

RESEARCH AT A GLANCE



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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 Incharge

HOMOEOPATHY

Bagur MJ, Murcia MA, Jimenez Monreal AM et al. Influence of diet in multiple sclerosis: A systematic review. *Adv Nutr.* 2017; 8(3):463-72p.

Abstract:

Nutrition is considered to be a possible factor in the pathogenesis of the neurological disease multiple sclerosis (MS). Nutrition intervention studies suggest that diet may be considered as a complementary treatment to control the progression of the disease; a systematic review of the literature on the influence of diet on MS was therefore conducted. The literature search was conducted by using Medlars Online International Literature (MEDLINE) via PubMed and Scopus. Forty-seven articles met the inclusion criteria. The reviewed articles assessed the relations between macro- and micronutrient intakes and MS incidence. The patients involved used alternative therapies (homeopathy), protocolized diets that included particular foods (herbal products such as grape seed extract, ginseng, blueberries, green tea, etc.), or dietary supplements such as vitamin D, carnitine, melatonin, or coenzyme Q10. Current studies suggest that high serum concentrations of vitamin D, a potent immunomodulator, may decrease the risk of MS and the risk of relapse and new lesions, while improving brain lesions and timed tandem walking. Experimental evidence suggests that serum vitamin D concentration is lower during MS relapses than in remission and is associated with a greater degree of disability [Expanded Disability Status Scale (EDSS) score >3]. The findings suggest that circulating vitamin D concentrations can be considered a biomarker of MS and supplemental vitamin D can be used therapeutically. Other studies point to a negative correlation between serum vitamin B-12 concentrations and EDSS score. Vitamin B-12 has fundamental roles in central nervous system function, especially in the methionine synthase-mediated conversion of homocysteine to methionine, which is essential for DNA and RNA synthesis. Therefore, vitamin B-12 deficiency may lead to an increase in the concentration of homocysteine. Further research is clearly necessary to determine whether treatment with vitamin B-12 supplements delays MS progression.

Ducrest I, Marques Vidal P, Faouzi M et al. Complementary medicine use among general internal medicine inpatients in a Swiss university hospital. *Int J Clin Pract.* 2017; May 19. doi: 10.1111/ijcp.12952.

Abstract:

Background: Complementary Medicine (CM) is frequently used by the general population, but data about prevalence among hospitalised patients are scarce. We evaluated the prevalence and determinants of CM use by inpatients, lifetime, 2 months before and during their hospitalisation in a general internal medicine ward.

Methods: Cross-sectional survey conducted in September 2014 among adult (≥ 18 years) patients hospitalised for at least 1 day in the general internal medicine ward of the Lausanne University Hospital, Switzerland. The association between the socio-demographic data and CM used were assessed using logistic regression model.

Results: Among the 289 eligible patients, 130 (45%, mean age 68.9±16.4 years, 59.2% male) were included. The lifetime prevalence of CM use was 74.6%. One-third (31.5%) and one-tenth of patients reported CM use 2 months prior or during hospitalisation, respectively. The four most reported CM used during lifetime were homeopathy (54.6%), herbal medicine (49.5%), therapeutic massage (47.4%), and osteopathy (44.3%). Herbal medicine, homeopathy, meditation and therapeutic massage were the four main CM used during hospitalisation. On bivariate analysis, lifetime use of CM was significantly associated with higher level of education (apprenticeship: OR 3.2, 95% CI [1.20-8.51], high school/university: OR 7.67, 95% CI [2.59-22.70]; P=.004) and healthcare coverage for CM (OR 3.53, 95% CI [1.32-9.46]; P=.014), but not with age and gender. During hospitalisation only 3.8% of patients were asked about CM use by physicians.

Conclusion: One-third of hospitalised patients used CM 2 months before hospitalisation and one-tenth during hospital stay. CM use is seldom queried by hospital staff; better assessment of CM use among hospitalised patients could prevent potential adverse events or interactions.

P Perng, JG Zampella, GA Okoye. Management of hidradenitis suppurativa in pregnancy. *J Am Acad Dermatol.* 2017; 76(5):979-89p.

Abstract:

Hidradenitis suppurativa is a debilitating inflammatory skin disease with a chronic course and often disappointing response to treatment. Though a minority of persons (20%) reports symptom remission during pregnancy, the vast majority experiences no relief (72%), and few experience clinical deterioration (8%). Disease flares are also observed post-partum. The pathophysiological basis for pregnancy-associated fluctuations in clinical status is currently unknown. Because most women with HS require ongoing management throughout pregnancy, it is important to evaluate the suitability and safety of current treatment options for pregnant women. The following review will outline current management strategies for HS and their compatibility with pregnancy and lactation.

Perry R, Leach V, Davies P et al. Overview of systematic reviews of complementary and alternative therapies for fibromyalgia using both AMSTAR and ROBIS as quality assessment tools. *Syst Rev.* 2017; 6(1):97p.

Abstract:

Background: Fibromyalgia (FM) is a chronic, debilitating pain disorder. Dissatisfaction with conventional medicine can lead people with FM to turn to complementary and alternative medicine (CAM). Two previous overviews of systematic reviews of CAM for FM have been published, but they did not assess for risk of bias in the review process.

Methods: Five databases Medline, Embase, AMED (via OVID), Web of Science and Central were searched from their inception to December 2015. Reference lists were hand-searched. We had two aims: the first was to provide an up-to-date and rigorously

conducted synthesis of systematic reviews of CAM literature on FM; the second was to evaluate the quality of the available systematic review evidence using two different tools: AMSTAR (Shea et al. BMC Med Res Methodol 15; 7:10, 2007) and a more recently developed tool ROBIS (Whiting et al. J Clin Epidemiol 69:225-34, 2016) specifically designed to assess risk of bias in systematic reviews. Any review that assessed one of eight CAM therapies for participants diagnosed with FM was considered. The individual studies had to be randomised controlled trials where the intervention was compared to placebo, treatment as usual or waitlist controls to be included. The primary outcome measure was pain, and the secondary outcome measure was adverse events.

Results: We identified 15 reviews that met inclusion criteria. There was low-quality evidence that acupuncture improves pain compared to no treatment or standard treatment, but good evidence that it is no better than sham acupuncture. The evidence for homoeopathy, spinal manipulation and herbal medicine was limited.

Conclusions: Overall, five reviews scored 6 or above using the AMSTAR scale and the inter-rater agreement was good (83.6%), whereas seven reviews achieved a low risk of bias rating using ROBIS and the inter-rater agreement was fair (60.0%). No firm conclusions were drawn for efficacy of either spinal manipulation or homoeopathy for FM. There is limited evidence for topical Capsicum, but further research is required. There is some evidence to support the effectiveness of acupuncture for FM, but further high-quality trials are needed to investigate its benefits, harms and mechanisms of action, compared with no or standard treatment.

Rudra S, Kalra A, Kumar A et al. Utilization of alternative systems of medicine as health care services in India: Evidence on AYUSH care from NSS 2014. PLoS One. 2017 ; 12(5):e0176916.

Abstract:

AYUSH, an acronym for Ayurveda, Yoga and Naturopathy, Unani, Siddha, Sowa-Rigpa and Homeopathy represents the alternative systems of medicine recognized by the Government of India. Understanding the patterns of utilization of AYUSH care has been important for various reasons including an increased focus on its mainstreaming and integration with biomedicine-based health care system. Based on a nationally representative health survey 2014, we present an analysis to understand utilization of AYUSH care across socioeconomic and demographic groups in India. Overall, 6.9% of all patients seeking outpatient care in the reference period of last two weeks have used AYUSH services without any significant differentials across rural and urban India. Importantly, public health facilities play a key role in provisioning of AYUSH care in rural areas with higher utilization in Chhattisgarh, Kerala and West Bengal. Use of AYUSH among middle-income households is lower when compared with poorer and richer households. We also find that low-income households display a greater tendency for AYUSH self-medication. AYUSH care utilization is higher among patients with chronic diseases and also for treating skin-related and musculo-skeletal ailments. Although the overall share of AYUSH prescription drugs in total medical expenditure is only about 6% but the average expenditure for drugs on AYUSH and allopathy did not differ hugely. The discussion compares our estimates and findings

with other studies and also highlights major policy issues around mainstreaming of AYUSH care.

S Lettner, KA Kessel, SE Combs. Complementary and alternative medicine in radiation oncology : Survey of patients' attitudes. *Strahlenther Onkol.* 2017; 193(5):419-425p.

Abstract:

BACKGROUND- Complementary and alternative medicine (CAM) are gaining in importance, but objective data are mostly missing. However, in previous trials, methods such as acupuncture showed significant advantages compared to standard therapies. Thus, the aim was to evaluate most frequently used methods, their significance and the general acceptance amongst cancer patients undergoing radiotherapy (RT).

METHODS- A questionnaire of 18 questions based on the categorical classification released by the National Centre for Complementary and Integrative Health was developed. From April to September 2015, all patients undergoing RT at the Department of Radiation Oncology, Technical University of Munich, completed the survey. Changes in attitude towards CAM were evaluated using the questionnaire after RT during the first follow-up visit (n = 31).

RESULTS- Of 634 patients, 333 answered the questionnaire (52.5%). Of all participants, 26.4% used CAM parallel to RT. Before RT, a total of 39.3% had already used complementary medicine. The most frequently applied methods during therapy were vitamins/minerals, food supplements, physiotherapy/manual medicine, and homeopathy. The majority (71.5%) did not use any complementary treatment, mostly stating that CAM was not offered to them (73.5%). The most common reasons for use were to improve the immune system (48%), to reduce side effects (43.8%), and to not miss an opportunity (37.8%). Treatment integrated into the individual therapy concept, e.g. regular acupuncture, would be used by 63.7% of RT patients.

CONCLUSION- In comparison to other studies, usage of CAM parallel to RT in our department is considered to be low. Acceptance amongst patients is present, as treatment integrated into the individual oncology therapy would be used by about two-third of patients.

AYURVEDA

Ayurvedic college education, reifying biomedicine and the need for reflexivity. M Bode, P Shankar. *Anthropol Med.* 2017; 16:1-14p.

Abstract:

The paper analyses the experiences with government sanctioned Ayurvedic college education of 14 young Ayurvedic doctors working at the Integrative Health Centre in Bangalore, India. Unfamiliarity with Ayurvedic logic and Indian natural philosophies, lack of clinical training and the mixing-up of Ayurvedic and biomedical notions are their main complaints. The 14 young Ayurvedic doctors also missed a convincing perspective on how to integrate Ayurvedic logic, modern scientific knowledge and biomedical diagnostics. Ayurvedic state sanctioned education seems to be caught between Ayurveda's natural philosophy of health and the techno-science of biomedicine. The Ayurvedic doctors under scrutiny face the danger of becoming 'half-baked products' when they do not learn to reflect on the tension between Indian traditional knowledge and biomedical learning. The paper argues that the logic of modern science and biomedicine's claim to value-free knowledge captivates Ayurvedic education and research. This hinders Ayurveda's development as a vibrant alterity to biomedicine. What is needed is a critical social science perspective on the construction of medical knowledge and India's hierarchical medical landscape.

Batarseh YS, Bharate SS, Kumar V et al. *Crocus sativus* extract tightens the blood-brain barrier, reduces amyloid β load and related toxicity in 5xfad mice. *ACS Chem Neurosci.* 2017;

Abstract:

Crocus sativus, commonly known as saffron or Kesar, is used in Ayurveda and other folk medicines for various purposes as an aphrodisiac, antispasmodic, and expectorant. Previous evidence suggested that *Crocus sativus* is linked to improving cognitive function in Alzheimer's disease (AD) patients. The aim of this study was to in vitro and in vivo investigate the mechanism(s) by which *Crocus sativus* exerts its positive effect against AD. The effect of *Crocus sativus* extract on A β load and related toxicity was evaluated. In vitro results showed that *Crocus sativus* extract increases the tightness of a cell-based blood-brain barrier (BBB) model and enhances transport of A β . Further in vivo studies confirmed the effect of *Crocus sativus* extract (50 mg/kg/day, added to mice diet) on the BBB tightness and function that was associated with reduced A β load and related pathological changes in 5XFAD mice used as an AD model. Reduced A β load could be explained, at least in part, by *Crocus sativus* extract effect to enhance A β clearance pathways including BBB clearance, enzymatic degradation and ApoE clearance pathway. Furthermore, *Crocus sativus* extract upregulated synaptic proteins and reduced neuroinflammation associated with A β pathology in the brains of 5XFAD mice. Crocin, a major active constituent of *Crocus sativus* and known for its antioxidant and anti-inflammatory effect, was also tested separately in vivo in 5XFAD mice. Crocin (10 mg/kg/day) was able to reduce A β load but to a lesser extent when compared to *Crocus sativus* extract. Collectively, findings from this study support the positive effect of *Crocus sativus* against AD by

reducing A β pathological manifestations.

Bhat OM, Kumar PU, Rao KR et al. Terminalia arjuna prevents Interleukin-18-induced atherosclerosis via modulation of NF- κ B/PPAR- γ -mediated pathway in Apo E-/- mice.

Inflammopharmacology. 2017; May 25. doi: 10.1007/s10787-017-0357-9.

Abstract:

Aim of the Study: Terminalia arjuna is a medicinal plant well known as a cardiogenic in Ayurvedic system of medicine. We hypothesized that aqueous stem bark extract of T. arjuna (TAE) may inhibit IL-18-induced atherosclerosis via NF- κ B/PPAR- γ -mediated pathway in Apo E-/- mice.

Materials and Methods: 12-week-old, male Apo E-/- mice divided into four groups (n = 6/group) fed with normal chow-diet were employed: GP I: phosphate buffer saline (PBS) (2 month); GP II: rIL-18 (1 month) followed by PBS (1 month); GP III: rIL-18 (1 month) followed by TAE (1 month); GP IV: rIL-18 (1 month) followed by atorvastatin (1 month).

Results: IL-18 treatment induced a significant increase (p < 0.001) in pro-inflammatory marker (IL-18) (170 ± 9.16 vs. 1178.66 ± 8.08 , pg/ml), and downregulated cholesterol efflux gene (PPAR- γ) by ~0.6-fold vs. 1.00 in IL-18-treated mice as compared to the control animals, respectively. TAE treatment to both groups caused a significant reduction in IL-18 to 281.66 ± 9.60 vs. 1178.66 ± 8.08 (pg/ml), upregulated cholesterol efflux gene by ~1.5- vs. 0.6-fold in TAE-treated group, decreased atherogenic lipids, and percentage atherosclerotic lesion area, demonstrating comparable effects with atorvastatin.

Conclusion: Our data demonstrate that TAE protects against IL-18-induced atherosclerosis via NF- κ B/PPAR- γ -mediated pathway.

Kasote DM, Jagtap SD, Thapa D et al. Herbal remedies for urinary stones used in India and China: A review. J Ethnopharmacol. 2017; 203:55-68p.

Abstract:

Ethnopharmacological Relevance: The process of formation or appearance of a urinary stone anywhere in the renal tract is known as urolithiasis. It is a longstanding health problem, known to exist since early age of civilization. Records about symptoms, signs and treatment strategies of urinary stones diseases are found in the several ancient texts of traditional medicines such as Ayurveda, Traditional Chinese Medicine (TCM), Siddha and Unani. In Ayurveda, urolithiasis has been considered as one of the eight most troublesome diseases. Ayurvedic management and cure of urinary stone involves herbal formulas, alkaline liquids and surgical procedures. Whereas, TCM recommends polyherbal drugs, acupuncture and mexibustion for treatment of the urinary stones. Among these therapies, herbal remedies are in practice till today for the treatment and cure urinary stone diseases.

Materials and Methods: A comprehensive review of the scientific literature about

pathophysiology of urinary stones and antiurolithiatic plants was undertaken using the following bibliographic databases: MEDLINE/PubMed, Scopus, Web of Knowledge and Google Scholar. The search was conducted from publications from all years until Dec., 2015 by combination of the search terms and Boolean operators; 'urinary stone' OR 'kidney stone' AND 'plant' OR 'medicine' OR 'antiurolithiatic plants'. Outputs were restricted to those completed studies only published in English. In this review, literatures about plants which are used as diuretic and/or in treatment urinary tract infections have not also been considered. The Plant List and Royal Botanical Garden, Kew databases were used to authenticate botanical names of plants. Books and monographs published in English were used to collect information about historical records of antiurolithiatic plants.

Results: Recent pharmacological interventions accredited ancient antiurolithiatic claims to several plants and their formulations. The majority of antiurolithiatic plants were found to either dissolve the stones or inhibit the process of urinary stone formation. Plants such as *Phyllanthus niruri* L. and *Elymus repens* (L.) Gould, as well as herbal products including 'Wu-Ling-San' formula, 'Cystone' and 'Herbmed' have been proved their utility as promising antiurolithiatic medicines in the different phases of clinical trials. In addition, some of the isolated phytochemicals such as berberine, lupeol, khelin, visnagin, 7-hydroxy-2',4',5'-trimethoxyisoflavone and 7-hydroxy-4'-methoxyisoflavone were reported to have potent antiurolithiatic activity.

Conclusion: In ancient medicinal texts, antiurolithiatic potential has been ascribed to several plants and their formulations. Present scientific studies provide scientific evidences for few of these claims however, they are insufficient to establish many of these plants and herbal formulations as therapeutic remedies for the treatment and management of urinary stones. Conversely, findings of pre-clinical and clinical studies about some plants and herbal formulations are promising, which underlines the utility of herbal remedies as alternative medicines for the treatment and management of urinary stones in the future.

Lang C. Translation and purification: Ayurvedic psychiatry, allopathic psychiatry, spirits and occult violence in Kerala, South India. *Anthropol Med.* 2017; 8:1-21p.

Abstract:

In this paper, the author traces two parallel movements of institutionalized Ayurvedic psychiatry, an emergent field of specialization in Kerala, India: the 'work of purification' and the 'work of translation' that Latour has described as characteristic of the 'modern constitution.' The author delineates these processes in terms of the relationship of Ayurvedic psychiatry to (1) allopathic psychiatry, (2) bhutavidya, a branch of textual Ayurveda dealing with spirits, and (3) occult violence. The aim is to offer a model of these open and hidden processes and of Ayurvedic psychiatry's positioning within a hierarchical mental health field characterized simultaneously by biopsychiatric hegemony and a persistent vernacular healing tradition. Through these processes, Ayurvedic psychiatry emerges as a relevant actor. It demarcates itself from both allopathic and vernacular epistemologies and ontologies while simultaneously drawing upon aspects of each, and, in this way, shows itself to be both deeply modern

and highly pragmatic.

M Tarai, K Kumar, O Divya et al. Eigenvalue-eigenvector decomposition (EED) analysis of dissimilarity and covariance matrix obtained from total synchronous fluorescence spectral (TSFS) data sets of herbal preparations: Optimizing the classification approach. *Spectrochim Acta A Mol Biomol Spectrosc.* 2017; 184: 128-33p.

Abstract:

The present work compares the dissimilarity and covariance based unsupervised chemometric classification approaches by taking the total synchronous fluorescence spectroscopy data sets acquired for the cumin and non-cumin based herbal preparations. The conventional decomposition method involves eigenvalue-eigenvector analysis of the covariance of the data set and finds the factors that can explain the overall major sources of variation present in the data set. The conventional approach does this irrespective of the fact that the samples belong to intrinsically different groups and hence leads to poor class separation. The present work shows that classification of such samples can be optimized by performing the eigenvalue-eigenvector decomposition on the pair-wise dissimilarity matrix.

MS Ali Khan, S Nazan, AM Mat Jais. Flavonoids and anti-oxidant activity mediated gastroprotective action of leathery murdah, terminalia coriacea (roxb.) Wight & Arn. Leaf methanolic extract in rats. *Arq Gastroenterol.* 2017;

Abstract:

BACKGROUND: Leathery Murdah, Terminalia coriacea (Roxb.) Wight & Arn. from family Combretaceae is used in Ayurveda and Siddha traditional systems of medicine to heal ulcers.

OBJECTIVE: The present study was conducted to assess the gastroprotective effect and understand the fundamental mechanism of action of Leathery Murdah, Terminalia coriacea (Roxb.) Wight & Arn. Leaf Methanolic Extract.

METHODS: The test extract was screened for anti-ulcer activity by Aspirin induced ulcerogenesis in pyloric ligation and ethanol induced gastric ulcers at three doses - 125, 250, and 500 mg/kg, p.o. using Ranitidine 50 mg/kg and Misoprostol 100 µg/kg as standard drug in respective models. Seven parameters were carefully examined, that is, ulcer index, total protein, mucin, catalase, malondialdehyde, and superoxide dismutase levels and histopathology. High Performance Liquid Chromatographic - Ultra Violet profiling and Liquid Chromatography - Mass Spectral analysis of crude Terminalia coriacea leaves methanolic extract were carried out as a part of chemical characterization to identify bioactive compounds.

RESULTS: All the test doses exhibited significant gastroprotective function, particularly the higher doses demonstrated improved action. The results revealed a significant increase in the levels of catalase, superoxide dismutase, and Mucin with reduction in ulcer index, the levels of total protein, and malondialdehyde. Histopathological observations also illustrated the gastroprotective effect of Terminalia

coriacea leaves methanolic extract.

CONCLUSION: Terminalia coriacea leaves methanolic extract exhibited strong antioxidant and anti-secretory activities mediated gastroprotection besides inducing the gastric mucosal production. The observed pharmacological response can be attributed to the flavonoidal compounds namely - Quercetin-3-O-rutinoside, Luteolin-7-O-glucoside, Myricetin hexoside, Quercetin-3-O-glucoside, Isorhamnetin-3-O-rhamnosylglucoside and Isorhamnetin-3-O-glucoside identified in the extract for the first time with High Performance Liquid Chromatographic - Ultra Violet and Liquid Chromatography - Mass Spectral analysis.

R Rajakrishnan, R Lekshmi, PB Benil et al. Phytochemical evaluation of roots of Plumbago zeylanica L. and assessment of its potential as a nephroprotective agent. Saudi J Biol Sci. 2017; 24(4):760-66p.

Abstract:

Search for medicinal plants to treat kidney disorders is an important topic on phytotherapeutical research. Plumbago zeylanica L. is an important medicinal plant with hepatoprotective, anti-inflammatory, anti-diabetic, anti-cancer and anti-hyperlipidemic activities. In the present study, the protective effect of hydroalcoholic extract of P. zeylanica (HAPZ) in cisplatin induced nephrotoxicity was analyzed in Swiss albino mice. Treatment with higher dose (400 mg/kg) of HAPZ significantly reversed the adverse effect of cisplatin on kidney weight, serum urea and creatinine, indicating their renoprotective effect. The antioxidant effect of the drug is evident from its significant effect on Catalase, Glutathione peroxidase and lipid peroxidation activities.

Rudra S, Kalra A, Kumar A et al. Utilization of alternative systems of medicine as health care services in India: Evidence on AYUSH care from NSS 2014. PLoS One. 2017 ; 12(5):e0176916.

Abstract:

AYUSH, an acronym for Ayurveda, Yoga and Naturopathy, Unani, Siddha, Sowa-Rigpa and Homeopathy represents the alternative systems of medicine recognized by the Government of India. Understanding the patterns of utilization of AYUSH care has been important for various reasons including an increased focus on its mainstreaming and integration with biomedicine-based health care system. Based on a nationally representative health survey 2014, we present an analysis to understand utilization of AYUSH care across socioeconomic and demographic groups in India. Overall, 6.9% of all patients seeking outpatient care in the reference period of last two weeks have used AYUSH services without any significant differentials across rural and urban India. Importantly, public health facilities play a key role in provisioning of AYUSH care in rural areas with higher utilization in Chhattisgarh, Kerala and West Bengal. Use of AYUSH among middle-income households is lower when compared with poorer and richer households. We also find that low-income households display a greater tendency for AYUSH self-medication. AYUSH care utilization is higher among patients with chronic diseases and also for treating skin-related and musculo-skeletal

ailments. Although the overall share of AYUSH prescription drugs in total medical expenditure is only about 6% but the average expenditure for drugs on AYUSH and allopathy did not differ hugely. The discussion compares our estimates and findings with other studies and also highlights major policy issues around mainstreaming of AYUSH care.

Sahoo PK, Fiaz S. Conceptual analysis of diabetic retinopathy in Ayurveda. *J Ayurveda Integr Med.* 2017; May 16. pii: S0975-9476(16)30097-3. doi: 10.1016/j.jaim.2016.12.003

Abstract:

Inclusion of Prameha among the eight major disorders in Charaka Samhita shows the significance of the disease given by ancient seers. The risk of development of blindness in diabetics increases by 20-25 times as compared to the normal population. High prevalence rate of Diabetic Retinopathy (34.6%), proliferative diabetic retinopathy (7%), diabetic macular edema (6.8%), and Vision threatening Diabetic retinopathy (10.2%) in diabetics was great concerns which led to search and analyze the disease process on the basis of modern pathogenesis and different Timirvyadhi mentioned in Ayurvedic authoritative texts. Thus the present study endeavors to discuss the similarities and differences among the various components of Prameha/Madhumehajanya Timir with Diabetic retinopathy and its stages. To establish a probable etiopathogenesis of the disease from Ayurveda prospective, all the important literature of both modern medicine and Ayurveda along with online sources were searched and analyzed. All the three dosha along with Raktadosha and Saptadhatu with four internal Dristipatals of eye are affected in Madhumehajanyatimir in different stages of the disease. Avarana and Dhatukshaya too have important role in development of diabetic retinopathy due to prolonged and uncontrolled hyperglycemia. Agnimandya related Ama formation has a role in pathology of diabetic retinopathy which is quite similar to oxidative theory of diabetic retinopathy explained in modern pathology. Urdhwagaraktapitta, Ojaskshaya, Raktavrittavata, and Pranavrittavyana are other causes in development of diabetic retinopathy.

Srivastava A, Karthick T, Joshi BD et al. Spectroscopic (far or terahertz, mid-infrared and Raman) investigation, thermal analysis and biological activity of pipartine. *Spectrochim Acta A Mol Biomol Spectrosc.* 2017; 184:368-81p.

Abstract:

Research in the field of medicinal plants including Piper species like long pepper (*Piper longum* L.- Piperaceae) is increasing all over the world due to its use in traditional and Ayurvedic medicine. Pipartine (piperlongumine, 5,6-dihydro-1-[(2E)-1-oxo-3-(3,4,5-trimethoxyphenyl)-2-propenyl]-2(1H)-pyridinone), a biologically active alkaloid/amide was isolated from the phytochemical investigations of Piper species, as long pepper. This alkaloid has cytotoxic, anti-fungal, anti-diabetic, anti-platelet aggregation, anti-tumoral, anxiolytic, anti-depressant, anti-leishmanial, and genotoxic activities, but, its anticancer property is the most promising and has been widely explored. The main purpose of the work is to present a solid state characterization of PPTN using thermal analysis and vibrational spectroscopy. Quantum mechanical calculations based on the density functional theory was also applied to investigate the molecular conformation

and vibrational spectrum, which was compared with experimental results obtained by Raman scattering, far (terahertz) and mid-infrared adsorption spectroscopy. NBO analysis has been performed which predict that most intensive interactions in PPTN are the hyperconjugative interactions between $n(1) N6$ and $\pi^*(O1C7)$ having delocalization energy of 50.53kcal/mol, Topological parameters have been analyzed using 'AIM' analysis which governs the three bond critical points (BCPs), one di-hydrogen, and four ring critical points (RCPs). MEP surface has been plotted which forecast that the most negative region is associated with the electronegative oxygen atoms (sites for nucleophilic activity). Theoretically, to confirm that the title compound has anti-cancer, anti-diabetic and anti-platelet aggregation activities, it was analyzed by molecular docking interactions with the corresponding target receptors. The obtained values of H-bonding parameters and binding affinity prove that its anti-cancer activity is the more prominent than the other properties.

Stanifer JW, Kilonzo K, Wang D et al. Traditional medicines and kidney disease in low- and middle-income countries: Opportunities and challenges. *Semin Nephrol.* 2017; 37(3):245-59p.

Abstract:

Traditional medicines are a principal form of health care for many populations, particularly in low- and middle-income countries, and they have gained attention as an important means of health care coverage globally. In the context of kidney diseases, the challenges and opportunities presented by traditional medicine practices are among the most important considerations for developing effective and sustainable public health strategies. However, little is known about the practices of traditional medicines in relation to kidney diseases, especially concerning benefits and harms. Kidney diseases may be caused, treated, prevented, improved, or worsened by traditional medicines depending on the setting, the person, and the types, modes, and frequencies of traditional medicine use. Given the profound knowledge gaps, nephrology practitioners and researchers may be uniquely positioned to facilitate more optimal public health strategies through recognition and careful investigation of traditional medicine practices. Effective implementation of such strategies also will require local partnerships, including engaging practitioners and users of traditional medicines. As such, practitioners and researchers investigating kidney diseases may be uniquely positioned to bridge the cultural, social, historical, and biologic differences between biomedicine and traditional medicine, and they have opportunities to lead efforts in developing public health strategies that are sensitive to these differences.

Yadav D, Reshi MS, Uthra C et al. Botanical and Chemical Fingerprinting of Medicinal Roots of *Justicia gendarussa* Burm f. *Pharmacognosy Res.* 2017; 9(2):208-14p.

Abstract:

Background: *Justicia gendarussa* Burm f. of family Acanthaceae is medicinally important herb used in the treatment of inflammatory disorders, asthma, hepatic injuries, pathogenic infection and also shows antiproliferative activity against various cancer cell lines.

Materials and Methods: Pharmacognostical evaluation (macro-microscopy, physicochemical analysis and preliminary phytochemical analysis), high-performance thin layer chromatography (HPTLC) fingerprinting and chemical profiling by gas

chromatography-mass spectrometry (GCMS) of dried roots of *J. gendarussa* were done according to quality standard procedures.

Results: Microscopic analysis revealed the compact arrangement of cells in cork region and thin-walled cortex beneath epidermis. Parenchymatous cells with xylem vessel were observed in the roots of *J. gendarussa*. Physicochemical studies revealed loss on drying (10.474%), total ash (2.990%), acid-insoluble ash (0.099%), water-soluble ash (1.528%), alcohol-soluble extractive value (0.564%) and water-soluble extractive value (4.11%) of the raw drug. Preliminary phytochemical analysis of ethanolic extract of *J. gendarussa* showed the presence of alkaloid, steroid, flavonoid, phenol, carbohydrate, saponin and quinone. Rf, color of the spots and densitometric scan were recorded by HPTLC fingerprinting using toluene: ethyl acetate: formic acid (5.0:4.0:1.0). On photodocumentation, six spots were visualized under 254 nm, nine spots under 360 nm and six spots at 620 nm. Identification of components in ethanolic extract of *J. gendarussa* was done by GC-MS. GC-MS results in the presence of oleic acid, 9,12-octadecadienoic acid, 6,9,12-octadecatrienoic acid and estra-1, 3,5 (10)-trein-17- β -ol in ethanolic extract of *J. gendarussa*.

Conclusion: These specific identities will be useful in identification and authentication of the raw drug in dried form.

Summary: Transverse section and powder of dried roots of *Justicia gendarussa* were examined microscopically. Microscopic observations showed the presence of well-developed cork and cortex. Presence of xylem vessels and parenchymatic rays were observed in transverse section. Parenchymatous cell and sclereids with vessel elements were found in powder microscopy. Physicochemical studies revealed loss on drying (10.474%), total ash (2.990%), acid-insoluble ash (0.099%), water-soluble ash (1.528%), alcohol-soluble extract (0.564%) and water-soluble extract (4.11%). Preliminary phytochemical analysis of ethanolic extract of *J. gendarussa* showed the presence of alkaloid, steroid, flavonoid, phenol, carbohydrate, saponin and quinone. High-performance thin layer chromatography fingerprinting showed different peaks at different wavelength. Chemical profiling of medicinal roots of *J. gendarussa* by gas chromatography-mass spectrometry revealed the presence of oleic acid, 9,12-octadecadienoic acid, 6,9,12-octadecatrienoic acid and estra-1,3,5 (10)-trein-17- β -ol as bioactive compound. Abbreviations Used: TLC: Thin layer chromatography; HPTLC: High performance thin layer chromatography; GCMS: Gas chromatography-mass spectrometry; QSIMP: Quality standard of indian medicinal plant; LOD: Loss on drying; TA: Total ash; AIA: Acid insoluble ash; WSA: Water soluble ash; ASE: Alcohol soluble extractive; WSE: Water soluble extractive.

Zhang BB, Li WK, Hou WY et al. Zuotai and HgS differ from HgCl₂ and methyl mercury in Hg accumulation and toxicity in weanling and aged rats. *Toxicol Appl Pharmacol.* 2017; May 20. pii: S0041-008X(17)30227-2. doi: 10.1016/j.taap.2017.05.021.

Abstract:

Mercury sulfides are used in Ayurvedic medicines, Tibetan medicines, and Chinese medicines for thousands of years and are still used today. Cinnabar (α -HgS) and metacinnabar (β -HgS) are different from mercury chloride (HgCl₂) and methylmercury (MeHg) in their disposition and toxicity. Whether such scenario applies to weanling

and aged animals is not known. To address this question, weanling (21d) and aged (450d) rats were orally given Zuotai (54% β -HgS, 30mg/kg), HgS (α -HgS, 30mg/kg), HgCl₂ (34.6mg/kg), or MeHg (MeHgCl, 3.2mg/kg) for 7days. Accumulation of Hg in kidney and liver, and the toxicity-sensitive gene expressions were examined. Animal body weight gain was decreased by HgCl₂ and to a lesser extent by MeHg, but unaltered after Zuotai and HgS. HgCl₂ and MeHg produced dramatic tissue Hg accumulation, increased kidney (kim-1 and Ngal) and liver (Ho-1) injury-sensitive gene expressions, but such changes are absent or mild after Zuotai and HgS. Aged rats were more susceptible than weanling rats to Hg toxicity. To examine roles of transporters in Hg accumulation, transporter gene expressions were examined. The expression of renal uptake transporters Oat1, Oct2, and Oatp4c1 and hepatic Oatp2 was decreased, while the expression of renal efflux transporter Mrp2, Mrp4 and Mdr1b was increased following HgCl₂ and MeHg, but unaffected by Zuotai and HgS. Thus, Zuotai and HgS differ from HgCl₂ and MeHg in producing tissue Hg accumulation and toxicity, and aged rats are more susceptible than weanling rats. Transporter expression could be adaptive means to reduce tissue Hg burden.

UNANI MEDICINE

Husain GM, Ahmed SS, Azhar M et al. Comparative toxicity study on classical and modified version of Jawarish Jalinoos (a traditional Unani formulation) in rats. *Integr Med Res.* 2017 ; 6(1):66-78p.

Abstract:

Background: Jawarish Jalinoos (JJ) is a classical semisolid traditional Unani formulation clinically used for the treatment of weakness of vital organs, liver, and stomach. Although JJ has been widely used clinically for several decades, no scientific report is available for its safety.

Methods: JJ and its sugar-free tablet version (SFJJ; formulated to target diabetic population) were assessed for safety in rats. Ninety-day repeated dose oral toxicity study was performed as per the Organisation for Economic Co-operation and Development Guideline 408. JJ was orally administered at the dose of 2000 mg/kg bw/d, whereas SFJJ was orally administered at the doses of 506 mg/kg body weight (bw)/d, 1012 mg/kg bw/d, and 2024 mg/kg bw/d for 90 days. The animals were periodically observed for clinical signs of toxicity, mortality, morbidity, body weight changes, and feed consumption. At the end of the study, hematology, clinical biochemistry, electrolytes, gross pathology, relative organ weight, and histological examination were performed.

Results: Treatment with SFJJ and JJ showed no significant differences in body weight gain, feed consumption, hematology, clinical biochemistry, and serum electrolytes. No gross pathological findings and differences in relative organ weights were observed between control and drug treated rats. Histological examination revealed no toxicologically significant abnormalities related with SFJJ or JJ treatment.

Conclusion: The 90-day repeated dose oral toxicity study demonstrates that the no observed adverse effect level of SFJJ and JJ is greater than 2024 mg/kg bw/d and 2000 mg/kg bw/d (p.o.) in rats, respectively. Both formulations were found to be safe up to the tested dose levels and experimental conditions, and therefore safe for clinical use as specified in the literature.

Kasote DM, Jagtap SD, Thapa D et al. Herbal remedies for urinary stones used in India and China: A review. *J Ethnopharmacol.* 2017; 203:55-68p.

Abstract:

Ethanopharmacological Relevance: The process of formation or appearance of a urinary stone anywhere in the renal tract is known as urolithiasis. It is a longstanding health problem, known to exist since early age of civilization. Records about symptoms, signs and treatment strategies of urinary stones diseases are found in the several ancient texts of traditional medicines such as Ayurveda, Traditional Chinese Medicine (TCM), Siddha and Unani. In Ayurveda, urolithiasis has been considered as one of the eight most troublesome diseases. Ayurvedic management and cure of urinary stone involves herbal formulas, alkaline liquids and surgical procedures. Whereas, TCM recommends polyherbal drugs, acupuncture and mexibustion for

treatment of the urinary stones. Among these therapies, herbal remedies are in practice till today for the treatment and cure urinary stone diseases.

Materials and Methods: A comprehensive review of the scientific literature about pathophysiology of urinary stones and antiurolithiatic plants was undertaken using the following bibliographic databases: MEDLINE/PubMed, Scopus, Web of Knowledge and Google Scholar. The search was conducted from publications from all years until Dec., 2015 by combination of the search terms and Boolean operators; 'urinary stone' OR 'kidney stone' AND 'plant' OR 'medicine' OR 'antiurolithiatic plants'. Outputs were restricted to those completed studies only published in English. In this review, literatures about plants which are used as diuretic and/or in treatment urinary tract infections have not also been considered. The Plant List and Royal Botanical Garden, Kew databases were used to authenticate botanical names of plants. Books and monographs published in English were used to collect information about historical records of antiurolithiatic plants.

Results: Recent pharmacological interventions accredited ancient antiurolithiatic claims to several plants and their formulations. The majority of antiurolithiatic plants were found to either dissolve the stones or inhibit the process of urinary stone formation. Plants such as *Phyllanthus niruri* L. and *Elymus repens* (L.) Gould, as well as herbal products including 'Wu-Ling-San' formula, 'Cystone' and 'Herbmed' have been proved their utility as promising antiurolithiatic medicines in the different phases of clinical trials. In addition, some of the isolated phytochemicals such as berberine, lupeol, khelin, visnagin, 7-hydroxy-2',4',5'-trimethoxyisoflavone and 7-hydroxy-4'-methoxyisoflavone were reported to have potent antiurolithiatic activity.

Conclusion: In ancient medicinal texts, antiurolithiatic potential has been ascribed to several plants and their formulations. Present scientific studies provide scientific evidences for few of these claims however, they are insufficient to establish many of these plants and herbal formulations as therapeutic remedies for the treatment and management of urinary stones. Conversely, findings of pre-clinical and clinical studies about some plants and herbal formulations are promising, which underlines the utility of herbal remedies as alternative medicines for the treatment and management of urinary stones in the future.

Nile SH, Nile AS, Keum YS. Total phenolics, antioxidant, antitumor, and enzyme inhibitory activity of Indian medicinal and aromatic plants extracted with different extraction methods. 3 Biotech. 2017; 7(1):76p.

Abstract:

The phenolic content, antioxidant, antitumor, and enzyme inhibitory activities of commonly used medicinal herbs from a Unani system of medicine were investigated using four different extraction methods. Among the plants studied, the *Hyssopus officinalis* L, *Origanum vulgare* L, and *Portulaca oleracea* L. extracts showed the highest amount of total phenolics (64.40, 60.35, and 58.81 mg GAE/g) and revealed significant antioxidant activities. The plants also showed a maximum cytotoxic activity as indicated by *H. officinalis* (82%), *O. vulgare* (75%), and *P. oleracea* (72%) showed more than 70% cytotoxicity for breast cancer cells, 82% of the cells were dead at the

concentration of 500 mg/mL. The plants *H. officinalis*, *P. oleracea*, *O. vulgare*, and *Rubia cordifolia* L. revealed more than 80% inhibition towards xanthine oxidase and comprising maximum 70% of inhibition for superoxide dismutase. From results we conclude that there is a strong correlation between phenolic content, antioxidant, and enzyme inhibitory activity among these plants, indicating phenolics are the major compounds for these biological activities. Furthermore, this study provides the basis for the therapeutic importance of studied plants as latent inhibitors of oxidative stress and antitumor cell proliferation which correlate with the ethnobotanical data contained in the Unani system of medicine.

Rudra S, Kalra A, Kumar A et al. Utilization of alternative systems of medicine as health care services in India: Evidence on AYUSH care from NSS 2014. *PLoS One*. 2017 ; 12(5):e0176916.

Abstract:

AYUSH, an acronym for Ayurveda, Yoga and Naturopathy, Unani, Siddha, Sowa-Rigpa and Homeopathy represents the alternative systems of medicine recognized by the Government of India. Understanding the patterns of utilization of AYUSH care has been important for various reasons including an increased focus on its mainstreaming and integration with biomedicine-based health care system. Based on a nationally representative health survey 2014, we present an analysis to understand utilization of AYUSH care across socioeconomic and demographic groups in India. Overall, 6.9% of all patients seeking outpatient care in the reference period of last two weeks have used AYUSH services without any significant differentials across rural and urban India. Importantly, public health facilities play a key role in provisioning of AYUSH care in rural areas with higher utilization in Chhattisgarh, Kerala and West Bengal. Use of AYUSH among middle-income households is lower when compared with poorer and richer households. We also find that low-income households display a greater tendency for AYUSH self-medication. AYUSH care utilization is higher among patients with chronic diseases and also for treating skin-related and musculo-skeletal ailments. Although the overall share of AYUSH prescription drugs in total medical expenditure is only about 6% but the average expenditure for drugs on AYUSH and allopathy did not differ hugely. The discussion compares our estimates and findings with other studies and also highlights major policy issues around mainstreaming of AYUSH care.

Venkatesh U, Javarasetty C, Murari SK. Purification and fractional analysis of methanolic extract of *wedelia trilobata* possessing apoptotic and anti-leukemic activity. *Afr J Tradit Complement Altern Med*. 2017; 14(3):167-174p.

Abstract:

Background: *Wedelia trilobata* (L.) Hitch (WT), commonly known as yellow dots or creeping daisy, is a shrub possessing potent biological activities, and is traditionally used a medicinal plant in Ayurveda, Siddha and Unani systems of medicines, and it has also been tried against leukemia cell line MEG- 01. In the present study, purification and screening of the plant was done for bioactive compounds in

methanolic extract of WT for apoptotic and anti-leukemia activity.

Materials and Methods: The methanolic extract of WT was initially purified through thin layer chromatography (TLC) and screened for the apoptotic and anti-leukemia activities. The positive band of TLC was subjected to silica gel column chromatography for further purification and the fractions obtained from it were screened again for anti-leukemia activity through thymidine uptake assay and apoptotic activity by DNA fragmentation, nuclear staining and flow cytometry assays. The fraction with positive result was subjected to HPLC for analysis of bioactive components.

Results: Out of many combinations of solvents, the methanol and dichloromethane combination in the ratio 6:4 has revealed two bands in TLC, among which the second band showed positive results for apoptotic and anti-leukemic activities. Further purification of second band through silica gel chromatography gave five fractions in which the 3rd fraction gave positive results and it shows single peak during compositional analysis through HPLC.

Conclusion: The single peak revealed through HPLC indicates the presence of pure compound with apoptotic and anti-leukemia activities encouraging for further structural analysis.

YOGA

Beri K. Impact of the "yogic lifestyle" on cancer prognosis and survival: Can we target cancer stem cells with yoga? *Int J Yoga.* 2017; 10(2):95-98p.

Abstract:

Cancer has recently been known to originate from stem cell-like cells, called cancer stem cells (CSCs). Their unique properties of self-duplication, multiplication, as well as migration give the CSC resistance over conventional cancer therapies. Newer therapies are in developmental stage to target these stem cell-like populations and become the vanguard of future treatments. Several complementary and alternative treatments have been used in cancer management as an adjunct to conventional therapy to improve the overall quality of life and reduce recurrence. Yoga stands as the third most popular of all complementary and alternative medicine treatments currently used in cancer patients today. Preliminary results show that yoga modulates neural, hormonal, and immune functions at a cellular level. The scope of this commentary is to discuss the current evidence-based medicine on yoga and its effect on CSCs.

Brosseau L, Taki J, Desjardins B et al. Ottawa panel clinical practice guidelines for the management of knee osteoarthritis. Part one: Introduction, and mind-body exercise programs. *Clin Rehabil.* 2017; 31(5):582-595p.

Abstract:

Objective: To identify effective mind-body exercise programs and provide clinicians and patients with updated, high-quality recommendations concerning non-traditional land-based exercises for knee osteoarthritis.

Methods: A systematic search and adapted selection criteria included comparative controlled trials with mind-body exercise programs for patients with knee osteoarthritis. A panel of experts reached consensus on the recommendations using a Delphi survey. A hierarchical alphabetical grading system (A, B, C+, C, D, D+, D-) was used, based on statistical significance ($P < 0.5$) and clinical importance ($\geq 15\%$ improvement).

Results: The four high-quality studies identified demonstrated that various mind-body exercise programs are promising for improving the management of knee osteoarthritis. Hatha Yoga demonstrated significant improvement for pain relief (Grade B) and physical function (Grade C+). Tai Chi Qigong demonstrated significant improvement for quality of life (Grade B), pain relief (Grade C+) and physical function (Grade C+). Sun style Tai Chi gave significant improvement for pain relief (Grade B) and physical function (Grade B).

Conclusion: Mind-body exercises are promising approaches to reduce pain, as well as to improve physical function and quality of life for individuals with knee osteoarthritis.

Chandra S, Jaiswal AK, Singh R et al. Mental stress: Neurophysiology and its regulation by sudarshan kriya yoga. *Int J Yoga.* 2017; 10(2): 67-72p.

Abstract:

Aim: The present study focuses on analyzing the effects of Sudarshan Kriya yoga (SKY) on EEG as well as ECG signals for stress regulation. To envision the regulation of stress Determination Test (DT) has been used. We have chosen a control group for contriving a cogent comparison that could be corroborated using statistical tests.

Subjects and Methods: A total of 20 subjects were taken in the study, of which 10 were allotted to a control group. Electroencephalograph was taken during a DT task, before and after SKY the sky session with 30 days of SKY session given to the experimental group. No SKY was given to the control group.

Results:

We quantified mental stress using EEG, ECG and DT synergistically and used SKY to regulate it. We observed that alpha band power decreases in the frontal lobe of the brain with increasing mental stress while frontal brain asymmetry decreases with increasing stress tolerance.

Conclusions: These EEG, ECG and DT shows a significant decrement in mental stress and improvement in cognitive performance after SKY, indicating SKY as a good alternative of medication for stress management.

Chauhan A, Semwal DK, Mishra SP et al. Yoga practice improves the body mass index and blood pressure: A randomized controlled trial. *Int J Yoga.* 2017; 10(2):103-06p.

Abstract:

Background: Yoga, an ancient Indian system of exercise and therapy is an art of good living or an integrated system for the benefit of the body, mind, and inner spirit. Regular practice of yoga can help to increase blood flow to the brain, reduce stress, have a calming effect on the nervous system, and greatly help in reducing hypertension.

Aim: Aim of the present study is to evaluate the effect of 1-month yoga practice on body mass index (BMI), and blood pressure (BP).

Materials and Methods: The present study was conducted to determine the effect of yoga practice on 64 participants (age 53.6 ± 13.1 years) (experimental group) whereas the results were compared with 26 healthy volunteers (control group). We examined the effects of yoga on physiological parameters in a 1-month pilot study. Most of the participants were learner and practiced yoga for 1 h daily in the morning for 1 month. BMI and BP (systolic and diastolic) were studied before and after 1 month of yoga

practice.

Results: Yoga practice causes decreased BMI (26.4 ± 2.5 - 25.22 ± 2.4), systolic BP (136.9 ± 22.18 mmHg to 133 ± 21.38 mmHg), and diastolic BP (84.7 ± 6.5 mmHg to 82.34 ± 7.6 mmHg). On the other hand, no significant changes were observed in BMI and BP of control group.

Conclusion: This study concludes that yoga practice has potential to control BMI and BP without taking any medication.

Cook Cottone C, Douglass LL. Yoga communities and eating disorders: Creating safe space for positive embodiment. *Int J Yoga Therap.* 2017; May 11. doi: 10.17761/IJYT2017_

Abstract:

With adequate education and guidance, yoga communities, as part of the therapeutic landscape in the 21st century, can play a significant role promoting positive embodiment for those with, and at-risk for, eating disorders (EDs). To do this, yoga teachers need to know how to create a body-positive community and be able to recognize and respond to those at risk and struggling with EDs in their communities. In order to address yoga teaching methods associated with EDs and ED risk, broader conceptual approaches and specific practices associated with positive embodiment are offered. These include the broader conceptual approaches of: intentional inclusion and acceptance, experiential emphasis, supporting positive embodiment and inquiry. Studio pragmatics are also detailed as related to the body, breath, emotions, and community. Assessment, referral, and community engagement are also addressed.

Curtis K, Hitzig SL, Bechsgaard G et al. Evaluation of a specialized yoga program for persons with a spinal cord injury: a pilot randomized controlled trial. *J Pain Res.* 2017; May 3;10:999-1017p.

Abstract:

Objectives: The purpose of this randomized controlled trial was to evaluate the effects of a specialized yoga program for individuals with a spinal cord injury (SCI) on pain, psychological, and mindfulness variables.

Materials and Methods: Participants with SCI (n=23) were outpatients or community members affiliated with a rehabilitation hospital. Participants were randomized to an Iyengar yoga (IY; n=11) group or to a 6-week wait-list control (WLC; n=12) group. The IY group participated in a twice-weekly 6-week seated IY program; the WLC group participated in the same yoga program, after the IY group's yoga program had ended. Pain, psychological, and mindfulness measures were collected at two time points for both groups (within 1-2 weeks before and after program 1 and at a third time point for the WLC group (within 1 week after program 2)).

Results: Linear mixed-effect growth models were conducted to evaluate the main effects of group at T2 (postintervention), controlling for T1 (preintervention) scores. T2 depression scores were lower ($F_{1,18}=6.1$, $P<0.05$) and T2 self-compassion scores higher ($F_{1,18}=6.57$, $P<0.05$) in the IY group compared to the WLC group. To increase sample size and power, the two groups were combined and analyzed across time by comparing pre- and postintervention scores. Main effects of time were found for depression scores, ($F_{1,14.83}=6.62$, $P<0.05$), self-compassion, ($F_{1,16.6}=4.49$, $P<0.05$), mindfulness ($F_{1,16.79}=5.42$, $P<0.05$), mindful observing ($F_{1,19.82}=5.06$, $P<0.05$), and mindful nonreactivity, ($F_{1,16.53}=4.92$, $P<0.05$), all showing improvement after the intervention.

Discussion: The results indicated that a specialized 6-week yoga intervention reduced depressive symptoms and increased self-compassion in individuals with SCI, and may also have fostered greater mindfulness.

Dahlke LA, Sable JJ, Andrasik F. Behavioral therapy: Emotion and pain, a common anatomical background. *Neurol Sci.* 2017; 38(Suppl 1):157-61p.

Abstract:

Emotion and pain are closely intertwined in the brain, as the human experience of pain includes both affective and nociceptive components. Although each of these components relies on a different system in the brain, the two systems converge on the anterior cingulate and insular cortices, which interact with the prefrontal cortex and other frontal structures to influence behavior. Both emotional and physical pain elicit activity in these common areas, and conditions that affect one system (e.g., drugs, neural plasticity) may affect the function of the other—ultimately altering the experience of pain. Changes in these areas and their connections may even contribute to the chronification of pain. This relationship should not be overlooked in the treatment of painful conditions, including headache. Nonpharmacological therapies, such as cognitive behavioral therapy, yoga, biofeedback, and meditation, that are often used for enhancing emotional regulation, are increasingly being turned to for augmenting management of migraine and pain. Because of the overlap between emotion and pain, these therapies are likely acting through similar mechanisms, and emotional cues can be sensitive indicators of treatment-related changes in patients.

Evans S, Ling M, Hill B et al. Systematic review of meditation-based interventions for children with ADHD. *Eur Child Adolesc Psychiatry.* 2017; May 25. doi: 10.1007/s00787-017-1008-9.

Abstract:

Meditation-based interventions such as mindfulness and yoga are commonly practiced in the general community to improve mental and physical health. Parents, teachers and healthcare providers are also increasingly using such interventions with children. This review examines the use of meditation-based interventions in the treatment of

children with Attention-Deficit Hyperactivity Disorder (ADHD). Electronic databases searched included PsycINFO, Medline, CINAHL, and AMED. Inclusion criteria involved children (aged to 18 years) diagnosed with ADHD, delivery of a meditation-based intervention to children and/or parents, and publication in a peer-reviewed journal. Studies were identified and coded using standard criteria, risk of bias was assessed using Risk of Bias in Non-randomised Studies- of interventions (ROBINS-I), and effect sizes were calculated. A total of 16 studies were identified (8 that included children in treatment, and 8 that included combined parent-child treatment). Results indicated that risk of bias was high across studies. At this stage, no definitive conclusions can be offered regarding the utility of meditation-based interventions for children with ADHD and/or their parents, since the methodological quality of the studies reviewed is low. Future well designed research is needed to establish the efficacy of meditation-based interventions, including commonly used practices such as mindfulness, before recommendations can be made for children with ADHD and their families.

Falkai P, Malchow B, Schmitt A. Aerobic exercise and its effects on cognition in schizophrenia. *Curr Opin Psychiatry*. 2017; 30(3):171-75p.

Abstract:

Purpose of Review: Schizophrenia is a severe neuropsychiatric disorder with incomplete remission because of negative and cognitive symptoms in a large proportion of patients. Antipsychotic medication is successful in modulating positive symptoms, but only to a lower extent negative symptoms including cognitive dysfunction. Therefore, development of innovative add-on treatment is highly needed. In this review, recent evidence from clinical studies reveals effects of aerobic exercise on cognitive deficits in schizophrenia patients.

Recent Findings: First studies and meta-analyses on aerobic exercise in schizophrenia patients have shown effects on positive, negative, and global symptoms and cognitive domains such as global cognition, working memory, and attention. Underlying neurobiological mechanisms such as neuroplasticity-related synaptogenesis and neurogenesis have been identified in animal studies and possibly mediate effects of aerobic exercise on brain structure and function.

Summary: Different aspects of methods (e.g., endurance training versus yoga and Tai Chi), length and dose of the intervention, supervision of patients by sports therapists as well as maintenance of cognitive improvement after cessation of training have been raised by previous studies. However, minimal and most effective dosage of the intervention and mechanisms underlying changes in neuroplasticity need to be answered in future basic and large-scale randomized clinical trials.

Garcia Sesnich JN, Flores MG, Rios MH et al. Longitudinal and immediate effect of kundalini yoga on salivary levels of cortisol and activity of alpha-amylase and its effect on perceived stress. *Int J Yoga*. 2017; 10(2): 73-80p.

Abstract:

Context: Stress is defined as an alteration of an organism's balance in response to a demand perceived from the environment. Diverse methods exist to evaluate physiological response. A noninvasive method is salivary measurement of cortisol and alpha-amylase. A growing body of evidence suggests that the regular practice of Yoga would be an effective treatment for stress.

Aims: To determine the Kundalini Yoga (KY) effect, immediate and after 3 months of regular practice, on the perception of psychological stress and the salivary levels of cortisol and alpha-amylase activity.

Settings and Design: To determine the psychological perceived stress, levels of cortisol and alpha-amylase activity in saliva, and compare between the participants to KY classes performed for 3 months and a group that does not practice any type of yoga.

Subjects and Methods: The total sample consisted of 26 people between 18 and 45-year-old; 13 taking part in KY classes given at the Faculty of Dentistry, University of Chile and 13 controls. Salivary samples were collected, enzyme-linked immunosorbent assay was performed to quantify cortisol and kinetic reaction test was made to determine alpha-amylase activity. Perceived Stress Scale was applied at the beginning and at the end of the intervention.

Statistical Analysis Used: Statistical analysis was applied using Stata v11.1 software. Shapiro-Wilk test was used to determine data distribution. The paired analysis was fulfilled by t-test or Wilcoxon signed-rank test. T-test or Mann-Whitney's test was applied to compare longitudinal data. A statistical significance was considered when $P < 0.05$.

Results: KY practice had an immediate effect on salivary cortisol. The activity of alpha-amylase did not show significant changes. A significant decrease of perceived stress in the study group was found.

Conclusions: KY practice shows an immediate effect on salivary cortisol levels and on perceived stress after 3 months of practice.

Ghosh K, Hankey A, Srinivasan TM. Effect of lotus posture on acupuncture meridian energies: A controlled trial. *Int J Yoga.* 2017; 10(2): 88-94p.

Abstract:

Background: Many studies have assessed Yoga practices using instruments such as AcuGraph, which measures conductances at Jing-Well points of acupuncture meridians. Such studies find that participation in Yoga programs ranging from a weekend to many months systematically increases subtle energy. Here, we report comparison of Jing-Well point conductances before and after sitting in Lotus Posture

with those before and after sitting in a chair.

Methods: This was a controlled study conducted on 52 male Yoga practitioners (mean age in years 23.03 ± 3.23), all with >1 year experience of Yoga practices. Participants were alternately assigned into two groups, sitting in Lotus Posture and sitting in a chair. Each was measured on 3 successive days, before and after sitting as instructed for 10 min on the 1st day, 20 min on the 2nd day, and 30 min on the 3rd day.

Results: The two groups yielded completely different results: those sitting in Lotus Posture for 30 min showed increases in subtle energy levels (E_Ls) in all acupuncture meridians; those sitting in chair produced universal decreases. Results for 10 and 20 min showed how these changes in energy values took time to build up with increasing time.

Conclusions: Sitting in Lotus Posture is held to strongly stimulate subtle E_Ls, so results agreed with the experimental hypothesis. Nevertheless, decreases in E_Ls of those sitting in a chair were surprising since the rest might be expected to have no effect.

Greenlee H, DuPont-Reyes MJ, Balneaves LG et al. Clinical practice guidelines on the evidence-based use of integrative therapies during and after breast cancer treatment. *CA Cancer J Clin.* 2017; 67(3):194-232p.

Abstract:

Answer questions and earn CME/CNE Patients with breast cancer commonly use complementary and integrative therapies as supportive care during cancer treatment and to manage treatment-related side effects. However, evidence supporting the use of such therapies in the oncology setting is limited. This report provides updated clinical practice guidelines from the Society for Integrative Oncology on the use of integrative therapies for specific clinical indications during and after breast cancer treatment, including anxiety/stress, depression/mood disorders, fatigue, quality of life/physical functioning, chemotherapy-induced nausea and vomiting, lymphedema, chemotherapy-induced peripheral neuropathy, pain, and sleep disturbance. Clinical practice guidelines are based on a systematic literature review from 1990 through 2015. Music therapy, meditation, stress management, and yoga are recommended for anxiety/stress reduction. Meditation, relaxation, yoga, massage, and music therapy are recommended for depression/mood disorders. Meditation and yoga are recommended to improve quality of life. Acupressure and acupuncture are recommended for reducing chemotherapy-induced nausea and vomiting. Acetyl-L-carnitine is not recommended to prevent chemotherapy-induced peripheral neuropathy due to a possibility of harm. No strong evidence supports the use of ingested dietary supplements to manage breast cancer treatment-related side effects. In summary, there is a growing body of evidence supporting the use of integrative therapies, especially mind-body therapies, as effective supportive care strategies during breast cancer treatment. Many integrative practices, however, remain understudied, with insufficient evidence to be definitively recommended or avoided. *CA Cancer J Clin* 2017;67:194-232. © 2017 American Cancer Society.

Hilfiker R, Meichtry A, Eicher M et al. Exercise and other non-pharmaceutical

interventions for cancer-related fatigue in patients during or after cancer treatment: A systematic review incorporating an indirect-comparisons meta-analysis. *Br J Sports Med.* 2017; May 13. pii: bjsports-2016-096422.

Abstract:

Aim: To assess the relative effects of different types of exercise and other non-pharmaceutical interventions on cancer-related fatigue (CRF) in patients during and after cancer treatment.

Design: Systematic review and indirect-comparisons meta-analysis.

Data Sources: Articles were searched in PubMed, Cochrane CENTRAL and published meta-analyses.

Eligibility Criteria for Selecting Studies: Randomised studies published up to January 2017 evaluating different types of exercise or other non-pharmaceutical interventions to reduce CRF in any cancer type during or after treatment.

Study Appraisal and Synthesis: Risk of bias assessment with PEDro criteria and random effects Bayesian network meta-analysis.

Results: We included 245 studies. Comparing the treatments with usual care during cancer treatment, relaxation exercise was the highest ranked intervention with a standardised mean difference (SMD) of -0.77 (95% Credible Interval (CrI) -1.22 to -0.31), while massage (-0.78; -1.55 to -0.01), cognitive-behavioural therapy combined with physical activity (combined CBT, -0.72; -1.34 to -0.09), combined aerobic and resistance training (-0.67; -1.01 to -0.34), resistance training (-0.53; -1.02 to -0.03), aerobic (-0.53; -0.80 to -0.26) and yoga (-0.51; -1.01 to 0.00) all had moderate-to-large SMDs. After cancer treatment, yoga showed the highest effect (-0.68; -0.93 to -0.43). Combined aerobic and resistance training (-0.50; -0.66 to -0.34), combined CBT (-0.45; -0.70 to -0.21), Tai-Chi (-0.45; -0.84 to -0.06), CBT (-0.42; -0.58 to -0.25), resistance training (-0.35; -0.62 to -0.08) and aerobic (-0.33; -0.51 to -0.16) showed all small-to-moderate SMDs.

Conclusions: Patients can choose among different effective types of exercise and non-pharmaceutical interventions to reduce CRF.

Kasote DM, Jagtap SD, Thapa D et al. Herbal remedies for urinary stones used in India and China: A review. *J Ethnopharmacol.* 2017; 203:55-68p.

Abstract:

Ethnopharmacological Relevance: The process of formation or appearance of a urinary stone anywhere in the renal tract is known as urolithiasis. It is a longstanding health problem, known to exist since early age of civilization. Records about symptoms, signs and treatment strategies of urinary stones diseases are found in the several ancient texts of traditional medicines such as Ayurveda, Traditional Chinese

Medicine (TCM), Siddha and Unani. In Ayurveda, urolithiasis has been considered as one of the eight most troublesome diseases. Ayurvedic management and cure of urinary stone involves herbal formulas, alkaline liquids and surgical procedures. Whereas, TCM recommends polyherbal drugs, acupuncture and mexibustion for treatment of the urinary stones. Among these therapies, herbal remedies are in practice till today for the treatment and cure urinary stone diseases.

Materials and Methods: A comprehensive review of the scientific literature about pathophysiology of urinary stones and antiurolithiatic plants was undertaken using the following bibliographic databases: MEDLINE/PubMed, Scopus, Web of Knowledge and Google Scholar. The search was conducted from publications from all years until Dec., 2015 by combination of the search terms and Boolean operators; 'urinary stone' OR 'kidney stone' AND 'plant' OR 'medicine' OR 'antiurolithiatic plants'. Outputs were restricted to those completed studies only published in English. In this review, literatures about plants which are used as diuretic and/or in treatment urinary tract infections have not also been considered. The Plant List and Royal Botanical Garden, Kew databases were used to authenticate botanical names of plants. Books and monographs published in English were used to collect information about historical records of antiurolithiatic plants.

Results: Recent pharmacological interventions accredited ancient antiurolithiatic claims to several plants and their formulations. The majority of antiurolithiatic plants were found to either dissolve the stones or inhibit the process of urinary stone formation. Plants such as *Phyllanthus niruri* L. and *Elymus repens* (L.) Gould, as well as herbal products including 'Wu-Ling-San' formula, 'Cystone' and 'Herbmed' have been proved their utility as promising antiurolithiatic medicines in the different phases of clinical trials. In addition, some of the isolated phytochemicals such as berberine, lupeol, khelin, visnagin, 7-hydroxy-2',4',5'-trimethoxyisoflavone and 7-hydroxy-4'-methoxyisoflavone were reported to have potent antiurolithiatic activity.

Conclusion: In ancient medicinal texts, antiurolithiatic potential has been ascribed to several plants and their formulations. Present scientific studies provide scientific evidences for few of these claims however, they are insufficient to establish many of these plants and herbal formulations as therapeutic remedies for the treatment and management of urinary stones. Conversely, findings of pre-clinical and clinical studies about some plants and herbal formulations are promising, which underlines the utility of herbal remedies as alternative medicines for the treatment and management of urinary stones in the future.

Kinser PA, Pauli J, Jallo N et al. Physical activity and yoga-based approaches for pregnancy-related low back and pelvic pain. *J Obstet Gynecol Neonatal Nurs.* 2017; 46(3):334-46p.

Abstract:

Objective: To conduct an integrative review to evaluate current literature about nonpharmacologic, easily accessible management strategies for pregnancy-related low

back and pelvic pain (PR-LBPP).

Data Sources: PubMed, CINAHL, Cochrane Database of Systematic Reviews.

Study Selection: Original research articles were considered for review if they were full-length publications written in English and published in peer-reviewed journals from 2005 through 2015, included measures of pain and symptoms related to PR-LBPP, and evaluated treatment modalities that used a physical exercise or yoga-based approach for the described conditions.

Data Extraction: Electronic database searches yielded 1,435 articles. A total of 15 articles met eligibility criteria for further review.

Data Synthesis: These modalities show preliminary promise for pain relief and other related symptoms, including stress and depression. However, our findings also indicate several gaps in knowledge about these therapies for PR-LBPP and methodologic issues with the current literature.

Conclusion: Although additional research is required, the results of this integrative review suggest that clinicians may consider recommending nonpharmacologic treatment options, such as gentle physical activity and yoga-based interventions, for PR-LBPP and related symptoms.

Kotwas I, Mcgonigal A, Bastien Toniazzo M et al. Stress regulation in drug-resistant epilepsy. *Epilepsy Behav.* 2017; 71(Pt A):39-50p.

Abstract:

The prevalence of psychological distress, especially depressive and anxiety disorders, is higher in epilepsy than in other chronic health conditions. These comorbid conditions contribute even more than epileptic seizures themselves to impaired quality of life in patients with epilepsy (PWE). The link between these comorbidities and epilepsy appears to have a neurobiological basis, which is at least partly mediated by stress through psychological and pathophysiological pathways. The impact of stress in PWE is also particularly important because it is the most frequently reported seizure trigger. It is therefore crucial for clinicians to take stress-related conditions and psychiatric comorbidities into account when managing PWE and to propose clinical support to enhance self-control of stress. Screening tools have been specially designed and validated in PWE for depressive disorders and anxiety disorders (e.g. NDDI-E, GAD-7). Other instruments are useful for measuring stress-related variables (e.g. SRRS, PSS, SCS, MHLCS, DSR-15, ERP-R, QOLIE-31) in order to help characterize the individual "stress profile" and thus orientate patients towards the most appropriate treatment. Management includes both pharmacological treatment and nonpharmacological methods for enhancing self-management of stress (e.g. mindfulness-based therapies, yoga, cognitive-behavioral therapies, biofeedback), which may not only protect against psychiatric comorbidities but also reduce seizure

frequency.

Langhorst J, Heldmann P, Henningsen P et al. Complementary and alternative procedures for fibromyalgia syndrome : Updated guidelines 2017 and overview of systematic review articles. *Schmerz*. 2017; May 10. doi: 10.1007/s00482-017-0206-1

Abstract:

Background: The regular update of the guidelines on fibromyalgia syndrome, AWMF number 145/004, was scheduled for April 2017.

Methods: The guidelines were developed by 13 scientific societies and 2 patient self-help organizations coordinated by the German Pain Society. Working groups (n =8) with a total of 42 members were formed balanced with respect to gender, medical expertise, position in the medical or scientific hierarchy and potential conflicts of interest. A search of the literature for systematic reviews of randomized controlled trials of complementary and alternative therapies from December 2010 to May 2016 was performed in the Cochrane library, MEDLINE, PsycINFO and Scopus databases. Levels of evidence were assigned according to the classification system of the Oxford Centre for Evidence-Based Medicine version 2009. The strength of recommendations was formed by multiple step formalized procedures to reach a consensus. Efficacy, risks, patient preferences and applicability of available therapies were weighed up against each other. The guidelines were reviewed and approved by the board of directors of the societies engaged in the development of the guidelines.

Results and Conclusion: Meditative movement therapies (e.g. qi gong, tai chi and yoga) are strongly recommended. Acupuncture and weight reduction in cases of obesity can be considered.

Lauche R, Schumann D, Sibbritt D et al. Associations between yoga practice and joint problems: A cross-sectional survey among 9151 Australian women. *Rheumatol INT*. 2017; May 22. doi: 10.1007/s00296-017-3744-z.

Abstract:

Yoga exercises have been associated with joint problems recently, indicating that yoga practice might be potentially dangerous for joint health. This study aimed to analyse whether regular yoga practice is associated with the frequency of joint problems in upper middle-aged Australian women. Women aged 62-67 years from the Australian Longitudinal Study on Women's Health (ALSWH) were questioned in 2013 whether they experienced regular joint pain or problems in the past 12 months and whether they regularly practiced yoga. Associations of joint problems with yoga practice were analysed using Chi-squared tests and multiple logistic regression modelling. Of 9151 women, 29.8% reported regular problems with stiff or painful joints, and 15.2, 11.9, 18.1 and 15.9% reported regular problems with shoulders, hips, knees and feet,

respectively, in the past 12 months. Yoga was practiced sometimes by 10.1% and often by 8.4% of women. Practicing yoga was not associated with upper or lower limb joint problems. No association between yoga practice and joint problems has been identified. Further studies are warranted for conclusive judgement of benefits and safety of yoga in relation to joint problems.

Leeman Markowski BA, Schachter SC. Cognitive and behavioral interventions in epilepsy. *Curr Neurol Neurosci Rep.* 2017;17(5):42p.

Abstract:

Purpose of Review: Cognitive and behavioral treatments for epilepsy offer several advantages, as they are relatively low cost, are non-invasive, lack serious side effects, and facilitate patient participation. Their role in the management of epilepsy, however, is unclear. The following manuscript will critically review the efficacy data regarding psychological treatments for seizure reduction.

Recent Findings: Encouraging results have been found for the cognitive behavioral therapy-based Reiter/Andrews approach and mindfulness or arousal-based programs (e.g., yoga, meditation, relaxation, and biofeedback). Most studies attained responder rates between 45 and 90%. Cognitive and behavioral interventions may be considered as low-risk adjuncts to standard therapies. Efficacy data are limited, however, by small numbers of subjects, inadequate randomization, controls, and blinding, brief trial durations, varying methodologies, and variability in the presentation of results. Additional clinical trials are warranted.

Loree AM, Ondersma SJ, Grekin ER. Toward enhancing treatment for pregnant smokers: Laying the groundwork for the use of complementary and alternative medicine approaches. *Nicotine Tob Res.* 2017; 19(5):562-71p.

Abstract:

Introduction: Although effective treatments exist, most women who smoke during pregnancy neither seek nor receive treatment. Complementary and alternative medicine (CAM) treatments (eg, mindfulness, yoga, and acupuncture) may be attractive, low-cost options that can be used to assist a large proportion of pregnant women with smoking cessation.

Methods: This study examined participant characteristics and treatment utilization among pregnant smokers in the National Survey on Drug Use and Health (NSDUH) and the National Health Interview Survey (NHIS) in order to explore the prevalence and predictors of CAM use for any purpose within this population.

Results: Results indicated that a considerable proportion (6.9%-29.1%) of pregnant smokers are already accessing CAM, particularly Whites and those of greater

socioeconomic status. Use of yoga, meditation, and massage increased across study waves. NSDUH participants were most likely to report seeking chiropractic or massage therapy; NHIS participants most frequently reported use of herbs/supplements, deep breathing, and meditation.

Conclusions: Up to roughly a quarter of women endorsed traditional/conventional and CAM treatment use, suggesting that some pregnant smokers are open to trying a variety of approaches to promote health. Further research is needed to validate CAM treatments for smoking cessation and to guide safety and treatment recommendations during pregnancy.

Implications: CAM treatments may be an attractive treatment alternative for pregnant smokers. However, no previous investigations have examined whether pregnant smokers seek out these treatments. Using nationally representative survey data, the present study aimed to explore whether pregnant smokers use CAM treatments. We found that approximately 7%-29% of pregnant smokers reported using a variety of CAM methods, suggesting the need for further investigation into the efficacy and dissemination of CAM for smoking in pregnancy.

Mace Firebaugh CJ, Eggleston B. Hydration and hot yoga: Encouragement, behaviors, and outcomes. *Int J Yoga.* 2017; 10(2):107-09p.

Abstract:

Context: Currently, the literature on hot yoga is lacking, and there is still much to understand regarding the safety of these practices. However, one point of safety often emphasized is hydration during the practice of hot yoga.

Aim: The aim of this study was to examine hydration encouragement by hot yoga instructors and hydration behaviors and related outcomes by hot yoga participants.

Methods: A cross-sectional study (n = 700) collected self-report data on demographics, types and frequency of yoga practiced, hydration behaviors, and self-report measures of adverse outcomes experienced by participants during hot yoga. Associations between hydration encouragement, protective behaviors, and adverse outcomes were analyzed through Chi-square tests.

Results: Every protective hydration behavior was significantly associated with instructor encouragement (P < 0.05). Hydration before or during hot yoga participation was associated with a lower occurrence of dehydration symptoms (P < 0.05).

Conclusions: Hot yoga instructors hold a key role in encouraging hydration and student safety outcomes.

Manik RK, Mahapatra AK, Gartia R et al. Effect of selected yogic practices on pain and disability in patients with lumbar spondylitis. *Int J Yoga.* 2017; 10(2):

81-87p.

Abstract:

Aim: The study was designed to find the effect of selected yogic practices on lumbar spondylitis.

Materials and Methods: This was a prospective, randomized study without a control trial. A total of 172 participants with lumbar spondylitis (age 21-79 years) from the outpatient department (OPD) of neurosurgery, AIIMS, Bhubaneswar, were randomly assigned to receive yoga therapy. The module of selected yogic practices consisted of pawanamuktasana series 1 (loosening and strengthening), asana, pranayama, and relaxation techniques Yoga Nidra.

Statistics Analysis: Within groups, comparison was done by paired t-test, and between groups, ANOVA test was carried out to determine the significant difference among the various groups under study. Correlation regression analysis was done to measure the degree of linear relationship between pre- and post-study for various groups.

Results: Significant differences were observed with yoga therapy in instant relieve practice group, in short-term practice group, and in long-term practice group (LTPG) with better results in LTPG.

Conclusion: Selected yoga therapy has got the better result in management of pain in lumbar spondylitis.

McCaffrey R, Park J, Newman D. Chair yoga: Feasibility and sustainability study with older community-dwelling adults with osteoarthritis. *Holist Nurs Pract.* 2017; 31(3):148-157p.

Abstract:

This study measured the feasibility of completing a randomized control trial on an 8-week seated yoga program for older adults with osteoarthritis. Part of the feasibility of this program was to determine whether participants would continue the yoga practice at home using a guide book after the 8-week program. Findings demonstrated that once participants were not in a group setting for the yoga, they did not continue with yoga practice. This outcome demonstrates the need for group programs for older adults to promote adherence to movement-based programs. (Trial registration: ClinicalTrials.Gov: NCT02113410).

Millstine D, Chen CY, Bauer B. Complementary and integrative medicine in the management of headache. *BMJ.* 2017; 357:j1805.

Abstract:

Headaches, including primary headaches such as migraine and tension-type headache, are a common clinical problem. Complementary and integrative medicine (CIM), formerly known as complementary and alternative medicine (CAM), uses evidence informed modalities to assist in the health and healing of patients. CIM commonly includes the use of nutrition, movement practices, manual therapy, traditional Chinese medicine, and mind-body strategies. This review summarizes the literature on the use of CIM for primary headache and is based on five meta-analyses, seven systematic reviews, and 34 randomized controlled trials (RCTs). The overall quality of the evidence for CIM in headache management is generally low and occasionally moderate. Available evidence suggests that traditional Chinese medicine including acupuncture, massage, yoga, biofeedback, and meditation have a positive effect on migraine and tension headaches. Spinal manipulation, chiropractic care, some supplements and botanicals, diet alteration, and hydrotherapy may also be beneficial in migraine headache. CIM has not been studied or it is not effective for cluster headache. Further research is needed to determine the most effective role for CIM in patients with headache.

Nagashree RS, Manjunath NK, M Indu et al. Effect of a diet enriched with fresh coconut saturated fats on plasma lipids and erythrocyte fatty acid composition in normal adults. *J Am Coll Nutr.* 2017 ; May 16:1-5p.

Abstract:

Objective: The objective of this study was to compare the effects of increased saturated fatty acid (SFA) (provided by fresh coconut) versus monounsaturated fatty acid (MUFA) intake (provided by a combination of groundnuts and groundnut oil) on plasma lipids and erythrocyte fatty acid (EFA) composition in healthy adults.

Material and Methods: Fifty-eight healthy volunteers, randomized into 2 groups, were provided standardized diet along with 100 g fresh coconut or groundnuts and groundnut oil combination for 90 days in a Yoga University. Fasting blood samples were collected before and after the intervention period for the measurement of plasma lipids and EFA profile.

Results: Coconut diet increased low-density lipoprotein (LDL) and high-density lipoprotein (HDL) levels significantly. In contrast, the groundnut diet decreased total cholesterol (TC), mainly due to a decrease in HDL levels. There were no differences in the major SFA of erythrocytes in either group. However, coconut consumption resulted in an increase in C14:0 and C24:0 along with a decrease in levels of C18:1 n9 (oleic acid). There was a significant increase in levels of C20:3 n6 (dihomo-gamma linolenic acid, DGLA).

Conclusions: Consumption of SFA-rich coconut for 3 months had no significant deleterious effect on erythrocytes or lipid-related factors compared to groundnut consumption. On the contrary, there was an increase in the anti-atherogenic HDL

levels and anti-inflammatory precursor DGLA in erythrocyte lipids. This suggests that coconut consumption may not have any deleterious effects on cardiovascular risk in normal subjects.

Nivethitha L, Manjunath NK, Mooventhan A. Heart rate variability changes during and after the practice of bhramari pranayama. *Int J Yoga.* 2017; 10(2):99-102p.

Abstract:

Background: Yoga is an ancient Indian science as well as the way of life. Pranayama is one of the most important yogic practices. Bhramari pranayama was shown to produce a reduction in blood pressure after the practice and thus reported to produce parasympathetic activity. However, there are no known studies reported the heart rate variability (HRV) changes either during or after the practice of Bhramari. Hence, this study aims at evaluating the HRV changes during and after the practice.

Materials and Methods: Sixteen (9 males, 7 females) healthy volunteers with the mean \pm standard deviation age of 23.50 ± 3.01 years were recruited. All the subjects performed Bhramari pranayama for the duration of 5 min. Assessments were taken before, during, and immediately after the practice of pranayama. Statistical analysis was performed using students paired samples t-test, Wilcoxon signed-ranks test and repeated measures of analysis of variance and Post-hoc analysis with Bonferroni adjustment for multiple comparisons.

Results: Results of this study showed a significant increase in HR and low frequency spectrum of HRV and a significant reduction in high frequency spectrum of HRV during the practice of Bhramari which revert to normal after the practice.

Conclusion: Results of this study suggests that there might be a parasympathetic withdrawal during the practice of Bhramari. However, further studies are required to warrant the findings of this study.

Noradechanunt C, Worsley A, Groeller H. Thai Yoga improves physical function and well-being in older adults: A randomised controlled trial. *J Sci Med Sport.* 2017; 20(5): 494-501p.

Abstract:

Objectives: Compare two 12-week low-intensity exercise regimens on components of physical function and quality of life in community-dwelling healthy yet sedentary adults aged over 60.

Design: This study used a randomised, multi-arm, controlled trial design.

Methods: Thirty-nine sedentary participants (29 women), aged 67.7 ± 6.7 years were randomly allocated to either a 12-week Thai Yoga (TY) or Tai Chi (TC) for 90min twice

per week, or telephone counselling Control (C). A Senior Fitness Test (chair-stand, arm-curl, sit-&-reach, back-scratch, 8-foot up-&-go and 6-min walk) and Short-Form 36 Health Survey, Centre for Epidemiological Studies of Depression, Physical Activity Scale for the Elderly and the Physical Activity Enjoyment Scale were assessed at baseline, six, 12 weeks, and three months after the completion of the regimen.

Results: After 12 weeks, chair-stand (mean difference, 2.69; 95% CI, 0.97-4.41; $P<0.001$), arm-curl (2.23; 95% CI, 0.06-4.52; $P=0.009$), sit-&-reach (1.25; 95% CI, 0.03-2.53; $P=0.013$), back-scratch (2.00; 95% CI, 0.44-3.56; $P=0.005$), 8-foot up-&-go (-0.43; 95% CI, -0.85 to 0.01; $P=0.013$), 6-min walk (57.5; 95% CI, 20.93-94.07; $P<0.001$), vitality (13.27; 95% CI, 2.88-23.66; $P=0.050$) and enjoyment (7.96; 95% CI, 3.70-12.23; $P=0.001$) significantly improved in TY compared to C, however no change was observed in TC compared to C. TY improved in chair-stand (2.31; 95% CI, 0.59-4.03; $P=0.007$), sit-&-reach (1.38; 95% CI, 0.10-2.66; $P=0.007$), 6-min walk (32.31; 95% CI, -4.26-68.88; $P=0.015$), vitality (12.88; 95% CI, 2.50-23.27; $P=0.040$) and enjoyment (5.65; 95% CI, 1.39-9.92; $P=0.010$) compared to TC after 12 weeks.

Conclusions: The findings suggest that older adults can make significant improvements in their health and well-being by engaging in low intensity Thai Yoga exercise.

Rathore M, Trivedi S, Abraham J et al. Anatomical correlation of core muscle activation in different yogic postures. *Int J Yoga*. 2017; 10(2): 59-66p.

Abstract:

Faulty postures due to sedentary lifestyle cause weakening of core muscles which contributes to increased incidence of musculoskeletal disorders (MSDs). Although a few research studies have quantified the core muscle activity in various yogic exercises used in rehabilitation programs, evidence correlating it to functional anatomy is scarce. Such information is important for exercise prescription when formulating treatment plans for MSDs. Therefore, the objective of this review article is to examine the literature and analyze the muscle activity produced across various yoga postures to determine which type of yoga posture elicits the highest activation for the core muscle in individuals. Literature search was performed using the following electronic databases: Cochrane Library, NCBI, PubMed, Google Scholar, EMBASE, and web of science. The search terms contained: Core muscle activation and yogic posture OR yoga and rehabilitation OR intervention AND Electromyography. Activation of specific core muscle involved asanas which depended on trunk and pelvic movements. Description of specific yogic exercise as they relate to core muscles activation is described. This information should help in planning yogic exercises that challenge the muscle groups without causing loads that may be detrimental to recovery and pain-free movement. Knowledge of activation of muscles in various yogic postures can assist health-care practitioners to make appropriate decisions for the designing of safe

and effective evidence-based yoga intervention for MSDs.

Ravindranath TM. Comment on models in medicine. *Int J Yoga.* 2017; 10(2):110p.

Reinhardt KM, Noggle Taylor JJ, Johnston J et al. Kripalu yoga for military veterans with PTSD: A randomized trial. *J Clin Psychol.* 2017; doi: 10.1002/jclp.22483.

Abstract:

Objectives: This randomized controlled trial of yoga for military veterans and active duty personnel with posttraumatic stress disorder (PTSD) evaluated the efficacy of a 10-week yoga intervention on PTSD.

Method: Fifty-one participants were randomized into yoga or no-treatment assessment-only control groups. Primary outcome measures included questionnaires and the Clinician Administered PTSD Scale.

Results: Both yoga (n = 9) and control (n = 6) participants showed significant decreases in reexperiencing symptoms, with no significant between-group differences. Secondary within-group analyses of a self-selected wait-list yoga group (n = 7) showed significant reductions in PTSD symptoms after yoga participation, in contrast to their control group participation. Consistent with current literature regarding high rates of PTSD treatment dropout for veterans, this study faced challenges retaining participants across conditions.

Conclusion: These results are consistent with recent literature indicating that yoga may have potential as a PTSD therapy in a veteran or military population. However, additional larger sample size trials are necessary to confirm this conclusion.

Rubio Arias JA, Marin Cascales E, Ramos Campo DJ et al. Effect of exercise on sleep quality and insomnia in middle-aged women: A systematic review and meta-analysis of randomized controlled trials. *Maturitas.* 2017; 100: 49-56p.

Abstract:

Objective: We assessed the effects of programmed exercise (PE) on sleep quality and insomnia in middle-aged women (MAW).

Methods: Searches were conducted in five databases from inception through December 15, 2016 for randomized controlled trials (RCTs) evaluating the effects of PE versus a non-exercising control condition on sleep quality, sleep disturbance and/or insomnia in MAW. Interventions had to last at least 8 weeks. Sleep quality was assessed with the Pittsburgh Sleep Quality Index (PSQI) and insomnia with the Insomnia Severity Index (ISI). Random effects models were used for meta-analyses. The effects on outcomes were expressed as mean differences (MDs) and their 95%

confidence intervals (CI).

Results: Five publications reported data from four RCTs on PE effects during 12-16 weeks on sleep quality (n=4 studies reporting PSQI results) and/or insomnia (n=3 studies reporting ISI results), including 660 MAW. Low-moderate levels of exercise significantly lowered the PSQI score (MD=-1.34; 95% CI -2.67, 0.00; p=0.05) compared with controls. In a subgroup analysis, moderate PE (aerobic exercise) had a positive effect on sleep quality (PSQI score MD=-1.85; 95% CI -3.62, -0.07; p=0.04), while low levels of physical activity (yoga) did not have a significant effect (MD-0.46, 95% CI -1.79, 0.88, p=0.50). In three studies (two studies of yoga, one study of aerobic exercise), there was a non-significant reduction in the severity of insomnia measured with the ISI score (MD -1.44, 95% CI -3.28, 0.44, p=0.13) compared with controls. Heterogeneity of effects among studies was moderate to high.

Conclusion: In middle-aged women, programmed exercise improved sleep quality but had no significant effect on the severity of insomnia.

Rudra S, Kalra A, Kumar A et al. Utilization of alternative systems of medicine as health care services in India: Evidence on AYUSH care from NSS 2014. *PLoS One*. 2017 ; 12(5):e0176916.

Abstract:

AYUSH, an acronym for Ayurveda, Yoga and Naturopathy, Unani, Siddha, Sowa-Rigpa and Homeopathy represents the alternative systems of medicine recognized by the Government of India. Understanding the patterns of utilization of AYUSH care has been important for various reasons including an increased focus on its mainstreaming and integration with biomedicine-based health care system. Based on a nationally representative health survey 2014, we present an analysis to understand utilization of AYUSH care across socioeconomic and demographic groups in India. Overall, 6.9% of all patients seeking outpatient care in the reference period of last two weeks have used AYUSH services without any significant differentials across rural and urban India. Importantly, public health facilities play a key role in provisioning of AYUSH care in rural areas with higher utilization in Chhattisgarh, Kerala and West Bengal. Use of AYUSH among middle-income households is lower when compared with poorer and richer households. We also find that low-income households display a greater tendency for AYUSH self-medication. AYUSH care utilization is higher among patients with chronic diseases and also for treating skin-related and musculo-skeletal ailments. Although the overall share of AYUSH prescription drugs in total medical expenditure is only about 6% but the average expenditure for drugs on AYUSH and allopathy did not differ hugely. The discussion compares our estimates and findings with other studies and also highlights major policy issues around mainstreaming of AYUSH care.

Srinivasan TM. Biophotons as subtle energy carriers. *Int J Yoga*. 2017; 10(2): 57-58p.

Thayabaranathan T, Andrew NE, Immink MA et al. Determining the potential

benefits of yoga in chronic stroke care: A systematic review and meta-analysis. *Top Stroke Rehabil.* 2017; 24(4):279-87p.

Abstract:

Background: Survivors of stroke have long-term physical and psychological consequences that impact their quality of life. Few interventions are available in the community to address these problems. Yoga, a type of mindfulness-based intervention, is shown to be effective in people with other chronic illnesses and may have the potential to address many of the problems reported by survivors of stroke.

Objectives: To date only narrative reviews have been published. We sought to perform, the first systematic review with meta-analyses of randomized controlled trials (RCTs) that investigated yoga for its potential benefit for chronic survivors of stroke.

Methods: Ovid Medline, CINAHL plus, AMED, PubMed, PsychINFO, PeDro, Cochrane database, Sport Discuss, and Google Scholar were searched for papers published between January 1950 and August 2016. Reference lists of included papers, review articles and OpenGrey for Grey literature were also searched. We used a modified Cochrane tool to evaluate risk of bias. The methodological quality of RCTs was assessed using the GRADE approach, results were collated, and random effects meta-analyses performed where appropriate.

Results: The search yielded five eligible papers from four RCTs with small sample sizes ($n = 17-47$). Quality of RCTs was rated as low to moderate. Yoga is beneficial in reducing state anxiety symptoms and depression in the intervention group compared to the control group (mean differences for state anxiety 6.05, 95% CI:-0.02 to 12.12; $p = 0.05$ and standardized mean differences for depression: 0.50, 95% CI:-0.01 to 1.02; $p = 0.05$). Consistent but nonsignificant improvements were demonstrated for balance, trait anxiety, and overall quality of life.

Conclusions: Yoga may be effective for ameliorating some of the long-term consequences of stroke. Large well-designed RCTs are needed to confirm these findings.

Toschi Dias E, Tobaldini E, Solbiati M et al. Sudarshan kriya yoga improves cardiac autonomic control in patients with anxiety-depression disorders. *J Affect Disord.* 2017; 214:74-80p.

Abstract:

Background: Several studies have demonstrated that adjuvant therapies as exercise and breathing training are effective in improving cardiac autonomic control (CAC) in patients with affective spectrum disorders. However, the effects of Sudarshan Kriya Yoga (SKY) on autonomic function in this population is unknown. Our objective was to test the hypothesis that SKY training improves CAC and cardiorespiratory coupling in

patients with anxiety and/or depression disorders.

Methods: Forty-six patients with a diagnosis of anxiety and/or depression disorders (DSM-IV) were consecutively enrolled and divided in two groups: 1) conventional therapy (Control) and 2) conventional therapy associated with SKY (Treatment) for 15 days. Anxiety and depression levels were determined using quantitative questionnaires. For the assessment of CAC and cardiorespiratory coupling, cardiorespiratory traces were analyzed using monovariate and bivariate autoregressive spectral analysis, respectively.

Results: After 15-days, we observed a reduction of anxiety and depression levels only in Treatment group. Moreover, sympathetic modulation and CAC were significantly lower while parasympathetic modulation and cardiorespiratory coupling were significantly higher in the Treatment compared to Control group.

Conclusions: Intensive breathing training using SKY approach improves anxiety and/or depressive disorders as well as CAC and cardiorespiratory coupling. These findings suggest that the SKY training may be a useful non-pharmacological intervention to improve symptoms and reduce cardiovascular risk in patients with anxiety/depression disorders.

West J, Liang B, Spinazzola J. Trauma sensitive yoga as a complementary treatment for posttraumatic stress disorder: A qualitative descriptive analysis. *Int J Stress Manag.* 2017; 24(2):173-95p.

Abstract:

Research on Posttraumatic Stress Disorder and chronic childhood abuse has revealed that traditional trauma treatments often fail to fully address the complicated symptom presentation, including the somatic complaints, loss of awareness of one's emotional and physical being in the present moment, and overall lack of integration between the self and the body. The mindfulness-based intervention of hatha yoga shows promise as a complementary treatment, and focuses on personal growth in addition to symptom reduction. This qualitative study explored the experiences of thirty-one adult women with PTSD related to chronic childhood trauma who participated in a 10-week Trauma Sensitive Yoga class, specifically examining perceived changes in symptoms and personal growth. Five themes were identified that reflect participants' feelings of Gratitude and compassion, Relatedness, Acceptance, Centeredness, and Empowerment. Results and implications for research and clinical work are presented.