4](#), [14](#), [15](#), [16](#), [17](#), [28](#), [60](#), [66](#)
 citation, [4](#), [5](#), [6](#), [7](#), [33](#), [34](#), [40](#), [44](#), [48](#), [49](#), [56](#), [58](#), [65](#)
 claim, [4](#), [5](#), [6](#), [8](#), [10](#), [13](#), [29](#), [30](#), [31](#), [32](#), [33](#), [34](#), [35](#), [36](#),
 [40](#), [42](#), [44](#), [49](#), [53](#), [61](#), [62](#), [65](#), [66](#)
 status, [4](#), [10](#), [31](#), [32](#), [34](#), [44](#), [49](#), [65](#), [66](#)
 Cochran's Q, [54](#), [64](#)
 contact email, [6](#)
 Crossref, [4](#), [6](#), [19](#), [61](#)

D

DerSimonian-Laird, [4](#), [52](#), [53](#), [63](#), [64](#)
 detach, [31](#), [61](#)
 duplicate, [15](#), [21](#), [24](#)

E

effect size, [50](#), [51](#), [55](#), [63](#), [64](#), [66](#)
 Egger, [64](#)
 embedding, [4](#), [5](#), [6](#), [27](#), [66](#)
 Europe PMC, [4](#), [19](#), [61](#)
 evidence, [4](#), [5](#), [6](#), [8](#), [10](#), [11](#), [12](#), [13](#), [15](#), [17](#), [29](#), [30](#), [31](#), [32](#),
 [33](#), [34](#), [42](#), [43](#), [44](#), [45](#), [48](#), [56](#), [57](#), [60](#), [61](#), [62](#), [65](#),
 [66](#)

F

Fetch selected, [5](#), [7](#), [14](#), [19](#), [20](#), [21](#), [22](#), [61](#), [65](#), [68](#)

Find papers, [5](#), [6](#), [7](#), [8](#), [14](#), [18](#), [19](#), [20](#), [21](#), [23](#), [26](#), [34](#), [37](#),
 [38](#), [47](#), [60](#), [61](#), [68](#)
 fingerprint, [5](#), [15](#), [19](#), [20](#), [21](#), [23](#)
 fixed-effect, [4](#), [52](#), [64](#)
 forest plot, [51](#), [53](#), [54](#)
 foundation, [4](#), [5](#), [6](#), [7](#), [8](#), [55](#), [56](#), [57](#), [58](#), [59](#), [60](#), [63](#), [65](#),
 [66](#), [67](#)
 exports, [4](#), [6](#), [14](#), [49](#), [58](#), [59](#), [60](#), [62](#), [63](#)
 hand-off, [4](#), [6](#), [57](#), [58](#), [59](#), [63](#)

G

graph, [4](#), [5](#), [6](#), [7](#), [8](#), [33](#), [34](#), [35](#), [37](#), [38](#), [60](#), [62](#)
 Centre the graph here, [35](#), [62](#)
 inspector, [33](#), [34](#), [35](#)
 Link two claims, [36](#), [62](#)

I

identifiers, [4](#), [20](#), [21](#), [22](#), [23](#), [33](#), [61](#)
 Importing documents, [14](#), [60](#)

K

Keep as evidence, [44](#), [62](#)
 keyword search, [26](#), [27](#), [61](#), [66](#)
 knowledge gap, [30](#), [48](#), [56](#)

L

library, [4](#), [5](#), [6](#), [7](#), [8](#), [14](#), [15](#), [16](#), [17](#), [18](#), [21](#), [22](#), [23](#), [24](#), [25](#),
 [26](#), [27](#), [33](#), [36](#), [37](#), [38](#), [60](#), [61](#), [64](#), [65](#), [66](#), [68](#)
 literature review, [4](#), [5](#), [8](#), [12](#), [33](#), [46](#), [47](#), [48](#), [49](#), [56](#), [62](#),
 [65](#), [66](#), [67](#)
 log scale, [5](#), [53](#), [54](#)

M

meaning-based search, [4](#), [5](#), [6](#), [26](#), [27](#), [28](#), [61](#), [66](#)
 meta-analysis, [4](#), [5](#), [6](#), [7](#), [8](#), [12](#), [47](#), [50](#), [51](#), [52](#), [53](#), [55](#),
 [56](#), [57](#), [59](#), [60](#), [63](#), [64](#), [65](#), [66](#), [67](#), [68](#)
 metadata only, [18](#), [21](#), [24](#), [33](#), [34](#)

O

OCR, [15](#), [65](#), [67](#), [68](#)
 odds ratio, [5](#), [51](#), [53](#), [64](#), [65](#)
 open access, [19](#), [20](#), [65](#)
 Open passage, [4](#), [5](#), [6](#), [14](#), [26](#), [27](#), [28](#), [29](#), [30](#), [31](#), [32](#),
 [33](#), [34](#), [39](#), [40](#), [41](#), [42](#), [44](#), [45](#), [46](#), [50](#), [61](#), [65](#), [66](#)
 OpenAlex, [4](#), [6](#), [19](#), [36](#), [61](#)

out-of-date meta-analysis, [57](#), [65](#)
overview, [6](#), [10](#), [13](#), [67](#)

P

Papers held, [18](#), [21](#), [23](#), [34](#), [61](#)
participants, [53](#), [54](#), [65](#)
poolable, [51](#)
project state, [8](#), [9](#), [60](#)
Projects pane, [8](#), [9](#), [60](#)
public web, [21](#), [65](#)
PubMed, [4](#), [19](#), [21](#), [22](#), [61](#), [65](#)

R

Remove anyway, [6](#), [17](#), [67](#)

S

Save passage, [29](#), [61](#)

Search pane, [6](#), [13](#), [17](#), [26](#), [29](#), [51](#), [52](#), [54](#), [61](#), [64](#), [66](#),
[67](#), [68](#)

spend meter, [44](#), [45](#), [67](#)

standardised mean difference, [5](#), [51](#), [53](#), [64](#), [65](#)

study profile, [4](#), [5](#), [17](#), [46](#), [47](#), [50](#), [62](#), [63](#), [65](#), [67](#)

T

The field, [5](#), [6](#), [7](#), [33](#), [36](#), [37](#), [51](#), [62](#)

U

uncited sentence, [5](#), [48](#), [65](#)

Use all shown, [17](#), [60](#)

V

verified against its page, [32](#)