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Parkinson’s Disease

Maladie de Parkinson

Articles connexes : - acupuncture expérimentale - évaluation du taiji-gigong-

1. Systematic Reviews and Meta-Analysis

☆☆☆	Evidence for effectiveness and a specific effect of acupuncture
☆☆	Evidence for effectiveness of acupuncture
☆	Limited evidence for effectiveness of acupuncture
Ø	No evidence or insufficient evidence

1.1. Generic Acupuncture

1.1.1. Lei 2023 (motor function)

Lei S, Fan J, Liu X, Xv X, Zhang J, Zhou Z, Zhuang L. Qualitative and quantitative meta-analysis of acupuncture effects on the motor function of Parkinson's disease patients. Front Neurosci. 2023 May 9;17:1125626. https://doi.org/10.3389/fnins.2023.1125626

Objective	To explore the association between acupuncture sessions and its effects on the motor function of Parkinson's Disease (PD).
Methods	Eight databases and two clinical trials registries were searched from inception to August 2022. Randomized controlled trials (RCTs) that compared acupuncture with sham acupuncture, or antiparkinsonian drugs, were included. After qualitative meta-analysis, a non-linear meta regression approach with restricted cubic spline was used to investigate the dose-response relationship between acupuncture sessions and their efficacy on the Unified Parkinson's Disease Rating Scale Part III (UPDRS-III) score. Subgroup meta-analysis was performed of the included studies according to the weekly acupuncture frequency. And finally, the included studies containing the determination of intermediate efficacy were compared.
Results	Of the 268 citations screened, **16 studies (462 patients of PD)** were included. The qualitative meta-analysis showed that the acupuncture group had better effect on UPDRS-III scores than the control group. And the quantitative meta-analysis suggested that acupuncture dose was correlated with the reduction of UPDRS-III score in PD patients with motor symptoms. In subgroup analysis, on the one hand, when the frequency of acupuncture was no more than 3 times a week, with the increase of acupuncture session, the changes of UPDRS-III score decreased and then increased (P = 0.000). On the other hand, when acupuncture for more than 3 times a week and the dose of acupuncture treatment was <60 times, the changes of UPDRS-III score increased with the increase of acupuncture dose, but the score stopped to decrease if the dose continued to increase (P = 0.020). The comparative analysis of two quantitative RCTs found that the score improvement was more significant at the higher weekly acupuncture frequency.

Interpretation	This study found that when treating PD patients with motor symptoms, acupuncture treatment may need to reach a certain dose to obtain better therapeutic effect and excessive acupuncture stimulation may cause the body to develop a certain tolerance. However, the above results still need to be verified by more high-quality clinical studies. The protocol was registered on PROSPERO International Prospective Register of Systematic Reviews (CRD42022351428).

1.1.2. Li 2023

Li RY, Chen KY, Wang XR, Yu Q, Xu L. Comparison of Different Rehabilitation Techniques of Traditional Chinese and Western Medicine in the Treatment of Motor Dysfunction After Stroke Based on Frequency Method: A Network Meta-analysis. Am J Phys Med Rehabil. 2023 Jun 1;102(6):504-512. https://doi.org/10.1097/PHM.0000000000002130

Objective	The aim of the study is to evaluate the effect of different traditional Chinese and western medicine rehabilitation techniques on motor dysfunction after stroke using a network meta-analysis.
Methods	CNKI, Wanfang, PubMed, Embase, and Cochrane databases were searched from inception to September 2022. We independently searched and screened randomized controlled trials of rehabilitation techniques for poststroke motor dysfunction treatment, evaluated the quality, and analyzed the data using Stata 14.0.
Results	Seventy-four randomized controlled trials involving nine rehabilitation techniques and 5128 patients were included. The results of network meta-analysis showed the following orders regarding improvement of the total scores of Fugl-Meyer Assessment, Action Research Arm Test, and Berg Balance Scale: biofeedback therapy > mirror therapy > repetitive transcranial magnetic stimulation > acupuncture therapy > transcranial direct current stimulation > Taichi > common therapy, virtual reality > transcranial direct current stimulation > repetitive transcranial magnetic stimulation > mirror therapy > common therapy, and acupuncture therapy > virtual reality > neuromuscular electrical stimulation > mirror therapy > common therapy > transcranial direct current stimulation, respectively.
Conclusions	Biofeedback therapy had the best comprehensive effect, while virtual reality was the best intervention for improving the index of action research arm test and Fugl-Meyer Assessment-lower extremity. Acupuncture therapy improved lower limb balance function.

1.1.3. Sun 2023 ★

Sun Y, Sheng J, Liu T, Yang G, He M, Huang Y, Luo Z, Zhu J, Jin X. Combination treatment of acupoint therapy and conventional medication for motor function of Parkinson's disease: A systematic review and meta-analysis. Complement Ther Clin Pract. 2023 Feb;50:101677. https://doi.org/10.1016/j.ctcp.2022.101677

Background	Combination treatment with acupoint therapy and conventional medication (CM) has been proposed as a strategy that could improve motor dysfunction in Parkinson's disease (PD). We performed this systematic review and meta-analysis to assess the effects of this combination treatment on motor function in patients with PD.
Methods	We searched randomized controlled trials (RCTs) from eight databases, comparing combined acupoint therapy and CM and CM (alone or with sham interventions). The quality of the trials was evaluated according to the Cochrane risk of bias. Subgroup and sensitivity analyses were performed on different types of acupoint interventions.

Results	**Forty-seven trials of 2929 participants** were included, with 45 studies used for the meta-analyses. Combination treatment yielded an improved reduction in United Parkinson's disease rating scale (UPDRS) III of -3.85 [95% CI, -4.83 to -2.86] and Webster scale score of -3.17 [95% CI, -4.07 to -2.27]. Further analyses demonstrated that real (compared with sham) intervention was linked to a decreased UPDRS III of -2.02 ([95% CI, -3.60 to -0.44], I2 = 40%), and beneficial effects were observed when combination intervention was used for patients with Hoehn-Yahr (H-Y) stages >3 with mild to moderate stimulation for 4-12-week treatment.
Conclusions	Acupoint therapy and CM treatment may improve motor function of patients with PD. Patients with H-Y stage >3 could tolerate real acupoint intervention with mild to moderate stimulation for 4-12-week treatment and showed improvement. However, this was demonstrated with low to moderate levels of evidence in statistical description.

1.1.4. Yang 2023

Yang 2023 Yang Y, Wang Y, Gao T, Reyila A, Liu J, Liu J, Han H. Effect of Physiotherapy Interventions on Motor Symptoms in People With Parkinson's Disease: A Systematic Review and Meta-Analysis. Biol Res Nurs. 2023 Oct;25(4):586-605. https://doi.org/10.1177/10998004231171587

Objective	To evaluate the effectiveness of different types of physiotherapy interventions in people with Parkinson's disease (PD).
Design	Systematic review and meta-analysis of randomized controlled trials (RCTs).
Methods	Five databases (PubMed, Embase, Cochrane Library, CINAHL and Web of Science Core Collection) were searched for relevant RCTs published from database inception to July 14, 2022. Reviewers independently screened the literature, extracted data, and assessed the literature quality according to the Cochrane Collaboration Risk of Bias Tool and PEDro Scale. This meta-analysis was conducted using RevMan 5.4.1 and reported in compliance with the PRISMA statement.
Results	Forty-two RCTs with 2,530 participants were included. Across all types of physiotherapy, strength training, mind-body exercise, aerobic exercise, and non-invasive brain stimulation (NiBS) were effective in improving motor symptoms as measured by the (Movement Disorders Society-) Unified PD Scale, whereas balance and gait training (BGT) and **acupuncture** were not. The pooled results showed that the change in mind-body exercise (MD = -5.36, 95% CI [-7.97 to -2.74], p < .01, I2 = 68%) and NiBS (MD = -4.59, 95% CI [-8.59 to -0.59], p = .02, I2 = 78%) reached clinical threshold, indicating clinically meaningful improvements. Considering the effectiveness of the interventions on motor symptoms, balance, gait and functional mobility, mind-body exercise was recommended the most.
Conclusions	Exercise appears to be a better form of physiotherapy than NiBS and **acupuncture** for improving motor function. Mind-body exercise showed beneficial effects on motor symptoms, balance, gait and functional mobility in people with PD, and is worthy of being promoted.

1.1.5. Peirera 2022 ☆

Pereira CR, Machado J, Rodrigues J, de Oliveira NM, Criado MB, Greten HJ. Effectiveness of Acupuncture in Parkinson's Disease Symptoms-A Systematic Review. Healthcare (Basel). 2022 Nov 21;10(11):2334. https://doi.org/10.3390/healthcare10112334

Background	Parkinson's disease (PD) is the second most common neurodegenerative disease. Several pharmacological and surgical therapies have been developed; however, they are accompanied by some adverse effects. As a result, many patients have been resorting to complementary medicine, namely acupuncture, in the hope of obtaining symptomatic improvements without having disruptive side effects. Therefore, advances in research in this area are very important. This work presents a systematic review of the effectiveness of acupuncture treatments in relieving PD symptoms.
Methods	EMBASE, Medline, Pubmed, Science Direct, The Cochrane Library, Cochrane Central Register of Controlled Trials (Central) and Scielo databases, were systematically searched from January 2011 through July 2021. Randomised controlled trials (RCTs) published in English with all types of acupuncture treatment were included. The selection and analysis of the articles was conducted by two blinding authors through Rayyan application.
Results	A total of 720 potentially relevant articles were identified; 52 RCTs met our inclusion criteria. After the exclusion of 35 articles, we found **17 eligible**. The included RCTs reported positive effects for acupuncture plus conventional treatment compared with conventional treatment alone in the UPDRS score.
Conclusions	Although all the studies reviewed pointed out a positive effect of acupuncture on improving motor and non-motor symptoms in Parkinson's disease, we found great discrepancies regarding the studies' design and methodology, making difficult any comparison between them.

1.1.6. Kwon 2021 (Movement Function)

Kwon M, Cheong MJ, Leem J, Kim TH. Effect of Acupuncture on Movement Function in Patients with Parkinson's Disease: Network Meta-Analysis of Randomized Controlled Trials. Healthcare (Basel). 2021 Nov 5;9(11):1502. https://doi.org/10.3390/healthcare9111502

Aim	We aimed to compare the effectiveness of some different acupuncture modalities on motor function using the unified Parkinson disease rating scale (UPDRS)-III scores of idiopathic Parkinson’s disease (PD) via pairwise and network meta-analyses (NMA) of randomized controlled trials (RCTs).
Methods	The Cochrane risk of bias assessment tool was used to assess the methodological quality of the included RCTs. A frequentist approach-based random effect model NMA was performed.
Results	**Seventeen RCTs with 1071 participants** were included. The five following modalities were identified: combination of conventional medication (levodopa) with (1) electroacupuncture (ELEC), (2) manual acupuncture (MANU), (3) bee venom acupuncture (BEEV), (4) sham acupuncture (SHAM), and (5) conventional medication alone (CONV). In NMA on UPDRS-III, BEEV was the best modality compared to CONV (mean difference [MD]) −7.37, 95% confidence interval [−11.97, −2.77]). The comparative ranking assessed through NMA was suggested to be BEEV, MANU, ELEC, SHAM, and CONV. Regarding daily activity assessment (UPDRS-II), the magnitude of effectiveness was in the order of BEEV, ELEC, MANU, SHAM, and CONV.
Conclusions	Combination treatment with BEEV (MANU or ELEC) and CONV can be recommended to improve motor function in PD patients. Due to the limited number of included RCTs, further NMA with more rigorous RCTs are warranted.

1.1.7. Wen 2021

Wen X, Li K, Wen H, Wang Q, Wu Z, Yao X, Jiao B, Sun P, Ge S, Wen C, Lu L. Acupuncture-Related Therapies for Parkinson's Disease: A Meta-Analysis and Qualitative Review. Front Aging Neurosci.

2021. [220131]. doi

Objective	This systematic review and meta-analysis aimed to assess the effects of the combination of acupuncture-related therapies with conventional medication compared with conventional medication in patients with Parkinson's disease (PD).
Methods	A literature search within eight databases [including Medline, Embase, the Cochrane Library, PubMed, China National Knowledge Infrastructure (CNKI), China Biology Medicine (CBM), VIP, and Wanfang Database] was performed covering a time frame from their inception to August 2020. Randomized controlled trials (RCTs) comparing acupuncture-related therapies combined with conventional medication vs. conventional medication in patients with PD were eligible. Two authors independently assessed the risk of bias. Assessments were performed with the total and subscales scores of the Unified Parkinson's Disease Rating Scale (UPDRS), 39-item Parkinson's Disease Questionnaire (PDQ-39), the dosage of Madopar, Mini-Mental State Examination (MMSE), and 17-item Hamilton Depression Scale (HAMD). Data were analyzed by adopting the Cochrane Collaboration's RevMan 5.4 (Review Man, Copenhagen, Denmark); and mean effect sizes and 95% confidence intervals were estimated. Tests for heterogeneity were used to assess differences in treatment effects across different types of acupuncture used.
Results	**Sixty-six trials** met the inclusion criteria, of which 61 trials provided data for the meta-analysis. We defined high-quality articles as those with a low risk of bias in four or more domains; and only 10 (15.15%) articles were of high quality. Compared with the controls, acupuncture-related therapies with conventional medication achieved a benefit in the primary outcomes of UPDRS (motor subscore: -3.90, -4.33 to -3.49, $P < 0.01$; total score: -7.37 points, -8.91 to -5.82, $P < 0.001$; activities of daily living subscore: -3.96, -4.96 to -2.95, $P < 0.01$). For the subgroup difference test among the effects of different acupuncture methods, significant differences existed in outcomes with the UPDRS-III, UPDRS-I, UPDRS-IV, and PDQ-39 scores and Madopar dosage, while non-significant differences existed with the UPDRS-total, UPDRS-II, HAMD, and MMSE scores.
Conclusions	Acupuncture-related therapies combined with conventional medication may benefit individuals with PD. Our review findings should be considered with caution because of the methodological weaknesses in the included trials. Future, large randomized trials of acupuncture-related therapies for PD with high methodological quality are warranted.

1.1.8. Li 2020 ☆

Li Xiaoyan. [Evaluate the effectiveness of acupuncture for Parkinson's disease patients]. Heilongjiang Journal of TCM. 2020. [212923].

Objective	To summarize and evaluate the effectiveness of acupuncture (or combination of acupuncture and medicine) in the treatment of Parkinson's disease patients with motor function and symptoms. Method: Two independent reviewers extracted data from all randomized clinical trials in 8 electronic databases retrieved to evaluate the uniformity of acupuncture (or acupuncture and medicine) compared with conventional therapies (drugs) for Parkinson's disease Evaluation scale (UPDRS), Webster scale (Webster) and the impact of clinical efficacy.

Results	This study included 11 RCTs that met the inclusion criteria (922 patients were included). After evaluating the Unified Parkinson’s Disease Rating Scale (UPDRS), 4 RCTs confirmed that the combination of acupuncture and the drug is better than the drug alone [weighted mean difference (WMD)=-11. 771, 95% confidence interval (CI) (-14. 197, -9. 344) , P<0. 01], Webster scale, 4 RCTs confirmed that acupuncture treatment is better than western medicine alone [WMD, -2. 474, 95% confidence interval (-2. 794, -2. 154), P<0. 01]. According to the Webster scale, 4 RCTs show that acupuncture is more effective than drugs [WMD=1. 106, 95% confidence interval (1. 022, 1. 197), P<0. 05]; UPDRS scale, 4 RCTs show that acupuncture combined with drugs is more effective than drugs. The curative effect is obvious [weighted mean difference=1. 236, 95% confidence interval (1. 099, 1. 390), P<0. 01].
Conclusion	Acupuncture has a significant positive effect in clinical treatment of Parkinson's disease, but for the future research of Parkinson's disease, more rigorous methods should be explored.

1.1.9. Zhou 2020 (motor symptoms) ☆

Zhou Jing. [Meta analysis of acupuncture in the treatment of pathogenic motor symptoms of Parkinson's disease]. Global TCM. 2020. [212952].

Objective	To systematically evaluate the clinical efficacy of acupuncture in the treatment of pathogenic motor symptoms of Parkinson's disease.
Methods	The randomized controlled trial on acupuncture with Western medicine in the treatment of primary motor symptoms of Parkinson's disease was collected. The relative data was extracted after being evaluated. Rev Man 5. 3 meta analysis was used to analyze the efficacy and safety.
Results	**14 papers were included and 632 objects** were involved. The results of meta analysis shows that acupuncture can effectively reduce the score of UPDRSIII and improve the motor dysfunction of patients. Acupuncture can also effectively reduce tremor score but there is no significant difference in decreasing the scores of rigidity and slowness.
Conclusion	Acupuncture can effectively improve the primary motor symptoms of Parkinson's disease. The effect of acupuncture combined with western medicine is better than using western medicine only. Limited by the number and quality of included studies, the above results need to be verified by more high-quality studies to provide reliable evidence for clinical practice.

1.1.10. Liu 2018

Liu Yanhui, Chen Tao, Deng Yidong, Zhang Shan, Teng Si, Cai Benchi, Su Jiali. [A meta-analysis on clinical effect of acupuncture for Parkinson disease]. Journal of Chinese Physician. 2018;1:16-23,27. [201794].

Objective	To evaluate the clinical effect of acupuncture on Parkinson disease (PD) with systematic review in view of evidence-based medicine (EBM).

Methods	Articles on clinical effect of acupuncture on Parkinson disease published from the database-established year to May of 2017 we searched from China National Knowledge Internet (CNKI), Wanfang, VIP, Chinese Biomedical Literature Database (CBM), PubMed, and Cochrane Library databases without language limitation. Quality evaluation and data extraction were carried out according to the tool for assessing risk of bias provided by the Cochrane Handbook for Systematic Reviews of Interventions (Version 5.1.0).All statistical analyses were performed with Reviewer Manager Software (Version 5.3;Cochrane Collaboration, Oxford, UK). Assessments were performed with the total effective rate, the scores of each scale (the unified Parkinson disease rating scales-UPDRS and the Webster scale),and the improvement of different clinical manifestation.
Results	In all,**12 randomized controlled trials (RCTs)** met our inclusion criterion, a total of **892 patients**, including 468 cases in the experimental group (acupuncture with or without medicine) and 424 cases in the control group (medicine only).Meta-analysis showed favorable results for the experimental group compared to control group in the total effective rate, the total scales of UPDRS and the modified Webster scale [OR =2.16,95□ CI (1.57,2.97),P□0.01;OR =7.20,95□ CI(4.02,10.37),P□0.01;OR=3.33,95□ CI(2.13,4.53),P □0.01].The experimental group was effective in relieving partial symptoms of PD such as rigidity, postural, gait, bradykinesia compared to the control group, while there was no significant difference in tremor at rest and sit-stand up movements (P □ 0.05).
Conclusions	Acupuncture had certain clinical effect on Parkinson disease, it can relieve the clinical symptoms of Parkinson disease to some extent, and postpone the progression of PD, which improves the quality of life of PD patients. Acupuncture can be recommended as a combination treatment for Parkinson disease.

1.1.11. Subramanian 2017 (nonmotor symptoms)

Subramanian I. Complementary and Alternative Medicine and Exercise in Nonmotor Symptoms of Parkinson's Disease. Int Rev Neurobiol. 2017:1163-1188. [160582].

> The use of complementary and alternative medicine (CAM) therapy in nonmotor symptoms (NMS) for Parkinson disease (PD) is growing worldwide. Well-performed, systematic evidence-based research is largely lacking in this area and many studies include various forms of CAM with small patient numbers and a lack of standardization of the approaches studied. Taichi, Qigong, dance, yoga, mindfulness, acupuncture, and other CAM therapies are reviewed and there is some evidence for the following: Taichi in sleep and PDQ39; dance in cognition, apathy, and a mild trend to improved fatigue; yoga in PDQ39; and **acupuncture in depression**, PDQ39, and sleep. Exercise including occupational therapy (OT) and physical therapy (PT) has been studied in motor symptoms of PD and balance but only with small studies with a mounting evidence base for use of exercise in NMS of PD including PDQ39, sleep, fatigue, depression, and some subsets of cognition. Studies of OT and PT largely show some benefit to depression, apathy, and anxiety. Sustainability of an improvement has not been shown given short duration of follow up. Finding optimal control groups and blind for these interventions is also an issue. This is a very important area of study since patients want to be self-empowered and they want guidance on which form of exercise is the best. Additionally, evidence for PT and OT in NMS would give added weight to get these interventions covered through medical insurance.

1.1.12. Liu 2017 (combined with Madopar)

Liu H, Chen L, Zhang Z, Geng G, Chen W, Dong H, Chen L, Zhan S, Li T. Effectiveness and safety of acupuncture combined with Madopar for Parkinson's disease: a systematic review with meta-analysis. Acupunct Med. 2017;35(6):404-412. [99815].

Objective	To evaluate the effectiveness and safety of acupuncture combined with Madopar for the treatment of Parkinson's disease (PD), compared to the use of Madopar alone.
Methods	A systematic search was carried out for randomised controlled trials (RCTs) of acupuncture and Madopar for the treatment of PD published between April 1995 and April 2015. The primary outcome was total effectiveness rate and secondary outcomes included Unified Parkinson's Disease Rating Scale (UPDRS) scores. Data were pooled and analysed with RevMan 5.3. Results were expressed as relative ratio (RR) with 95% confidence interval (Cis).
Results	Finally, 11 RCTs with 831 subjects were included. Meta-analyses showed that acupuncture combined with Madopar for the treatment of PD can significantly improve the clinical effectiveness compared with Madopar alone (RR=1.28, 95% CI 1.18 to 1.38, P<0.001). It was also found that acupuncture combined with Madopar significantly improved the UPDRS II (SMD=-1.00, 95% CI -1.71 to -0.29, P=0.006) and UPDRS I-IV total summed scores (SMD=-1.15, 95% CI -1.63 to -0.67, P<0.001) but not UPDRS I (SMD=-0.37, 95% CI -0.77 to 0.02, P=0.06), UPDRS III (SMD=-0.93, 95% CI -2.28 to 0.41, P=0.17) or UPDRS IV (SMD=-0.78, 95% CI -2.24 to 0.68, P=0.30) scores. Accordingly, acupuncture combined with Madopar appeared to have a positive effect on activities of daily life and the general condition of patients with PD, but was not better than Madopar alone for the treatment of mental activity, behaviour, mood and motor disability. In the safety evaluation, it was found that acupuncture combined with Madopar was associated with significantly fewer adverse effects including gastrointestinal reactions (RR=0.38, 95% CI 0.23 to 0.65, P<0.001), on-off phenomena (RR=0.27, 95% CI 0.11 to 0.66, P=0.004) and mental disorders (RR=0.24, 95% CI 0.06 to 0.92, P=0.04) but did not significantly reduce dyskinesia (RR=0.64, 95% CI 0.35 to 1.16, P=0.14).
Conclusion	Acupuncture combined with Madopar appears, to some extent, to improve clinical effectiveness and safety in the treatment of PD, compared with Madopar alone. This conclusion must be considered cautiously, given the quality of most of the studies included was low. Therefore, more high-quality, multicentre, prospective, RCTs with large sample sizes are needed to further clarify the effect of acupuncture combined with Madopar for PD.

1.1.13. Noh 2017 ☆

Noh H, Kwon S, Cho SY, Jung WS , Moon SK, Park JM, Ko CN, Park SU. Effectiveness and safety of acupuncture in the treatment of Parkinson's disease: A systematic review and meta-analysis of randomized controlled trials. Complement Ther Med. 2017;34:86-103. [171620].

Objective	This study aimed to examine the effectiveness and safety of acupuncture in the treatment of Parkinson's disease (PD).
Methods	English, Chinese, and Korean electronic databases were searched up to June 2016. Randomized controlled trials (RCTs) were eligible. The methodological quality was assessed using Cochrane's risk of bias tool. Meta-analysis was performed using RevMan 5.3.

Results	In total, **42 studies involving 2625 participants** were systematically reviewed. Participants treated using combined acupuncture and conventional medication (CM) showed significant improvements in total Unified PD Rating Scale (UPDRS), UPDRS I, UPDRS II, UPDRS III, and the Webster scale compared to those treated using CM alone. The combination of electroacupuncture and CM was significantly superior to CM alone in total UPDRS, UPDRS I, UPDRS II, and UPDRS IV. Similarly, the combination of scalp electroacupuncture, acupuncture, and CM was significantly more effective than CM alone in total UPDRS. However, our meta-analysis showed that the combination of electroacupuncture and CM was not significantly more effective than CM alone in UPDRS III, the Webster, and the Tension Assessment Scale. The results also failed to show that acupuncture was significantly more effective than placebo acupuncture in total UPDRS. Overall, the methodological quality of the RCTs was low. No serious adverse events were reported.
Conclusions	We found that acupuncture might be a safe and useful adjunctive treatment for patients with PD. However, because of methodological flaws in the included studies, conclusive evidence is still lacking. More rigorous and well-designed placebo-controlled trials should be conducted.

1.1.14. Lee 2017 ☆☆

Lee SH, Lim S. Clinical effectiveness of acupuncture on Parkinson disease: A PRISMA-compliant systematic review and meta-analysis. Medicine (Baltimore). 2017. [190954].

Objectives	Parkinson's disease (PD) is the second-most-common chronic and progressive neurodegenerative disease. The long-term use of levodopa leads to a loss of efficacy and to complications. Therefore, many patients with PD have turned to complementary therapies to help relieve their symptoms. Acupuncture is most commonly used as a complementary therapy in patients with PD. This paper presents a systematic review and meta-analysis of the effects of acupuncture for patients with PD. This study was performed to summarize and evaluate evidence regarding the effectiveness of acupuncture in the relief of PD symptoms.
Methods	Seven databases, namely, MEDLINE, EMBASE, the Cochrane Library, the China National Knowledge Infrastructure [CNKI], and three Korean medical databases, were searched from their inception through August 2015 without language restrictions. Randomized controlled trials (RCTs) were included if they contained reports of acupuncture compared with no treatment and conventional treatment alone or acupuncture plus conventional treatment compared with conventional treatment alone for PD symptoms. Assessments were performed with the unified PD rating scales (UPDRS) I, II, III, and IV and the total score, the Webster scale, and effectiveness rating. Methodological quality was assessed using the Physiotherapy Evidence Database (PEDro) scale and the Cochrane risk of bias (ROB).
Results	In all, 982 potentially relevant articles were identified; 25 RCTs met our inclusion criterion, **19 of 25 RCTs were high-quality studies** (i.e., a score of 6 or higher). The included RCTs showed favorable results for acupuncture plus conventional treatment compared with conventional treatment alone in the UPDRS II, III, and IV and the total score. Acupuncture was effective in relieving PD symptoms compared with no treatment and conventional treatment alone, and acupuncture plus conventional treatment had a **more significant effect than conventional treatment alone**.
Conclusions	We performed a systematic review and meta-analysis to evaluate the use of acupuncture for relief of PD symptoms and found that **acupuncture has significant positive effects**. Acupuncture can be considered as a combination treatment with conventional treatment for patients with PD. Further studies on this topic should be carried out according to rigorous methodological designs in both the East and the West.

1.1.15. Yin 2016 ☆

Yin Hong-na , Han Chao , Sun Zhong-ren , et al. [Randomized Controlled Trials of Acupuncture for Parkinson's Disease: A Systematic Review and Meta — analysis]. Journal of Clinical Acupuncture and Moxibustion. 2016;32(8):67. [189379].

Objective	To summarize and evaluate the efficacy of acupuncture for Parkinson's disease(PD).
Methods	Four databases both in and abroad were searched electronically and relevant reviews were searched. Randomized controlled trials(RCTs) which compared acupuncture as the main intervention to medication, placebo or conventional therapy for treating PD were included for this meta-analysis.
Results	**9 RCTs** were included in our review, involving **665 cases'PD**. As a result, the total effective rate 'acupuncture for PD was significantly superior to those of the control group [OR =2. 60,95% CI(1. 78,3. 79), Z =4. 66, P < 0.000 01
Conclusion	Although acupuncture may be effective for treating PD, the methodological flaws in the included studies might affect the analysis. The rigorous higher-quality RCTs are needed.

1.1.16. Zhang 2015 ☆☆

Zhang G, Xiong N, Zhang Z, Liu L1, Huang J, Yang J, Wu J, Lin Z, Wang T. Effectiveness of traditional Chinese medicine as an adjunct therapy for Parkinson's disease: a systematic review and meta-analysis. PLoS One. 2015;10(3):.[176524].

Background	Idiopathic Parkinson disease (PD) is a common neurodegenerative disease that seriously hinders limb activities and affects patients' lives. We performed a meta-analysis aiming to systematically review and quantitatively synthesize the efficacy and safety of traditional Chinese medicine (TCM) as an adjunct therapy for clinical PD patients.
Methods	An electronic search was conducted in PubMed, Cochrane Controlled Trials Register, China National Knowledge Infrastructure, Chinese Scientific Journals Database and Wanfang data to identify randomized trials evaluating TCM adjuvant therapy versus conventional treatment. The change from baseline of the Unified Parkinson's Disease Rating Scale score (UPDRS) was used to estimate the effectiveness of the therapies.
Results	**Twenty-seven articles involving 2314 patients** from 1999 to 2013 were included. Potentially marked improvements were shown in UPDRS I (SMD 0.68, 95%CI 0.38, 0.98), II (WMD 2.41, 95%CI 1.66, 2.62), III (WMD 2.45, 95%CI 2.03, 2.86), IV (WMD 0.32, 95%CI 0.15, 049) and I-IV total scores (WMD 6.18, 95%CI 5.06, 7.31) in patients with TCM plus dopamine replacement therapy (DRT) compared to DRT alone. Acupuncture add-on therapy was markedly beneficial for improving the UPDRS I-IV total score of PD patients (WMD 10.96, 95%CI 5.85, 16.07). However, TCM monotherapy did not improve the score. The effectiveness seemed to be more obvious in PD patients with longer adjunct durations. TCM adjuvant therapy was generally safe and well tolerated.
Conclusions	Although the data were limited by methodological flaws in many studies, **the evidence indicates the potential superiority of TCM as an alternative therapeutic for PD treatment** and justifies further high-quality studies.

1.1.17. Sun 2013 (non-motor symptoms) ☆☆

Sun Miao-Xuan, Zhang Xiong. [Effect of acupuncture for non-motor symptoms of parkinson’s disease: a systematic review and meta-analysis]. Acta Universitatis Traditionis Medicalis Sinensis

Pharmacologiaeque Shanghai. 2013;5:41-48; 6. [186902].

Objective	To systematically evaluate the clinical efficacy of acupuncture for the non-motor symptoms (NMS)of Parkinson’s disease (PD).
Methods	Randomized controlled trials (RCTs) of acupuncture in treatment of PD were identified from PubMed, Cochrane Library, Chinese National Knowledge Infrastructure (CNKI), Wanfang Database and VIP Database for Chinese Technical Periodicals, and some relevant journals were hand-searched. The quality of RCTs were evaluated based on Cochrane collaboration’s tool for assessing risk of bias, and the Review Manager (version 5. 0) software was used for meta-analysis.
Results	A total of **18 RCTs involving 1 325 patients** were included. The results of meta-analysis showed: ①Depression: The Hamilton Depression Scale (HAMD) and the Self-Rating Depression Scale (SDS) were used to evaluate depression. HAMD: There was statistical difference between two groups [SMD =- 5. 83, 95% CI (- 8. 61, - 3. 05), P < 0. 000 1]. SDS: There was statistical difference between two groups [SMD =- 4. 42, 95% CI (- 6. 44, - 2. 39), P < 0. 000 1]. ②Mental symptoms: There was statistical difference between two groups [OR = 0. 12, 95% CI (0. 02, 0. 65), P = 0. 01]. ③Sleep disorders: There was statistical difference between two groups [OR = 0. 04, 95% CI (0. 00, 0. 29), P = 0. 002]. ④Gastrointestinal symptoms: There was statistical difference between two groups [OR = 0. 15, 95% CI (0. 07, 0. 33), P < 0. 000 01]. ⑤ Activity of daily life: The Webster scale and the Unified Parkinson ’s Disease Rating Scale (UPDRS)-Ⅱwere used to evaluate the activity of daily life. Webster scale: There was statistical difference between two groups [OR =0. 45, 95%CI (0. 29, 0. 68), P =0. 000 1]. The total score of UPDRSⅡ: There was statistical difference between two groups [SMD =- 4. 24, 95% CI (- 5. 08, - 3. 39), P < 0. 000 01]. The different score of UPDRSⅡ: There was statistical difference between two groups [SMD = 3. 51, 95% CI (1. 64, 5. 38), P = 0. 000 2].
Conclusion	**Acupuncture therapy can improve some NMS of PD patients,** however, the high-quality, large-sample and multi-center RCTs are needed to further certify; in addition, the evaluation standard of therapeutic effect of NMS is needed.

1.1.18. Fox 2011 (motor symptoms) ☆☆

Fox SH, Katzenschlager R, Lim SY, Ravina B, Seppi K, Coelho M, Poewe W, Rascol O, Goetz CG, Sampaio C. The Movement Disorder Society Evidence-Based Medicine Review Update: Treatments for the motor symptoms of Parkinson's disease. Mov Disord. 2011;26 supp 3:s2-41.[162534] .

Objectives	The objective was to update previous evidence-based medicine reviews of treatments for motor symptoms of Parkinson's disease published between 2002 and 2005. Level I (randomized, controlled trial) reports of pharmacological, surgical, and nonpharmacological interventions for the motor symptoms of Parkinson's disease between January 2004 (2001 for nonpharmacological) and December 2010 were reviewed.
Methods	Criteria for inclusion, clinical indications, ranking, efficacy conclusions, safety, and implications for clinical practice followed the original program outline and adhered to evidence-based medicine methodology. Sixty-eight new studies qualified for review.

Results	Piribedil, pramipexole, pramipexole extended release, ropinirole, rotigotine, cabergoline, and pergolide were all efficacious as symptomatic monotherapy; ropinirole prolonged release was likely efficacious. All were efficacious as a symptomatic adjunct except pramipexole extended release, for which there is insufficient evidence. For prevention/delay of motor fluctuations, pramipexole and cabergoline were efficacious, and for prevention/delay of dyskinesia, pramipexole, ropinirole, ropinirole prolonged release, and cabergoline were all efficacious, whereas pergolide was likely efficacious. Duodenal infusion of levodopa was likely efficacious in the treatment of motor complications, but the practice implication is investigational. Entacapone was nonefficacious as a symptomatic adjunct to levodopa in nonfluctuating patients and nonefficacious in the prevention/delay of motor complications. Rasagiline conclusions were revised to efficacious as a symptomatic adjunct, and as treatment for motor fluctuations. Clozapine was efficacious in dyskinesia, but because of safety issues, the practice implication is possibly useful. Bilateral subthalamic nucleus deep brain stimulation, bilateral globus pallidus stimulation, and unilateral pallidotomy were updated to efficacious for motor complications. Physical therapy was revised to likely efficacious as symptomatic adjunct therapy.
Conclusions	This evidence-based medicine review updates the field and highlights gaps for research.

1.1.19. Yang 2010 ☆☆

Yang Li-Hong, Du Yuan-Hao, Xiong Jun, Liu Jia-Lin, Wang Yun-Na, Li Ying, Li Li-Na. [Acupuncture treatment for parkinson disease: a systematic review]. Chinese Journal of EBM. 2010;10(6):711-17.[166226].

Objective	To assess the efficacy and safety of acupuncture versus western medicine in the treatment of parkinson disease.
Methods	Randomized controlled trials (RCTs) involving acupuncture versus western medicines in the treatment of parkinson disease were identified from CBM (1978 to 2008), VIP (1989 to 2008), Wanfang Database (1998 to 2008), CNKI (1979 to 2008), PubMed (1966 to 2008), Embase (1980 to 2008), and The Cochrane Library (Issue 4, 2008). And some relevant journals were handsearched. Data were extracted and evaluated by two reviewers independently with a specially-designed extraction form. The Cochrane Collaboration’s RevMan 5.0.20 software was used for metaanalyses.

Results	A total of **13 trials involving 832 patients** were included. The result of meta-analyses showed that the total effective rates of the acupuncture group or of the group of acupuncture plus Madopar were similar when compared with Madopar alone in Webster score. (1) The total effective rate: The total effective rate in acupuncture plus Madopar was similar when compared with Madopar alone in UPDRS score at Day 30 (RR=1.33, 95%CI 0.95 to 1.88) and Day 66 (RR=1.38, 95%CI 0.84 to 2.24), but there were significant differences between acupuncture plus Madopar and Madopar alone (RR=1.61, 95%CI (1.19 to 2.17) at Day 84. The total effective rate in acupuncture plus benserazide-levodopa was higher than benserazide-levodopa alone (RR=1.70, 95%CI 1.08 to 2.68) at Day 66. (2)Webster score: There were no sig nificant differences between acupuncture and Madopar at Day 30 (WMD= – 2.51, 95%CI – 2.83 to – 2.19) and at Day 63 (WMD= – 2.48, 95%CI – 3.01 to – 1.95). There were significant differences between acupuncture plus Madopar and Madopar alone at Day 30 (WMD= – 13.48, 95%CI – 15.35 to – 11.61), but not at Day 42 (WMD= 0.50, 95%CI – 1.22 to 2.22). (3) UPDRS score: There were no significant differences between acupuncture and Madopar at Day 60 (WMD= – 7.19, 95%CI – 14.49 to 0.11). There were significant differences between acupuncture plus Madopar and Madopar alone at Day 30 (WMD= 7.07 and 95%CI 2.95 to 11.19) and at Day 84 (WMD= – 12.49,95%CI – 16.75 to – 8.23), but no significant differences were found at Day 66 and Day 33 (WMD= – 14.90, 95%CI – 31.89 to 2.09; WMD= – 8.60, 95%CI – 21.51 to 4.31).But there were statistical differences between acupuncture plus Madopar and Madopar alone at Day 30 (WMD= 7.07, 95%CI 2.95 to 11.19). There were no differences between acupuncture plus benserazide-levodopa and benserazidelevodopa alone at Day 66 (WMD=-10.80,95%CI-21.78 to 0.18) and at Day 33 (WMD=-15.60,95%CI-28.38 to -2.82). (4) Adverse reaction: Three trials reported adverse reactions including dizziness, heartbeat acceleration, slight mouth drying and nausea, but all of these were relieved or disappeared in the course of treatment.
Conclusion	**Acupuncture is safe and effective in the treatment of parkinson disease**. Acupuncture plus western drugs may be superior to western drugs alone. Because of the defects in the methodological quality of the included trials, the conclusion is to be confirmed by more highquality RCTs.

1.1.20. Lam 2008 ☆

Lam YC, Kum WF, Durairajan SSK, Lu JH, Man SC, Xu M, Zhang XF, Huang XZ, Li M. Efficacy and safety of acupuncture for idiopathic parkinson's disease: a systematic review. Journal of Alternative and Complementary Medicine. 2008;14(6):663.[149982] .

Objectives	To assess the efficacy and safety of acupuncture therapy (monotherapy or adjuvant therapy), compared with placebo, conventional interventions, or no treatment in treating patients with idiopathic Parkinson's disease (IPD).
Data sources	International electronic database: (1) The Cochrane Controlled Trials Register, (2) Academic Search Premier, (3) ACP Medicine, Alternative Medicine, (4) CINAHL, (5) EBM Reviews, (6) EMBASE, (7) MEDLINE, (8) OLD MEDLINE, (9) ProQuest Medical Library. Chinese electronic databases searched included: (1) VIP, (2) CJN, (3) CBM disk, (4) China Medical Academic Conference. Hand searching was conducted on all appropriate journals. Reference lists of relevant trials and reviews were also searched to identify additional studies. Selection criteria: All randomized controlled trials (RCTs) of any duration comparing monotherapy and adjuvant acupuncture therapy with placebo or no intervention were included. Data collection and analysis: Data were abstracted independently by Y. C. Lam and S. C. Man onto standardized forms, and disagreements were resolved by discussion.

Main results	**Ten (10) trials** were included, each using a different set of acupoints and manipulation of needles. None of them reported the concealment of allocation. Only two mentioned the number of dropouts. Two (2) used a nonblind method while others did not mention their blinding methods. Nine (9) studies claimed a statistically significant positive effect from acupuncture as compared with their control; only one indicated that there were no statistically significant differences for all variables measured. Only 2 studies described details about adverse events.
Conclusions	**There is evidence indicating the potential effectiveness of acupuncture for treating IPD**. The results were limited by the methodological flaws, unknowns in concealment of allocation, number of dropouts, and blinding methods in the studies. Large, well-designed, placebo-controlled RCTs with rigorous methods of randomization and adequately concealed allocation, as well as intention-to-treat data analysis are needed.

1.1.21. Lee 2008 Ø

Lee MS, Shin BC, Kong JC, Ernst E. Effectiveness of acupuncture for Parkinson's disease: a systematic review. Mov Disord. 2008; 23(11):1505-15. [149866].

Objective	The objective of this review is to assess the clinical evidence for or against acupuncture as a treatment for Parkinson's disease (PD).
Methods	We searched the literature using 17 databases from their inception to September 2007 (searched again 3rd January 2008), without language restrictions. We included all randomized clinical trials (RCTs) regardless of their design. Methodological quality was assessed using the Jadad score.
Results	**Eleven RCTs met all inclusion criteria**. Three RCTs assessed the effectiveness of acupuncture on Unified Parkinson's Disease Rating Scale (UPDRS) compared with placebo acupuncture. A meta-analysis of these studies showed no significant effect (n = 96, WMD, 5.7; 95% CI -2.8 to 14.2, P = 0.19, heterogeneity: tau(2) = 0, chi(2) = 0.97, P = 0.62, I(2) = 0%). Another six RCTs compared acupuncture plus conventional drugs on improvement of symptoms of PD with drugs only. A meta-analysis of two of these studies suggested a positive effect of scalp acupuncture (n = 106, RR, 1.46, 95% CI = 1.15 to 1.87, P = 0.002; heterogeneity: tau(2) = 0.00, chi(2) = 1.14, P = 0.29, I(2) = 12%). Two further RCTs tested acupuncture versus no treatment. The meta-analysis of these studies also suggested beneficial effects of acupuncture. The results of the latter two types of RCTs fail to adequately control for nonspecific effects.
Conclusions	**The evidence for the effectiveness of acupuncture for treating PD is not convincing**. The number and quality of trials as well as their total sample size are too low to draw any firm conclusion. Further rigorous trials are warranted.

1.2. Specific outcomes

1.2.1. Constipation

1.2.1.1. Li 2024

Li Z, Niu Q, Yang K, Zhao K, Yin S, Zhu F. Acupuncture for constipation in Parkinson's disease: A systematic review and meta-analysis of randomized controlled trials. Medicine (Baltimore). 2024 Jul 19;103(29):e38937. https://doi.org/10.1097/MD.0000000000038937. PMID: 39029044.

Backgound	Parkinson's disease (PD) is the second most common neurological disease worldwide, and there is a potential interaction between PD and constipation. PD constipation often causes significant trouble for patients and seriously affects their quality of life. Acupuncture is widely used for treating constipation and has been clinically proven. However, it is unclear whether the current evidence is sufficient to support acupuncture to improve PD constipation.
Methods	We searched the Cochrane Central Register of Controlled Trials, Embase, PubMed, Web of Science, China National Knowledge Infrastructure, Wan Fang Data Knowledge Service Platform, and Chinese Scientific Journal Database (VIP database) for randomized controlled trials from inception through July 1, 2023. Randomized controlled trials (RCTs) included acupuncture, sham acupuncture, and medication for PD constipation. Stata 16.0 software and Cochrane RoB2.0 were used for data processing and migration risk analysis.
Results	The **11 studies included a total of 960 patients**. The results showed that acupuncture or acupuncture combined with conventional treatment seemed to have advantages in improving complete spontaneous bowel movements (WMD: 1.49, 95% CI: 0.86, 2.11; P < .00001), Patient-Assessment of Constipation Quality of Life questionnaire (WMD: -11.83, 95% CI: -15.67, -7.99; P < .00001), the chronic constipation severity scale (CCS) (SMD: -0.99, 95% CI: -1.40, -0.58; P < .01), and c(RRP) (WMD: 2.13, 95% CI: 0.44, 3.82; P < .05).
Conclusion	The present results show that compared with conventional treatment, acupuncture combined with conventional treatment seems to increase the number of spontaneous defecations in PD patients, improve quality of life, increase rectal resting pressure, and alleviate the severity of chronic constipation. Thus, acupuncture has the potential to treat PD constipation. However, due to the study's limitations, higher-quality RCTs are needed for verification.

1.2.2. Pain

1.2.2.1. Qureshi 2021

Qureshi AR, Jamal MK, Rahman E, Paul DA, Oghli YS, Mulaffer MT, Qureshi D, Danish MA, Rana AQ. Non-pharmacological therapies for pain management in Parkinson's disease: A systematic review. Acta Neurol Scand. 2021;144(2):115-131. [220235]. doi

Background	Among the various non-motor symptoms of Parkinson's disease (PD), pain is often cited as the most common and debilitating feature. Currently, the literature contains gaps in knowledge with respect to the various forms of treatment available, particularly non-pharmacological therapies. Thus, the purpose of this systematic review is to provide an examination of the literature on non-pharmacological therapies for pain in PD.
Methods	We compared the findings of research articles indexed within various literature databases related to non-pharmacological treatments of pain in PD patients.

Results	Our review identified five major non-pharmacological methods of pain therapy in PD: **acupuncture**, hydrotherapy, massage therapy, neuromodulation, and exercise. Treatments such as exercise therapy found a reduction in pain perception due to various factors, including the analgesic effects of neurotransmitter release during exercise and increased activity leading to a decrease in musculoskeletal rigidity and stiffness. By the same token, hydrotherapy has been shown to reduce pain perception within PD patients, with authors often citing a combined treatment of exercise and hydrotherapy as an effective treatment for pain management. Multiple methods of neurostimulation were also observed, including deep brain stimulation and spinal cord stimulation. Deep brain stimulation showed efficacy in alleviating certain pain types (dystonic and central), while not others (musculoskeletal). Hence, patients may consider deep brain stimulation as an additive procedure for their current treatment protocol. On the other hand, spinal cord stimulation showed significant improvement in reducing VAS scores for pain. Finally, although the literature on massage therapy and **acupuncture** effectiveness on pain management is limited, both have demonstrated a reduction in pain perception, with common reasons such as tactile stimulation and release of anti-nociceptive molecules in the body.
Conclusions	Although literature pertaining to non-pharmacological treatments of pain in PD is sparse, there is copious support for these treatments as beneficial to pain management. Further exploration in the form of clinical trials is warranted to assess the efficacy of such therapies.

1.2.3. Dysphagia

1.2.3.1. Cheng 2023

Cheng I, Sasegbon A, Hamdy S. Dysphagia treatments in Parkinson's disease: A systematic review and meta-analysis. Neurogastroenterol Motil. 2023 Aug;35(8):e14517. https://doi.org/10.1111/nmo.14517

Background	The majority of patients with Parkinson's disease (PD) develop oropharyngeal dysphagia during the course of their disease. However, the efficacy of dysphagia treatments for these patients remains controversial. Therefore, we conducted this systematic review and meta-analysis to evaluate treatment efficacy based on the evidence from randomized controlled trials (RCTs).
Methods	Five electronic databases were systematically searched from inception date to April 2022. Two reviewers independently extracted and analyzed the data. The outcome measures were changes in swallowing-related characteristics based on instrumental swallowing assessments.
Key results	An initial search identified 187 RCT studies of relevance. After screening, nine studies with a total sample size of 286 were included in the meta-analysis. The pooled effect size for all dysphagia treatments compared with control comparators was significant and medium (SMD [95% CI] = 0.58 [0.22, 0.94], p = 0.001; I2 = 50%). Subgroup analysis revealed a significant and medium pooled effect size for stimulation treatments (brain stimulation, peripheral neurostimulation and acupuncture) (SMD [95% CI] = 0.54 [0.15, 0.92]; p = 0.006; I2 = 22%). Specifically, the effect sizes for the single RCTs on neuromuscular stimulation (SMD [95% CI] = 1.58 [0.49, 2.86]; p = 0.005) and acupuncture (SMD [95% CI] = 0.82 [0.27, 1.37]; p = 0.003) were significant and large.

Conclusions and inferences	Our results showed that overall, dysphagia treatments, particularly stimulation treatments, can potentially benefit PD patients. However, given the limited number of small RCTs for each type of treatment, the evidence remains weak and uncertain. Further large-scale, multicenter RCTs are warranted to fully explore their clinical efficacy in the PD population.

1.2.3.2. Jiayu 2023

Jiayu L, Minmin W, Zhu L. Meta-analysis of the therapeutic effect of acupuncture on dysphagia in patients with Parkinson disease. Medicine (Baltimore). 2023 Dec 22;102(51):e36698. https://doi.org/10.1097/MD.0000000000036698

Objective	To systematically evaluate the therapeutic effect of acupuncture on dysphagia in patients with Parkinson disease (PD).
Method	We searched CNKI, WF, VIP, CBM, Cochrane Library, and Web of Chinese Biomedical Literature Randomized controlled trials on the efficacy of acupuncture in the treatment of dysphagia in patients with PD was retrieved from Science, Embase, and PubMed databases from establishment to October 2022. Outcome indicators included clinical efficacy, swallowing function, hemoglobin, and serum albumin. Literature screening and data extraction of included literature were conducted independently by 2 reviewers, and literature quality was evaluated according to the standards of the Cochrane Collaboration network. Data analysis was performed using Review Manager 5.3 and Stata14.0 software.
Results	**466 patients were included in 7 literature**, 234 in the observation, and 232 in the control groups. The results of the meta-analysis showed the clinical efficacy in the observation group [odd ratio = 0.25, 95% confidence interval (95%CI) (0.15, 0.40), P < .01]. Swallowing function [standardized mean difference (SMD) = -0.96, 95%CI (-1.24, -0.68), P < .01]; hemoglobin index level [SMD = -0.72, 95%CI (-1.25, -0.20), P < .01]; serum albumin index level [SMD = -1.25, 95%CI (-2.19, -0.31), P < .01].
Conclusion	Acupuncture has a specific curative effect on dysphagia in patients with PD, and the therapeutic effect is more significant than that in the control group, which can improve the dysphagia function and nutrition level in patients with PD more effectively.

1.2.3.3. Wu 2023

Wu J, Wang Y, Wang X, Xie Y, Li W. A systematic review and meta-analysis of acupuncture in Parkinson's disease with dysphagia. Front Neurol. 2023 May 26;14:1099012. https://doi.org/10.3389/fneur.2023.1099012

Objective	The systematic review and meta-analysis aimed to comprehensively evaluate acupuncture's efficacy and safety in treating dysphagia in Parkinson's disease (PD).
Methods	We searched PubMed, Cochrane Library, Embase, Web of Science, China Knowledge Infrastructure (CNKI), China Science Journal Database (VIP), Wan-fang Database, and the China Biomedical Literature Service System (CBM) for randomized controlled trials (RCTs) comparing the efficacy of acupuncture alone or in combination with control treatment in improving dysphagia by October 2022. The degree of dysphagia was the primary outcome indicator, with secondary outcomes including serum albumin (ALB) and hemoglobin (Hb) levels, the incidence of pneumonia, and adverse events. Two investigators independently extracted information according to the inclusion and exclusion criteria. Data synthesis was calculated by RevMan (V.5.4.1) software.

Results	This study included **ten randomized controlled trials with 724 patients**. Most RCTs have a high or uncertain risk of bias due to the lack of a blinded design. Meta-analysis showed that acupuncture combined with control treatment was superior to control treatment alone in improving Videofluoroscopic Swallowing Study (VFSS) scores (MD: 1.48; 95% CI: 1.16, 1.81; P < 0.00001) and reducing Standardized Swallowing Assessment (SSA) scores (MD: -3.08; 95% CI: -4.01, -2.15; P < 0.00001). Acupuncture combined with control therapy has a more significant benefit in improving the clinical efficiency of dysphagia in PD (RR: 1.40; 95%CI: 1.25, 1.58; P < 0.00001). Compared to the control group without acupuncture, acupuncture improved the nutritional status of patients and increased their serum ALB (MD: 3.38, 95%CI: 1.83, 4.92, P < 0.00001) and Hb levels (MD: 7.66; 95%CI: 5.57, 9.75; P < 0.00001). Three RCTs reported that the rate of pulmonary infections in the acupuncture group was lower than without acupuncture intervention (RR: 0.29, 95% CI: 0.14, 0.63; P = 0.001).
Conclusion	Acupuncture could be recommended as an adjunctive treatment for dysphagia in PD. However, due to the high risk of bias in the included studies, more high-quality evidence is needed to confirm the efficacy and safety of acupuncture for dysphagia in PD.

1.2.3.4. Wen 2022

Wen X, Liu Z, Liu X, Peng Y, Liu H. The effects of physiotherapy treatments on dysphagia in Parkinson's disease: A systematic review of randomized controlled trials. Brain Res Bull. 2022 Oct 1;188:59-66. https://doi.org/10.1016/j.brainresbull.2022.07.016

Background	The prevalence of swallowing disorders in Parkinson's disease (PD) is relatively high. Different physiotherapy interventions for swallowing disorders are available but there is a lack of evidence-based medicine for their effectiveness in PD.
Objective	The purpose of this systematic review was to investigate the effects of different physiotherapy interventions on dysphagia in PD.
Methods	This systematic review was conducted according to PRISMA guidelines. We methodically searched databases including PubMed, PEDro, Cochrane Library, Embase, and Web of Science. Studies of any language published up to March 2022 were searched. Randomized controlled trials (RCTs) of non-pharmacological treatment for dysphagia in PD were selected in strict accordance with our exclusion and inclusion criteria.
Results	In total, we identified and included 10 RCTs in patients with PD undergoing dysphagia. This review involved seven rehabilitation treatments, including **acupuncture**, expiratory muscle strength training (EMST), repetitive transcranial magnetic stimulation (rTMS), video-assisted swallowing therapy (VAST), electrical stimulation, and speech and language therapy (SLT).
Conclusion	For physiotherapy treatments, including **acupuncture**, EMST, high-frequency rTMS and VAST may be effective treatments for dysphagia in patients with PD. However, there was not enough evidence that electrical stimulation has therapeutic effects on dysphagia in patients with PD.

1.2.4. Sleep and depression

1.2.4.1. Yan 2024

Yan F, Chen C, Feng Q, Huang Z, Chen Y, Chen H. Acupuncture and sleep disorders in Parkinson's disease: A systematic evaluation with meta-analysis. Medicine (Baltimore). 2024 Jan 5;103(1):e36286. https://doi.org/10.1097/MD.0000000000036286

Backgound	Parkinson's disease (PD) patients commonly suffer from sleep disorders, significantly impacting their quality of life. Western treatments often entail adverse effects, while acupuncture (ACU) presents a safe, nonaddictive alternative.
Methods	A thorough literature search was performed across PubMed, Cochrane Library, and Embase databases. Eligible studies underwent statistical analysis via RevMan 5.4 software.
Results	This study synthesized data from **19 randomized controlled trials involving 1300 patients**. The ACU cohort showed notable improvement in Parkinson's disease sleep scale (PDSS) scores (mean difference [MD] = 10.81, 95% confidence interval [CI]: 5.64, 15.98) relative to controls. Subgroup analysis revealed significance for ACU treatments beyond 6 weeks (MD = 15.39, 95% CI: 11.70, 19.09) but not for those 6 weeks or shorter (MD = 3.51, 95% CI: -1.20, 8.23). Notably, electroacupuncture resulted in significant PDSS score enhancements (MD = 12.39, 95% CI: 6.06, 18.71), with sensitivity analysis verifying result stability. However, without electroacupuncture, PDSS score differences were insignificant (MD = 7.83, 95% CI: -2.33, 17.99) and had lower result stability. Additionally, increased ACU session frequency may yield better improvements in PDSS scores. The ACU group also observed Improved Pittsburgh Sleep Quality Index scores (MD = -4.52, 95% CI: -6.36, -2.67). However, no significant variation was identified in Epworth Sleepiness Scale score improvement between groups (MD = -0.90, 95% CI: -3.67, 1.88).
Conclusion	ACU therapy effectively improves nighttime sleep quality in PD patients. A treatment duration extending beyond 6 weeks is highly recommended. Additionally, increasing the frequency of ACU sessions and incorporating electroacupuncture in the treatment regimen may be essential for optimal results.

1.2.4.2. Hsu 2023

Hsu WT, Hsu CM, Hung SC, Hung SY. Acupuncture Improves Sleep Disorders and Depression among Patients with Parkinson's Disease: A Meta-Analysis. Healthcare (Basel). 2023 Jul 17;11(14):2042. https://doi.org/10.3390/healthcare11142042

Backgound	Parkinson's disease (PD) is associated with a range of non-motor symptoms that lack effective treatments. Acupuncture is a popular alternative therapy for PD patients that has been shown to improve motor symptoms. However, the efficacy of acupuncture in treating non-motor symptoms has remained controversial. The goal of our study was to systematically assess the existing evidence for acupuncture's efficacy in treating PD non-motor symptoms of sleep disorders, depression, anxiety, and fatigue.
Method	We conducted a meta-analysis of clinical trials by searching Pubmed, Embase, CINAHL, and Web of Science as electronic databases to evaluate acupuncture treatment for PD non-motor symptoms. Thirteen clinical trials met our inclusion criteria, and their methodological quality was assessed using the modified Jadad scale, indicating a moderate overall quality.
Results	Our results showed that acupuncture improved PD-related sleep disorders and depression but had no effect on anxiety and fatigue. Our meta-analysis suggests that acupuncture can be used as a complementary treatment for sleep disturbances and depression in PD patients and may exhibit a dual therapeutic effect on motor and non-motor symptoms. However, further well-designed clinical trials with larger sample sizes are needed to confirm these findings.
Conclusion	Overall, our study highlights the potential of acupuncture as a viable complementary therapy for the treatment of PD non-motor symptoms of sleep disorders and depression, which can improve the quality of life of PD patients.

1.2.5. Fatigue

1.2.5.1. Folkerts 2023

Folkerts AK, Nielsen J, Gollan R, Lansu A, Solfronk D, Monsef I, Ernst M, Skoetz N, Zeuner KE, Kalbe E. Physical Exercise as a Potential Treatment for Fatigue in Parkinson's Disease? A Systematic Review and Meta-Analysis of Pharmacological and Non-Pharmacological Interventions. J Parkinsons Dis. 2023;13(5):659-679. https://doi.org/10.3233/JPD-225116

Backgound	Fatigue is one of the most common and debilitating non-motor symptoms among patients with Parkinson's disease (PD) and significantly impacts quality of life. Therefore, effective treatment options are needed.
Objective	To provide an update on randomized controlled trials (RCTs) including pharmacological and non-pharmacological (but non-surgical) treatments that examine the effects of fatigue on PD patients.
Methods	We searched the MEDLINE, EMBASE, PsycINFO, CENTRAL, and CINAHL databases for (cross-over) RCTs on pharmacological and non-pharmacological interventions for treating fatigue in PD patients until May 2021. Meta-analyses for random-effects models were calculated when two or more studies on the same treatment option were available using standardized mean differences (SMDs) with 95% confidence intervals (CIs).
Results	Fourteen pharmacological and 16 non-pharmacological intervention RCTs were identified. For pharmacological approaches, a meta-analysis could only be performed for modafinil compared to placebo (n = 2) revealing a non-significant effect on fatigue (SMD = - 0.21, 95% CI - 0.74-0.31, p = 0.43). Regarding non-pharmacological approaches, physical exercise (n = 8) following different training approaches versus passive or placebo control groups showed a small significant effect (SMD = - 0.37, 95% CI - 0.69- - 0.05, p = 0.02) which could not be demonstrated for **acupuncture** vs. sham-acupuncture (SMD = 0.16, 95% CI - 0.19-0.50, p = 0.37).
Conclusion	Physical exercise may be a promising strategy to treat fatigue in PD patients. Further research is required to examine the efficacy of this treatment strategy and further interventions. Future studies should differentiate treatment effects on physical and mental fatigue as the different underlying mechanisms of these symptoms may lead to different treatment responses. More effort is required to develop, evaluate, and implement holistic fatigue management strategies for PD patients.

1.3. Special Acupuncture Techniques

1.3.1. Moxibustion

1.3.1.1. Niu 2022 RETRACTED

- Retracted: Efficacy of Moxibustion in the Treatment of Parkinson's Disease Based on Meta-Analysis under Intelligent Medical Treatment. Appl Bionics Biomech. 2023 Nov 1;2023:9872864. https://doi.org/10.1155/2023/9872864
- Niu Q, Xu W. Efficacy of Moxibustion in the Treatment of Parkinson's Disease Based on Meta-Analysis under Intelligent Medical Treatment. Appl Bionics Biomech. 2022 Apr 30;2022:8168152.https://pubmed.ncbi.nlm.nih.gov/35535324/

1.3.1.2. Cho 2017

Cho Ki-Ho, Kim Tae-Hun, Kwon Seungwon, Jung Woo-Sang et al. Moxibustion for idiopathic Parkinson’s disease: A systematic review and meta-analysis of randomized controlled trials. European Journal of Integrative Medicine. 2017;13:26-33. [206067].

Background	Moxibustion is the burning of mugwort used to stimulate acupuncture points on the skin. In traditional East-Asian medicine, moxibustion is often used as a non-drug treatment for idiopathic Parkinson's disease (IPD).
Aim	The aim of this systematic review was to evaluate the effectiveness and safety of moxibustion therapy to treat IPD.
Methods	The following electronic databases were searched for studies published in or before December 2016: Medline, the Cochrane Central Register of Controlled Trials (CENTRAL), EMBASE, OASIS (Korean database), and CNKI (Chinese database). Two researchers conducted the data extraction and risk of bias assessments.
Results	From the results, a total of 10 studies (644 IPD patients) were included in this review. Overall methodological quality was not high and all studies included small numbers of participants which could not ensure the rigor of the synthesized evidence. There was a considerable clinical heterogeneity in terms of patient’s population, moxibustion types and control group interventions. Compared with control group, moxibustion did not show significant difference in the overall effectiveness ratio (RR 1.20, 95% CI [1.00, 1.44]). About the total unified Parkinson’s disease rating scale (UPDRS) score, however, there was significant difference between moxibustion and control interventions (MD −8.75, 95% CI [−12.54, −4.95]). Adverse events related to moxibustion treatment were not reported in most of the studies.
Conclusions	Evidence on the benefit and harm of moxibustion therapy for IPD was not conclusive due to methodological problems and small sample sizes among the included studies. More rigorous clinical studies will be necessary in future.

1.3.2. Scalp Acupuncture

1.3.2.1. Qiang 2019 Ø

Qiang Tianyao, Cong Gai , Yuan Chai , Wandi Feng , Haojie Ma , Yi Zhang , Jing Feng , Zhenyu Guo , Ling Ma , Hongmei Sun. Combination therapy of scalp electro-acupuncture and medication for the treatment of Parkinson's disease: A systematic review and meta-analysis. Journal of Traditional Chinese Medical Sciences. 2019;6(1):26-34. [197195].

Objective	To summarize the current clinical evidence related to the therapeutic effects and safety of adjuvant scalp electro-acupuncture (SEA) treatment for Parkinson's disease in China.
Methods	Following the PRISMA statement, seven electronic databases were searched to retrieve randomized controlled clinical trials that used SEA combined with medication as the treatment intervention, and medication as the control. RevMan 5.3 was used to analyze outcomes, including the Unified Parkinson's Disease Rating Scale (UPDRS), Webster scale, effectiveness rate, and UPDRS III.

Results	**Nine randomized controlled trials**, with certain methodological flaws and risks of bias, were included that involved **474 participants**. SEA combined with medication was more effective than medication alone in overall therapeutic effects, as evidenced by total UPDRS scores (mean difference (MD): 7.15, 95% confidence interval [CI] 0.24 to 14.07, P = .04), Webster scores (MD: 1.60, 95% CI 0.20 to 2.99, P = .03), and effectiveness rate (risk ratio: 1.35, 95% CI 1.19 to 1.54, P < .001). In addition, there was significant improvement in pooled motor function results after adjuvant SEA treatment compared with medication alone (MD: 5.75, 95% CI 4.18 to 7.32, P < .001).
Conclusion	The combination of SEA and medication may be a promising intervention for patients with Parkinson's disease, especially to improve motor function. However, results were inconclusive, and additional studies with rigorous experimental design and larger sample sizes are needed to verify these results.

1.3.2.2. Lee 2013

Lee HS, Park HL, Lee SJ, Shin BC, Choi JY, and Soo Lee MS. Scalp Acupuncture for Parkinson's Disease: A Systematic Review of Randomized Controlled Trials. Chin J Integr Med. 2013;19(4):297-306. [165812].

Objective	To evaluate the effectiveness of scalp acupuncture (SA), a modern acupuncture technique specialized to neurological disorders, in managing motor function and symptoms for Parkinson's disease (PD) patients.
Methods	Two independent reviewers extracted data from all of the randomized clinical trials (RCTs) that assessed the efficacy of SA for PD compared with conventional therapies (CTs). Sixteen electronic databases were searched. The risk of bias was appraised with the Cochrane Collaboration tool, and the reporting of the included studies was evaluated by the Consolidated Standards of Reporting Trials (CONSORT) 2010 checklist and the revised Standards for Reporting Interventions in Clinical Trials of Acupuncture (STRICTA) guidelines.
Results	In total, **4 RCTs** met the inclusion criteria. As assessed by the Unified PD Rating Scale (UPDRS), 2 RCTs showed that SA combined with CTs proved superior to CTs alone [60 cases; weighted mean difference, —3.94; 95% confidence interval (CI), —6.05 to —1.84, P=0.01; 12=O%]. Based on the Webster scale, however, 3 RCTs showed no superior effect of SA when combined with CTs with high heterogeneity (154 cases; risk ratio, 1.29; 95% CI, 0.79 to 2.12, P=0.30; 12=84%). The Cochrane risk of bias, adherence to the CONSORT and the STRICTA checklist showed that the quality of all the included RCTs was generally low.
Conclusions	The result of our systematic review and meta-analysis suggested that **the effectiveness of SA for PD is promising**, however, the evidence is not convincing. A sham-controlled RCT design that adheres to the CONSORT and STRICTA guidelines to overcome methodological weakness and that includes a large sample size is strongly recommended to confirm the precise effect of SA on PD.

1.3.3. Pharmaco-acupuncture

1.3.3.1. Cho 2018

Cho KH, Kim TH, Jung WS, Moon SK, Ko CN, Cho SY, Jeon CY, Choi TY, Lee MS, Lee SH, Chung EK, Kwon S. Pharmacoacupuncture for Idiopathic Parkinson's Disease: A Systematic Review of Randomized Controlled Trials. Evid Based Complement Alternat Med. 2018. [170448].

Introduction	Pharmacoacupuncture is a new acupuncture treatment that stimulates acupuncture points by injecting herbal medicine into them. Recently, pharmacoacupuncture has been widely used in the treatment of idiopathic Parkinson's disease in traditional East Asian medicine. The purpose of this systematic review is to evaluate the efficacy and safety of pharmacoacupuncture in the treatment of idiopathic Parkinson's disease.
Methods	The following electronic databases were searched for studies published in or before December 2016: Medline, Cochrane Central Register of Controlled Trials (CENTRAL), EMBASE, OASIS, and CNKI, without language restriction. The main outcome assessed was the total Unified Parkinson's Disease Rating Scale (UPDRS) score. The details of the pharmacoacupuncture intervention, such as the herbal medicine and acupuncture points used, were also investigated.
Results	From 138 studies, **3 randomized controlled trials were included**; the number of patients analyzed was 134. Most of the studies showed considerable methodological flaws. There was heterogeneity of the intervention type and treatment duration in the included studies. Therefore, we could not conduct a meta-analysis. In one study, adjunctive bee venom pharmacoacupuncture therapy significantly improved total UPDRS scores compared with conventional therapy alone. Another study, which used adjunctive Kakkonein pharmacoacupuncture, did not reveal significant improvement compared with conventional therapy alone. A third study reported that Mailuoning pharmacoacupuncture was able to significantly improve the modified Webster Symptom Score when compared with no treatment. Adverse events related to the pharmacoacupuncture were reported in only one case, itching caused by the bee venom.
Conclusions	Our findings regarding the efficacy of pharmacoacupuncture as a therapy for idiopathic Parkinson's disease are currently inconclusive. Further large and rigorous clinical trials are needed.

2. Overviews of systematic reviews / Revues de revues systématiques

2.1. Yu 2023

Yu B, Ma SQ, Huang HP, Zhong Z, Yu S, Huang K, Zhang LY, Li MY, Yao L. Research methods and efficacy of acupuncture in the treatment of Parkinson's disease: a scoping review of systematic reviews and meta-analyses. Front Neurol. 2023 Jun 2;14:1196446. https://doi.org/10.3389/fneur.2023.1196446

Introduction	Research on acupuncture for Parkinson's Disease is growing rapidly. A scoping review examines emerging evidence and is important to guide policy and practice. The purpose of this scoping review was to examine the breadth and methodological quality of systematic reviews and meta-analyses, and to map the quality of evidence of these studies to evaluate the efficacy of acupuncture for treatment of PD.
Methods	Seven literature databases were searched. Two researchers independently screened the literature and extracted relevant information (such as general characteristics, inclusion criteria, study results, and report quality).The inclusion criteria include publicly published systematic reviews/meta-analyses/systematic reviews of acupuncture treatment for Parkinson's disease. The research subjects are any patients who meet the diagnostic criteria for Parkinson's disease, and intervention measures include acupuncture treatment including electro acupuncture, scalp acupuncture, or combination with other treatment methods. The outcome indicators are all types of results related to PD and the effective measurement tools used.

Results	A total of **23 systematic reviews and/or meta-analyses** of studies were included. Most of the articles were published between 2019 and 2023 (47.8%). A total of 14 articles (60.9%) were evaluated and classified, and 89 (36.8.1%) of the 242 included articles were of medium and high quality.
Discussion	This study comprehensively evaluates the quality and research methods of incorporating SRs/MAs, and concludes that acupuncture treatment for Parkinson's disease may be significant. Considering the shortcomings in research design and methodology, it is not possible to draw conclusions on the evidence of acupuncture treatment for PD at this stage, but it does not mean that acupuncture treatment is ineffective. We hope to focus on improving research design and methods in the study of acupuncture treatment for Parkinson's disease, an increase the credibility of research results.

2.2. Cao 2020 ☆

Cao L, Li X, Li M, Yao, Hou L, Zhang W, Wang Y, Niu J, Yang K. The effectiveness of acupuncture for Parkinson's disease: An overview of systematic reviews. Complement Ther Med. 2020. [209268]. doi

Objectives	Acupuncture is an alternative therapy for Parkinson's disease (PD), but its efficacy and safety are controversial. This overview aimed to summarize the existing evidence from systematic reviews (SRs) and meta-analyses (MAs) in order to assess the effectiveness of acupuncture as a treatment for PD.
Methods	Seven electronic databases were searched from their inception until July 2019. The Grading of Recommendations, Assessment, Development, and Evaluation (GRADE) and Assessment of Multiple Systematic Reviews 2 (AMSTAR2) checklists were used to assess evidence quality and methodological quality, respectively. The outcomes of study were calculated using mean differences (MDs) and risk ratios (RRs) with 95 % confidence intervals (CIs). A meta-analysis was performed using RevMan 5.3 software.
Results	A total of **12 SRs/MAs** were included. All 12 SRs/MAs had more than one critical weakness in AMSTAR 2 and were considered of critically low methodological quality. The quality of evidence was unsatisfactory according to the GRADE checklist. Meta-analyses showed that acupuncture combined with drug for the treatment of PD can significantly improve the total effectiveness rate compared with drug alone (RR = 1.25, 95 % CI 1.16-1.34, $P < 0.001$). It was also found that acupuncture combined with drug significantly improved the UPDRS I-IV total summed scores (WMD=-6.18, 95 % CI -10.32 to -2.04, $P < 0.001$) and Webster scores (WMD=-4.20, 95 % CI -7.59 to -0.81, $P < 0.001$).
Conclusion	Acupuncture might improve the UPDRS score, Webster score, and total effective rate in treatment of PD. It might be a safe and useful adjunctive treatment for patients with PD. However, we should interpret the findings of these reviews with caution, considering the overall limited methodological and reporting quality.

2.3. Huang 2020 ☆

Huang J, Qin X, Cai X, Huang Y. Effectiveness of Acupuncture in the Treatment of Parkinson's Disease: An Overview of Systematic Reviews. Front Neurol. 2020:917. [212545]. doi

Background	The effects of acupuncture on Parkinson's disease (PD) outcomes remain unclear. The aim of this overview was to comprehensively evaluate the methodological quality and applicability of the results of systematic reviews (SRs)/meta-analyses (MAs) that examined the use of acupuncture to treat PD.

Methods	Eight databases were searched to retrieve SRs/MAs on the use of acupuncture for the treatment of PD. Two reviewers independently screened and extracted the data using the Assessing the Methodological Quality of Systematic Reviews 2 (AMSTAR-2) checklist to evaluate the methodological quality and using the Grading of Recommendations, Assessment, Development, and Evaluation (GRADE) criteria to assess the evidence quality of the included reviews.
Results	A total of **11 SRs/MAs were included**. According to the AMSTAR-2 checklist results, all included SRs/MAs were rated as very-low-quality studies. The GRADE criteria revealed 20 studies with very-low-quality evidence, 9 with low-quality evidence, 3 with moderate-quality evidence, and 0 with high-quality evidence. Descriptive analysis showed that acupuncture appears to be a clinically effective and safe treatment for PD.
Conclusions	The use of acupuncture for the treatment of PD may be clinically effective and safe. This conclusion must be interpreted cautiously due to the generally low methodological quality and low quality of evidence of the included studies.

2.3.1. Otayza 2018 ☆

Otayza J, Juri C. Is acupuncture an alternative for the treatment of Parkinson’s Disease?. Medwave. 2018;18(3). [158650].

Introduction	It has been proposed that acupuncture has several benefits for patients with Parkinson’s disease. However, its real clinical effect is still under discussion.
Methods	To answer this question we used Epistemonikos, the largest database of systematic reviews in health, which is maintained by screening multiple information sources, including MEDLINE, EMBASE, Cochrane, among others. We extracted data from the systematic reviews, reanalyzed data of primary studies, conducted a meta-analysis and generated a summary of findings table using the GRADE approach.
Results and conclusions	We identified nine systematic reviews including 53 studies overall, of which 45 were randomized trials. We concluded acupuncture might have a small effect in improving motor symptoms and disability in Parkinson’s disease, but the certainty of the evidence is low.

3. Clinical Practice Guidelines

⊕ positive recommendation (regardless of the level of evidence reported)
Ø negative recommendation, or lack of evidence ou non conclusif

3.1. Parkinson Canada 2019 Ø

¤2e édition du guide canadien pour la maladie de parkinson, Parkinson Canada. 2019:60P. [115066].

Même si beaucoup de malades souhaitent recourir aux thérapies non conventionnelles comme l’acupuncture, les données appuyant ces méthodes sont insuffisantes. De plus en plus de patients s’ouvrent et s’intéressent à ce type de traitement, et la profession médicale devra fournir des données scientiques valides pour les guider. L’effet placebo est un phénomène bien connu, en particulier chez les patients atteints de la maladie de Parkinson, et il pourrait être médié par la dopamine. Par conséquent, toute méthode appelée à traiter la maladie de Parkinson doit faire l’objet d’une évaluation scientiquement rigoureuse de son efficacité, pour faire en sorte que les patients en aient le plus possible pour leur argent, leur temps et leurs efforts.

3.2. Haute Autorité de Santé (HAS, France) 2016 Ø

HAS. Maladie de Parkinson et syndromes apparentés : techniques et modalités de la prise en charge non médicamenteuse des troubles moteurs. Paris: Haute Autorité de Santé (HAS). 2016;:54P. [167786].

Nous n’avons pas trouvé de preuve suffisante et consistante pour affirmer, au-delà des effets qu’elles peuvent engendrer transversalement (dus à l’intensité, la diversité, etc.), que les thérapeutiques suivantes sont bénéfiques ou pas (preuve insuffisante pour supporter ou réfuter leur utilisation) : thérapie manuelle ; balnéothérapie ; **acupuncture** ; biofeedback ; réalité virtuelle ; serious games ; technique Alexander.

3.3. Parkinson Society Canada (¤PSC, Canada) 2012 Ø

Grimes D, Gordon J, Snelgrove B, Lim-Carter I, Fon E , Martin W et al. Canadian Guidelines on Parkinson’s Disease. Canadian Journal of Neurological Sciences. 2012;39(4) sup 1:s1-30. [197040].

C57 There is insufficient evidence to support or refute the use of **acupuncture**, manual therapy, biofeedback or the Alexander technique in the treatment of PD. AAN Level U

3.4. American Academy of Neurology (AAN, USA) 2006 Ø

Suchowersky O, Gronseth G, Perlmutter J, Reich S, Zesiewicz T, Weiner WJ; Quality Standards Subcommittee of the American Academy of Neurology. Practice Parameter: neuroprotective strategies and alternative therapies for Parkinson disease(an evidence-based review): report of the Quality Standards Subcommittee of the American Academy of Neurology. Neurology. 2006;66(7):976-82. [198765].

There is insufficient evidence to support or refute the use of acupuncture in PD (Level U).