

Emerging Evidence for the Efficacy of Coaching for Attention-Deficit/Hyperactivity Disorder (ADHD)

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BACKGROUND: Coaching for Attention-Deficit/Hyperactivity Disorder (ADHD) emerged as a treatment modality in the 1990s but has received less attention than either medication use or psychotherapeutic interventions in the management of ADHD. Over the past decade, a research base examining ADHD coaching has begun to develop. This review summarizes extant outcomes research, suggesting directions for future study.

RESEARCH OBJECTIVE(S): (1) Identify extant research on coaching for ADHD; (2) Review and summarize outcome studies; (3) Suggest directions for future research.

METHODS: Most studies were identified through PubMed/Medline, EBSCO Megafire, Google Scholar, and ERIC databases using keywords “ADHD,” “executive functions,” and “coaching.” One study was found in a book, and a PowerPoint describing an additional study was found online. Only outcome studies were further reviewed.

RESULTS: Of the 22 studies identified on coaching for ADHD, 19 examined outcomes. These studies varied in design—from a case study to randomized controlled trials, and included qualitative and quantitative approaches. Studies were mostly small in size, ranging from 1 to 148 participants and 10 studies had ≤ 10 . Although studies focused on coaching for age groups from elementary school through adulthood, 53% focused on college students. Most studies examined individual coaching although three explored group coaching. Training and background of coaches varied; three studies examined peer coaching. Of the 19 outcome studies, 17 studies—including a quasi-experimental study and two randomized-controlled trials—demonstrated improvements in participant executive functioning and ADHD symptoms; 6 found improved well-being; 3 demonstrated maintenance of gains; 6 showed high satisfaction with coaching; and 4 examined factors associated with coaching success.

CONCLUSION: Extant research on outcomes of coaching for ADHD consistently shows positive findings. Coaching appears effective in supporting beneficial client outcomes and may contribute positively to multimodal treatment approaches. The most notable limitation in the research is the small sample size in many of the studies. Heterogeneity in study design, a wide variation in participant ages, varied background and training of the coaches, the use of individual vs. group sessions, and varied outcome measures make comparison of results between studies difficult. Future research addressing study limitations may extend current findings and could also examine factors potentially impacting the success of coaching, e.g., comorbidities, medication use, client motivation, and/or number of coaching sessions.

Demulcent Properties of Three Herbs Investigated Through an Online Cohort Model of Inquiry.

Clare, B. & Lamm, D.

BACKGROUND: Demulcent herbs are utilized to protect and heal irritated and inflamed tissues. Botanicals traditionally used for their mucilaginous properties have varying levels of demulcent properties, depending on their concentration in water, the duration of their infusion in water, method of agitation and the temperature of the water into which they are infused. While herbalists can agree that these variables influence the demulcent properties of the preparation, the degree to which each of these variables impacts the mucilaginous properties is not well documented. An online learning cohort assignment to investigate this question can generate large amounts of data while allowing students a peer supportive environment to experiment through active learning. A cohort of MUIH students examined the properties of three powders: marshmallow root (*Althaea officinalis*), cinnamon bark (*Cinnamomum verum*) and slippery elm inner bark (*Ulmus rubra*).

RESEARCH OBJECTIVE(S): 1) To apply preliminary data gathered by a classroom cohort to further define variables impacting the demulcent properties of infusions of three medicinal plants, 2) To demonstrate a model of preliminary data gathering through a classroom cohort, 3) To determine next steps in investigation to determine the best way to prepare these three herbs to maximize demulcent properties

METHODS: In the Herbal Therapeutics II course (HRB620b), students were assigned an experiment with all three herbs. Each student presented a complete set of data to his/her peer group, including the concentration, temperature, agitation methods and duration of the infusion for each of the three herbs. Student participants compared their variable data through an online discussion board. In addition to overall trends in data, steps improve the cohort data-gathering model were determined.

RESULTS: The three medicinal plants provided different patterns of demulcent properties when exposed to varying levels of heat, concentration, duration and agitation. Lack of sufficient controls in experimentation by students combined with inconsistent language prevented specific determinations of demulcent qualities from being made but generated feedback to revise the assignment for future data collection by the cohort model.

CONCLUSION: Medicinal demulcent use can be optimized through preparation methods. The cohort model of gathering preliminary data offers a potentially effective method to quickly gather a mass of individual data with comparative and contrasting analysis when used with clear methods and consistent language. This information could inform future inquiries and clinical practices using demulcent botanicals.

Design for a Study Exploring Individuals' Attitudes of Health and Wellness Coaching

DeMartin, R., Bolding, M., & Lichtenstein, A.

BACKGROUND: Health and Wellness Coaching (HWC) is an emerging field. Research has shown that it is an effective tool to help an individual reach and sustain lasting lifestyle changes resulting in a more balanced life, expanding capacity for managing stress, and preventing chronic diseases. While research demonstrates the positive impact of HWC, little has been published about how individuals perceive the associated benefits of working with a coach.

RESEARCH OBJECTIVE(S): Development and evaluation of a survey exploring how adult professionals view and understand the benefits of HWC.

METHODS: A "Knowledge, Attitudes, and Perception (KAP) Survey" will be created with quantitative Likert scale questions that explore the general understanding, attitudes, and interests related to HWC. The authors will also collect demographic information including prior experience with HWC. All questions will be reviewed by a faculty mentor, piloted with a test audience of fellow HWC students, and approved by the MUIH Institutional Review Board to ensure that they are valid and ethical. We will approach contacts within the Montgomery and Howard County Public School system to assist in recruiting employees for our study. Participants will be provided with a link to an anonymous online survey, which will remain active for thirty days. Based on a Six Sigma calculation, the sample size will be sixty-seven participants.

DISCUSSION: The intention of the study is to provide coaches in HWC with a greater understanding of adult professionals' attitudes towards HWC. This knowledge may help coaches determine the best approach to promote the field and their services. The authors are unaware of any previous research that examines coaching perspectives among adult professionals.

Peppermint and Lactation: Rationale and Design for a Series of N-of-1 Randomized Control Trials

Freeman, C., & Snow, J.

BACKGROUND: Informal reports and popular online breastfeeding sites suggest that peppermint (*Mentha x piperita*) intake is associated with decreased breast milk production. Despite anecdotal reports to this effect, no peer-reviewed publications address this phenomenon, nor can it be explained by known mechanisms of action. Reports of decreased supply after consumption of peppermint candies and cookies suggest that the oil may be the active fraction if there is an effect.

RESEARCH OBJECTIVE(S): The study aims to evaluate the effect of peppermint oil consumption on breast milk production in a series of individuals. The study will provide preliminary data to assess the feasibility and need for a larger trial.

METHODS: The study involves a small series (n=3-5) of double-blind n-of-1 randomized control trials. Inclusion criteria are active lactation, pumping exclusively (i.e. not breastfeeding), and being >6 months postpartum. Exclusion criteria are pregnancy and a history of hepatic or gastrointestinal disease. Participants will complete a five-day run in period followed by three ten-day phase-pairs. Each phase-pair will be randomized so that the participant receives peppermint oil (180mg enteric-coated capsules, T.I.D.) or a matched placebo for the first five days and then “crosses over” for the second half of the phase-pair. Participants will pump breast milk as usual, collect it in a provided container, and record the total volume daily. The primary outcome for each n-of-1 trial will be the difference in mean daily milk volume between placebo and treatment days.

DISCUSSION: This study will help build a knowledge base concerning peppermint oil’s effects on lactation. Lactating individuals may be able to use the n-of-1 RCT model to determine whether peppermint affects milk supply. Future studies may be needed to identify dose-response effects and to identify sub-populations that are likely to respond to peppermint oil.

Characterization of Adult Five-Element Acupuncture Patients in the United States

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BACKGROUND: Five-Element style acupuncture is distinct from the more common TCM style. Patients receiving Five-Element acupuncture treatment in the United States have not been described.

RESEARCH OBJECTIVE(S): The purpose of this cross-sectional descriptive study was to characterize the Five Element sub-population of acupuncture patients.

METHODS: Patients of alumni/students of two U.S. Five-Element acupuncture schools were provided a link to an anonymous online survey. Most of the questionnaire was extracted from the Adult Alternative Medicine supplement to the 2012 NHIS and included The PROMIS Global Short Form v1.1. Questions addressed: 1) Motivations for seeking care (positive health and well-being, health concerns, health behavior change, alignment with principles/philosophy of CAM, experience with conventional care); 2) Global health; 3) Health-related behaviors; 4) Basic demographics.

RESULTS: Descriptive statistics were performed for each section of the survey on participants who completed the questionnaire [(n = 126); # distributed and response rate unknown]. Mean (SD) respondent age was 50.8 (13.3) years; 78% female; 97% white. Most respondents reported seeking acupuncture for specific health concerns (81%), focus on “whole” person (73%) and general wellness/disease prevention (65%). Global health was generally rated as “Very Good.” Of respondents, 45% reported being bothered “Sometimes” by emotional problems in the previous 7 days, 55% reported “Mild” fatigue, and 73% reported “Mild” pain or less. Meditation was the most frequently reported mindfulness practice (51%) followed by yoga (40%). Of respondents, 60% reported ≥ 7.1 hours of sleep/day; 51% reported $> \$100,000$ annual household income; and 56% completed a “Master’s degree or higher.”

CONCLUSION: Findings suggest Five-Element patients seek acupuncture for both general well-being and health concerns, supporting previous findings of acupuncture (unspecified or TCM) most often sought to treat a specific health condition and more recent findings of an increase in acupuncture to promote general wellness. Our findings support previous findings that acupuncture use is driven by socioeconomic factors.

Effects of Time on Traditional Ethanol Extraction by Maceration: A Research Design

Missenda, M., & Miller, B.

BACKGROUND: In the 1500s, Paracelsus popularized herb extraction using long maceration times in low percentage hydro-alcoholic solutions; there has since been debate over the optimal duration length of extraction (Raubenheimer, 1910). With the development of more complex methods to shorten maceration times, the scientific focus on this traditional method of extraction (TME) is no longer a priority of the research community. Despite this shift, the practice of traditional methods of extraction continues around the world today and is often handed down without justification. This research will use two phytomedicines to explore the rationale behind this traditional step in extraction. To our knowledge, there has been no previous research focusing on justifying this step of the process.

RESEARCH OBJECTIVES: To explore hydro-alcoholic extraction by maceration using materials accessible to the small-scale herbalist to determine the optimal duration of extraction of plant constituents.

METHODS: Two samples of fresh and dried *Hydrastis canadensis* and *Echinacea angustifolia* roots will be used to test the optimal extraction time using the TME. The plant material will be ground/grated to a uniform consistency and prepared to a 1:5 concentration with ethanol. The percentage of solvent will be based on the relative water content in the dried vs. fresh root (maximum = 94.5% and minimum = 60%). This percentage of alcohol exceeds the minimum required to minimize the negative impact on the final product. Each sample will be stored at room temperature, in a light protected container with controlled agitation. Samples of each extract will be taken at 1, 3, 7, 14, 30 and 60 days. To assess the extent of extraction the following tests will be used- pH to assess the extraction of the key alkaloids and organoleptics based on American Herbal Pharmacopoeia (AHP) standards.

DISCUSSION: The current practice based on TME reflects a large range of standard maceration times that range from 3 days to up to 1 year; with the standard practice of 7-14 days reported in the 19th century for most herbs. Evaluating the optimal duration will serve to improve extract quality using this TME.

Characteristics of Students Pursuing Yoga Therapy Training in a University Setting: A Mixed-Methods Approach

Moonaz, S., Sullivan, M., Meyerink, T., & Alger, J.

BACKGROUND: The professionalization of yoga therapy in the West has seen the first Masters of Science (MS) in yoga therapy at Maryland University of Integrative Health (MUIH). The first student cohort recently graduated. Little is known about yoga therapy student characteristics in university settings; this information would help to define the role of higher education in training yoga therapists.

RESEARCH OBJECTIVE(S): To characterize students pursuing an MS in yoga therapy, including demographics, prior training, motivations and career plans.

METHODS: A mixed-methods, nested study design was used. Second year students were recruited. Participants completed a short survey and semi-structured interviews conducted by three trained interviewers from other academic departments. Trained qualitative coders identified major themes from transcribed interviews, achieving consensus on the final codebook and theme assignment using NVivo 11 Pro.

RESULTS: 19/22 students from the first cohort completed the survey; 18 completed interviews. Participants were mostly female (89%), married (53%) with a mean age of 51 years (range, 28-64), and lived mostly in Maryland and surrounding states. Heterogeneous undergraduate majors were represented, with 5 students having another graduate degree. Most were practicing yoga for 10+ years and teaching an average of 12.6 years (range, 2-39). Most students listed multiple styles of former yoga training; Ashtanga and Integral most commonly. Half were already practicing yoga therapy, and most described their current job as "yoga teacher." Major themes from interviews included: Yoga Experience, Teaching Career, Therapy Career, and Program Recommendations. Participants discussed motivations for a yoga therapy career, why a university setting, level of preparation for graduate school and career, post-graduate plans, and recommendations for the program.

CONCLUSION: Students in the first cohort of the nation's only MS in yoga therapy tended to be middle-aged female yoga teachers from surrounding states. Prior experience and training was heterogeneous for both yoga and academic degrees. The credibility of a graduate degree was a strong motivator for enrollment and preparation for the rigor of the program was varied.

Dry Needling is One Type of Acupuncture: A Literature Review

Most, H.

BACKGROUND: Acupuncture has been practiced in Western countries for more than 40 years. Recently, dry needling, a type of therapy using acupuncture needles, has gained popularity among physical therapists, generating strong debate between trained acupuncturists and physical therapists as training requirements differ significantly between groups.

RESEARCH OBJECTIVE(S): The aim of this review was to investigate components of acupuncture and dry needling and gauge similarities and differences to determine steps for ensuring patient safety with dry needling.

METHODS: Reviewer selected four features of needling technique, exploring the similarities and differences between dry needling and acupuncture, including: 1) needles used; 2) target points; 3) action mechanisms; and 4) therapeutic effects. A PubMed search with search terms “acupuncture” and “dry needling” for the years spanning 1941 to 2015 was completed to determine number of publications retrieved for each (to gauge level of interest) and how levels of interest changed. Inclusion criteria included all study types in both acupuncture and dry needling.

RESULTS: From 1941-2015, 2,163 articles were found for dry needling and 23,947 for acupuncture. The published papers showed that dry needling proponents used the language and tools of acupuncturists. Both modalities share needles, target points, action mechanisms and therapeutic effects, and treat musculoskeletal disease effectively. However, dry needling training generally is significantly less than acupuncturists’.

CONCLUSION: Dry needling is one type of acupuncture, and therefore requires adequate training to ensure patient safety. Collaboration and integration should be strengthened between dry needling practitioners and acupuncturists so that the patients can receive safe and high-quality treatment. This can only occur with adequate training. Solutions include: sharing resources for further research and mutual benefit between the two disciplines; adequate training for anyone who uses acupuncture needles in clean-needle skills; establishment of regulations for education and training of dry needling practitioners; and establishing continuing education requirements.

Cross-Sectional Analysis of eHealth Literacy Characteristics within Herbal Supplement Users

Nault, D., Maty, S., & Hanes, D.

BACKGROUND: As it is currently identified in the literature, eHealth Literacy (eHL) is comprised of core fundamental (CeHL) skills, as well as more advanced appraisal skills, which enable users to locate, apply, and evaluate health information found online. Current research suggests that the public regularly uses online health resources to guide their healthcare decisions, especially those who choose to use herbal dietary supplements. For this reason, it is important to identify whether herbal supplement users (HSUs) exhibit the CeHL attributes that would suggest they are able to find applicable health information online.

RESEARCH OBJECTIVE: Our primary objective was to explore CeHL attribute variables representing: general education, tech/internet familiarity, information seeking, and beneficial health behaviors, within the HSU subpopulation.

METHODS: In this analysis, CeHL attribute variables were initially identified within the National Health Interview Survey (NHIS) data via Factor Analysis. The NHIS is an annual interview survey, used to collect health data from U.S. citizens. Distribution of CeHL variables as well as logistic regressions were examined to identify the likelihood of CeHL attributes occurring among HSUs.

RESULTS: On average, HSUs were older (43.41, SD=13.17), Caucasian (86.8%), and married (57%). HSUs also report the highest group proportion engaging in preventative health care measures such as HIV testing (40.8%), tetanus vaccination (70.9%) and hepatitis (40.7%) vaccination. In all regression models, HSUs were more likely to report seeking health information and interaction with the health care system online, than non-HSUs.

CONCLUSION: When compared to others in the U.S. population, HSUs appear to show a higher likelihood of exhibiting CeHL attributes. This work suggests HSUs report having the theoretically constructed *capabilities to find and apply* online health information. However, this still indicates a need for further research on whether HSUs can correctly *appraise* the health information once found.

Case Report: Yoga Therapy to Self-Manage Chronic Pain and the Psychosocial-Spiritual Impacts of Posttraumatic Syringomyelia

Richards, M., & Moonaz, S.

BACKGROUND: Posttraumatic syringomyelia is a rare, intractable neurological condition that involves formation of an intra-cord cyst (known as a syrinx) and disrupted flow of cerebrospinal fluid. Surgery is a last resort and neurological medications present negative risks and side effects. This case report examines the use of applied yoga therapeutics to self-manage chronic pain and address the psychosocial-spiritual ramifications of living with an unseen, difficult-to-treat neurological condition. It highlights the impacts of observer bias on the therapeutic relationship.

CASE DESCRIPTION: The client was a 19-year-old female undergraduate student and competitive rower. She was diagnosed with a thoracic cord syrinx after months of intensifying chronic pain and disordered sleep with inhibited thoracocostal mobility that resulted in breathing difficulties. In lieu of pharmaceutical management, the client chose to participate in a short-duration, intensive course of yoga therapy to improve pain, thoracic and rib cage mobility, breath function and sleep quality. She also sought relief from sustained levels of anxiety, fear, social isolation and a sense of disconnection from her inner self. The initial plan of care, which focused on physical and breathing practices, was ineffectual at reducing the client's pain and stress levels. Reevaluation included a new program of physical and breathing exercises. However, the therapeutic focus shifted toward the energetic practices of mudra (symbolic hand gestures), mantra (silent or vocal repetition of a life-affirming phrase) and visualization, leading to improvements in physical comfort, sleep quality and self-concept.

CONCLUSION: An intensive course of comprehensive yoga therapy may offer unique opportunities to improve individuals' self-perception, self-esteem and self-advocacy. This case seems to indicate that the change in emphasis from a structural approach toward the subtle body practices of yoga therapy helped the client achieve multiple gains in quality of life. Younger clients with a chronic disease, in particular, may gain effective yoga-based tools to navigate the challenges relating to a lifelong diagnosis. Randomized controlled trials of intensive yoga therapy as an early intervention, especially with youth and young adults, to address the psychosocial-spiritual impacts of chronic pain and diagnosis of an intractable condition, are warranted.

Yoga Therapy Pilot Study for Children with Autism: Rationale and Study Design

Searl, K., & Sullivan, M.

BACKGROUND: Autism Spectrum Disorder (ASD) is associated with behavioral deficits and anxiety. Increasing tolerance in reacting to and managing the input of new stimuli encountered daily are essential strategies to improve function in everyday life. Abnormal sensory processing may contribute to the lack of socialization and connection with others. Yoga interventions have been found to help with anxiety in ASD and to have benefits in self-regulation for psychological health. Yoga may also represent a novel modality to improve tolerance, resilience, sensory processing, socialization, and connection in ASD.

RESEARCH OBJECTIVE(S): To describe the rationale and development of a yoga therapy intervention for children with ASD, providing self-regulatory strategies to increase tolerance and better manage anxiety/panic in response to new stimuli.

METHODS: An evidence-informed protocol was developed for a population of children aged 11-14 with High Functioning Autism (HFA), IQ of 70 or greater with medical or educational diagnoses of ASD. A pilot study was developed to look at the feasibility and potential benefit of offering yoga therapy to address anxiety, tolerance to stimuli, socialization, and connection in ASD. Ten students from the Monroe County Educational Center will be enrolled. All students will receive this intervention (e.g., two times weekly for individual yoga therapy for 16 weeks with a home practice of three times weekly) with staggered start times. Outcome measurement tools to assess self-regulation for tolerance to change, self-efficacy, sleep disturbances; gross movement patterns and anxiety will be given pre, mid, and post during the sixteen week intervention time.

DISCUSSION: This study design will help to determine if yoga therapy is feasible to help develop self-regulatory tools for increased self-efficacy in children with ASD. Yoga may be a cost efficient and safe means to gain self-efficacy tools for self-regulation.

A Correlational Study Examining Institutional Culture and Faculty Perceptions of Online Learning in Chiropractic Higher Education

Smith, K.

BACKGROUND: Technological advances are challenging universities to explore alternative teaching paradigms to allow students an opportunity to learn in online environments. Particularly, healthcare higher education in disciplines such as chiropractic medicine offers minimal online education, with a limited presence in online learning innovation. Awareness among higher education leadership of institutional culture and its influence on faculty perceptions of online learning aids in successful planning and implementation of strategic innovation initiatives.

RESEARCH OBJECTIVE(S): The objective of this study was to assess the relationship among collegium, bureaucracy, enterprise, and corporate institutional culture types and faculty perceptions of online learning in chiropractic higher education.

METHODS: With a relatively small total population, the purposive sampling technique was employed to select participating faculty. Data was collected by dissemination of the Faculty Perceptions of Distance Education and the Institutional Culture Model validated instruments through use of a third party web-based survey management tool. Quantitative data consisted of 131 faculty respondents from six chiropractic institutions. Pearson's (r), analysis of variance (ANOVA), and multiple regression statistical tests were conducted to examine plausible relationships among the variables.

RESULTS: Statistical findings determined that collegium, enterprise, corporate institutional culture, faculty age, and years working at one's current institution were not significantly related to faculty perceptions of online learning. Conversely, Pearson's ($r = -.309$) $p = .001$ and multiple regression ($\beta = -.302$, $t = -3.541$) $p = .001$ statistical test results indicated a significant relationship between bureaucracy institutional culture and faculty perceptions of online learning. Multiple regression analyses suggested gender ($\beta = -0.206$, $t = -2.23$) $p = .028$, ethnicity ($\beta = -0.199$, $t = -2.15$) $p = .034$, and employment status ($\beta = .303$, $t = 3.42$) $p = .001$ were significantly related to faculty perceptions of online learning.

CONCLUSION: Compared to all other institutional culture types, bureaucracy institution's faculty responses displayed greater negative perceptions of online learning. Female faculty was shown as more likely than male faculty to adopt innovative education technology. Non-white faculty members had significantly higher perceptions of online learning than white faculty, and full-time faculty displayed greater positive perceptions of online learning when compared to part-time faculty.

Characteristics of Yoga Therapists Currently Practicing in North America: A Cross-sectional Descriptive Survey

Sullivan, M., Leach, M., Snow, J., & Moonaz, S.

BACKGROUND: Despite advances in yoga therapy research, education and practice, little is known about the yoga therapy workforce.

Research Objective(s): To describe the personal, professional, practice, service and consumer characteristics of the North American Yoga Therapist workforce.

METHODS: Development of a 27-item yoga therapy workforce survey was informed by contemporary workforce literature and expertise of the research team. Self-identified, practicing yoga therapists residing in North America (US and Canada), who were members of the International Association of Yoga Therapists, were invited by email to participate in the e-survey.

RESULTS: 367 (7.1%) members responded. Most were aged 40-69 years (88%) and female (91%). Almost half identified as a “seasoned yoga therapist” (42%) and only a few graduated from an accredited 800-hour program. An average of 8 hours per week was spent in clinical practice with many (41%) earning an annual income of less than US \$10,000 from yoga therapy practice. Twenty different styles of yoga therapy were practiced. Urban (39%) and suburban (38%) were the most common locations of practice. Both therapeutic yoga classes (91%) and 1:1 sessions (94%) were delivered with the frequency being 1-10 classes (53%) and 1-10 1:1 sessions per month (52%). The cost and duration of classes averaged US\$15 for 60-75 minutes; for 1:1 sessions, it was US\$80 for 60-90 minutes (initial consult) and US\$75 for 60-75 minutes (follow-up). Conditions seen most frequently among clients were anxiety (77%), back/neck pain (77%) and joint pain/stiffness (67%).

CONCLUSION: While yoga therapists shared similar demographic profiles with yoga users and other complementary and integrative health (CIH) providers, they tended to work less and earn less than their CIH counterparts. Yoga therapists were less likely to work in rural settings, possibly contributing to the underutilization of yoga in underserved populations. This study highlights several obstacles facing the growth of the field of yoga therapy.

Understanding North American Yoga Therapists' Attitudes, Skills and Use of Evidence-Based Practice: A Cross-National Survey

Sullivan, M., Leach, M., Snow, J., & Moonaz, S.

BACKGROUND: Little is known about the adoption of Evidence-Based Practice (EBP) by yoga therapists (YTs).

RESEARCH OBJECTIVE(S): To determine the attitudes, skills, training, use, barriers and facilitators of EBP uptake amongst a population of North American YTs.

METHODS: The Evidence-Based practice Attitude and Utilization SurVEy (EBASE) was modified for the study population. A link to the online survey was emailed and completed by self-identified North American YTs who were members of the International Association of Yoga Therapists.

RESULTS: Responses were provided by 367 (7.1%) members. Attitudes towards EBP were generally positive with more than three quarters agreeing/strongly agreeing that professional literature and research findings were useful and necessary for the day-to-day practice of yoga therapy. Most (80%) were interested in improving the skills necessary to incorporate EBP into their practice. The majority agreed that EBP improves the quality of patient care (68%), assists in making decisions (74%) and takes into account the therapist's clinical experience when making clinical decisions (59%). Moderate to moderately-high levels of perceived skill in EBP were reported with regard to EBP uptake in the past month, mostly utilizing online search engines (51%). Lack of clinical evidence was the only moderate or major barrier to uptake considered by a large proportion of YTs (48%). Other factors listed were either perceived as not a barrier or only a minor barrier. Access to online EBP education materials (70.6%), ability to download full-text journal articles (69.2%) and access to free online databases in the workplace (67.3%) were considered very useful facilitators to EBP by at least two-thirds of participants.

CONCLUSION: YTs have positive attitudes, moderate to moderately-high levels of perceived skill and moderate uptake in EBP. This puts them in line with other complementary and integrative health and allied health practitioners. Several initiatives were identified to assist in the support of the adoption and clarification of EBP.

Putting the Cart before the Horse: A Narrative Review of Using DNA Methods for Quality Assurance in the Herbal Supplement Industry

Tims, M.

BACKGROUND: In 2015 the New York State Attorney General attempted to establish the use of DNA barcoding methods to ensure that herbal supplement products contained the plant material listed on product labels. DNA barcoding effectively identifies animal species using a universal animal barcode. However, these types of data are absent for plants. The resulting publicity resulted in concern and confusion among consumers of herbal products.

RESEARCH OBJECTIVE(S): As applied to plant species in finished herbal products: 1) evaluate the effectiveness of using a DNA barcoding method; 2) describe published “fit for purpose” approaches.

METHODS: A literature review was conducted on primary research detailing the use of DNA methods to identify or speciate plants used in the herbal supplement industry. Additional data was used from presentations at the 2016 International Conference on the Science of Botanicals.

RESULTS: A DNA barcoding method identifies short, characteristic sequences of DNA and compares these sequences between taxa. To be useful for taxonomic differentiation, those sequence must be unique within each taxonomic subunit (e.g., species) and different between dissimilar taxonomic units. Identifying unique, universal DNA sequences for plants has not been identified. Additionally, *fit for purpose* DNA methods used to speciate plants must overcome several confounding factors, including: 1) problems in amplification of specific sequence fragments; 2) lack of variability in the chosen sequence between different plants; 3) degradation of DNA during the manufacturing process; 4) foreign organic matter (fragments of neighboring plants or microbial contaminants) found in commercial samples. Even when the technique correctly identifies the plant, DNA testing cannot identify the plant part used. Because many of the herbs in supplements are botanical extracts, not plant material, it may be unable to identify the plant ingredients. And many of these methods currently used in the herbal supplement industry are proprietary and cannot be verified.

CONCLUSION: This review suggests that three important issues remain in developing a viable, DNA-based quality assurance tool: (1) finding appropriate sequences; (2) developing more methods that are *fit for purpose* as opposed to a one-size-fits-all approach; and (3) plant-specific DNA methods must be validated with existing, pharmacopoeial chemical analytical methods.

The Efficacy of Magnesium on Reducing Migraine Headaches in Adults: A Literature Review

Whitaker, T., Martin, E., Simpson, L., Farmer, P., & Dixon, M.

BACKGROUND: Thirty-seven million Americans are affected with migraines. While conventional migraine treatments are effective for some patients, many physicians and patients are looking for integrative non-pharmaceutical options.

RESEARCH OBJECTIVE(S): The aim of this review was to summarize the evidence for the efficacy of oral magnesium supplements and magnesium-rich therapeutic foods in reducing migraine headaches.

METHODS: A PubMed search was conducted using MeSH terms with the search string, “adult AND migraine disorder AND magnesium.” A filter of only randomized control trials was used.

RESULTS: The search returned twelve studies, only six of which were high quality and therefore included in the review. Results were screened using the SIGN Checklist for Controlled Trials. Only trials rated as “high quality” that tested the effects of magnesium against a control were used in the final review. There were 511 total participants whose results were measured in the six studies, with populations ranging from 30 to 126 patients who met migraine criteria of the International Headache Society (IHS). All studies used the IHS Scale to assess self-reported symptoms. Four of the six trials demonstrated a clinically significant effect for magnesium oral supplementation compared to placebo control in mitigating migraine symptoms. Two studies compared magnesium alone to magnesium plus standard treatment and found that magnesium was effective, but not as strong as the combined treatment. The most common effective dose was one-gram of magnesium with no significant increased benefits of higher doses. These studies measured the effects of magnesium supplements as a treatment during a migraine attack and further research is needed for magnesium as a preventative measure.

CONCLUSION: Early research suggests that magnesium may be effective in reducing migraine headaches. Along with its important functions in the body, adding magnesium-rich foods to the diet—or supplementing for acute attacks—may be a treatment option for migraine sufferers.