

RESEARCH AT A GLANCE



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Research at a Glance

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61-65, INSTITUTIONAL AREA, JANAKPURI, NEW DELHI**

URL: www.ccrhindia.nic.in

e-mail: ccrhlbrary@gmail.com

PREFACE

Introduction

The library of the Central Council for Research in Homoeopathy has been circulating "Research at a Glance". The main objective is to disseminate precise information/citation about scientific articles published in various journals/magazine other than the journals subscribed by this Council.

Scope

This volume covers articles on Homeopathy, Ayurveda, Unani, Yoga.

Arrangement of Entries

The articles are indexed under the name of the authors, arranged in alphabetical order. The entries have been made in the following order:

Author
Title
Name of Journal
year of publication; Volume (issue no.): pagination
Abstract

Acknowledgement

We are grateful to Dr. R.K. Manchanda, Director General, CCRH for his encouragement and valuable suggestions from time to time. We sincerely acknowledge the cooperation of Mrs. Nisha Adhikari, DEO in compiling this bulletin.

(Meenakshi Bhatia)
Librarian

HOMOEOPATHY

Adler UC, Acorinte AC, Calzavara FO et al. Double-blind evaluation of homeopathy on cocaine craving: A randomized controlled pilot study. J Integr Med. 2018 May;16(3):178-184.

Abstract:

Background: Brazil is among the nations with the greatest rates of annual cocaine usage. Pharmacological treatment of cocaine addiction is still limited, opening space for nonconventional interventions. Homeopathic Q-potencies of opium and Erythroxylum coca have been tested in the integrative treatment of cocaine craving among homeless addicts, but this setting had not proven feasible, due to insufficient recruitment.

Objective: This study investigates the effectiveness and tolerability of homeopathic Q-potencies of opium and E. coca in the integrative treatment of cocaine craving in a community-based psychosocial rehabilitation setting.

Design, Setting, Participants, and Interventions: A randomized, double-blind, placebo-controlled, parallel-group, eight-week pilot trial was performed at the Psychosocial Attention Center for Alcohol and Other Drugs (CAPS-AD), Sao Carlos/SP, Brazil. Eligible subjects included CAPS-AD patients between 18 and 65 years of age, with an International Classification of Diseases-10 diagnosis of cocaine dependence (F14.2). The patients were randomly assigned to two treatment groups: psychosocial rehabilitation plus homeopathic Q-potencies of opium and E. coca (homeopathy group), and psychosocial rehabilitation plus indistinguishable placebo (placebo group).

Main Outcome Measures: The main outcome measure was the percentage of cocaine-using days. Secondary measures were the Minnesota Cocaine Craving Scale and 12-Item Short-Form Health Survey scores. Adverse events were reported in both groups.

Results: The study population comprised 54 patients who attended at least one post-baseline assessment, out of the 104 subjects initially enrolled. The mean percentage of cocaine-using days in the homeopathy group was 18.1% (standard deviation (SD): 22.3%), compared to 29.8% (SD: 30.6%) in the placebo group ($P < 0.01$). Analysis of the Minnesota Cocaine Craving Scale scores showed no between-group differences in the intensity of cravings, but results significantly favored homeopathy over placebo in the proportion of weeks without craving episodes and the patients' appraisal of treatment efficacy for reduction of cravings. Analysis of 12-Item Short-Form Health Survey scores found no significant differences. Few adverse events were reported: 0.57 adverse events/patient in the homeopathy group compared to 0.69 adverse events/patient in the placebo group ($P = 0.41$).

Conclusions: A psychosocial rehabilitation setting improved recruitment but was not sufficient to decrease dropout frequency among Brazilian cocaine treatment seekers. Psychosocial rehabilitation plus homeopathic Q-potencies of opium and E. coca were

more effective than psychosocial rehabilitation alone in reducing cocaine cravings. Due to high dropout rate and risk of bias, further research is required to confirm our findings, with specific focus on strategies to increase patient retention.

Keefe KR, Byrne KJ, Levi JR. Treating pediatric post-tonsillectomy pain and nausea with complementary and alternative medicine. *Laryngoscope*. 2018 May 4. doi: 10.1002/lary.27231.

Abstract:

Objectives: Although tonsillectomy is a common and largely safe procedure, pain management in children remains a controversial topic. In addition to the challenge of choosing appropriate analgesia, there is often low parent and child adherence. This article presents a review, and evaluates the potential role, of a range of complementary and alternative therapies that may be sought out by parents.

Methods: A literature review of complementary and alternative interventions performed using PubMed, Cochrane Library, and EMBASE, supplemented by searches from Google and hand searches of cross-references of selected articles, yielded 32 studies for qualitative analysis.

Results: The studies included for analysis investigated a wide variety of alternative treatment modalities: acupuncture and related therapies, aromatherapy, homeopathy, honey, intravenous fluid, speech therapy, hyaluronic acid, behavioral therapies, ice/cold, hydrogen peroxide rinse, and chewing gum.

Conclusion: At this time, stronger conclusions cannot be made about the therapies investigated because there are many methodology limitations of the studies analyzed. However, our results suggest merit for these treatments as adjuvant therapies that can enhance analgesia and decrease requirements of controversial medications. Honey and acupuncture have the greatest amount of evidence for postoperative pain and nausea; however, all interventions examined were cost-effective and safe. We recommend against hydrogen peroxide rinses and chewing gum. *Laryngoscope*, 2018.

Walker AJ, Croker R, Bacon S et al. Is use of homeopathy associated with poor prescribing in English primary care? A cross-sectional study. *J R Soc Med*. 2018 May;111(5):167-174.

Abstract:

Objectives Prescribing of homeopathy still occurs in a small minority of English general practices. We hypothesised that practices that prescribe any homeopathic preparations might differ in their prescribing of other drugs. **Design** Cross-sectional analysis. **Setting** English primary care. **Participants** English general practices. **Main outcome measures** We identified practices that made any homeopathy prescriptions over six months of data. We measured associations with four prescribing and two practice quality indicators using multivariable logistic regression. **Results** Only 8.5% of practices (644) prescribed homeopathy between December 2016 and May 2017. Practices in the worst-scoring quartile for a composite measure of prescribing quality

(>51.4 mean percentile) were 2.1 times more likely to prescribe homeopathy than those in the best category (<40.3) (95% confidence interval: 1.6-2.8). Aggregate savings from the subset of these measures where a cost saving could be calculated were also strongly associated (highest vs. lowest quartile multivariable odds ratio: 2.9, confidence interval: 2.1-4.1). Of practices spending the most on medicines identified as 'low value' by NHS England, 12.8% prescribed homeopathy, compared to 3.9% for lowest spenders (multivariable odds ratio: 2.6, confidence interval: 1.9-3.6). Of practices in the worst category for aggregated price-per-unit cost savings, 12.7% prescribed homeopathy, compared to 3.5% in the best category (multivariable odds ratio: 2.7, confidence interval: 1.9-3.9). Practice quality outcomes framework scores and patient recommendation rates were not associated with prescribing homeopathy (odds ratio range: 0.9-1.2). Conclusions Even infrequent homeopathy prescribing is strongly associated with poor performance on a range of prescribing quality measures, but not with overall patient recommendation or quality outcomes framework score. The association is unlikely to be a direct causal relationship, but may reflect underlying practice features, such as the extent of respect for evidence-based practice, or poorer stewardship of the prescribing budget.

AYURVEDA

Blonder LX. Historical and cross-cultural perspectives on Parkinson's disease. J Complement Integr Med. 2018 May 8. pii: /j/jcim.ahead-of-print/jcim-2016-0065/jcim-2016-0065.xml. doi: 10.1515/jcim-2016-0065

Abstract:

Parkinson's disease (PD) is a common neurodegenerative disorder, affecting up to 10 million people worldwide according to the Parkinson's Disease Foundation. Epidemiological and genetic studies show a preponderance of idiopathic cases and a subset linked to genetic polymorphisms of a familial nature. Traditional Chinese medicine and Ayurveda recognized and treated the illness that Western Medicineterms PD millennia ago, and descriptions of Parkinson's symptomatology by Europeans date back 2000 years to the ancient Greek physician Galen. However, the Western nosological classification now referred to in English as "Parkinson's disease" and the description of symptoms that define it, are accredited to British physician James Parkinson, who in 1817 authored *The Shaking Palsy*. Later in the nineteenth century, French neurologist Jean-Martin Charcot re-labeled paralysis agitans "Parkinson's disease" and over a century of scientific research ensued. This review discusses European, North American, and Asian contributions to the understanding and treatment of PD from ancient times through the twentieth century.

Dogra NK, Kumar S, Thakur K et al. Antipsoriatic effect of fatty acid enriched fraction of Vernonia anthelmintica Willd. fruits. J Ethnopharmacol. 2018 May 25. pii: S0378-8741(18)30598-1. doi: 10.1016/j.jep.2018.05.038.

Abstract:

Ethnopharmacological relevance: Vernonia anthelmintica has been utilized conventionally as an ingredient in Ayurveda and traditional Uighur medicine for management of various skin ailments, and scientific data's have substantiated its use in treating vitiligo, dermatosis and leucoderma. The present investigation was focused to evaluate the antipsoriatic activity of V. anthelmintica fruit extracts and fractions.

Materials and Methods: Ointment containing dichloromethane (DCM) and methanol (MeOH) extracts at topical dose of 2.5% and 5% (w/w) was evaluated using mouse tail model of psoriasis. Bioactivity-guided fractionation (F1-F7) of most active extract was carried out and fractions were again subjected to mouse tail model. Further the activity of bioactive fraction was confirmed in HaCaT (human keratinocyte) cell line using MTT (3-(4,5-dimethylthiazol-2-yl)-2,5-diphenyltetrazolium bromide) assay and its chemical characterization was done via gas chromatography mass spectrometry (GC-MS).

Results: The dichloromethane extract (5%, w/w) showed statistically significant ($\square p < 0.05$) antipsoriatic activity (66.97 \pm 2.68%) with respect to control (25.45 \pm 1.80%) and equivalent to that of the standard drug, retino-A 0.05%, (72.47 \pm 2.14%) in terms of degree of orthokeratosis, whereas methanol extract (5%, w/w) showed significant ($\square p < 0.05$) differentiation (45.86 \pm 2.02%) in comparison to the control group. Out of all fractions, F6 showed statistically significant ($\square p < 0.05$) antipsoriatic activity (69.27 \pm 2.76%) with respect to control and equivalent to that of the standard. F6 (15.6-

1000µg/ml) showed dose-dependent inhibition of HaCaT cell lines proliferation which suggests keratinocyte modulating activity of *V. anthelmintica*. Chemical characterization of F6 revealed that essential fatty acids (i.e., linoleic acid, palmitic acid, oleic acid and stearic acid) formed the bulk of bioactive fraction.

Conclusion: Ameliorative effect of *V. anthelmintica* in psoriasis might be attributed to the presence of essential fatty acids and thus corroborates its traditional use in the treatment of skin ailments.

Karia P, Patel KV, Rathod SSP. Breast cancer amelioration by *Butea monosperma* in-vitro and in-vivo. *J Ethnopharmacol.* 2018 May 10;217:54-62.

Abstract:

Ethnopharmacological relevance: *Butea monosperma* belonging to family Fabaceae is used in the Indian traditional medicine (Ayurveda) for various ailments including abdominal tumors and possess anti-estrogenic activity.

Aim of the study: The present study is aimed at investigating the chemo-preventive potential of *Butea monosperma* in breast cancer and elucidating its mechanism of action by assessing its effect on key processes like apoptosis, angiogenesis and metastasis.

Methods: Cytotoxic potential of methanol extract of *Butea monosperma* flower (MEBM) was tested in MCF-7 (estrogen receptor positive), MDA-MB-231 (triple negative) and MDA-MB-453 (HER2 positive) human breast cancer cells by MTT assay. Chemo-preventive potential was evaluated in-vivo in Methylnitrosourea (MNU) induced mammary cancer in nulliparous Sprague-Dawley rats. The mechanism for anticancer potential was screened by in-vitro studies involving Annexin V- FITC assay (apoptosis), Chick Chorioallantoic Membrane assay (angiogenesis) and Migration assay (metastasis). Statistical analysis was done by one way and two way ANOVA (for Growth Rate and feed consumption efficiency) followed by post hoc Bonferroni's test with P value < 0.05.

Results: It is observed that the exposure of MEBM, at various concentrations and time intervals to different cell lines, resulted in decreased cell proliferation. The IC50 value of MCF-7 cells was found significantly less than that of MDA-MB-231 and MDA-MB-453 cells, which indicated that the extract of said medicinal plant were more potent inhibitors of estrogen positive breast cancer cells than other types of breast cancer cells in vitro. Corroborative evidences were acquired in MNU actuated mammary carcinogenesis where MEBM constricted tumor parameters, decreased expression of estrogen and progesterone, nucleic acid content and increased latency period. MEBM also induced apoptosis, inhibited angiogenesis and metastasis in-vitro.

CONCLUSION: Selective cytotoxic activity in MCF-7 estrogen positive breast cancer cells and inhibition of growth of mammary carcinoma in-vivo by methanol extract of *Butea monosperma* flowers (MEBM) suggests chemo-prevention through modulation of estrogen and progesterone receptor, apoptotic, anti-angiogenesis and anti-metastatic activity.

Kessler CS, Dhiman KS, Kumar A et al. Effectiveness of an Ayurveda treatment approach in knee osteoarthritis - a randomized controlled trial. *Osteoarthritis Cartilage*. 2018 May;26(5):620-630.

Abstract:

Objective: Ayurveda is commonly used in South Asia to treat knee osteoarthritis (OA). We aimed to evaluate the effectiveness of Ayurvedic treatment compared to conventional conservative care in patients with knee OA.

Method: According to American College of Rheumatology (ACR) criteria knee OA patients were included in a multicenter randomized, controlled, open-label trial and treated in 2 hospital clinics and 2 private outpatient clinics in Germany. Participants received either a multi-modal Ayurvedic treatment or multi-modal conventional care with 15 treatments over 12 weeks respectively. Primary outcome was the change on the Western Ontario and McMaster University Osteoarthritis (WOMAC) Index after 12 weeks. Secondary outcomes included WOMAC subscales; the pain disability index and a pain experience scale, numeric rating scales for pain and sleep quality, quality-of-life and mood, rescue medication use, and safety issues.

Results: One hundred fifty-one participants (Ayurveda n = 77, conventional care n = 74) were included. Changes of the WOMAC Index from baseline to 12 weeks were more pronounced in the Ayurveda group (mean difference 61.0 [95%CI: 52.4;69.6]) than in the conventional group (32.0 [95%CI: 21.4;42.6]) resulting in a significant between-group difference ($p < 0.001$) and a clinically relevant effect size (Cohen's d 0.68 [95% CI:0.35;1.01]). Similar trends were observed for all secondary outcomes at week 12. Effects were sustained at follow-ups after 6 and 12 months.

Conclusion: Results suggest that Ayurvedic treatment is beneficial in reducing knee OA symptoms. Further studies should be conducted to confirm the magnitude of the effect and to clarify the role of different treatment components and non-specific effects. REGISTRATION: at clinicaltrials.gov (NCT01225133; initial release 10/06/2010).

Manandhar B, Paudel KR, Sharma B et al. Phytochemical profile and pharmacological activity of *Aegle marmelos* Linn. *J Integr Med*. 2018 May;16(3):153-163.

Abstract:

Aegle marmelos Linn. (Rutaceae), commonly known as "bael" in Nepal and India, is a valuable medicinal plant and is considered sacred by the Hindus. It is used to cure several diseases in the Indian traditional medicine system of Ayurveda and has had similar uses among many ethnic communities residing in Indian subcontinent for over 5000 years. Its leaves, bark, stem, fruits and seeds have been used for various medicinal purposes. Bael fruits are especially effective in the treatment of chronic diarrhea, dysentery and peptic ulcers, while they are also useful as a laxative and cure for respiratory infections. Scientific studies have validated many of the ethnomedicinal uses of *A. marmelos*, which include antibacterial, antiviral, antidiarrheal, gastroprotective, anti-ulcerative colitis, hepatoprotective, antidiabetic, cardioprotective and radioprotective effects. Recently, this plant has also received attention as an anticancer agent for the treatment of various types of cancers. Thus,

this review focuses on scientific evidence verifying the important pharmacological activity such as antioxidant, antidiabetic, antimicrobial, hepatoprotective, cardioprotective and anticancer activity of *A. marmelos*.

Rastogi S. Ethics Committees in Ayurvedic PG institutions: Losing opportunities of making an impact. J Ayurveda Integr Med. 2018 May 25. pii: S0975-9476(17)30357-1. doi: 10.1016/j.jaim.2017.10.005.

Abstract:

Ethics is a crucial component of medical practice world over and also an indispensable part of medical research. Ethics in medical practice primarily refers to not harming the patients by the proposed interventions; similarly ethics in research refers to assuring optimal care of the participants and causing no harm to them on account of research. Ethics in research has come a long way from its voluntarily application on moral grounds to a mandatory condition regulated by the state of law. Ethics Committees (ECs) have been erected at research institutions to safeguard the interest of patients, to ensure their safety during any such trial and to assure the accountability of the researcher in case of any unforeseen event. Such committees therefore have a noble role to play in the form of promoting ethical practices in research. Ayurvedic clinical research also follows the similar path by erecting ECs at its research institutions. However, in reality, such committees are found much away from the principle of their inception and method of functioning. In the absence of accountability and clear objectivity, such ECs at Ayurvedic research institutions are not serving any purpose. This article critically examines the positioning of ECs at Ayurveda research institutions and suggests pragmatic mechanisms to ensure their role in improving the quality of research in Ayurveda.

Shengule S, Kumbhare K, Patil D et al. Herb-drug interaction of Nisha Amalaki and Curcuminoids with metformin in normal and diabetic condition: A disease system approach. Biomed Pharmacother. 2018 May;101:591-598

Abstract:

Nisha Amalaki (NA), formulation with *Curcuma longa* Linn (Turmeric, Haridra, Nisha in Sanskrit; Family: Zingiberaceae) and *Phyllanthus emblica* Linn (Indian gooseberry, Amlaki in Sanskrit; Family: Phyllanthaceae) which is described for various diseases including diabetes in ayurvedic texts and Nighantus. The aim of the present study was to assess the pharmacokinetic (PK) and pharmacodynamic (PD) interactions of chemically standardized NA and Curcuminoids (CE) with metformin (MET) in normal and diabetic animals. Oral administration of NA (200 mg/kg) and CE (30 mg/kg) was carried out for seven days followed by co-administration of MET till fifteen days. MET plasma PK parameters including C_{max} , $AUC_{0-\infty}$, $t_{1/2}$, CL and V_d were measured on the eighth day. PD parameters including plasma glucose AUC followed by oral glucose tolerance test, high-density lipoproteins (HDL), total cholesterol (TC) and triglycerides (TG) were measured on the fifteenth day. In normal animals, co-administration of NA + MET and CE + MET resulted in significant increase ($p < 0.05$) in C_{max} , $AUC_{0-\infty}$, $t_{1/2}$, and reduction of CL and V_d . We report that co-administration of NA + MET and CE + MET significantly ($p < 0.01$, $p < 0.001$) reduced plasma glucose level, HDL level while a notable reduction in TG and TC level was observed. Interestingly, in diabetic condition, co-administration of NA + MET and CE + MET indicated a significant decrease ($p < 0.05$) in C_{max} , $AUC_{0-\infty}$, $t_{1/2}$ and enhanced CL and V_d . Hence, to conclude,

co-administration of NA+MET and CE+MET resulted in beneficial PK and PD interactions leading to antihyperglycemic and antihyperlipidemic effects in both conditions. However, PK interaction was drastically different in diabetic and normal conditions.

Singh AD, Suri TM, Jagdish RK et al. Unravelling the NERDS syndrome. BMJ Case Rep. 2018 May 12;2018. pii: bcr-2017-223506. doi: 10.1136/bcr-2017-223506.

Abstract:

A 22-year-old man presented with symmetric polyarthritis, pruritus and deviation of angle of mouth to the right side since the last 7 years. His symptoms were persistent despite receiving ayurvedic medications and symptomatic therapy. Examination revealed dry skin, cutaneous nodules, xanthelasma, periarticular non-tender swellings, pitting oedema of hands and feet and lower motor neuron type right facial palsy. Haematological investigations revealed eosinophilia and skin biopsy had cutaneous eosinophilic infiltration. The constellation of above findings comprises the nodules, eosinophilia, rheumatism, dermatitis and swelling syndrome. It a rare syndrome with few reported cases in literature. The patient was started on oral corticosteroids which was subsequently tapered and methotrexate therapy. His polyarthritis and skin rashes resolved with therapy. He has been followed-up for 2 years and is presently asymptomatic for the last 1 year.

UNANI MEDICINE

Cunningham AB, Brinckmann JA, Kulloli RN et al. Rising trade, declining stocks: The global gugul (*Commiphora wightii*) trade. J Ethnopharmacol. 2018 May 7. pii: S0378-8741(17)34489-6.

Abstract:

Ethnopharmacological relevance: *Commiphora wightii* is exploited in India and Pakistan for an oleo-resin (gum guggul) traditionally used in Ayurvedic, Siddha and Unani medical systems. Processed *C. wightii* oleo-resin products are exported from India to 42 countries, including re-export to Pakistan, for anti-inflammatory use and as an anti-inflammatory and an anti-obesity treatment considered to lower cholesterol and lipid levels. The *C. wightii* export trade has particular relevance to the European Union because Belgium, France, Germany, Hungary, Italy, the Netherlands, and United Kingdom are importing countries. Demand and prices for *C. wightii* oleo-resin are increasing and wild stocks of *C. wightii* are in decline. The overexploitation of *C. wightii* after tapping for its commercially valuable oleo-resin is not a new problem, however, but one that has existed for over 50 years. Lopping and chopping trees to extract *C. wightii* oleo-resin has had a devastating impact on *C. wightii* populations since the 1960's.

Aim of the study: The aim of this study was to review the sustainability of the global trade in *C. wightii* oleo-resin. This included reviewing studies on resin tapping methods and the impacts of wild harvest on *C. wightii* populations in India and Pakistan.

Materials and Methods: Firstly, we reviewed studies on impacts of *C. wightii* oleo-resin harvest and on the policy responses taken in relation to harvest and trade in *C. wightii* oleo-resin. Secondly, we reviewed studies on *C. wightii* cultivation. Thirdly, global trade data for *C. wightii* were analyzed.

Results and conclusions: Destructive harvest to obtain the gum is the major threat facing this species. *C. wightii* populations are also fragmented by habitat loss through clearing for farming. Cutting and lopping in order to extract the medicinal gum are a major threat to *C. wightii* populations, as is poor recruitment due to grazing by livestock. As a result of over-exploitation, *C. wightii* oleo-resin production has declined in India. In Gujarat, a key production area, the decline over a 50-year period has been from 30t in 1963, to 2.42t in 1999 to 1.6t in 2013. Consequently, large quantities of *C. wightii* oleo-resin (around 505 t/year) are imported into India from Pakistan. An estimated 193t/year of crude gum equivalent is exported from India in the form of processed products. With remaining populations in decline due to commercial exploitation for international trade, a range of policy options (such as CITES Appendix II listing) and practical conservation actions (such as cultivation) need to be considered.

Makbul SAA, Jahan N, Ahmad G. Hajrul yahood (*Lapis judaicus*): An important mineral drug of Unani system of medicine for the management of urolithiasis. J Ethnopharmacol. 2018 May 5; 222: 165-170.

Abstract:

Ethnopharmacological relevance: Hajrul yahood (Lapis judaicus) is a mineral drug used in different dosage forms in Unani system of medicine and claimed to be effective in the management of urolithiasis.

Aim of the study: To explore the role of Hajrul yahood in the management of urolithiasis along with determination of its morphological, ethnomedicinal, physicochemical and pharmacological attributes.

Materials and methods: A review of literature on Hajrul yahood was undertaken using the bibliographic database viz. Pub Med, Google Scholar, Science Direct and Scopus. The search was conducted using the terms 'Hajrul yahood', 'Lapis judaicus', 'Majoon Hajrul yahood' and 'Kushta Hajrul yahood'. Further books, monographs and reports on Lapis judaicus published in Urdu and English were used to compile the information.

Results: Hajrul yahood as such and as an ingredient in multidrug formulations has been used for the treatment of kidney and bladder stones since ancient times mainly by the practitioners of traditional medicines. Literature of Unani medicine clearly indicated that Hajrul yahood and its different formulations are safe and have antilithiatic effect. Sufficient information in respect of morphological, physicochemical and ethnomedicinal properties of Hajrul yahood are available but very few pharmacological and clinical studies have been conducted. The available reports on Hajrul yahood and its products mainly Cystone® though has shown varying results but on the whole indicated possible antilithiatic effect. The studies conducted so far have been limited by small patient numbers, weak methodology, and poor study design therefore a conclusive result cannot be arrived at.

Conclusion: Hajrul yahood and its formulations have been claimed by Unani medicine to be useful in the management of urolithiasis. Some of the scientific reports also suggest the possibility of such an effect however further elaborate and comprehensive studies are required to validate such a claim.

Siddiqi KS, Ur Rahman A, Tajuddin et al. Properties of Zinc Oxide Nanoparticles and Their Activity Against Microbes. Nanoscale Res Lett. 2018 May 8;13(1):141.

Abstract:

Zinc oxide is an essential ingredient of many enzymes, sun screens, and ointments for pain and itch relief. Its microcrystals are very efficient light absorbers in the UVA and UVB region of spectra due to wide bandgap. Impact of zinc oxide on biological functions depends on its morphology, particle size, exposure time, concentration, pH, and biocompatibility. They are more effective against microorganisms such as *Bacillus subtilis*, *Bacillus megaterium*, *Staphylococcus aureus*, *Sarcina lutea*, *Escherichia coli*, *Pseudomonas aeruginosa*, *Klebsiella pneumonia*, *Pseudomonas vulgaris*, *Candida albicans*, and *Aspergillus niger*. Mechanism of action has been ascribed to the activation of zinc oxide nanoparticles by light, which penetrate the bacterial cell wall via diffusion. It has been confirmed from SEM and TEM images of the bacterial cells that zinc oxide nanoparticles disintegrate the cell membrane and accumulate in the cytoplasm where they interact with biomolecules causing cell apoptosis leading to cell death.

YOGA

Cramer H. Yoga Therapy in the German Healthcare System. *Int J Yoga Therap.* 2018 May 9. doi: 10.17761/2018-00006.

Abstract:

An estimated 15.7 million Germans are currently practicing yoga or are at least interested in starting to practice, and they often perceive yoga as a therapeutic approach. From a healthcare system perspective, the situation is less clear. Here, yoga is only recognized as a recreational or preventive activity. When yoga teachers fulfill specific qualifications, their preventive yoga classes are covered by the statutory health insurances. Only those with additional qualifications in medicine or psychotherapy, however, can independently use and promote "yogatherapy." The general perception of yoga in Germany as a preventive practice is reflected in the professional organization of yoga providers. Most providers are considered to be yoga teachers rather than yoga therapists and are organized mainly in yoga teacher associations. Despite the uncertain legal framework, yoga is now considered in a number of medical guidelines; in a number of hospitals, yoga is part of multimodal inpatient treatment programs and is delivered by physical therapists or members of other health professions. An increasing number of yoga therapy clinical trials are conducted in Germany, and efforts are underway to establish yoga therapy as an accepted adjunct treatment approach for selected medical conditions within the German healthcare system.

Karlsen KE, Vrabel K, Bratland-Sanda S et al. Effect of Yoga in the Treatment of Eating Disorders: A Single-blinded Randomized Controlled Trial with 6-Months Follow-up. *Int J Yoga.* 2018 May-Aug;11(2):166-169.

Abstract:

Aim of the study: The aim of this study is to examine the effect of yoga treatment of eating disorders (EDs).

Methods: Adult females meeting the Diagnostic and Statistical Manual-IV criteria for bulimia nervosa or ED not otherwise specified (n = 30) were randomized to 11-week yoga intervention group (2 × 90 min/week) or a control group. Outcome measures, the Eating Disorder Examination (EDE)-Interview and Eating Disorders Inventory-2 (EDI-2) scores, were administered at baseline, posttest, and at 6-month follow-up. There was a dropout rate of 30% (posttest) and 37% (6-month follow-up).

Results: The intervention group showed reductions in EDE global score (P < 0.01), the EDE subscale restraint (P < 0.05), and eating concern (P < 0.01) compared to the control group. The differences between the groups increased at 6-month follow-up. There were no differences between the groups in the EDI-2 score.

Conclusion: The results indicate that yoga could be effective in the treatment of ED.

Kasturi BK, Deo G. Efficacy of forced right nostril breathing and selected yogasanas on female obese college students. *J Complement Integr Med.* 2018 May 9. pii: /j/jcim.ahead-of-print/jcim-2017-0070/jcim-2017-0070.xml. doi: 10.1515/jcim-2017-0070. [Epub ahead of print]

Abstract:

Background Overweight and obesity are the accumulation of high body adiposity, which can have detrimental health effects and contribute to the developments of numerous non communicable diseases. Aim To study the psycho-physiological changes after the practice of forced right nostril breathing and selected yogasanas on obese college students. Methods To carry out this study, 32 female subjects aged 18-25 years of age were recruited with informed consent from Priyanka degree college, Hyderabad, Telangana, India. The design was a single group pre-post. Height and weight were recorded and the body mass index (BMI) was calculated using standard procedures and equation. The students were given the practice of forced right nostril breathing for 10 min daily four times a day and some selected yogasanas. The assessments were taken before start of intervention and at the last day after 30 days. The intervention was for 6 days per week which consists of forced right nostril breathing and some selected asanas. Conclusions The study exhibited that forced right nostril breathing and selected yogasanas reduces the physiological risk factors. These yogic practices are effective to overcome complications arise due to obesity and are helpful to induce positive psychological changes in obese individual.

Keay L, Praveen D, Salam An et al. Mixed methods evaluation of yoga as a fall prevention strategy for older people in India. Pilot Feasibility Stud. 2018 May 1;4:74. doi: 10.1186/s40814-018-0264-x. eCollection 2018.

Abstract:

Background: Falls are an emerging public health issue in India, with the impact set to rise as the population ages. We sought to evaluate the acceptability, feasibility and likely impact of a yoga-based program aimed at improving balance and mobility for older residents in urban India.

Methods: Fifty local residents aged 60 years and older were recruited from urban Hyderabad, Andhra Pradesh. They were invited to attend a 1-h yoga class, twice weekly for 3 months. Mixed methods were used to evaluate the acceptability and feasibility (qualitative) and likely impact (quantitative). Two focus groups and eight interviews with participants were conducted to evaluate the acceptability and feasibility of a yoga program. Thematic analysis was conducted in context of perceptions, barriers and benefits of yoga participation and fall ascertainment. Physical performance using the Short Physical Performance Battery, fear of falling, blood pressure and weight loss were measured before and after the program.

Results: The interviews and focus groups provided insights into the preferred format for classes, including session times, level of supervision and location. Improvements were seen in the Short Falls Efficacy Scale-International (Short FES-I (15.9 ± 4.0 vs 13.8 ± 2.1 s, $p = 0.002$)), the number of steps taken in the timed 4-m walk (T4MW (9.0 ± 1.8 vs 8.6 ± 1.8 , $p = 0.04$)), Short FES-I scores (9.4 ± 2.9 vs 8.6 ± 2.9 , $p = 0.02$) and weight (63.8 ± 12.4 vs 62.1 ± 11.6 , $p = 0.004$) were lower. No changes were seen in standing balance, blood pressure or T4MW time.

Conclusion: Yoga was well accepted and resulted in improved ability to rise from a chair, weight loss, increased step length and reduced fear of falling. These results provide impetus for further research evaluating yoga as a fall prevention strategy in India.

Kumar KS, Srinivasan TM, Ilavarasu J et al. Classification of Electrophotonic Images of Yogic Practice of Mudra through Neural Networks. Int J Yoga. 2018 May-Aug;11(2):152-156.

Abstract:

Background: Mudras signify a gesture with hands, eyes, and the body. Different configurations of the joining of fingertips are also termed mudra and are used by yoga practitioners for energy manipulation and for therapeutic applications. Electrophotonic imaging (EPI) captures the coronal discharge around the fingers as a result of electron capture from the ten fingers. The coronal discharge around each fingertip is studied to understand the effect of mudra on EPI parameters.

Methods: The participants were from Swami Vivekananda Yoga Anusandhana Samsthana and Sushrutha Ayurvedic Medical College, in Bengaluru, India. There were 29 volunteers in the mudra group and 32 in the control group. There were two designs: one was a pre-post design with control the other was pre-post with repeated measures with 18 individuals practicing mudra for 3 days. The duration of intervention for the pre-post design was 10 min on the 1st day, 15 min on the 2nd day, and 20 min on the 3rd day. A neural network classifier was used for classifying mudra and control samples.

Results: The EPI parameters, normalized area and average intensity, passed the test of normality Shapiro-Wilk. The Cohen's d, effect size was 0.988 and 0.974 for the mudra and control groups, respectively. Neural network-based analysis showed the classification accuracy of the post-intervention samples for mudra and control varied from 85% to 100% while the classification accuracy varied from 55% to 70% for the pre-intervention samples. The result of the mudra intervention showed statistically significant changes in the mean values on the 3rd day compared to the 1st day.

Conclusions: The effect size of the variations in mudra was more than that of the control group. Mudra practice of a longer duration showed statistically significant change in the EPI parameter, average intensity in comparison to the practice on the 1st day.

Li L, Shu W, Li Z, Liu Q et al. Using Yoga Nidra Recordings for Pain Management in Patients Undergoing Colonoscopy. Pain Manag Nurs. 2018 May 17. pii: S1524-9042(17)30287-4.

Abstract:

The objective of this study was to compare the effects produced by yoga nidra and relaxation music for pain management in patients undergoing colonoscopy. A quasiexperimental design was used. In total, 144 patients who were scheduled to undergo colonoscopy were assigned to three different treatment groups. Group 1 was a no treatment control group, group 2 was delivered relaxing music, and group 3 was delivered a yoga nidra recording. The primary outcome was pain score. Secondary treatment efficacy measures were an overall patient satisfaction score, a willingness to repeat the procedure score, and a perceived colonoscope insertion difficulty score. Secondary objective treatment effect measures were systolic and diastolic blood pressure and total procedure duration. The patients' perceptions of pain and the endoscopist's perceived colonoscope insertion difficulty were significantly reduced by

both the music and the yoga nidra recording ($p < .05$). Overall patient satisfaction was significantly improved by both the music and the yoga nidra recording ($p < .05$). Patients' willingness to repeat the procedure and the total procedure duration were significantly improved and reduced, respectively, by the yoga nidra recording ($p < .05$), but there were no significant differences compared to the music group. There were no statistically significant differences among the three groups in terms of blood pressure. Both the yoga nidra recording and the relaxation music helped reduce the pain participants undergoing colonoscopy experienced. The yoga nidra recording was the most successful intervention among the three groups.

Metri KG, Pradhan B, Singh A et al. Effect of 1-Week Yoga-Based Residential Program on Cardiovascular Variables of Hypertensive Patients: A Comparative Study. Int J Yoga. 2018 May-Aug;11(2):170-174.

Abstract:

Introduction: Hypertension (HTN) is an important public health concern and a leading cause of morbidity and mortality worldwide. Yoga is a form of mind-body medicine shown to be effective in controlling blood pressure (BP) and reduces cardiac risk factors in HTN. Integrated approach of Yoga therapy (IAYT) is a residential yoga-based lifestyle intervention proven to be beneficial in several health conditions. Aim: To study the efficacy of 1 week of residential IAYT intervention on cardiovascular parameters in hypertensive patients.

Methodology: Twenty hypertensive individuals (7 females) within age range between 30 and 60 years (average; 46.62 ± 9.9 years), who underwent 1 week of IAYT treatment for HTN, were compared with age- gender-matched non-IAYT group (5 females; average age; 47.08 ± 9.69 years) in terms of systolic BP (SBP), diastolic BP (DBP), mean arterial pressure (MAP), cardiac output (CO), stroke volume (SV), baroreflex sensitivity (BRS), and total peripheral vascular resistance (TPVR), IAYT program consisted of sessions of asanas, breathing practices, meditation and relaxation techniques, low salt, low-calorie diet, devotional session, and counseling. Individuals in non-IAYT group followed their normal routine. All the variables were assessed before and after one week. Data were analyzed using SPSS version 16. RM-ANOVA was applied to assess within group and between group changes after intervention.

Results: There was a significant improvement in SBP ($P = 0.004$), DBP ($P = 0.008$), MAP (0.03), BRS ($P < 0.001$), and TPVR ($P = 0.007$) in IAYT, group whereas in control group, we did not find significant difference in any of the variables. Between-group comparison showed a significant improvement in SBP ($P = 0.038$), BRS ($P = 0.034$), and TPVR ($P = 0.015$) in IAYT group as compared to non-IAYT group.

Conclusion: One-week IAYT intervention showed an improvement in baroreflex sensitivity, systolic BP, and total peripheral vascular resistance in hypertensive patients. However, further randomized control trials need to be performed to confirm the present findings.

Muralidhara DV, Mat Nor MN, Zubaidi AL. No Differences in Energy Cost of a Predetermined Exercise among Young Overweight/Obese and Undernourished Individuals. Int J Yoga. 2018 May-Aug;11(2):148-151.

Abstract:

Background: Physical activity is an integral part of one's daily life. Obese (Ob) and undernourished (UN) persons are known to underperform physically as compared to normal weight (N) individuals. In this study, we have measured the energy spent to perform a prefixed exercise on treadmill walking and basal heart rate and blood pressure. Body mass index (BMI) and body fat of participating individuals were assessed. Fasting blood sugar and lipid profile were also evaluated.

Materials and Methods: Eighty-three young individuals (male: 41; female: 42) of medical faculty, Universiti Sultan Zainal Abidin, who volunteered for the study, were recruited. The mean age of the individuals was 19.8 ± 0 years ($P < 1.08$). The individuals were grouped as N, UN/underweight, and overweight (Ow)/Ob based on BMI.

Results: The results of the study revealed that there were no differences in the energy spent on performing the predetermined treadmill walking of 20 min duration among the three groups (a mean of 78 and 70 calories in all male and female subgroups, respectively). The distance covered by the males was 1.6 km while the females covered 1.4 km on treadmill walking in 20 min time. Basal blood pressure and heart rate and fasting blood sugar did not reveal any significant difference among the groups. However, total cholesterol and triglyceride levels were marginally higher in the Ow/Ob groups of male and female individuals as compared to other groups.

Conclusion: Since the study individuals were very young and competitive by nature and possibly had no major metabolic disturbances, the differences in physical activity performances were not obvious. Possibly, such differences would become apparent only at later stages of life as age advances or when the intensity and duration of exercise are set at higher levels.

Narayanan CR, Korotkov K, Srinivasan TM. Bioenergy and its Implication for Yoga Therapy. Int J Yoga. 2018 May-Aug; 11(2): 157-165.

Abstract:

Electro photonic imaging (EPI) is being researched relative to its application for yoga therapy. Three parameters of interest in EPI measurements are as follows: Communication energy (C), integral or normalized area (IA), and Entropy (E). It is important to note that C indicates the total energy of communication for the organ system; IA is an indication of total amount of energy that is available for the organ system while entropy is an indication of the amount of coherence of the energy. Coherence and entropy are inversely related; this means less the entropy, more the coherence and vice versa. Illustrative cases of successful therapy with yoga practices in a wide variety of abnormal conditions are examined, and in every case, entropy is shown to decrease for the affected organ system while communication energy stays within stable range. Relative to the electromagnetic (Rubik) and living matrix (Oschman) models, it is suggested that the regulation of energy, its coherence in the biological system and interaction with life processes provide the basis for model building and design of health-promoting procedures. Further, this approach is examined relative to yoga theory, traditional medicine systems, and scientific developments in the field of gene expression and neuroplasticity and a generalized model that we call Unified System of Medicine is proposed. This model has direct implications on methods used to control the environmental factors to get robust

results from EPI application for therapeutic purposes. Implications for furthering research in yoga therapy using EPI and implications of EPI as a translational technology between traditional medicine systems and modern medicine is discussed.

Niles BL, Mori DL, Polizzi C et al. Systematic review of randomized trials of mind-body interventions for PTSD. J Clin Psychol. 2018 May 10. doi: 10.1002/jclp.22634

Abstract:

Objective: To systematically review outcomes from randomized controlled trials (RCTs) of mind-body treatments for PTSD.

Methods: Inclusion criteria based on guidelines for assessing risk of bias were used to evaluate articles identified through electronic literature searches.

Results: Twenty-two RCTs met inclusion standards. In most of the nine mindfulness and six yoga studies, significant between-group effects were found indicating moderate to large effect size advantages for these treatments. In all seven relaxation RCT's, relaxation was used as a control condition and five studies reported significant between-group differences on relevant PTSD outcomes in favor of the target treatments. However, there were large within-group symptom improvements in the relaxation condition for the majority of studies.

Conclusions: Although many studies are limited by methodologic weaknesses, recent studies have increased rigor and, in aggregate, the results for mindfulness, yoga, and relaxation are promising. Recommendations for design of future mind-body trials are offered.

Opondo MA, Aiad N, Cain MA et al. Does High-Intensity Endurance Training Increase the Risk of Atrial Fibrillation? A Longitudinal Study of Left Atrial Structure and Function. Circ Arrhythm Electrophysiol. 2018 May;11(5):e005598.

Abstract:

Background: Exercise mitigates many cardiovascular risk factors associated with atrial fibrillation. Endurance training has been associated with atrial structural changes which can increase the risk for atrial fibrillation. The dose of exercise training required for these changes is uncertain. We sought to evaluate the impact of exercise on left atrial (LA) mechanical and electrical function in healthy, sedentary, middle-aged adults.

Methods: Sixty-one adults (52±5 years) were randomized to either 10 months of high-intensity exercise training or yoga. At baseline and post-training, all participants underwent maximal exercise stress testing to assess cardiorespiratory fitness, P-wave signal-averaged electrocardiography for filtered P-wave duration and atrial late potentials (root mean square voltage of the last 20 ms), and echocardiography for LA volume, left ventricular end-diastolic volume, and mitral inflow for assessment of LA active emptying. Post-training data were compared with 14 healthy age-matched Masters athletes.

Results: LA volume, Vo₂ max, and left ventricular end-diastolic volume increased in the exercise group (15%, 17%, and 16%, respectively) with no change in control

($P < 0.0001$). LA active emptying decreased post-exercise versus controls (5%; $P = 0.03$). No significant changes in filtered P-wave duration or root mean square voltage of the last 20 ms occurred after exercise training. LA and left ventricular volumes remained below Masters athletes. The athletes had longer filtered P-wave duration but no difference in the frequency of atrial arrhythmia.

Conclusions: Changes in LA structure, LA mechanical function, and left ventricular remodeling occurred after 10 months of exercise but without significant change in atrial electrical activity. A longer duration of training may be required to induce electrical changes thought to cause atrial fibrillation in middle-aged endurance athletes.

Ratnakumari ME, Manavalan N, Sathyanath D et al. Study to Evaluate the Changes in Polycystic Ovarian Morphology after Naturopathic and Yogic Interventions. Int J Yoga. 2018 May-Aug;11(2):139-147.

Sams DP, Handley ED, Alpert-Gillis LJ. Mindfulness-based group therapy: Impact on psychiatrically hospitalized adolescents. Clin Child Psychol Psychiatry. 2018 May 1:1359104518775144. doi: 10.1177/1359104518775144.

Abstract:

The practice of mindfulness has long been incorporated into psychotherapy. Research on the therapeutic benefits of mindfulness exists within adult populations, and emerging empirical evidence demonstrates the benefit of such practices in the treatment of adolescents in both clinical and non-clinical settings. However, there are extremely limited data on the practice of mindfulness with adolescents in a psychiatric hospital. The iMatter (Improve Mindful ATTention, Enhance Relaxation) group is a manualized program developed to provide adolescents on a short-term psychiatric inpatient unit with an opportunity to learn and practice relaxation strategies, mindfulness exercises, and simple yoga poses. Mindfulness skills are taught in the context of the group and include self-observation of thoughts and feelings, breathing exercises, self-validation of one's experience, loving-kindness toward self, non-judgmental stance toward self, and acceptance and observation of change within self. Participants included 65 adolescents aged 13-17 years ($M = 15.06$, standard deviation (SD) = 1.34) who took part in at least one session of the iMatter intervention. Improvements in self-reported mood were evident following participation in a mindfulness group. Also, participants' heart rate significantly decreased following participation in two groups. Future directions include improved integration of mindfulness into the milieu and other unit programming. Furthermore, comparing self-reported mood and physiological measures from this sample to findings obtained for other unit groups will further clarify the impact of the iMatter intervention.

Shaw L, Routray A. Topographical assessment of neurocortical connectivity by using directed transfer function and partial directed coherence during meditation. Cogn Process. 2018 May 17. doi: 10.1007/s10339-018-0869-2

Abstract:

Due to the presence of nonlinearity and volume conduction in electroencephalography (EEG), sometimes it's challenging to find out the actual brain network from neurodynamical alteration. In this paper, two well-known time-frequency brain connectivity measures, namely partial directed coherence (PDC) and directed transfer

function (DTF), have been applied to evaluate the performance analysis of EEG signals obtained during meditation. These measures are implemented to the multichannel meditation EEG data to get the directed neural information flow. Mostly the assessment of PDC and DTF is entirely subjective and there are probabilities to have erroneous connectivity estimation. To avoid the subjective evaluation, the performance results are compared in terms of absolute energy, signal-to-noise ratio (SNR) and relative SNR (R-SNR) scale. In most of the cases, the PDC result is found to be more efficient than DTF. The limitation of DTF and PDC in terms of the time-varying multivariate autoregressive (MVAR) model is highlighted. The time-varying MVAR model can track the neurodynamical changes better than any other method. In the present study, we would like to show that the PDC-based connectivity gives a better understanding of the non-symmetric relation in EEG obtained during Kriya Yoga meditation in comparison to DTF. However, it needs to be investigated further to warrant this claim.

Shellington EM, Reichert SM, Petrella RJ. A Commentary on: "Effects of Regular Physical Activity on the Cognitive Performance of Type 2 Diabetic Patients: A systematic Review" by Podolski et al. (Metab Syndr Relat Disord 2017;15:481-493). Metab Syndr Relat Disord. 2018 May 16. doi: 10.1089/met.2018.0021.

Abstract:

Type 2 diabetes mellitus (T2DM) imparts an increased risk for cognitive decline, specifically executive function, which is important to maintain for diabetes self-management. There is evidence to suggest that exercise improves cognition in healthy older adults; however, the literature in adults with T2DM is lacking. This commentary is in complement to Podolski et al.'s systematic review evaluating the effects of physical activity on cognitive function in adults with T2DM. We have included eight additional studies and further highlight their conclusions on the heterogeneity of the literature thus far. Three current issues with the literature are as follows: (1) variability in interventions (e.g., aerobic, resistance, lifestyle, and yoga), (2) variability in cognitive outcome measures, and (3) lack of detailed description of the population studied, for example, baseline glycated hemoglobin (A1C) values. Overall, making it difficult to compare these studies and draw final conclusions. Thus, the efficacy for exercise to improve cognition in adults with T2DM is not yet well understood. Potential ways to mitigate these limitations could be for future studies that (1) use robust methodology whenever possible, that is, randomized controlled trials, (2) to follow current guideline-derived exercise recommendations for adults with T2DM, and (3) utilize cognitive outcome measures that are consistent across studies. The hope is that these consistencies in turn will help to determine the efficacy of exercise on cognitive function in adults with T2DM and therefore, allow national organizations to develop recommendations and guidelines for healthcare practitioners to follow.

Srinivasan TM. Resonance Signaling and Yoga. Int J Yoga. 2018 May-Aug;11(2):89-90.

Sweta KM, Godbole A, Awasthi HH et al. Effect of Mula Bandha Yoga in Mild Grade Pelvic Organ Prolapse: A Randomized Controlled Trial. Int J Yoga. 2018 May-Aug;11(2):116-121

Abstract:

Background: Pelvic organ prolapse is the growing health issue related to women of the reproductive and postmenopausal age group in India and across the globe. Treatment option for pelvic organ prolapse includes both surgical and non-surgical intervention. The development of pelvic organ prolapse is an indication for major surgery among 20% of all women. Nevertheless, the recurrence of pelvic organ prolapse is detected among 58% of the patient after surgery. This highlights the need for preventive measures for reducing the impact of pelvic organ prolapse.

Aims and objective: To study the effect of 3 months yoga therapy in female patients suffering from mild pelvic organ prolapse.

Material and methods: 50 Participants were allocated into two groups (25 in each group) by generating Random allocation sequence. Women aged 20-60 with symptomatic mild pelvic organ prolapse in the yoga group were offered Mulabandha yoga therapy along with other conventional treatment modalities, while the control group was only on conventional treatment. All participants gave written informed consent. An assessment was done by improvement in chief complaints and Pelvic Floor Distress Inventory-20 (PFDI-20) & Pelvic floor impact Questionnaire-7 (PFIQ-7) at baseline and at the end of 4, 8 & 12 weeks. Results At the end of 12 weeks, Post-study comparison between the two groups showed a significant improvement in chief complaints like perennial pain, P/V discharge, Perineal muscle laxity and Feeling of something coming out P/V ($P < 0.001$). Participants in the yoga group improved by (on average) 5.7 (95% confidence interval 3.1 to 14.7) points more on the PFDI-20 than did participants in the control group ($P = 0.1$) and a mean score of PFIQ-7 was also improved significantly.

Conclusions: Although Mulabandha (Root Lock) yoga therapy led to a significantly greater improvement in PFDI-20 & PFIQ-7 scores the difference between the groups was below the presumed level of clinical relevance (15 points). More studies are needed to identify factors related to the success of Mulabandha (Root Lock) yoga therapy and to investigate long-term effects.

Watts AW, Rydell SA, Eisenberg ME et al. Yoga's potential for promoting healthy eating and physical activity behaviors among young adults: a mixed-methods study. Int J Behav Nutr Phys Act. 2018 May 2;15(1):42.

Abstract:

Background: A regular yoga practice may have benefits for young adult health, however, there is limited evidence available to guide yoga interventions targeting weight-related health. The present study explored the relationship between participation in yoga, healthy eating behaviors and physical activity among young adults.

Methods: The present mixed-methods study used data collected as part of wave 4 of Project EAT (Eating and Activity in Teens and Young Adults), a population-based cohort study in Minneapolis-St. Paul, Minnesota. Young adults ($n = 1820$) completed the Project EAT survey and a food frequency questionnaire, and a subset who reported practicing yoga additionally participated in semi-structured interviews ($n = 46$). Analyses of survey data were used to examine cross-sectional associations between the frequency of yoga practice, dietary behaviors (servings of fruits and vegetables

(FV), sugar-sweetened beverages (SSBs) and snack foods and frequency of fast food consumption), and moderate-to-vigorous physical activity (MVPA). Thematic analysis of interview discussions further explored yoga's perceived influence on eating and activity behaviors among interview participants.

Results: Regular yoga practice was associated with more servings of FV, fewer servings of SSBs and snack foods, less frequent fast food consumption, and more hours of MVPA. Interviews revealed that yoga supported healthy eating through motivation to eat healthfully, greater mindfulness, management of emotional eating, more healthy food cravings, and the influence of the yoga community. Yoga supported physical activity through activity as part of yoga practice, motivation to do other forms of activity, increased capacity to be active, and by complementing an active lifestyle.

Conclusions: Young adult yoga practitioners reported healthier eating behaviors and higher levels of physical activity than non-practitioners. Yoga should be investigated as an intervention for young adult health promotion and healthy weight management.

Zou L, Sasaki JE, Zeng N et al. A Systematic Review with Meta-Analysis of Mindful Exercises on Rehabilitative Outcomes among post-stroke patients. Arch Phys Med Rehabil. 2018 May 5. pii: S0003-9993(18)30283-1.

Abstract:

Objective: To critically evaluate the rehabilitative effects of mindful exercises for post-stroke patients.

Data sources: Six databases (PubMed, Physiotherapy Evidence Database, Cochrane Library, Web of Science, Wanfang, and CNKI) and reference lists of relevant articles were searched.

Study selection: Randomized controlled trials (RCTs) on the effects of mindful exercises on rehabilitative outcomes such as sensorimotor function, gait speed, leg strength, aerobic endurance, cognitive function, and overall motor function).

Data extraction: Two investigators independently screened eligible studies according to the eligible criteria, extracted data, and assessed risk of bias.

Data synthesis: Twenty studies that satisfied the eligibility criteria were finally included. The sum scores of 5 to 9 points in the adapted PEDro scale indicates low-to-medium risk of bias. The study results of meta-analysis indicate that mindful exercise intervention was significantly associated with improved sensorimotor function both on low limbs (SMD = 0.79, 95% CI 0.43 to 1.15, $p < 0.001$, $I^2 = 62.67\%$) and upper limbs (SMD = 0.7, 95% CI 0.39 to 1.01, $p < 0.001$, $I^2 = 32.36\%$).

Conclusions: This review suggests that mindful exercises are effective in improving sensorimotor function of lower- and upper-limb in post-stroke patients. The effects on gait speed, leg strength, aerobic endurance, overall motor function, and other outcomes (e.g., cognitive function, gait parameters) require further investigation for allowing evidence-based conclusions.