

RESEARCH AT A GLANCE



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Research at a Glance

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**CENTRAL COUNCIL FOR RESEARCH IN HOMOEOPATHY
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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

Ferreira EC, Ciupa L, Portocarrero AR et al. Phosphorus protects cardiac tissue by modifying the immune response in rats infected by Trypanosoma cruzi. Cytokine. 2018 Feb;102:102-106.

Abstract:

Aim: This study evaluates and correlates the number of myocarditis focuses and production of cytokines in Rattus norvegicus (Wistar lineage), experimentally infected with T. Cruzi and treated with Phosphorus.

Methods: In two blind, controlled and randomized trials, 53 45-day-old, male animals were allocated into groups Control (n=24): Control group infected and treated with 7% hydroalcoholic solution, the preparation vehicle of the test medication; and Phosphorus (n=24 on days 0, 5, 10 and 24 after infection): group infected and treated with Phosphorus 13cH, diluted 10-26 and dynamized (test medication). The animals were inoculated intraperitoneally with 5×10^6 blood trypomastigotes of T. cruzi-Y strain. The medication was administered overnight (16 consecutive hours), diluted in water (1mL/100mL) in amber water bottles. The animals were treated 2days before and 2, 4, and 6days after infection. Enumeration of inflammatory foci in cardiac tissue (Hematoxylin-Eosin) and dosage of cytokines TNF- α and IFN- γ in the serum were performed on days 0, 5, 10 and 24 after infection, using three animals/group. Mann-Whitney, Friedman ANOVA, Spearman correlation ($p < 0.05$), and Statistica Single User Software version 13.2 were used for data analysis.

Results: The animals treated with Phosphorus 13cH had high concentration of INF- γ on the 5th day of infection with significant decrease on the 10th and 24th days ($p < 0.05$), and high concentration of TNF- α on the 5th and 10th days of infection with decrease on the 24th day ($p < 0.05$). The treatment with Phosphorus caused a significant increase of INF- γ and TNF- α on the 5th day of infection compared with the Control ($p < 0.05$), with reestablishment on the 24th day, as well as in the Control group. The group treated with Phosphorus had 52.5% less number of myocarditis focuses in heart than Control group ($p < 0.05$) on the 10th day of infection. The significant increase in cytokines on the 5th day of infection in the Phosphorus group is related to a significant decrease in the number of inflammatory foci in cardiac tissue on the 10th day of infection in this group.

Discussion and conclusion: Treatment with Phosphorus 13cH promotes beneficial effects in T. cruzi infection in Wistar rats by modulating the secretion of IFN- γ and TNF- α with decreased inflammation in cardiac tissue. These results reinforce the importance of considering the use of homeopathy for establishing new therapeutic approaches in the management of patients with Chagas disease.

King A. BAD science: Homeopathy - can the undetectable cure? Br dent j. 2018; Feb 9;224(3):128p.

Nayernouri T. Homeopathy, ritual and magic. *Arch Iran Med.* 2018; Feb 6;20(11):718-722p.

Pannek J, Pannek-Rademacher S, Jus MS et al. Usefulness of classical homeopathy for the prophylaxis of recurrent urinary tract infections in individuals with chronic neurogenic lower urinary tract dysfunction. *J Spinal Cord Med.* 2018; Feb 27:1-11.

Abstract:

Context/Objective to investigate the usefulness of classical homeopathy for the prevention of recurrent urinary tract infections (UTI) in patients with spinal cord injury (SCI). Design prospective study. Setting rehabilitation center in Switzerland. Participants patients with chronic SCI and ≥ 3 UTI/year. Interventions Participants were treated either with a standardized prophylaxis alone or in combination with homeopathy. Outcome measures The number of UTI, general and specific quality of life (QoL), and satisfaction with homeopathic treatment were assessed prospectively for one year. Results Ten patients were in the control group; 25 patients received adjunctive homeopathic treatment. The median number of self-reported UTI in the homeopathy group decreased significantly, whereas it remained unchanged in the control group. The domain incontinence impact of the KHQ improved significantly ($P=0.035$), whereas the general QoL did not change. The satisfaction with homeopathic care was high. Conclusions Adjunctive homeopathic treatment lead to a significant decrease of UTI in SCI patients. Therefore, classical homeopathy could be considered in SCI patients with recurrent UTI. Trial registration ClinicalTrials.gov. ([NCT01477502](https://clinicaltrials.gov/ct2/show/study/NCT01477502)).

AYURVEDA

Agawane SB, Gupta VS, Kulkarni MJ et al. Chemo-biological evaluation of antidiabetic activity of *Mentha arvensis* L. and its role in inhibition of advanced glycation end products. J Ayurveda Integr Med. 2018 Feb 2. pii: S0975-9476(17)30058-X. doi: 10.1016/j.jaim.2017.07.003.

Abstract:

Background: There has been enormous curiosity in the development of alternative plant based medicines to control diabetes, oxidative stress and related disorders. One of the therapeutic approaches is to reduce postprandial release of glucose in the blood. Two key enzymes that are involved in reducing postprandial glucose are α -amylase and α -glucosidase. *Mentha arvensis* L. has been traditionally used by several tribes as a medicinal plant to treat various disorders.

Objective: The present study was undertaken to test *M. arvensis* L. for inhibition of postprandial hyperglycemia.

Material and method: We performed various in vitro and in vivo tests to evaluate efficacy of *M. arvensis* L. for antidiabetic activity (postprandial hyperglycemia).

Results: Methanolic extract of *M. arvensis* L. leaves showed DPPH free radical scavenging activity (more than 78% $\mu\text{g}/\mu\text{l}$) and high antiglycation potential (more than 90% inhibition of AGE formation). Methanolic extract also showed remarkable inhibitory effects on α -amylase (more than 50% $\mu\text{g}/\mu\text{l}$) and α -glucosidase (68% $\mu\text{g}/\mu\text{l}$) and significant inhibition of postprandial hyperglycemia in starch induced diabetic Wistar rats.

Conclusion: The non-insulin dependent antidiabetic or inhibition of postprandial hyperglycemic activity of methanolic extract of *M. arvensis* L. leaves was shown by using in vitro and in vivo approaches in the present study.

Bellavite P, Bonafini C, Marzotto M. Experimental neuropharmacology of *Gelsemium sempervirens*: Recent advances and debated issues. J Ayurveda Integr Med. 2018 Feb 7. pii: S0975-9476(16)30504-6. doi: 10.1016/j.jaim.2017.01.010.

Abstract:

Gelsemium sempervirens L. (*Gelsemium*) is traditionally used for its anxiolytic-like properties and its action mechanism in laboratory models are under scrutiny. Evidence from rodent models was reported suggesting the existence of a high sensitivity of central nervous system to anxiolytic power of *Gelsemium* extracts and Homeopathic dilutions. In vitro investigation of extremely low doses of this plant extract showed a modulation of gene expression of human neurocytes. These studies were criticized in a few commentaries, generated a debate in literature and were followed by further experimental studies from various laboratories. Toxic doses of

Gelsemium cause neurological signs characterized by marked weakness and convulsions, while ultra-low doses or high Homeopathic dilutions counteract seizures induced by lithium and pilocarpine, decrease anxiety after stress and increases the anti-stress allopregnanolone hormone, through glycine receptors. Low (non-Homeopathic) doses of this plant or its alkaloids decrease neuropathic pain and c-Fos expression in mice brain and oxidative stress. Due to the complexity of the matter, several aspects deserve interpretation and the main controversial topics, with a focus on the issues of high dilution pharmacology, are discussed and clarified.

Biswas S, Balodia N, Bellare J. Comparative neurotoxicity study of mercury-based inorganic compounds including Ayurvedic medicines Rasasindura and Kajjali in zebrafish model. Neurotoxicol Teratol. 2018 Feb 2;66:25-34.

Abstract:

Zebrafish behavioral model is a powerful tool for neuroscience research. Behavioral changes in the zebrafish are studied by administering drugs. With the aid of automated and open-source MATLAB program, high-accuracy tracking of zebrafish can be achieved, and the important behavioral parameters can be calculated. Although mercury is accepted as a potent neurotoxin, used as a key element for preparing certain Ayurvedic medicines. In this work, mercury-based inorganic compounds, including HgCl₂, HgS, and Ayurvedic medicines (Rasasindura and Kajjali) were administered in zebrafish, and the effects on various behavioral parameters and cortisol levels were studied. A significant change in the basic locomotor parameters of fish was observed including speed (43% reduction), meander (150% increment), and a number of freeze points (125% increment), during 5-day treatment of HgCl₂ along with a 3-fold increase in cortisol level against the control groups. Abnormal behavior was also recorded in color preference test, and novel tank diving behavior of HgCl₂-treated groups, which can be attributed to the neurotoxicity induced by the HgCl₂ administration. Contrary to this, the Rasasindura-treated group showed a significant increase in speed by 33%, decrease in meander by 20%, decrease in freeze points by 30%, and insignificant alteration in cortisol levels, which can be related to the rejuvenating nature of the Ayurvedic medicine Rasasindura. Additionally, Kajjali treated group did not show any substantial changes in zebrafish cortisol level and behavioral parameters except one in the diving test that indicates lowering stress. Similarly, HgS group showed normal behaviors except two irregular motor behaviors identical with the HgCl₂ group. From these results, it can be concluded that the mercury-based Ayurvedic Rasasindura and Kajjali did not show any adverse effect or toxicity on zebrafish

behavior model.

Chandran S, Dinesh KS, Patgiri BJ et al. Unique contributions of Keraleeya Ayurveda in pediatric health care. J Ayurveda Integr Med. 2018 Feb 19. pii: S0975-9476(16)30360-6.

Abstract:

Childhood is considered as the most important phase in life, which determines the quality of health, well being, learning and behaviour across the lifespan. This may be the reason for giving the foremost position for Balacikitsa among Ashtangas (8 branches) of Ayurveda. The regional growth of indigenous medicine gave significant contribution for the development of primary health care. Kerala has major contribution of many authentic textbooks of Balacikitsa like Arogyakalpadruma, Vaidya Tarakam etc. These are more practically oriented and it can be considered as a physician's quick reference hand book. Many new diseases which are not mentioned in classical textbooks have found their place in these books. Medications like Praakaara yoga, Uramarunnuprayoga were administered in children as a mode of immunization, which helps in the maintenance of health and prevention of disease. Many diseases like Karappan (balavisarpa), Shakarogas etc. were common in Kerala and various indigenous treatment modalities were developed for such diseases. Single drug Prayogas with herbs like Mayaphal (galls), Tripadi (DesmodiumTriflorum L.), etc. and yogams like Nalikerakwatha (Putapakakalpana), Mukkuti (Takrakalpana) etc. were practiced commonly. Many effective therapies like Shashtikapindasweda, Thalapothichil (Sirolepa) etc. are an inevitable part of Balacikitsa. In this paper, an attempt is made to compile the theoretical concepts and unique practices of Balacikitsa in Kerala and to convey it's importance. The present article also addresses, how these vernacular books and traditional knowledge waned away from the Mainstream Ayurveda.

Devarbhavi H. Ayurvedic and herbal medicine-induced liver injury: It is time to wake up and take notice. Indian J Gastroenterol. 2018 Feb 8. doi: 10.1007/s12664-018-0820-6

Husain I, Ahmad R, Chandra A et al. Phytochemical Characterization, Biological Activity Evaluation of Ethanolic Extract of Cinnamomum zeylanicum and Molecular Docking Analysis of Active Component Cinnamaldehyde against Selected Protein Targets. J Ethnopharmacol. 2018 Feb 2. pii: S0378-8741(17)33007-6.

Abstract:

Ethnopharmacological relevance: India being a multicultural nation, every region of the country offers a distinct culinary flavor and taste. These flavours are attributed to spices and condiments which form the mainstay of Indian cuisine. Most of these spices and condiments are derived from various biodiversity hotspots in India and form the crux of India's multidiverse and multicultural cuisine. Apart from their varying aromas, flavors and tastes, these spices and condiments are known to possess several medicinal properties also. Most of these spices find considerable mention in Ayurveda, the indigenous system of medicine, as panaceas for several ailments. Cinnamomum zeylanicum (CZ), belonging to family Lauraceae and commonly known as cinnamon is one such spice known to have diverse medicinal properties since time immemorial.

Aim of the study: In the present study, apoptotic and anti-microbial activity of ethanolic extract of CZ was evaluated against human breast cancer cell line MDA-MB-231 and compared for its effect on normal kidney epithelial cell line Vero.

Materials and methods: Ethanolic extract of tree bark of CZ was used to determine the cytotoxic effect on MDA-MB-231 using Trypan blue dye exclusion method and cytometry. The tested dose of the extract was 10-100 μ g/mL. Antibacterial activity was determined using disc diffusion method against *Staphylococcus aureus* and *Escherichia coli* in the range 2-10mg/mL. Apoptotic activity was determined using DNA fragmentation assay. Molecular docking analysis of cinnamaldehyde, the major active component found in CZ bark, was carried out using AutoDock 4.0.1 to study its inhibitory action against selected protein targets.

Results: Ethanolic extract of CZ was found to have an IC₅₀ value of 25 μ g/mL against MDA cell line. On the other hand, CZ extract did not have any significant effect on Vero cells even at 100 μ g/mL (IC₅₀ >100 μ g/mL). The ethanolic extract of CZ bark showed significant antibacterial activity against *S. aureus* at 10mg/mL while no appreciable activity was detected against *E. coli*. DNA isolated from extract treated cancer cells showed a fragmentation pattern characteristic of apoptosis. However, no DNA fragmentation was observed in DNA isolated from extract treated Vero cells. Cinnamaldehyde showed significant binding to certain proteins of the cytoskeleton and apoptotic pathway, particularly tubulin. Apoptotic/anticancer activity of CZ bark extract might be attributed to structural alteration/modification of cytoskeletal network leading to apoptosis.

Conclusion: Ethanolic bark extract of CZ could be potentially beneficial in treating breast cancer and may be of interest for future studies in developing integrative cancer therapy against proliferation, metastasis, and migration of breast cancer cells.

Ikhlas S, Ahmad M. Binding studies of guggulsterone-E to calf thymus DNA by multi-spectroscopic, calorimetric and molecular docking studies. Spectrochim Acta A Mol Biomol Spectrosc. 2018 Feb 5;190:402-408.

Abstract:

Guggulsterone, a sterol found in plants is used as an ayurvedic medicine for many diseases such as obesity, internal tumors, ulcers etc. E and Z are two isoforms of guggulsterone, wherein guggulsterone-E (GUGE) has also been shown to have anticancer potential. Most of the anticancer drugs target nucleic acids. Therefore, we studied the mode of interaction between ctDNA and GUGE using UV-Vis, fluorescence and CD spectroscopy, isothermal calorimetry along with molecular docking studies. Hoechst 3325, ethidium bromide and rhodamine-B displacement experiments confirms that GUGE binds in the minor groove of DNA. ITC results further suggest these interactions to be feasible and spontaneous with hydrogen bond formation and van der waals interactions. Lastly, molecular docking also suggests GUGE to be a minor groove binder interacting through a single hydrogen bond formation between OH group of GUGE and nitrogen (N3) of adenosine (A6).

Kessler CS, Dhiman KS, Kumar A et al. Effectiveness of an Ayurveda Treatment Approach in Knee Osteoarthritis - a Randomized Controlled Trial. Osteoarthritis Cartilage. 2018 Feb 6. pii: S1063-4584(18)30082-7.

Abstract:

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

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

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

Conclusion: Results suggest that Ayurvedic treatment is beneficial in reducing knee OA symptoms. Further studies should be conducted to confirm the magnitude of the effect and to clarify the role of different treatment components and non-specific effects.

Lim DW, Kim JG, Lim EY et al. Antihyperalgesic effects of ashwagandha (Withania somnifera root extract) in rat models of postoperative and neuropathic pain. Inflammopharmacology. 2018 Feb;26(1):207-215.

Abstract:

The root of *Withania somnifera*, commonly known as ashwagandha, is a traditional herb in the Indian Ayurvedic system of medicine and is used as a tonic. Here, we investigated whether *W. somnifera* root extract exhibits analgesic effects in plantar incision (PI) and spared nerve injury (SNI) rat models. Mechanical withdrawal threshold (MWT) was measured by von Frey filaments, and pain-related behavior was determined after operation by ultrasonic vocalization (USV) measurements. Indeed, we examined interferon- γ (IFN- γ) and interleukin-10 (IL-10) levels in the isolated dorsal root ganglia (DRG) following SNI in rats using an ELISA cytokine assay. MWT significantly increased 6 and 24 h after PI in rats receiving *W. somnifera* root extracts (100 and 300 mg/kg). Furthermore, the number of 22-27-kHz USV, which are a distress response, was significantly reduced at 6 and 24 h after PI in *W. somnifera*-

treated rats (100 and 300 mg/kg). SNI-induced hyperalgesia and cytokine levels were significantly alleviated after treating with *W. somnifera* root extracts (100 and 300 mg/kg) for 15 continuous days. The main active compound, withaferin A, from the *W. somnifera* root extract has shown the CC chemokine family Receptor 2 (CCR2) antagonistic effects on monocyte chemoattractant protein-1 (MCP-1)-induced Ca²⁺ response in CCR2 stable cell line. These results indicate that *W. somnifera* root extract has a potential analgesic effect in rat models for both postoperative and neuropathic pain and shows potential as a drug or supplement for the treatment of pain.

Menon S, Lawrence L, Sivaram VP et al. Oroxyllum indicum root bark extract prevents doxorubicin-induced cardiac damage by restoring redox balance. J Ayurveda Integr Med. 2018 Feb 2. pii: S0975-9476(17)30055-4. doi: 10.1016/j.jaim.2017.06.007

Abstract:

Background: *Oroxyllum indicum* Vent., a Dasamula plant used in Ayurveda possesses antioxidant properties.

Objectives: To evaluate the cardioprotective effect of 70% methanolic extract of *O. indicum* Vent. root bark (OIM) against doxorubicin induced cardiomyopathy in female Sprague Dawley rats.

Materials and methods: Cardiotoxicity was induced by intra-peritoneal injection of doxorubicin 30 mg/kg body weight (b.w.) for 4 consecutive days after a ten-day pre-treatment of animals with OIM at 200 mg/kg b.w. and 400 mg/kg b.w (p.o.). Drug treatment continued up to day 14. Probucol, orally administered at a dose of 20 mg/kg b.w. served as standard. ECG was recorded. The animals were sacrificed on day 15 and comparative analysis of serum marker levels of creatine phosphokinase (CPK), lactate dehydrogenase (LDH), Serum Glutamate Oxaloacetate Transaminase (SGOT), Serum Glutamate Pyruvate Transaminase (SGPT), tissue antioxidant status based on Superoxide Dismutase (SOD), Glutathione Peroxidase (GPx), reduced Glutathione (GSH) and lipid peroxidation (LPO) was carried out. Histopathological examination was carried out using hematoxylin-eosin staining.

Results: ECG records of OIM treated animals showed normal pattern, in comparison to the control with ST depression and arrhythmia in cardiogram. Tissue antioxidant profile (SOD, GSH and GPx) was significantly ($p < 0.01$) elevated in the cardiac tissue of treated group in dose-dependent manner; lipid peroxidation level was found to decrease with treatment. Comparative analysis of serum markers - CPK, LDH, SGOT and SGPT - among untreated control, standard and extract treated groups revealed that OIM extract at 400 mg/kg b.w. dose significantly reduced the levels ($p < 0.01$). Histological analysis revealed normal myocardial architecture in OIM treated groups. HPTLC fingerprint of OIM revealed 8 bands and detected the presence of chrysin, apigenin and quercetin.

Conclusion: *O. indicum* Vent. root bark shows marked cardio-protective activity, possibly due to the presence of antioxidant compounds acting synergistically.

Mishra A, Mishra AK, Jha S. Effect of traditional medicine brahmi vati and bacoside A-rich fraction of *Bacopa monnieri* on acute pentylentetrazole-induced seizures, amphetamine-induced model of schizophrenia, and scopolamine-induced memory loss in laboratory animals. *Epilepsy Behav.* 2018 Feb 1;80:144-151.

Abstract:

Objective: Brahmi vati (BV) is an Ayurvedic polyherbal formulation used since ancient times and has been prescribed in seizures associated with schizophrenia and related memory loss by Ayurvedic practitioners in India. The aim of the study was to investigate these claims by evaluation of anticonvulsant, antischizophreniac, and memory-enhancing activities. Antioxidant condition of brain was determined by malondialdehyde (MDA) and reduced glutathione (GSH) levels estimations. Acetylcholinesterase (AChE) was quantitatively estimated in the brain tissue.

Methods: Brahmi vati was prepared in-house by strictly following the traditional Ayurvedic formula. Bacoside A rich fraction (BA) of *Bacopa monnieri* was prepared by extraction and fractionation. It was then standardized by High Performance Liquid Chromatography (HPLC) and given in the dose of 32.5mg/kg body weight to the different groups of animals for 7 days. On the seventh day, activities were performed adopting standard procedures.

Key findings: Brahmi vati showed significant anticonvulsant, memory-enhancing and antischizophrenia activities, when compared with the control groups and BA. It caused significantly higher brain glutathione levels. Acetylcholinesterase activity was found to be significantly low in BV-treated group.

Conclusion: The finding of the present study suggests that BV may be used to treat seizures associated with schizophrenia and related memory loss.

Patel BP, Singh PK. *Viscum articulatum* Burm. f.: A review on its phytochemistry, pharmacology and traditional uses. *J Pharm Pharmacol.* 2018 Feb;70(2):159-177.

Abstract:

Objectives: The aim of this study was to review and highlight traditional and ethnobotanical uses, phytochemical constituents, IP status, biological activity and pharmacological activity of *Viscum articulatum*.

Methods: Thorough literature searches were performed on *Viscum articulatum*, and data were analysed for reported traditional uses, pharmacological activity, phytochemicals present and patents filed. Scientific and patent databases such as PubMed, Science Direct, Google Scholar, Google patents, USPTO and Espacenet were searched using different keywords.

Key findings: *Viscum articulatum* has been traditionally used in different parts of the world for treatment of various ailments. Almost all the parts such as leaves, root, stem and bark are having medicinal values and are reported for their uses in Ayurvedic and Chinese system of medicine for the management of various diseases. Modern scientific studies demonstrate efficacy of this plant against hypertension, ulcer, epilepsy, inflammation, wound, nephrotoxicity, HIV, cancer, etc. Major bioactive phytochemicals include oleanolic acid, betulinic acid, eriodictyol, naringenin, β -amyrin acetate, visartisides, etc.

Conclusions: Side effects of allopathic medicines have created a global opportunity, acceptance and demand for phytomedicines. *Viscum articulatum* could be an excellent source of effective and safe phytomedicine for various ailments if focused translational efforts are undertaken by integrating the existing outcomes of researches.

Philips CA, Paramaguru R, Joy AK et al. Clinical outcomes, histopathological patterns, and chemical analysis of Ayurveda and herbal medicine associated with severe liver injury-A single-center experience from southern India. *Indian J Gastroenterol.* 2018; Feb 24. doi: 10.1007/s12664-017-0815-8.

Abstract:

Introduction: Ayurvedic and herbal medicines (AHM) are known to cause varying degrees of drug-induced liver injury (DILI). Clinical, biochemical, histological spectrum and outcomes of AHM linked to severe DILI are not well studied.

Methods: Out of 1440 liver disease patients, 94 were found to have a severe liver injury and associated AHM intake. Thirty-three patients were suspected to have AHM-DILI on Roussel Uclaf Causality Assessment Scoring Method. Forty-seven and 30 of retrieved AHM samples were analyzed for heavy metals and hepatotoxic volatile organic compounds (hVOCs), respectively. Eleven patients ingested AHM from unregistered traditional healers (UTH). Clinicopathological outcomes were analyzed in 27 patients (who underwent liver biopsy) and outcomes with respect to chemical analyses were studied in 33 patients.

Results: Males predominated (70.4%) with mean age 46.9 ± 15.8 years. Mean follow up was 119.2 ± 81.4 days. The median duration of drug intake was 28 days (10 - 84). Five patients died (18.5%). Hepatic encephalopathy, hypoalbuminemia, and hepatic necrosis were significantly associated with mortality ($p < 0.005$). Arsenic and mercury ingestion was significantly associated with death ($p < 0.005$). hVOCs were detected in more than 70% of samples. AHM intake from UTH was associated with higher mortality.

Conclusion: Adequate regulation and scrutiny regarding AHM use among the general population is an unmet need. Early liver biopsy after clinical identification of at-risk patients can expedite definitive treatment with a liver transplant.

Verma A, Singh D, Anwar F et al. Triterpenoids principle of *Wedelia calendulacea* attenuated diethylnitrosamine-induced hepatocellular carcinoma via down-

regulating oxidative stress, inflammation and pathology via NF-kB pathway. *Inflammopharmacology*. 2018 Feb;26(1):133-146.

Abstract:

The aerial part of *Wedelia calendulacea* have been used in Ayurveda, Unani, Tibetan, Siddha and other folk medicine systems to protect the liver and renal tissue. Liver is considered as primary metabolizing site of body, which is prone to damage by endogenous and exogenous toxicants. A reason for liver toxicity, and major causes of the hepatocellular carcinoma (HCC). 19- α -Hydroxyurs-12(13)-ene-28 oic acid-3-O- β -D-glucopyranoside (HEG), a triterpenoids found in the higher plants, has been known to possess protective effect against various toxicants. The aim of the current study was to scrutinize the hepatoprotective mechanism of HEG against DEN-induced oxidative stress, hyperproliferation, inflammation and apoptosis tissue injury in Wistar rats. Invitro cell lines study of HEG scrutinized against the Hep-G2 and HuH-7 cells. A single dose of DEN (200 mg/kg) and double dose of phenobarbitol were administered to induce the liver damage in rats; the dose treatment of HEG was terminated at the end of 22 weeks. Macroscopical study was performed for the confirmation of hepatic nodules. The serum and hepatic samples were collected for further biochemical and histopathological analysis. Hepatic; non-hepatic; Phase I and II antioxidant enzymes were also examined. Additionally, we also scrutinized the inflammatory cytokines viz., tumor necrosis factor- α , interleukin-6, interleukin-1 β , and Nuclear factor kappa beta (NF-kB), respectively. Histopathological study was also performed for analyzing the changes during the HCC. HEG confirmed the reduction of growth and deoxyribonucleic acid synthesis of both cell lines. DEN successfully induced the HCC in all group, which was significantly ($p < 0.001$) altered by the HEG in a dose-dependent manner. The decreased level of pro-inflammatory cytokines and altered membrane-bound enzyme activity were also observed. HEG inhibits the phase I, II and antioxidant enzymes at the effective dose-dependent manner, which were considered as the precursor of the HCC. The alteration of phase I, II and antioxidant enzymes confirmed the inhibition of inflammatory reaction and oxidative stress, which directly or indirectly inhibited the NF-kB expression. Collectively, we can conclude that the HEG inhibited the growth of Hepatocellular carcinoma via attenuating the NF-kB pathway.

Vysakh A, Gopika P, Jayesh K, Karishma R et al. *Rotula aquatica* Lour attenuates secretion of proinflammatory mediators and cytokines in lipopolysaccharide-induced inflammatory responses in murine RAW 264.7 macrophages. *Inflammopharmacology*. 2018 Feb;26(1):29-38.

Abstract:

Rotula aquatica belongs to the family Boraginaceae, and is reported to contain baunerol, steroids and alkaloids. In Ayurveda, *R. aquatica* has been used for the treatment of various diseases such as diabetes, treatment of piles, venereal disease, and cancer. The current study aims to investigate the anti-inflammatory effect of methanolic extract of *R. aquatica* (MERA) in RAW 264.7 cells. The cytotoxicity of MERA was analyzed by MTT assay. The total cyclooxygenase (COX) activity, 5-lipoxygenase

(5-LOX) activity, myeloperoxidase activity, inducible nitric oxide synthase activity, nitrate level and reactive oxygen species production were studied in LPS-stimulated RAW 264.7 cells. The gene level expression of cyclooxygenase-2 (COX-2), tumor necrosis factor-alpha (TNF- α), and interleukin-6 (IL-6) were also evaluated in this study. The MERA did not show any cytotoxicity at different concentrations (6.25-100 $\mu\text{g/ml}$). MERA (100 $\mu\text{g/ml}$) inhibited total COX and 5-LOX activity at 50.53 and 62.03%, respectively, besides significantly ($p < 0.05$) diminished nitrate and ROS generation, when compared with LPS control. Moreover, MERA down-regulated the mRNA expressions of inflammatory marker genes like TNF- α , IL-6, and COX-2 against LPS stimulation. Our results demonstrate that MERA is able to attenuate inflammatory response, possibly via ROS and NO suppression, inhibiting the production of arachidonic acid metabolites and modulation of proinflammatory mediators and cytokines release.

UNANI MEDICINE

Verma A, Singh D, Anwar et al. Triterpenoids principle of *Wedelia calendulacea* attenuated diethylnitrosamine-induced hepatocellular carcinoma via down-regulating oxidative stress, inflammation and pathology via NF- κ B pathway. *Inflammopharmacology*. 2018; 26(1):133-146.

Abstract:

The aerial part of *Wedelia calendulacea* have been used in Ayurveda, Unani, Tibetan, Siddha and other folk medicine systems to protect the liver and renal tissue. Liver is considered as primary metabolizing site of body, which is prone to damage by endogenous and exogenous toxicants. A reason for liver toxicity, and major causes of the hepatocellular carcinoma (HCC). 19- α -Hydroxyurs-12(13)-ene-28 oic acid-3-O- β -D-glucopyranoside (HEG), a triterpenoids found in the higher plants, has been known to possess protective effect against various toxicants. The aim of the current study was to scrutinize the hepatoprotective mechanism of HEG against DEN-induced oxidative stress, hyperproliferation, inflammation and apoptosis tissue injury in Wistar rats. Invitro cell lines study of HEG scrutinized against the Hep-G2 and HuH-7 cells. A single dose of DEN (200 mg/kg) and double dose of phenobarbitol were administered to induce the liver damage in rats; the dose treatment of HEG was terminated at the end of 22 weeks. Macroscopical study was performed for the confirmation of hepatic nodules. The serum and hepatic samples were collected for further biochemical and histopathological analysis. Hepatic; non-hepatic; Phase I and II antioxidant enzymes were also examined. Additionally, we also scrutinized the inflammatory cytokines viz., tumor necrosis factor- α , interleukin-6, interleukin-1 β , and Nuclear factor kappa beta (NF- κ B), respectively. Histopathological study was also performed for analyzing the changes during the HCC. HEG confirmed the reduction of growth and deoxyribonucleic acid synthesis of both cell lines. DEN successfully induced the HCC in all group, which was significantly ($p < 0.001$) altered by the HEG in a dose-dependent manner. The decreased level of pro-inflammatory cytokines and altered membrane-bound enzyme activity were also observed. HEG inhibits the phase I, II and antioxidant enzymes at the effective dose-dependent manner, which were considered as the precursor of the HCC. The alteration of phase I, II and antioxidant enzymes confirmed the inhibition of inflammatory reaction and oxidative stress, which directly or indirectly inhibited the NF- κ B expression. Collectively, we can conclude that the HEG inhibited the growth of Hepatocellular carcinoma via attenuating the NF- κ B pathway.

YOGA

Baumann FT, Reike A, Reimer V et al. Effects of physical exercise on breast cancer-related secondary lymphedema: a systematic review. *Breast Cancer Res Treat.* 2018; Feb 22. doi: 10.1007/s10549-018-4725-y.

Abstract:

Purpose: The aim of this systematic review is to assess the effect of different types of exercise on breast cancer-related lymphedema (BCRL) in order to elucidate the role of exercise in this patient group.

Methods: A systematic data search was performed using PubMed (December 2016). The review is focused on the rehabilitative aspect of BCRL and undertaken according to the PRISMA statement with Levels of Evidence (LoE) assessed.

Results: 11 randomized controlled trials (9 with LoE 1a and 2 with LoE 1b) that included 458 women with breast cancer in aftercare were included. The different types of exercise consisted of aqua lymph training, swimming, resistance exercise, yoga, aerobic, and gravity-resistive exercise. Four of the studies measured a significant reduction in BCRL status based on arm volume and seven studies reported significant subjective improvements. No study showed adverse effects of exercise on BCRL.

Conclusion: The evidence indicates that exercise can improve subjective and objective parameters in BCRL patients, with dynamic, moderate, and high-frequency exercise appearing to provide the most positive effects.

Beck AR, Verticchio H. Effectiveness of a Method for Teaching Self-Compassion to Communication Sciences and Disorders Graduate Students. *Am J Speech Lang Pathol.* 2018 Feb 6;27(1):192-206.

Abstract:

Purpose: The purpose of this study is to explore the effects of a daily mindfulness practice and 2 types of journaling on participants' development of self-compassion.

Method: This was a between-groups design. All participants in a graduate counseling course engaged in a short daily mindfulness practice at the beginning of every class. Participants were randomly assigned to a counseling journal or a gratitude journal group. Participants were to write in their journals 2 to 5 times a week for the duration of the class. Participants completed the Self-Compassion Scale (Neff, 2003) and a questionnaire created by the 1st author before any mindfulness sessions were held and again at the completion of the course.

Results: Participants' level of self-compassion increased from pretest to posttest. The self-compassion scores of participants who kept counseling journals increased more than did those of participants who kept gratitude journals. Qualitative data indicated that participants believed that mindfulness was an important quality for clinicians to possess and that they were accepting of the daily mindfulness practice.

Conclusions: Engaging in a 12-min daily mindfulness practice utilizing simple yoga postures, breath work, reflective writing, and journaling done at a separate time appears to be an effective technique for increasing students' levels of self-compassion. Maintaining a counseling journal as opposed to a gratitude journal appears to enhance the effect of the daily mindfulness practice on self-compassion.

Chou R, Cote P, Randhawa K et al. The Global Spine Care Initiative: applying evidence-based guidelines on the non-invasive management of back and neck pain to low- and middle-income communities. Eur Spine J. 2018 Feb 19. doi: 10.1007/s00586-017-5433-8.

Abstract:

Purpose: The purpose of this review was to develop recommendations for the management of spinal disorders in low-income communities, with a focus on non-invasive pharmacological and non-pharmacological therapies for non-specific low back and neck pain.

Methods: We synthesized two evidence-based clinical practice guidelines for the management of low back and neck pain. Our recommendations considered benefits, harms, quality of evidence, and costs, with attention to feasibility in medically underserved areas and low- and middle-income countries.

Results: Clinicians should provide education and reassurance, advise patients to remain active, and provide information about self-care options. For acute low back and neck pain without serious pathology, primary conservative treatment options are exercise, manual therapy, superficial heat, and nonsteroidal anti-inflammatory drugs (NSAIDs). For patients with chronic low back and neck pain without serious pathology, primary treatment options are exercise, yoga, cognitive behavioral therapies, acupuncture, biofeedback, progressive relaxation, massage, manual therapy, interdisciplinary rehabilitation, NSAIDs, acetaminophen, and antidepressants. For patients with spinal pain with radiculopathy, clinicians may consider exercise, spinal manipulation, or NSAIDs; use of other interventions requires extrapolation from evidence regarding effectiveness for non-radicular spinal pain. Clinicians should not offer treatments that are not effective, including benzodiazepines, botulinum toxin injection, systemic corticosteroids, cervical collar, electrical muscle stimulation, short-wave diathermy, transcutaneous electrical nerve stimulation, and traction.

Conclusion: Guidelines developed for high-income settings were adapted to inform a care pathway and model of care for medically underserved areas and low- and middle-income countries by considering factors such as costs and feasibility, in addition to benefits, harms, and the quality of underlying evidence. The selection of recommended conservative treatments must be finalized through discussion with the involved community and based on a biopsychosocial approach. Decision determinants for selecting recommended treatments include costs, availability of interventions, and cultural and patient preferences. These slides can be retrieved under Electronic Supplementary Material.

Cushing RE, Braun KL, Alden C-Iayt SW et al. Military-Tailored Yoga for Veterans with Post-traumatic Stress Disorder. Mil Med. 2018 Feb 5. doi: 10.1093/milmed/usx071

Abstract:

Introduction: Among veterans of post-9/11 conflicts, estimates of post-traumatic stress disorder (PTSD) range from 9% shortly after returning from deployment to 31% a year after deployment. Clinical and pharmaceutically based treatments are underutilized. This could be due to concerns related to lost duty days, as well as PTSD patients' fears of stigma of having a mental health condition. Yoga has been shown to reduce PTSD symptoms in the civilian population, but few studies have tested the impact of yoga on veterans of post-9/11 conflicts. The purpose of this study is to test the impact of yoga on post-9/11 veterans diagnosed with PTSD.

Materials and methods: Participants were 18 yr of age or older and veterans of post-9/11 conflicts. They had subthreshold or diagnostic-level PTSD related to their combat military service, as determined by a score of 30 or higher on the PTSD Checklist-Military version (PCL-M). Veterans participated in 60-min weekly yoga sessions for 6 wk taught by a Warriors at Ease-trained yoga instructor who is a, post-9/11 veteran. The yoga sessions incorporated Vinyasa-style yoga and a trauma-sensitive, military-culture informed approach advocated by two separate organizations: Warriors at Ease and Meghan's Foundation. Data were collected at baseline and again after 7 wk. The primary outcome was PCL-M score. Participants also completed the Patient Health Questionnaire, the Beck Anxiety Inventory, the Pittsburgh Sleep Quality Index, and the Mindful Attention Awareness Scale at both time points.

Results: Eighteen Operation Enduring Freedom, Operation Iraqi Freedom, and Operation New Dawn veterans completed the pre- and post-intervention self-report questionnaires. Age ranged from 26 to 62 yr (median = 43 yr), length of service ranged from 2 to 34 yr (median = 18.8 yr), and 13 (72.2%) had completed college. Decreased PTSD symptomatology was demonstrated in the three-symptom clusters represented in the PCL-M (i.e., hyperarousal, re-experiencing, and avoidance). In addition, the total score on the PCL-M decreased significantly, by both statistical and clinical measures. The participants also demonstrated improved mindfulness scores and reported decreased insomnia, depression, and anxiety symptoms.

Conclusion: This study demonstrates that a trauma-sensitive yoga intervention may be effective for veterans with PTSD symptoms, whether as stand-alone or adjunctive therapy. The impressive decrease in PTSD symptomatology may be due to the tailored military-specific nature of this intervention and the fact that it was led by a veteran of post-9/11 conflicts. More research is needed with a larger sample and a more diverse veteran population.

Falkenberg RI, Eising C, Peters ML. Yoga and immune system functioning: a systematic review of randomized controlled trials. J Behav Med. 2018 Feb 10. doi: 10.1007/s10865-018-9914-y.

Abstract:

Yoga is an ancient mind-body practice that is increasingly recognized to have health benefits in a variety of clinical and non-clinical conditions. This systematic review summarizes the findings of randomized controlled trials examining the effects of yoga on immune system functioning which is imperative to justify its application in the clinic. Fifteen RCTs were eligible for the review. Even though the existing evidence is not entirely consistent, a general pattern emerged suggesting that yoga can downregulate pro-inflammatory markers. In particular, the qualitative evaluation of RCTs revealed decreases in IL-1beta, as well as indications for reductions in IL-6 and TNF-alpha. These results imply that yoga may be implemented as a complementary intervention for populations at risk or already suffering from diseases with an inflammatory component. Beyond this, yoga practice may exert further beneficial effects by enhancing cell-mediated and mucosal immunity. It is hypothesized that longer time spans of yoga practice are required to achieve consistent effects especially on circulating inflammatory markers. Overall, this field of investigation is still young, hence the current body of evidence is small and for most immune parameters, more research is required to draw distinct conclusions.

Frank RM, Ukwuani G, Allison B et al. High Rate of Return to Yoga for Athletes After Hip Arthroscopy for Femoroacetabular Impingement Syndrome. Sports Health. 2018 Feb 1:1941738118757406. doi: 10.1177/1941738118757406.

Abstract:

Background: Femoroacetabular impingement syndrome (FAIS) is most commonly diagnosed in patients who perform activities that require repetitive hip flexion and rotational loading. Yoga is an activity growing in popularity that involves these motions. The purpose of this study was to evaluate patients' ability to return to yoga after hip arthroscopy for FAIS.

Hypothesis: There would be a high rate of return to yoga after hip arthroscopy.

Study design: Retrospective analysis.

Level of evidence: Level 4.

Methods: Consecutive patients with FAIS who had identified themselves as participating in yoga and had undergone hip arthroscopy for the treatment of FAIS between 2012 and 2015 were reviewed. Demographic data were collected and assessed for all patients, as well as preoperative physical examination, imaging, and patient-reported outcome (PRO) scores, including the modified Harris Hip Score (mHHS), Hip Outcome Score Activities of Daily Living (HOS-ADL) and Sports-Specific (HOS-SS) subscales, and visual analog scale (VAS) for pain. Postoperatively, examination and PRO data were collected at a minimum 1 year after surgery, including a yoga-specific questionnaire.

Results: A total of 42 patients (90% female; mean age, 35 ± 9 years; mean body mass index, 23.1 ± 3.2 kg/m²) were included. Thirty patients (71%) had to discontinue their

yoga routine preoperatively because of hip-related symptoms at a mean 9.5 ± 8.2 months before surgery. After surgery, 39 patients (93%) were able to return to yoga at a mean 5.3 ± 2.2 months after surgery. Two of the 3 patients who did not return to yoga noted loss of interest as their reason for stopping, while 1 patient was unable to return because of persistent hip pain. Nineteen patients (45%) returned to a higher level of yoga practice, 17 patients (40%) returned to the same level, and 3 patients (7%) returned to a lower level. There was no difference in the number of hours spent practicing yoga per week pre- and postoperatively (2.7 ± 1.9 vs 2.5 ± 1.3 hours; $P = 0.44$). All patients demonstrated significant improvement in all PROs as well as pain scores after surgery (HOS-ADL, 67.4 ± 18.3 to 93.1 ± 6.9 [$P < 0.001$]; HOS-SS, 45.6 ± 24.7 to 81.5 ± 18.8 [$P < 0.001$]; mHHS, 62.3 ± 11.3 to 86.8 ± 12.3 [$P < 0.0001$]; VAS pain, 6.3 ± 2.2 to 0.90 ± 1.1 [$P < 0.001$]).

CONCLUSION: Patients participating in yoga return to yoga 93% of the time and at a mean 5.3 ± 2.2 months after hip arthroscopy for FAIS.

CLINICAL RELEVANCE: Information regarding surgical outcomes is critical in counseling patients, particularly female athletes, on their expectations with respect to returning to yoga after hip arthroscopy for FAIS.

Galiano Leis MA. Yoga as an alternative to a sedentary lifestyle. Semergen. 2018 Feb 15. pii: S1138-3593(18)30004-2.

Gotink RA, Vernooij MW, Ikram MA et al. Meditation and yoga practice are associated with smaller right amygdala volume: the Rotterdam study. Brain Imaging Behav. 2018 Feb 7. doi: 10.1007/s11682-018-9826-z.

Abstract:

To determine the association between meditation and yoga practice, experienced stress, and amygdala and hippocampal volume in a large population-based study. This study was embedded within the population-based Rotterdam Study and included 3742 participants for cross-sectional association. Participants filled out a questionnaire assessing meditation practice, yoga practice, and experienced stress, and underwent a magnetic resonance scan of the brain. 2397 participants underwent multiple brain scans, and were assessed for structural change over time. Amygdala and hippocampal volumes were regions of interest, as these are structures that may be affected by meditation. Multivariable linear regression analysis and mixed linear models were performed adjusted for age, sex, educational level, intracranial volume, cardiovascular risk, anxiety, depression and stress. 15.7% of individuals participated in at least one form of practice. Those who performed meditation and yoga practices reported significantly more stress (mean difference 0.2 on a 1-5 scale, $p < .001$) and more depressive symptoms (mean difference 1.03 on CESD, $p = .015$). Partaking in meditation and yoga practices was associated with a significantly lower right amygdala volume ($\beta = -31.8 \text{ mm}^3$, $p = .005$), and lower left hippocampus volume ($\beta = -75.3 \text{ mm}^3$, $p = .025$). Repeated measurements using linear mixed models showed a significant effect over time on the right amygdala of practicing meditation and yoga ($\beta = -24.4 \text{ mm}^3$, SE 11.3, $p = .031$). Partaking in meditation

and yoga practice is associated with more experienced stress while it also helps cope with stress, and is associated with smaller right amygdala volume.

Hallgren M, Andersson V, Ekblom O et al. Physical activity as treatment for alcohol use disorders (FitForChange): study protocol for a randomized controlled trial. *Trials*. 2018 Feb 14;19(1):106.

Abstract:

Background: Help-seeking for alcohol use disorders (AUDs) is low and traditional treatments are often perceived as stigmatizing. Physical activity has positive effects on mental and physical health which could benefit this population. We propose to compare the effects of aerobic training, yoga, and usual care for AUDs in physically inactive Swedish adults.

Methods: This is a three-group, parallel, single-blind, randomized controlled trial (RCT). In total, 210 adults (aged 18-75 years) diagnosed with an AUD will be invited to participate in a 12-week intervention. The primary study outcome is alcohol consumption measure by the Timeline Follow-back method and the Alcohol Use Disorders Identification Test (AUDIT). Secondary outcomes include: depression, anxiety, perceived stress, sleep quality, physical activity levels, fitness, self-efficacy, health-related quality of life, and cognition. Blood samples will be taken to objectively assess heavy drinking, and saliva to measure cortisol. Acute effects of exercise on the urge to drink alcohol, mood, and anxiety will also be assessed.

Discussion: The treatment potential for exercise in AUDs is substantial as many individuals with the disorder are physically inactive and have comorbid health problems. The study is the first to assess the effects of physical activity as a stand-alone treatment for AUDs. Considerable attention will be given to optimizing exercise adherence. Both the feasibility and treatment effects of exercise interventions in AUDs will be discussed. The Ethical Review Board (EPN) at Karolinska Institutet has approved the study (DNR: 2017/1380-3).

Justice L, Brems C, Ehlers K. Bridging Body and Mind: Considerations for Trauma-Informed Yoga. *Int J Yoga Therap*. 2018 Feb 8. doi: 10.17761/2018-00017R2.

Abstract:

Individuals who suffer from trauma-related symptoms are a unique population that could benefit from the mind-body practice of yoga-or have their symptoms reactivated by it, depending on the type of yoga. Trauma-informed yoga (TIY), that is, yoga adapted to the unique needs of individuals working to overcome trauma, may ameliorate symptoms by creating a safe, tailored practice for students to learn how to respond, rather than react, to symptoms and circumstances. Yoga not thus adapted, on the other hand, may increase reactivity and activate symptoms such as hyperarousal or dissociation. This article reports on expert input about adapting yoga for individuals with trauma, with special considerations for military populations. Eleven experts, recruited based on literature review and referrals, were

interviewed in person or via telephone and asked seven questions about trauma-informed yoga. Verbatim transcripts were subjected to open-coding thematic analysis and a priori themes. Findings revealed that TIY needs to emphasize beneficial practices (e.g., diaphragmatic breath and restorative postures), consider contraindications (e.g., avoiding sequences that overly engage the sympathetic nervous system), adapt to limitations and challenges for teaching in unconventional settings (e.g., prisons, VA hospitals), and provide specialized training and preparation (e.g., specialized TIY certifications, self-care of instructors/therapists, adaptations for student needs). TIY for veterans must additionally consider gender- and culture-related barriers, differing relationships to pain and injury, and medication as a barrier to practice.

Kwasky AN, Serowoky ML. Yoga to Enhance Self Efficacy: An Intervention for At-risk Youth. Arch Psychiatr Nurs. 2018 Feb;32(1):82-85.

Abstract:

Objective: Yoga has demonstrated effectiveness in improving self-management in a variety of disease states however little is known about the impact of yoga as a health promotion intervention for adolescent females in an urban school based environment. This pilot study was conducted to determine if yoga could improve the self-efficacy and body core tone in at-risk adolescent female participants.

Method: A quasi-experimental design was employed, with data collection at baseline, end of program, and 1month post-program. Fifteen participants ages 11-14 were recruited. Yoga was practiced twice weekly for eight weeks. Self-efficacy was measured using a standardized tool, the Self-Efficacy Questionnaire for Children (SEQ-C). Improvements in flexibility and core body tone were also examined. The researchers collected data on adverse childhood events using the Adverse Childhood Event (ACEs) scale.

Results: Fifteen participants were successfully recruited and 14 (87%) were retained through the duration of the project. Based on the small sample size, non-parametric tests were used (Freidman's test). Although there were no significant improvements in total SEQ-C, there were significant improvements in SEQ-C social subscale ($p=0.028$). Significant improvements were also identified in waist circumference ($p=0.001$) and in flexibility ($p=0.034$).

Conclusions: Participant attendance/dose did not correlate to any of the outcomes, however with the physical and emotional improvements noted, it is assumed that any level of attendance was beneficial. Improvements in the social subscale of the SEQ-C could be the result of belonging to a group and strengthening healthy relationships.

Lin PJ, Peppone LJ, Janelains MC et al. Yoga for the Management of Cancer Treatment-Related Toxicities. Curr Oncol Rep. 2018 Feb 1;20(1):5.

Abstract:

Purpose Of Review: To (1) explain what yoga is, (2) summarize published literature on the efficacy of yoga for managing cancer treatment-related toxicities, (3) provide clinical recommendations on the use of yoga for oncology professionals, and (4) suggest promising areas for future research.

Recent findings: Based on a total of 24 phase II and one phase III clinical trials, low-intensity forms of yoga, specifically gentle hatha and restorative, are feasible, safe, and effective for treating sleep disruption, cancer-related fatigue, cognitive impairment, psychosocial distress, and musculoskeletal symptoms in cancer patients receiving chemotherapy and radiation and cancer survivors. Clinicians should consider prescribing yoga for their patients suffering with these toxicities by referring them to qualified yoga professionals. More definitive phase III clinical trials are needed to confirm these findings and to investigate other types, doses, and delivery modes of yoga for treating cancer-related toxicities in patients and survivors.

LoGiudice JA, Massaro J. Impact of complementary therapies on psychosocial factors in women undergoing in vitro fertilization (IVF): A systematic literature review. *Appl Nurs Res.* 2018 Feb;39:220-228

Abstract:

Aim: This review evaluates the impact of complementary therapies on psychosocial factors in women undergoing IVF.

Background: According to the CDC, nearly 7% of married women in the United States face infertility. Approximately 1.5% of all infants born in the U.S. annually are conceived through assisted reproductive technologies (ART), such as IVF. Women undergoing ART report distress, anxiety, and depression related to their treatment. Stress has been cited as the top reason why women terminate treatment. Complementary therapies, such as mind-body techniques, have been associated with decreasing stress and anxiety.

Methods: CINAHL and PubMed databases were searched for studies 1) published from January 2010 to 2017, 2) written in English, 3) that examined the effect of an complementary therapy on the psychological well-being of women undergoing, or about to be undergoing a cycle of IVF.

Results: The search revealed 11 studies published between 2010 and 2015 from a variety of countries. The most common research design was a randomized controlled trial (n=7). The psychosocial factor most frequently measured was anxiety (n=8). The forms of complementary therapy varied, with the most common being Hatha yoga, cognitive behavioral interventions, and mind-body therapies (n=2 each).

Conclusions: Utilizing complementary therapies appears to be a positive way to decrease women's anxiety, depression, distress, and stress, and to increase fertility quality of life. This review informs providers that incorporating complementary therapies into the plan of care can lead to improved psychosocial health outcomes for women undergoing IVF.

Matthews E, Carter P, Page M et al. Sleep-Wake Disturbance: A Systematic Review of Evidence-Based Interventions for Management in Patients With Cancer. Clin J Oncol Nurs. 2018 Feb 1;22(1):37-52

Abstract:

Background: New or worsening sleep-wake disturbance (SWD) can occur throughout the cancer trajectory.

Objectives: The purpose of this article is to critically review available empirical evidence supporting the efficacy of interventions for SWD, highlighting new evidence since the 2006 and 2009 Putting Evidence Into Practice (PEP) SWD publications.

Methods: A systematic review of studies published from 2009-2017 was conducted to identify effective interventions for cancer-related SWD. The PEP weight of evidence classification schema was used to categorize the strength of evidence. .

Findings: Cognitive behavioral intervention/approach is the only intervention that is recommended for practice. Mindfulness-based stress reduction and exercise interventions are likely to be effective but require more evidence. Pharmacologic interventions, relaxation, imagery, meditation, acupuncture, yoga, massage, and psychoeducation have insufficient evidence.

Middleton KR, Ward MM, Haaz Moonaz S et al. Feasibility and assessment of outcome measures for yoga as self-care for minorities with arthritis: A pilot study. Pilot Feasibility Stud. 2018; Feb 20;4: 53.

Abstract:

Background: While there is a growing interest in the therapeutic benefits of yoga, minority populations with arthritis tend to be under-represented in the research. Additionally, there is an absence of guidance in the literature regarding the use of multicultural teams and sociocultural health beliefs, when designing yoga studies for a racially diverse population with arthritis. This pilot study examined the feasibility of offering yoga as a self-care modality to an urban, bilingual, minority population with osteoarthritis (OA) or rheumatoid arthritis (RA), in the Washington, DC area.

Methods: The primary objective of the study was to assess the feasibility of offering an 8-week, bilingual yoga intervention adapted for arthritis to a convenience sample of primarily Hispanic and Black/African-American adults. A racially diverse interdisciplinary research team was assembled to design a study to facilitate recruitment and retention. The second objective identified outcome measures to operationalize potential facilitators and barriers to self-care and self-efficacy. The third objective determined the feasibility of using computer-assisted self-interview (CASI) for data collection.

Results: Enrolled participants (n = 30) were mostly female (93%), Spanish speaking (69%), and diagnosed with RA (88.5%). Feasibility was evaluated using practicality, acceptability, adaptation, and expansion of an arthritis-adapted yoga intervention, modified for this population. Recruitment (51%) and participation (60%) rates were

similar to previous research and clinical experience with the study population. Of those enrolled, 18 started the intervention. For adherence, 12 out of 18 (67%) participants completed the intervention. All (100%), who completed the intervention, continued to practice yoga 3 months after completing the study. Using nonparametric tests, selected outcome measures showed a measurable change post-intervention suggesting appropriate use in future studies. An in-person computerized questionnaire was determined to be a feasible method of data collection.

Conclusions: Findings from this pilot study confirm the feasibility of offering yoga to this racially/ethnically diverse population with arthritis. This article provides recruitment/retention rates, outcome measures with error rates, and data collection recommendations for a previously under-represented population. Suggestions include allocating resources for translation and using a multicultural design to facilitate recruitment and retention.

Monroe DC, Yin J, McCully KK et al. Yoga Aids Blood Pressure Recovery After Exposure of Forehead to Cold: A Pilot Study. *Altern Ther Health Med.* 2018 Feb 24. pii: AT5766.

Abstract:

Context • Hypotension that occurs after a single bout of aerobic exercise also attenuates the vascular response to discrete stressors, an effect that can last for hours. It is unknown whether the hypotensive benefits of traditional exercise extend to alternative forms of mindful exercise, such as yoga, to confer transient protection against neurovascular challenges that increase blood pressure (BP). Objectives • The study intended to examine the effects of acute exercise on neurovascular responses to exposure of the forehead of female yoga practitioners to vasoconstrictive cold (ie, to cold pressor stress). Design • The research team designed a study with 3 conditions (ie, with participants' participation in 3 activities on separate days in a repeated-measures design). Participants were randomly assigned to perform the activities in 1 of 3 orders across successive visits. Participants • Participants were 9 females, 20 to 33 y old, who had regularly practiced Hatha yoga from 6 mo to 12 y before the start of the study. All participants were normotensive at entry to the study and had normal body weights for their heights. Interventions • All participants performed 3 activities: (1) self-directed yoga practice, the intervention; (2) cycling exercise at a self-selected intensity, a positive control; and (3) quiet rest, a negative control. Outcome Measures • Postintervention, participants' foreheads were exposed to cold. Their systolic blood pressures (SBPs), diastolic blood pressures (DBPs), pulse rates, and forearm oxygenation were assessed using near-infrared spectroscopy. Results • Participants' SBPs and DBPs increased during cold pressor stress under all conditions, concurrent with decreased forearm oxygenation. During recovery from the cold, participants' BPs declined to near precold pressor baseline levels after yoga and cycling but remained elevated after quiet rest. Conclusions • The enhanced recovery of BP from cold applied to the forehead after yoga practice or cycling exercise suggests that both types of exercise promote a hypotensive response, which could indicate lowered cardiovascular risk.

Van Puymbroeck M, Adler K, Portz JD et al. Multidimensional Improvements in Health Following Hatha Yoga for Individuals with Diabetic Peripheral Neuropathy. *Int J Yoga Therap.* 2018 Feb 8. doi: 10.17761/2018-00027.

Abstract:

The purpose of this study was to understand the lived experience of ten individuals with diabetic peripheral neuropathy (DPN) who completed an 8-week Hatha Yoga trial. The International Classification of Function, Disability, and Health (ICF) provided the framework for this study. Two focus groups were conducted following a twice-weekly, 60-minute yoga intervention that was designed for people with DPN. Interpretative phenomenological analysis was employed to analyze the data. Themes in the data emerged related to improvements in body functions, specifically neuromuscular and movement-based function and sensory functions, as well as stress management and sleep improvement via breathwork, and social support was an essential environmental factor. These data support the bidirectionality of the ICF and demonstrate that in individuals with DPN, yoga may affect health holistically by improving body functions, activities, participation, and environmental factors. Yoga may be a tool to improve general well-being in individuals with DPN. A larger, randomized trial should be conducted to extend the findings from the present trial.

Vijayakumar V, Mavathur R, Moventhan A et al. Moving beyond HbA1C and plasma glucose levels to understand the glycaemic status in type 2 diabetes mellitus. *J Diabetes.* 2018 Feb 13. doi: 10.1111/1753-0407.12649.

Abstract:

Glycaemic status of patient with type 2 diabetes mellitus (T2DM) is widely assessed using glycated haemoglobin (HbA1C). The β -cell-centric model presupposes that all diabetes, including T2DM originates from a common denominator, the abnormal pancreatic- β -cell, and insulin resistance might not necessarily be the primary defect.¹.

Vijayakumar V, Shankar NR, Mavathur R et al. Diet enriched with fresh coconut decreases blood glucose levels and body weight in normal adults. *J Complement Integr Med.* 2018; Feb 20. pii: /j/jcim.ahead-of-print/jcim-2017-0097/jcim-2017-0097.xml. doi: 10.1515/jcim-2017-0097

Abstract:

Background There exist controversies about the health effects of coconut. Fresh coconut consumption on human health has not been studied substantially. Fresh coconut consumption is a regular part of the diet for many people in tropical countries like India, and thus there is an increasing need to understand the effects of fresh coconut on various aspects of health. Aim To compare the effects of increased saturated fatty acid (SFA) and fiber intake, provided by fresh coconut, versus monounsaturated fatty acid (MUFA) and fiber intake, provided by a combination of groundnut oil and groundnuts, on anthropometry, serum insulin, glucose levels and blood pressure in healthy adults. Materials Eighty healthy volunteers, randomized into two groups, were provided with a standardized diet along with either 100 g fresh

coconut or an equivalent amount of groundnuts and groundnut oil for a period of 90 days. Assessments such as anthropometric measurements, blood pressure, blood sugar and insulin levels were performed before and after the supplementation period. Results Results of this study showed a significant reduction in fasting blood sugar (FBS) in both the groups. However, a significant reduction in body weight was observed in the coconut group, while a significant increase in diastolic pressure was observed in the groundnut group. Conclusions Results of this study suggest that fresh coconut-added diet helps reduce blood glucose levels and body weight in normal healthy individuals.

Whitehead PB. Effect of Yoga on Chronic Nonspecific Low Back Pain. Am J Nurs. 2018 Feb;118(2):64.

Yoganandan N, Banerjee A. Survival analysis-based human head injury risk curves: focus on skull fracture. J Neurotrauma. 2018 Feb 6. doi: 10.1089/neu.2017.5356.

Abstract:

Head contact-induced loads can result in skull fractures and/or brain injuries. While skull fractures have been produced from post mortem human cadaver surrogates (PMHS), injury probability curves describing their structural responses have not been developed. The objectives of this study were to develop skull fracture-based injury risk curves and describe human tolerances using survival analysis. Published PMHS data in this journal were used. Mean age, stature, and weight of 12 PMHS were: 66.6 ± 2.3 years, 1.71 ± 2.9 m, and 76.4 ± 4.6 kg. A testing device applied contact loading to the head. Failure force, deflection, energy, and linear and secant stiffness variables were used to develop probability curves. Parametric survival analysis included identifying most optimal distribution, ensuring that the chosen distribution is not significantly different from the nonparametric model, determining $\pm 95\%$ confidence interval bounds and Normalized CI Sizes (NICS), obtaining quality indices for each risk curve, and determining their hierarchical sequence using the Brier score (TBS). Lognormal distribution was the most optimal distribution for all variables, except failure force, for which Weibull distribution was optimal. Tightness-of-fit of risk curves for failure force, energy, and deflection were better than linear and secant stiffness variables. Force best represented skull fracture response based on TBS and NCIS, followed by deflection and energy, while two stiffness variables were least preferred metrics. These structural response-based set of risk curves, hitherto not reported, form a fundamental dataset for validating/assessing accuracy of outputs from computational models and serve as hierarchical skull fracture injury criteria under head contact loads.

Zepeda Méndez M, Nijdam MJ, Ter Heide FJJ et al. Five-day inpatient EMDR treatment programme for PTSD: pilot study. Eur J Psychotraumatol. 2018 Feb 5;9(1):1425575.

Abstract:

Background: Trauma-focused psychotherapies for posttraumatic stress disorder (PTSD) have been demonstrated to be efficacious, but also have considerable non-response and dropout rates. Intensive treatment may lead to faster symptom reduction, which may contribute to treatment motivation and thereby to reduction of dropout.

Objective: The aim of the current study was to investigate the feasibility and preliminary effectiveness of an intensive five-day inpatient treatment with Eye Movement Desensitization and Reprocessing (EMDR) and trauma-informed yoga for patients with PTSD.

Method: A non-controlled pilot study with 12 adult patients with PTSD was conducted. At baseline the PTSD diagnosis was assessed with the Clinician-Administered PTSD Scale (CAPS-5) and comorbid disorders with the Mini International Neuropsychiatric Interview (MINI). Primary outcome was self-reported PTSD symptom severity (PTSD Check List for DSM-5; PCL-5) measured at the beginning of day 1 (T1), at the end of day 5 (T2) and at follow-up on day 21 (T3). Reliable change indexes (RCI) and clinically significant changes were calculated.

Results: From T1 to T3, PTSD symptoms significantly improved with a large effect size (Cohen's $d = 0.91$). Nine of the 11 patients who completed treatment showed reliable changes in terms of self-reported PTSD. At T3, two of the patients no longer met criteria for PTSD as measured with the PCL-5. One patient dropped out after the first day. No serious adverse events occurred.

Conclusions: The majority of patients in our pilot study experienced symptom reduction consistent with reliable changes in this five-day inpatient treatment with EMDR and yoga. Randomized controlled trials - with longer follow up periods - are needed to properly determine efficacy and efficiency of intensive clinical treatments for PTSD compared to regular treatment. This is one of the first studies to show that intensive EMDR treatment is feasible and is indicative of reliable improvement in PTSD symptoms in a very short time frame.