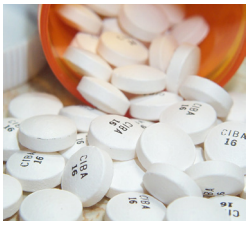
research

Arthroscopic surgery for subacromial pain syndrome p 249



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ORIGINAL RESEARCH 10 year follow-up of FIMPACT

Arthroscopic subacromial decompression versus placebo surgery for subacromial pain syndrome

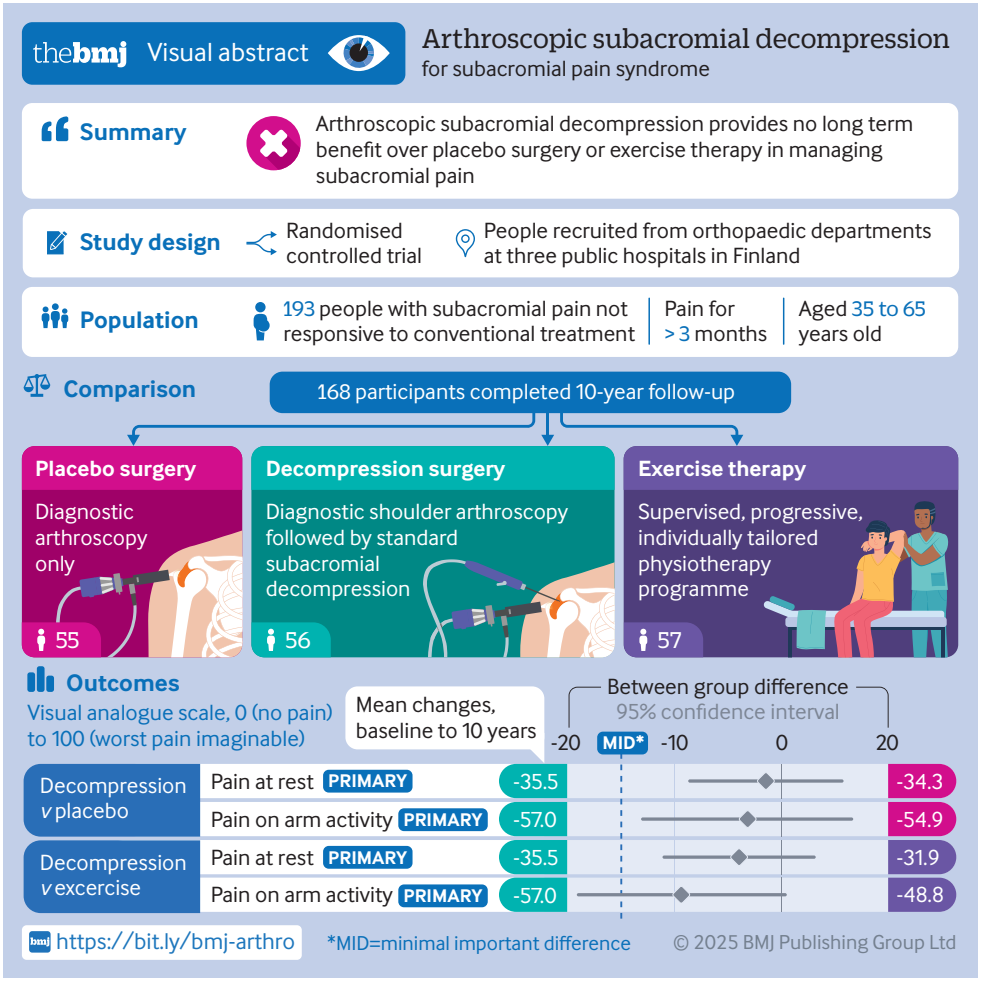
Kanto K, Bäck M, Ibounig T, et al; on behalf of the Finnish Shoulder Impingement Arthroscopy Controlled Trial (FIMPACT) Investigators

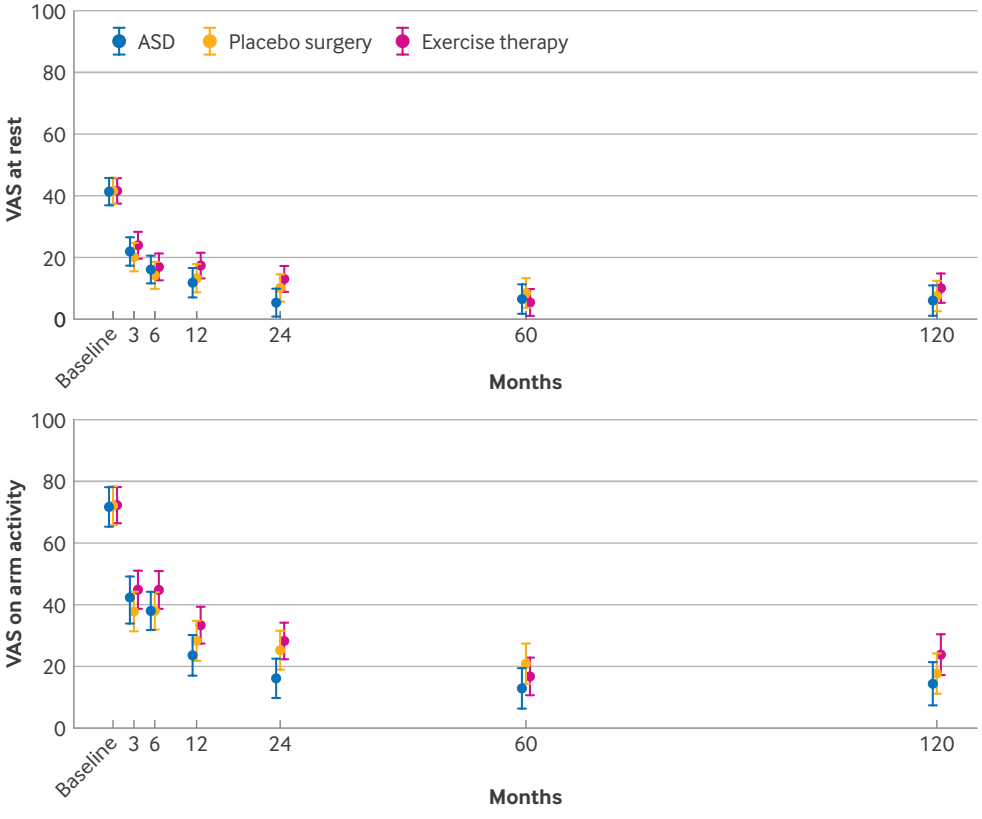
Cite this as: *BMJ* 2025;391:e086201
Find this at doi: 10.1136/mj-2025-086201

Study question How efficacious is arthroscopic subacromial decompression (ASD) compared with placebo surgery or exercise therapy long term in patients with subacromial pain syndrome?

Methods This study was a 10 year follow-up of a multicentre, randomised superiority trial conducted at three public hospitals in Finland. 210 adults aged 35-65 years with symptoms consistent with subacromial pain syndrome were randomly allocated to receive ASD (n=59), placebo surgery (diagnostic arthroscopy; n=63), or exercise therapy (n=71). 168 participants (87%) completed the 10 year follow-up. The two primary outcomes were shoulder pain at rest and on arm activity, measured on a 0-100 visual analogue scale (VAS, ranging from 0 to 100, with 0 denoting no pain). An intention-to-treat approach was used for the ASD versus placebo surgery comparison. An exploratory, pragmatic analysis comparing ASD with exercise therapy as a non-operative alternative used the full analysis set.

Study answer and limitations In the primary intention-to-treat analysis, no between group differences were observed for the two primary outcomes at 10 years: the mean difference between groups (ASD minus placebo surgery) was −1.5 points (95% confidence interval (CI) −8.6 to 5.6) in VAS pain score at rest and −3.2 points (−13.0 to 6.5) in VAS pain score on arm activity. In the pragmatic comparison, the mean difference between groups (ASD minus exercise therapy) was −4.0 points (−11.0 to 3.0) in VAS pain score at rest and −9.4 points (−19.0 to 0.3) in VAS pain score during arm activity. Limitations included the study being powered for two year outcomes and some losses to follow-up, although the remaining sample size suggested the study was not underpowered. Although the primary comparison of ASD versus placebo surgery was robust, the comparison with exercise therapy may be subject to bias owing to the unblinded design and exclusion of some surgical patients before second randomisation.





Mean (95% confidence interval) VAS scores for primary outcomes (shoulder pain at rest and on arm activity) by intervention group during 10 year follow-up. Scores range from 0 to 100, with higher scores denoting more severe pain. ASD=arthroscopic subacromial decompression; VAS=visual analogue scale

What this study adds In patients with subacromial pain syndrome, ASD offered no benefit over placebo surgery or exercise therapy during 10 year follow-up.

Funding, competing interests, and data sharing Funded by the Sigrid Juselius Foundation, State Research Funding for university level health research (Tampere and Helsinki University Hospitals), Academy of Finland, and Jane and Aatos Erkko Foundation. Author TI reports serving as a board member of the Finnish Society for Shoulder and Elbow Surgery and ownership of Osgenic stocks. The data underlying the findings are openly and publicly available at https://doi.org/10.23729/fd-d323a34b-f698-3bc6-b38d-9c93aeadbe74.

Study registration ClinicalTrials.gov NCT00428870.

Benefits and harms of ADHD interventions

Gosling CJ, Garcia-Argibay M, De Prisco M, et al

Cite this as: *BMJ* 2025;391:e085875
Find this at doi: 10.1136/bmj-2025-085875

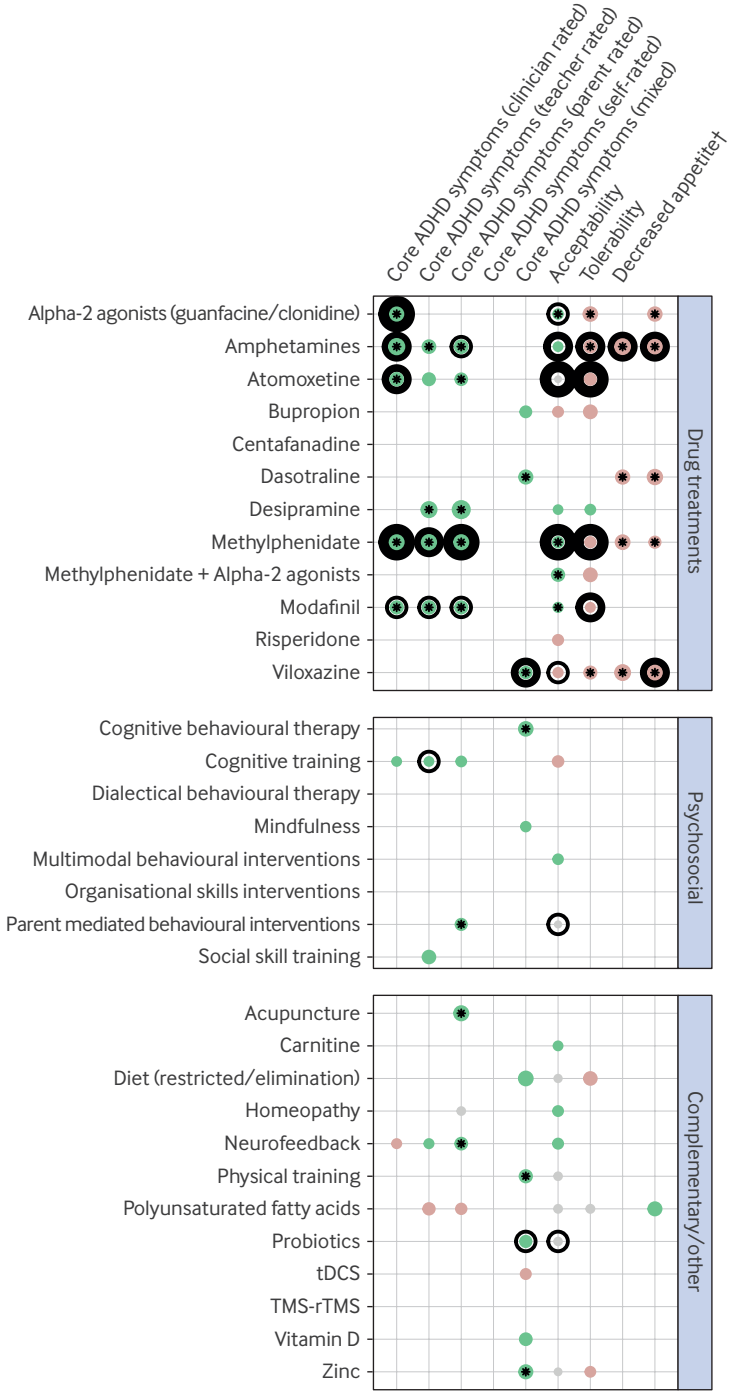
Study question What are the effects and related evidence certainty of drug and non-drug interventions for people with attention deficit/hyperactivity disorder (ADHD) across their lifespan?

Methods This umbrella review synthesised evidence from 47 previous systematic reviews and meta-analytic reports of randomised controlled trials on interventions for ADHD, giving a final sample of 221 re-estimated meta-analyses of each unique combination of participants, interventions, comparators, and outcomes. Studies on individuals with a diagnosis of ADHD according to internationally recognised criteria were included. The review evaluated drug or non-drug interventions compared with passive controls (such as a placebo or waiting list). The primary outcomes considered were the severity of ADHD symptoms, number of people who dropped out of studies for any reason (acceptability), and number of participants who dropped out owing to side effects (tolerability).

Study answer and limitations For children and adolescents, when considering moderate or high certainty evidence, only drug interventions (alpha-2 agonists, amphetamines, atomoxetine, methylphenidate, and viloxazine) gave medium to large reductions in ADHD symptoms in the short term. Methylphenidate showed consistent benefits to participants across raters (standardised mean difference ›0.75, 95% confidence interval (CI) 0.56 to 1.03; moderate or high certainty evidence) and showed significantly better acceptability than placebo (risk ratio 1.58, 95% CI 1.35 to 1.85; high certainty evidence). Drug interventions with at least moderate certainty evidence for a beneficial effect on ADHD symptoms had lower tolerability compared with placebo, but this effect was not statistically significant for methylphenidate and atomoxetine. For adults, fewer interventions (cognitive behavioural interventions, atomoxetine, and methylphenidate) were supported by moderate to high certainty evidence, and they showed medium reductions in ADHD symptoms. Drugs with at least moderate certainty evidence for a beneficial effect on ADHD symptoms were found to have worse tolerability than placebo with high certainty evidence (methylphenidate, risk ratio 0.50, 0.36 to 0.69; atomoxetine, 0.45, 0.35 to 0.58). A primary limitation was the lack of high certainty evidence on the long term effects of any ADHD treatment evaluated in any age group.

What this study adds This review found that the effects of ADHD interventions differ according to age and treatment type. Moderate to high quality evidence supported the short term benefits of specific drug treatments throughout the lifespan of an individual with ADHD, and the short term benefits of cognitive behavioural interventions in adults. All of the high quality evidence was, however, limited to the short term. The findings are presented in a continuously updated online platform (https://ebiadhd-database.org), giving a user friendly and reliable resource for patients, clinicians, and guideline developers to support shared decision making.

Funding, competing interests, and data sharing See the full paper on bmj.com for details of funding and competing interests. All synthesised data and results are publicly available on the study online platform at https://github.com/CorentinJGosling/EBI-ADHD-UR-2025.



Scatter plot showing the direction of the pooled effect sizes in children and adolescents for primary outcomes and key side effects for each combination of participants, interventions, comparators, and outcomes. Grey represents an absence of clinically relevant effect (-0.20 ‹standardised mean difference ‹0.20, 0.80 ‹risk ratio ‹1.25), green represents a positive effect, and red represents a negative effect. The wider the dots, the larger the pooled effect size. *P‹0.05 represents statistical significance. Evidence certainty rating: no surrounding ring=very low certainty, thin surrounding ring=low certainty, bold surrounding ring=moderate certainty, large bold surrounding ring=high certainty. †Side effect. ADHD=attention deficit/hyperactivity disorder. tDCS=transcranial direct current stimulation. TMS-rTMS=(repetitive) transcranial magnetic stimulation

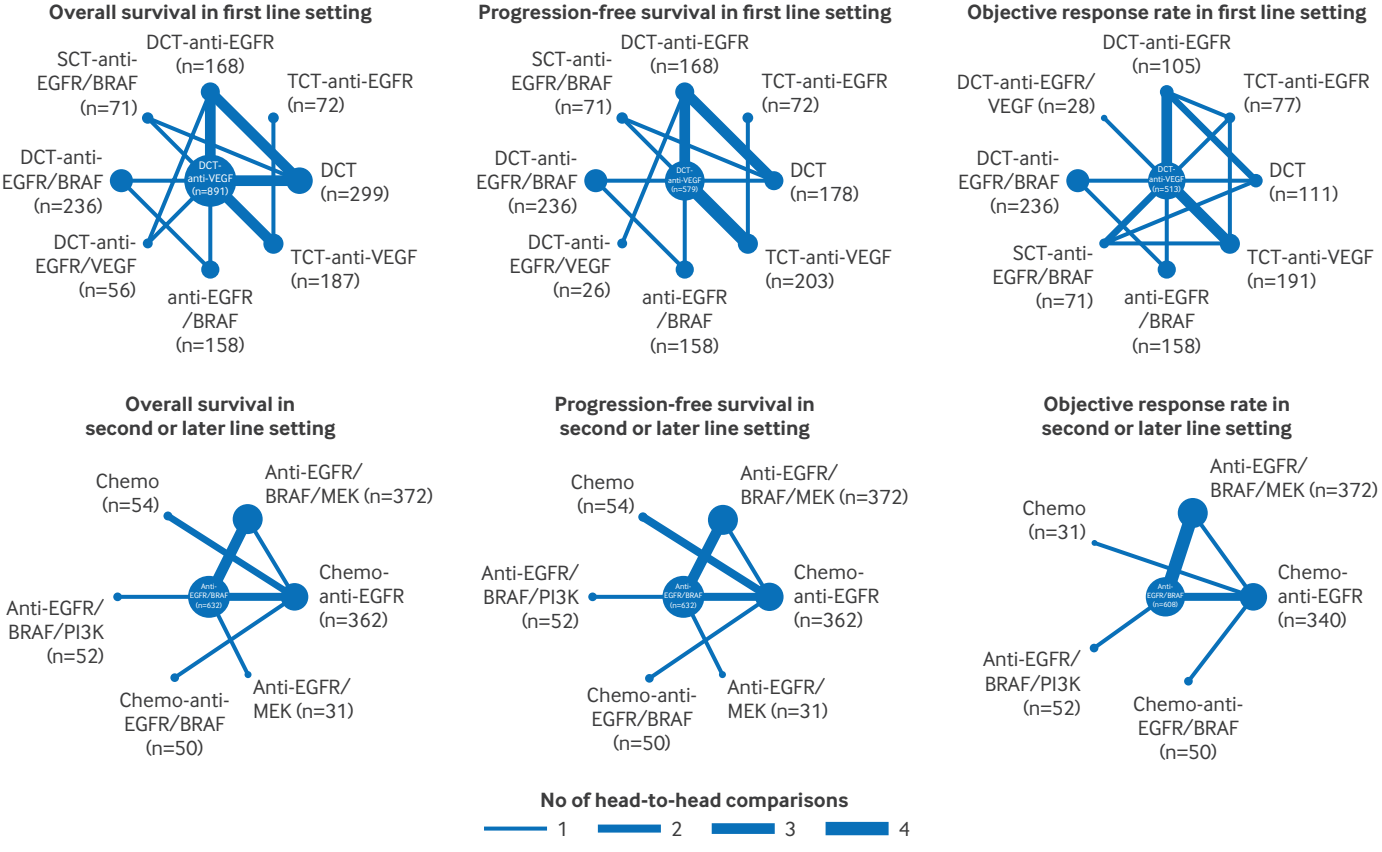
Targeted therapy in advanced *BRAF*-mutated colorectal cancer

Qin B-D, Jiao X-D, Wang Z, et al

Cite this as: *BMJ* 2025;391:e086026
Find this at doi: 10.1136/bmj-2025-086026

Study question Which targeted therapy regimens are most effective and safe for patients with advanced *BRAF*-mutated colorectal cancer?

Methods PubMed, Embase, the Cochrane Library, and ClinicalTrials.gov were searched from inception to 31 May 2025 for eligible studies investigating the efficacy and safety of targeted therapy based strategies for advanced *BRAF*-mutated colorectal cancer, along with abstracts and presentations from international conferences. Three statistical methods (single arm meta-analysis, pairwise meta-analysis, network meta-analysis) compared treatments such as chemotherapy combined with either anti-EGFR (epidermal growth factor receptor)/BRAF (eg, cetuximab and encorafenib), or anti-VEGF (vascular endothelial growth factor) (eg, bevacizumab) or anti-EGFR (eg, cetuximab) based regimens, and anti-EGFR/BRAF based regimens alone or with MEK (mitogen-activated protein kinase kinase) inhibitors. The primary endpoint was overall survival in the first line and second or later line settings. Secondary endpoints included progression-free survival, objective response rate, disease control rate, and serious side effects.



Eligible comparisons for efficacy outcomes of first line and second or later line regimens in network meta-analysis. Network plots illustrate direct and indirect comparisons for overall survival, progression-free survival, and objective response rate. Nodes represent each regimen, with size proportional to number of participants. Lines represent direct comparisons between regimens, with thickness indicating number of direct comparisons. Indirect comparisons arose from combining direct comparisons within the network. BRAF=B-Raf proto-oncogene, serine/threonine kinase; Chemo=chemotherapy; DCT=doublet chemotherapy; EGFR=epidermal growth factor receptor; MEK=mitogen-activated protein kinase kinase; PI3K=phosphoinositide 3-kinase; TCT=triplet chemotherapy; VEGF=vascular endothelial growth factor

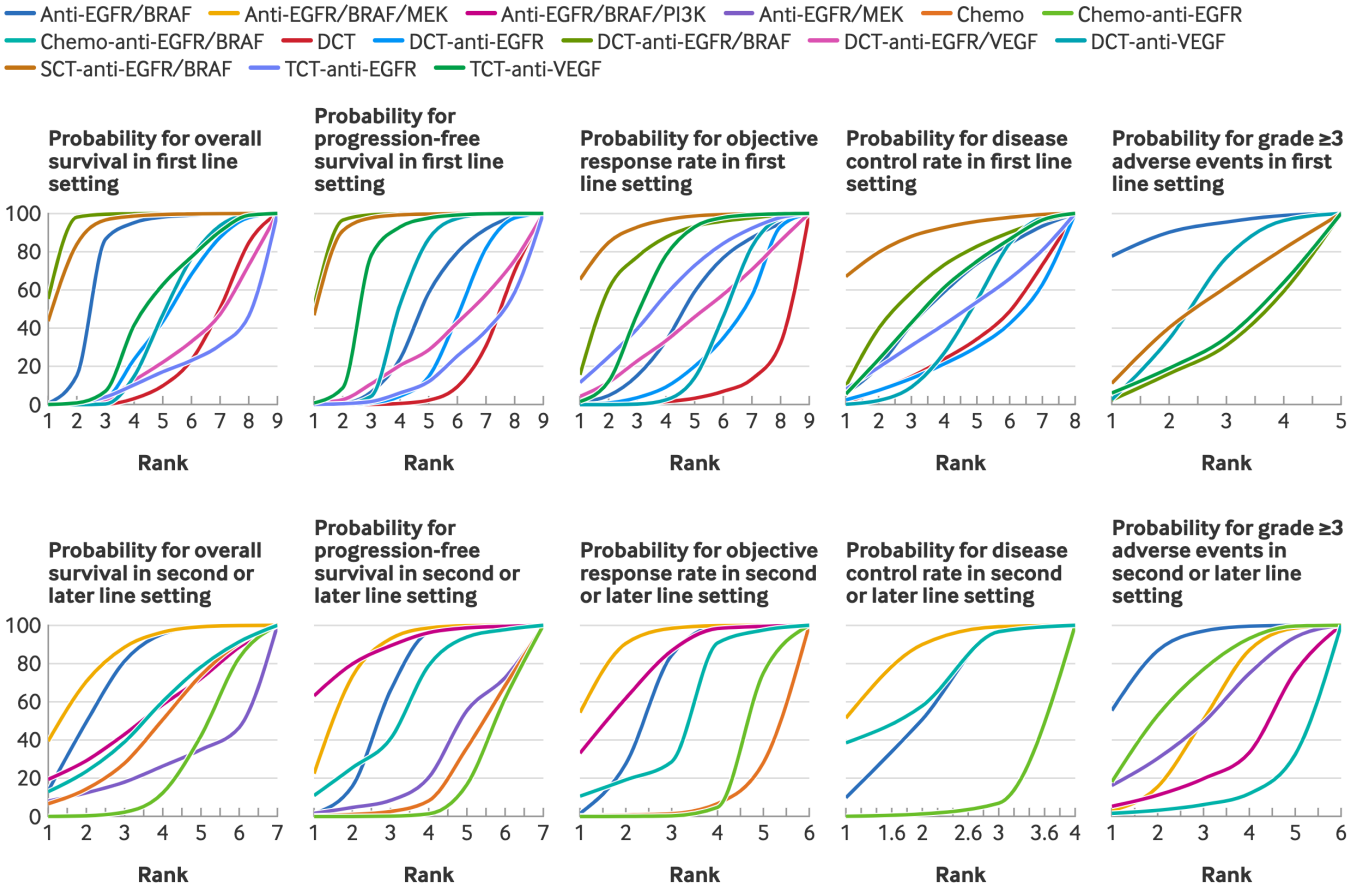
STEVE GSCHMEISSNER/SPL

Study answer and limitations 60 studies (involving 4633 patients) comparing different drug combinations for the treatment of advanced *BRAF*-mutated colorectal cancer were eligible for inclusion. Doublet chemotherapy-anti-EGFR/BRAF was associated with the best overall survival, providing significant benefits compared with doublet chemotherapy-anti-VEGF (hazard ratio 0.49, 95% credible interval 0.36 to 0.66), triplet chemotherapy-anti-VEGF (0.51, 0.33 to 0.80), and anti-EGFR/BRAF (0.70, 0.51 to 0.96) in the first line setting. Anti-EGFR/BRAF based strategies also ranked highest for effectiveness across treatment stages and showed acceptable safety. One limitation was that these findings relied on trial level rather than individual patient data.

What this study adds For initial treatment of advanced *BRAF*-mutated colorectal cancer, combining doublet chemotherapy with anti-EGFR/BRAF therapy offers the best survival benefit. For patients who have had previous treatment, anti-EGFR/BRAF based regimens (with or without a MEK inhibitor) are the most effective and tolerable options.

Funding, competing interests, and data sharing
This work was supported by the Chinese National Natural Science Funding, Shanghai Municipal Health Commission Health Industry Clinical Research Project, Shanghai Public Health Outstanding Academic Leader Program, and Shanghai Oriental Talents Program.
No competing interests declared. Data and code for reproducing analyses are available on Github (https://github.com/qbdchnontheway/code/tree/main/Metaanalyses_code_for_BRAFmut_CRC)

Study registration PROSPERO CRD420250653959.



Cumulative ranking plots for comparable regimens on efficacy and safety outcomes in first line setting and second or later line setting. The higher the probability value, the higher the priority of the regimen. The surface under the cumulative ranking curve represents the probability adjusted mean rank of regimens within the network meta-analysis, quantifying the relative superiority of regimens by measuring the area under the cumulative ranking probability curve. A higher value (0-100%) indicates a higher overall ranking efficacy among compared treatments

Tai chi or cognitive behavioural therapy for treating insomnia in middle aged and older adults

Siu PM, Yu DJ, Yu AP, et al

Cite this as: *BMJ* 2025;391:e084320
Find this at doi: 10.1136/bmj-2025-084320

Study question Is tai chi non-inferior to cognitive behavioural therapy for insomnia (CBT-I), the first line treatment, for managing chronic insomnia in middle aged and older adults?

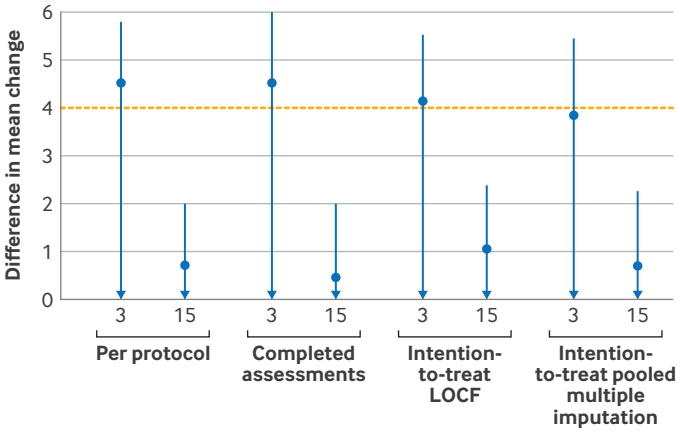
Methods This study was conducted at a single research site in Hong Kong, with Chinese participants recruited from the local community between 18 May 2020 and 14 July 2022. Participants were aged ≥50 years and had chronic insomnia diagnosed according to the *Diagnostic and Statistical Manual of Mental Disorders*, fifth edition. A total of 200 participants were randomised (1:1) to receive tai chi or CBT-I. The per protocol principle was adopted. Interventions were delivered in group format and consisted of one hour sessions twice a week for a total of 24 sessions. Assessments were conducted at baseline, after the intervention (month 3), and at 12 month follow-up (month 15). The primary outcome was the change in perceived insomnia severity measured by the Insomnia Severity Index at months 3 and 15. To assess whether tai chi was non-inferior to CBT-I, a threshold of 4 points was used as the margin of non-inferiority.

Study answer and limitations After the intervention (month 3), the Insomnia Severity Index scores for the tai chi group reduced by 6.67 (95% confidence interval 5.61 to 7.73), while the reduction for the CBT-I group was 11.19 (10.06 to 12.32), resulting in a between group difference of 4.52 (−∞ to 5.81). Tai chi was deemed inferior to CBT-I at month 3 because the upper confidence limit exceeded the non-inferiority margin. At month 15, the reductions for tai chi and CBT-I were 9.51 (8.47 to 10.54) and 10.18 (8.97 to 11.40), respectively, with a between group difference of 0.68 (−∞ to 2.00). At this point, tai chi was considered non-inferior to CBT-I because the upper confidence limit fell within the non-inferiority margin. Results from the intention-to-treat analysis were consistent with the per protocol findings. No adverse events occurred during the intervention. The single centre design limited the generalisability of the findings.

What this study adds Tai chi was inferior to CBT-I after the intervention (month 3) but non-inferior 12 months after the intervention (month 15).

Funding, competing interests, and data sharing Supported by General Research Fund of Research Grants Council, Hong Kong University Grants Committee, and Seed Fund for Basic Research of the University of Hong Kong. No competing interests declared. Data and statistical codes available at https://doi.org/10.6084/m9.figshare.29203967.v3.

Trial registration ClinicalTrials.gov NCT04384822.



Primary outcome (per protocol analysis): non-inferiority analysis for Insomnia Severity Index (ISI) at months 3 and 15 in tai chi and cognitive behavioural therapy for insomnia (CBT-I) groups. Sensitivity analyses: completed analysis, intention-to-treat last observation carried forward (LOCF), and intention-to-treat pooled multiple imputation. First approach (completed assessments) was more stringent per protocol analysis of participants who completed assessments at all time points. Other two approaches followed intention-to-treat principle. For LOCF, missing values replaced by last observed value for same participant. For multiple imputation, 20 imputed datasets generated using fully conditional specification method (variables were subject code, time, group, personal factors (eg, sex), primary outcome (ie, ISI), and other secondary outcomes (eg, Pittsburgh Sleep Quality Index)). Non-inferiority analysis performed on each generated dataset and results pooled according to Rubin's rules. Dots indicate differences in changes in mean ISI scores between two groups; dotted line represents non-inferiority margin of four points of ISI. Upper confidence limit not exceeding margin represents non-inferiority

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Effect of breast density notification
Nickel B, et al. Impact of population based breast density notification: multisite parallel arm randomised controlled trial in BreastScreen
BMJ 2025;391:e083649. doi:10.1136/bmj-2024-083649