Naturopathic Approaches to Pain

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Naturopathic Medicine Overview

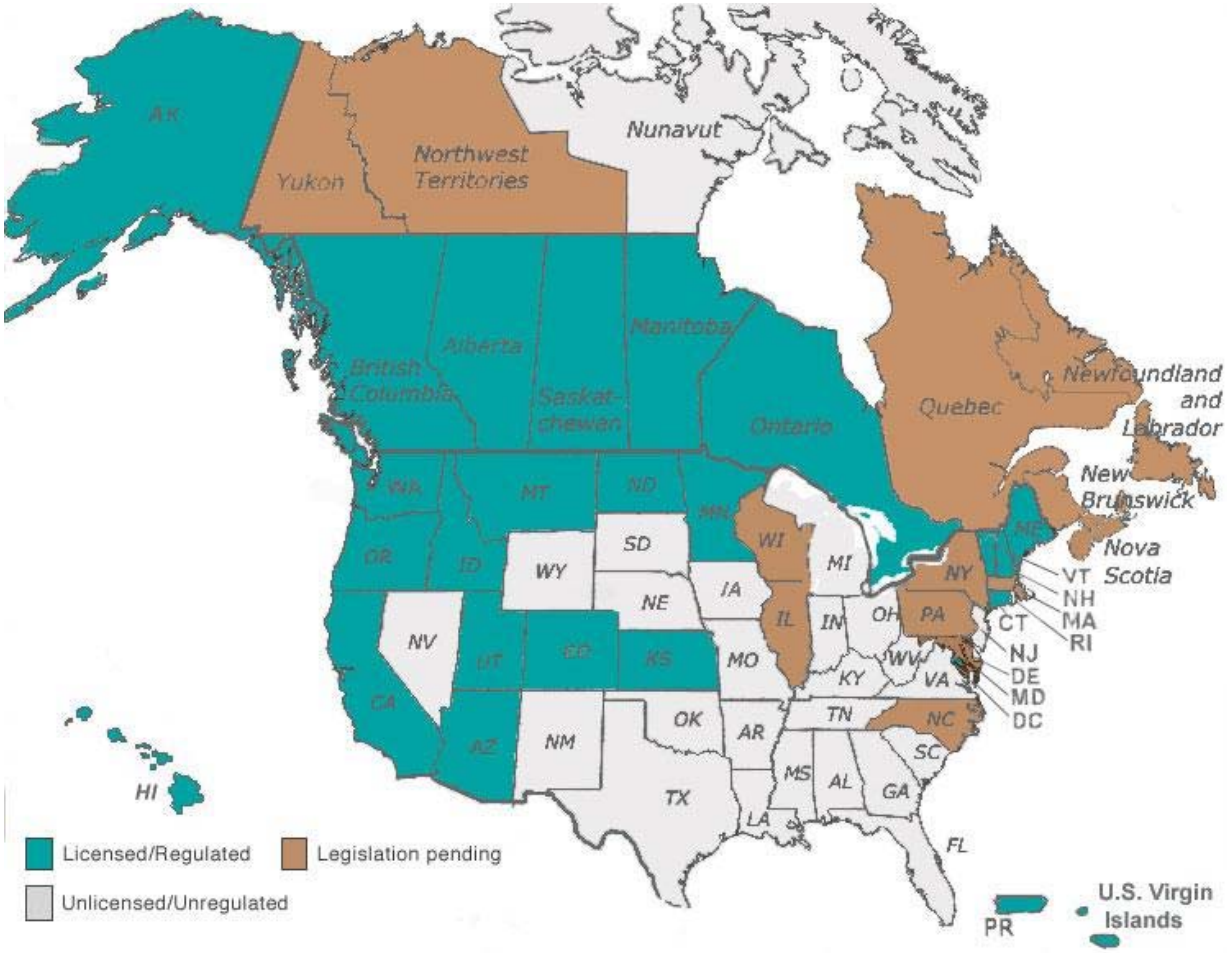
Naturopathic medicine

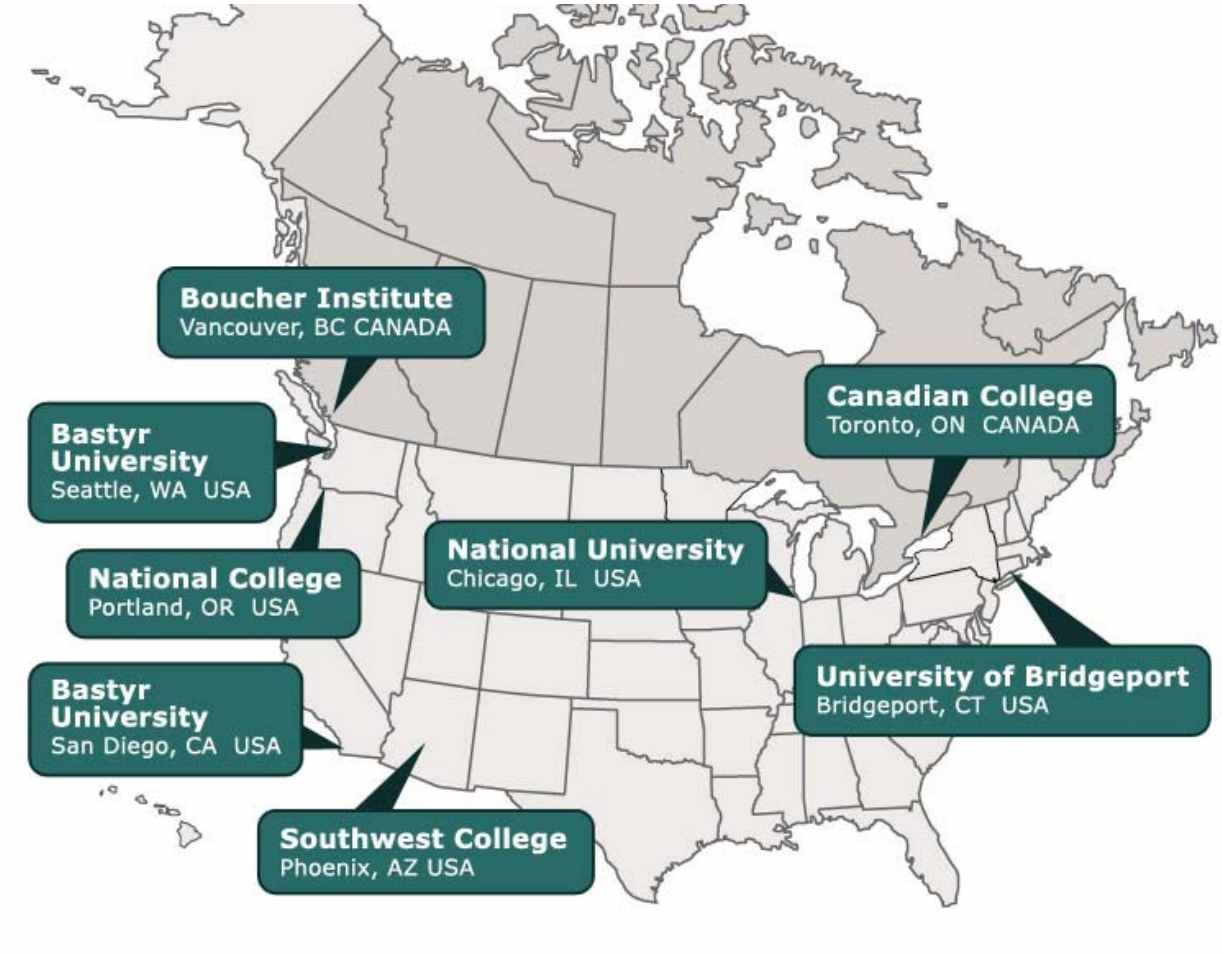
- Naturopathic medicine is a distinct method of primary health care - an art, science, philosophy and practice of diagnosis, treatment, and prevention of illness. Naturopathic physicians seek to restore and maintain optimum health in their patients by emphasizing nature's inherent self-healing process, the *vis medicatrix naturae*. This is accomplished through education and the rational use of natural therapeutics.

Profession

- There are about 5000 licensed naturopathic doctors in North America.
- 16states and 5 provinces have licensing laws
- Variation in scope of practice
- Many NDs in unlicensed states working on a state law

Licensed jurisdictions www.aanmc.org

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Bridgeport, CT USA

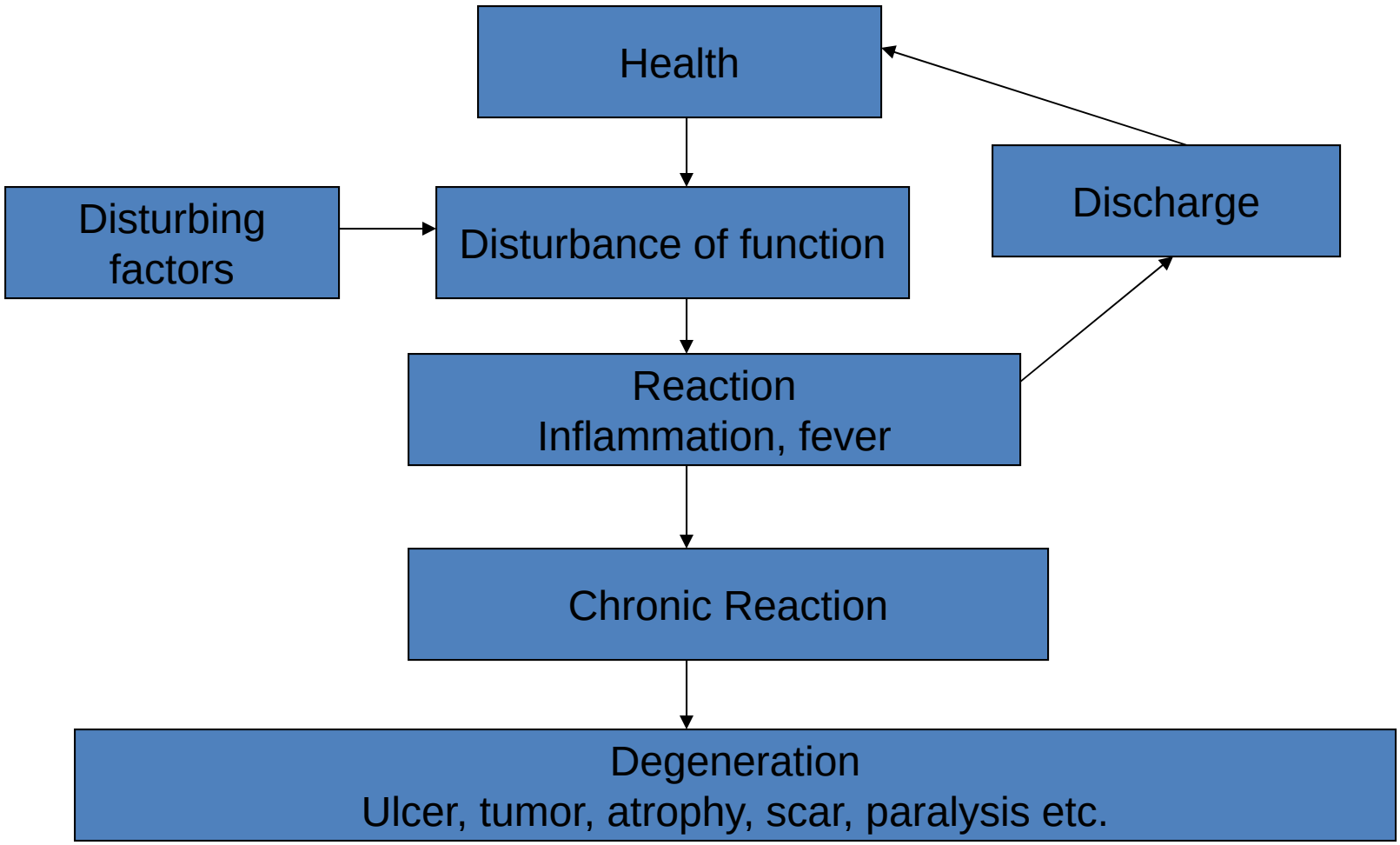
Therapies

- Lifestyle counseling
- Clinical nutrition
- Botanical medicine
- Homeopathy
- Acupuncture
- Physical medicine
- Minor surgery, parenteral therapy, other procedures

Naturopathic Principles

- The healing power of nature -*Vis medicatrix naturae*
- First do no harm
- Doctor as teacher
- Treat the cause
- Treat the whole person
- Prevention

The Process of Healing



Principles

- The healing power of nature -*Vis medicatrix naturae*
- *Primum non nocere* -First do no harm
- *Docere* - Doctor as teacher
- Treat the cause
- Treat the whole person
- Prevention

Find the Cause: What's driving the pain?

- Impingement of a nerve
- Metabolic issues
- Nerve damage due to diabetes
- Pain signaling dysfunction
- High systemic levels of inflammation

Doctor as Teacher: The Determinants of Health

- Sleep
- Exercise
- Hydration
- Supportive relationships
- Nutrition

Psychophysiology. 2016 May;53(5):605-10. doi: 10.1111/psyp.12610. Epub 2016 Jan 20.

A preliminary study on how hypohydration affects pain perception.

Bear T[1,2,3], Philipp M[2], Hill S[2], Mündel T[1].

Author information

Abstract

Chronic pain is a prevalent health issue with one in five people suffering from some form of chronic pain, with loss of productivity and medical costs of chronic pain considerable. However, the treatment of pain can be difficult, as pain perception is complex and can be affected by factors other than tissue damage. This study investigated the effect of hypohydration (mild, voluntary dehydration from ~24 h of limiting fluid intake, mimicking someone drinking less than usual) on a person's pain perception. Seventeen healthy males (age 27 ± 5 years) visited the laboratory on three occasions, once as a familiarization and then twice again while either euhydrated (urine specific gravity: 1.008 ± 0.005) or hypohydrated (urine specific gravity: 1.024 ± 0.003, and -1.4 ± 0.9% body mass). Each visit, they performed a cold pressor test, where their feet were placed in cold water (0-3 °C) for a maximum of 4 min. Measures of hydration status, pain sensitivity, pain threshold, and catastrophization were taken. We found that hypohydration predicted increased pain sensitivity (β = 0.43), trait pain catastrophizing, and baseline pain sensitivity (β = 0.37 and 0.47, respectively). These results are consistent with previous research, and suggest that a person's hydration status may be an important factor in their perception of acute pain.

KEYWORDS: Analysis/statistical methods; Cold pressor; Hydration; Pain; Sensation/perception; Young adults

Vasquez, 2008

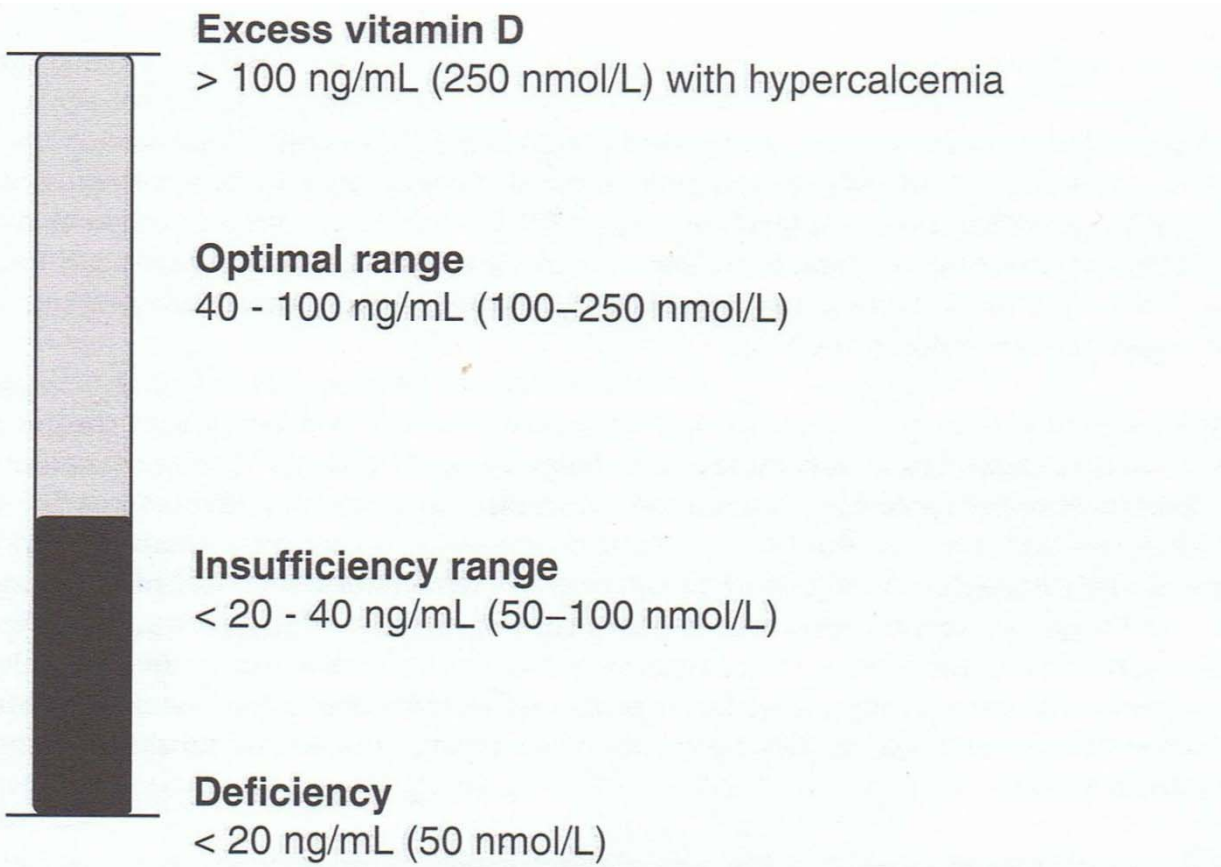
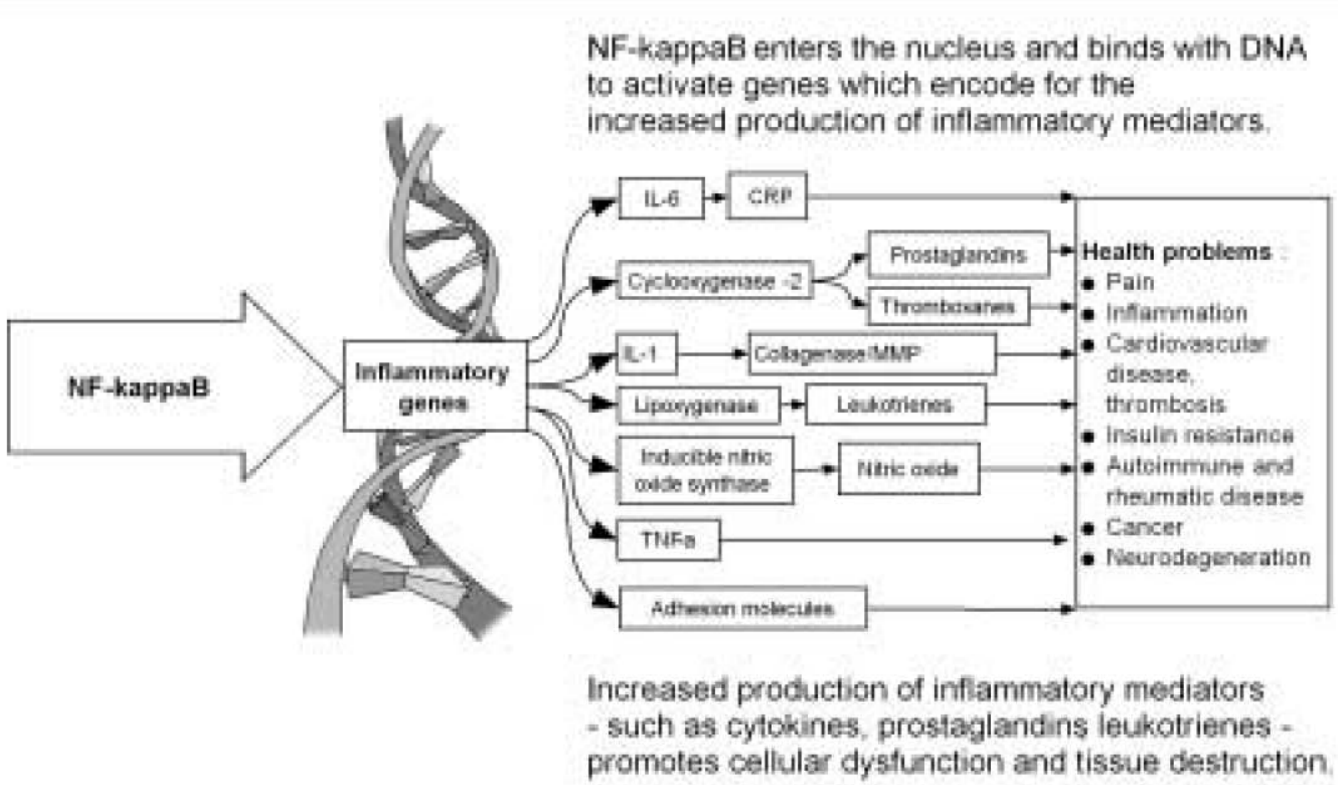


Figure 2.1—Interpretation of Serum 25(OH)D Levels

Adapted from Vasquez A, Manso G, Cannell J. *Altern Ther Health Med*. 2004;10:28-37.36

Consider the whole person: Inflammation

- Higher inflammatory states in the body can exacerbate pain
- Dietary imbalances, such as excess Omega 6 fats in proportion to Omega 3 fats, and high insulin states can contribute
- But excess saturated fats might contribute to inflammation too


NF-kappaB enters the nucleus and binds with DNA to activate genes which encode for the increased production of inflammatory mediators.
NF-kappaB
Inflammatory genes
IL-6
CRP
Cyclooxygenase -2
Prostaglandins
Thromboxanes
IL-1
Collagenase/MMP
Lipoxygenase
Leukotrienes
Inducible nitric oxide synthase
Nitric oxide
TNFa
Adhesion molecules
Health problems
Pain
Inflammation
Cardiovascular disease, thrombosis
Insulin resistance
Autoimmune and rheumatic disease
Cancer
Neurodegeneration
Increased production of inflammatory mediators - such as cytokines, prostaglandins leukotrienes - promotes cellular dysfunction and tissue destruction.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Servings Per Container:	60

	Amount per Serving	% Daily Value
Calories	10	
Calories from Fat	10	
Total Fat	1 g	2%*
Neptune Krill Oil (NKO®))	**1 g (1,000 mg)**	**†**
Omega-3 Fatty Acids	230 mg	†
Eicosapentaenoic Acid (EPA)	120 mg	†
Docosahexaenoic Acid (DHA)	70 mg	†
Phospholipids	390 mg	†
Esterified Astaxanthin	750 mcg	†

* Percent Daily Values are based on 2,000 calorie diet.

† Daily Value not established.

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BJA Advance Access published August 17, 2011

British Journal of Anaesthesia Page 1 of 13
doi:10.1093/bja/aer260

BJA

Topical capsaicin for pain management: therapeutic potential and mechanisms of action of the new high-concentration capsaicin 8% patch

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Editor's key points

- Topical capsaicin is used in pain management.
- The mechanism of action (MoA) was thought to be by depletion of substance P.
- A more likely MoA is described as 'defunctionalization', and involves alteration of several mechanisms involved in pain.
- A new higher concentration (8%) patch shows promise in pain management.

Summary. Topical capsaicin formulations are used for pain management. Safety and modest efficacy of low-concentration capsaicin formulations, which require repeated daily self-administration, are supported by meta-analyses of numerous studies. A high-concentration capsaicin 8% patch (Qutenza™) was recently approved in the EU and USA. A single 60-min application in patients with neuropathic pain produced effective pain relief for up to 12 weeks. Advantages of the high-concentration capsaicin patch include longer duration of effect, patient compliance, and low risk for systemic effects or drug–drug interactions. The mechanism of action of topical capsaicin has been ascribed to depletion of substance P. However, experimental and clinical studies show that depletion of substance P from nociceptors is only a correlate of capsaicin treatment and has little, if any, causative role in pain relief. Rather, topical capsaicin acts in the skin to attenuate cutaneous hypersensitivity and reduce pain by a process best described as 'defunctionalization' of nociceptor fibres. Defunctionalization is due to a number of effects that include temporary loss of membrane potential, inability to transport neurotrophic factors leading to altered phenotype, and reversible retraction of epidermal and dermal nerve fibre terminals. Peripheral neuropathic hypersensitivity is mediated by diverse mechanisms, including altered expression of the capsaicin receptor TRPV1 or other key ion channels in affected or intact adjacent peripheral nociceptive nerve fibres, aberrant re-innervation, and collateral sprouting, all of which are defunctionalized by topical capsaicin. Evidence suggests that the utility of topical capsaicin may extend beyond painful peripheral neuropathies.

Keywords: capsaicin; nerve growth factor; neuropathic pain; nociceptor; TRPV1

Topical capsaicin formulations are widely used to manage considered as idiopathic. Furthermore, we seek to elucidate

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Supplement Facts

serving size: 3 capsules

	amount per serving
Boswellia serrata Gum Extract (alpha & beta Boswellic acids min. 30% by HPLC)	600mg*
Bromelain (high potency)	300mg*
Curcumin longa Rhizome Extract (total Curcuminoids min. 85-90% by HPLC)	600mg*
Quercetin dihydrate (min. 90% by HPLC)	300mg*

* Daily Value not established

Other Ingredients: Gelatin Capsule, Magnesium Silicate, Silicated Cellulose, Silica and Leucine.

If pregnant, consult your physician before taking.

Examples of herbal nervines/ anodynes

- Passiflora incarnata – Passionflower
- Hypericum perforatum – St. Johns Wort
- Piscidia erythrina – Jamaican dogwood
- Salix nigra – black willow bark

BMC Complement Altern Med. 2016 Feb 24;16:77. doi: 10.1186/s12906-016-1048-6.

Passiflora incarnata attenuation of neuropathic allodynia and vulvodynia apropos GABA-ergic and opioidergic antinociceptive and behavioural mechanisms.

Aman U[1], Subhan F[2], Shahid M[3], Akbar S[4], Ahmad N[5], Ali G[6], Fawad K[7], Sewell RD[8].

Author information

Abstract

BACKGROUND: Passiflora incarnata is widely used as an anxiolytic and sedative due to its putative GABAergic properties. Passiflora incarnata L. methanolic extract (PI-ME) was evaluated in an animal model of streptozotocin-induced diabetic neuropathic allodynia and vulvodynia in rats along with antinociceptive, anxiolytic and sedative activities in mice in order to examine possible underlying mechanisms.

METHODS: PI-ME was tested preliminary for qualitative phytochemical analysis and then quantitatively by proximate and GC-MS analysis. The antinociceptive property was evaluated using the abdominal constriction assay and hot plate test. The anxiolytic activity was performed in a stair case model and sedative activity in an open field test. The antagonistic activities were evaluated using naloxone and/or pentylenetetrazole (PTZ). PI-ME was evaluated for prospective anti-allodynic and anti-vulvodynic properties in a rat model of streptozotocin induced neuropathic pain using the static and dynamic testing paradigms of mechanical allodynia and vulvodynia.

RESULTS: GC-MS analysis revealed that PI-ME contained predominant quantities of oleamide (9-octadecenamide), palmitic acid (hexadecanoic acid) and 3-hydroxy-dodecanoic acid, among other active constituents. In the abdominal constriction assay and hot plate test, PI-ME produced dose dependant, naloxone and pentylenetetrazole reversible antinociception suggesting an involvement of opioidergic and GABAergic mechanisms. In the stair case test, PI-ME at 200 mg/kg increased the number of steps climbed while at 600 mg/kg a significant decrease was observed. The rearing incidence was diminished by PI-ME at all tested doses and in the open field test, PI-ME decreased locomotor activity to an extent that was analagous to diazepam. The effects of PI-ME were antagonized by PTZ in both the staircase and open field tests implicating GABAergic mechanisms in its anxiolytic and sedative activities. In the streptozotocin-induced neuropathic nociceptive model, PI-ME (200 and 300 mg/kg) exhibited static and dynamic anti-allodynic effects exemplified by an increase in paw withdrawal threshold and paw withdrawal latency. PI-ME relieved only the dynamic component of vulvodynia by increasing flinching response latency.

CONCLUSIONS: These findings suggest that Passiflora incarnata might be useful for treating neuropathic pain. The antinociceptive and behavioural findings inferring that its activity may stem from underlying opioidergic and GABAergic mechanisms though a potential oleamide-sourced cannabimimetic involvement is also discussed.

PMID: 26912265 PMCID: PMC4765057 DOI: 10.1186/s12906-016-1048-6

[PubMed - indexed for MEDLINE] Free PMC Article

Herbal anodynes

- Can be useful but can interact with drugs:
- Increase or decrease drug level in the body
- Add to the effect of the drug in a way that is too much for the patient (too much sedation)
- Not automatically out of the question – but doctor must look at metabolic pathway of drug and herb and what the literature says about reports of interactions

Natural pharmacology

- Natural substances can have powerful effects on pain
- In the naturopathic model we would address causes and determinants of health first
- Sometimes these substances work synergistically
- They are not always a replacement for prescription medicines – but interactions must be anticipated and avoided

Eur Rev Med Pharmacol Sci. 2014;18(18):2766-71.

Peripheral neuropathy in obstetrics: efficacy and safety of α-lipoic acid supplementation.

Costantino M[1], Guaraldi C, Costantino D, De Grazia S, Unfer V.

Author information

Abstract

OBJECTIVE: Neuropathic pain during pregnancy is a common condition due to the physical changes and compression around pregnancy and childbirth that make pregnant women more prone to develop several medical conditions such as carpal tunnel syndrome, sciatica, meralgia paraesthetica and other nerve entrapment syndromes. Most of the treatments usually performed to counteract neuropathic pain are contraindicated in pregnancy so that, the management of these highly invalidating conditions remains an issue in the clinical practice. We aimed to review the efficacy and safety of alpha lipoic acid supplementation in the treatment of neuropathic pain.

DISCUSSION: Lipoic acid is a co-factor essential in the regulation of mitochondrial energy. It has been demonstrated that lipoic acid supplementation is involved in several biochemical processes and actions, exerting important antioxidant and anti-inflammatory activity and significantly improving pain and paraesthesia in patients with sciatica, carpal tunnel syndrome and diabetic neuropathy.

CONCLUSIONS: Efficacy of lipoic acid is combined with a high safety profile, making this molecule a novel candidate for the management of several diseases. Data reported so far are promising and dietary supplementation with lipoic acid seems a useful tool to contrast neuropathic pain during pregnancy.

PMID: 25317815

AAPS J. 2009 Dec;11(4):710-27. doi: 10.1208/s12248-009-9146-8. Epub 2009 Oct 27.

Herb-drug interactions with St John's wort (Hypericum perforatum): an update on clinical observations.

Borrelli F[1], Izzo AA.

Author information

Abstract

St John's wort (SJW) extracts, prepared from the aerial parts of Hypericum perforatum, contain numerous pharmacologically active ingredients, including naphthodianthrones (e.g., hypericin and its derivatives), phloroglucinols derivatives (e.g., hyperforin, which inhibits the reuptake of a number of neurotransmitters, including serotonin), and flavonoids. Such extracts are widely used for the treatment of mild-to-moderate depression. As a monotherapy, SJW has an encouraging safety profile. However, relevant and, in some case, life-threatening interactions have been reported, particularly with drugs which are substrate of cytochrome P450 and/or P-glycoprotein. Well-documented SJW interactions include (1) reduced blood cyclosporin concentration, as suggested by multiple case reports as well as by clinical trials, (2) serotonin syndrome or lethargy when SJW was given with serotonin reuptake inhibitors, (3) unwanted pregnancies in women while using oral contraceptives and SJW, and (4) reduced plasma drug concentration of antiretroviral (e.g., indinavir, nevirapine) and anticancer (i.e., irinotecan, imatinib) drugs. Hyperforin, which is believed to contribute to the antidepressant action of St John's wort, is also strongly suspected to be responsible of most of the described interactions.

PMID: 19859815 PMCID: PMC2782080 DOI: 10.1208/s12248-009-9146-8

Med Sci Monit. 2012 Apr;18(4):CR215-24.

Intravenous vitamin C in the treatment of shingles: results of a multicenter prospective cohort study.

Schencking M[1], Vollbracht C, Weiss G, Lebert J, Biller A, Goyvaerts B, Kraft K.

Author information

Abstract

BACKGROUND: Vitamin C is an immune-relevant micronutrient, which is depleted in viral infections and this deficiency seems to play a critical role in the pathogenesis of herpes infections and in the development of postherpetic neuralgia. The objective of this observational multicenter study was to evaluate the utilization, safety and efficacy of intravenously administrated vitamin C in patients with shingles.

MATERIAL/METHODS: Between April 2009 and December 2010 16 general practitioners recorded data of 67 participants with symptomatic herpes zoster who received vitamin C intravenously (Pascorbin® 7.5 g/50 ml) for approximately 2 weeks in addition to standard treatment. The assessment of pain (VAS) and the dermatologic symptoms of shingles such as hemorrhagic lesions and the number of efflorescences were investigated in a follow-up observation phase of up to 12 weeks.

RESULTS: Mean declines of pain scores (VAS), number of affected dermatomes and efflorescences, and the presence of hemorrhagic vesicles between the baseline and follow-up assessments at 2 and 12 weeks were statistically significant. Overall, 6.4% of the participants experienced post-herpetic neuralgia. Common complaints such as general fatigue and impaired concentration also improved during the study. The effects and the tolerability of the treatment were evaluated positively by the physicians. The risk of developing PHN was reduced.

CONCLUSIONS: The data presented here provide evidence that concomitant use of intravenously administered ascorbic acid may have beneficial effects on herpes zoster-associated pain, dermatologic findings and accompanying common complaints. To confirm our findings, randomized, placebo-controlled clinical studies are necessary.

PMID: 22460093 PMCID: PMC3560828

[PubMed - indexed for MEDLINE] Free PMC Article

Proc Nutr Soc. 2014 Feb;73(1):106-17. doi: 10.1017/S0029665113003650. Epub 2013 Oct 22.

Endocannabinoid system and pain: an introduction.

Burston JJ[1], Woodhams SG[2].

⊕ Author information

Abstract

The endocannabinoid (EC) system consists of two main receptors: cannabinoid type 1 receptor cannabinoid receptors are found in both the central nervous system (CNS) and periphery, whereas the cannabinoid type 2 receptor cannabinoid receptor is found principally in the immune system and to a lesser extent in the CNS. The EC family consists of two classes of well characterised ligands; the N-acyl ethanolamines, such as N-arachidonoyl ethanolamide or anandamide (AEA), and the monoacylglycerols, such as 2-arachidonoyl glycerol. The various synthetic and catabolic pathways for these enzymes have been (with the exception of AEA synthesis) elucidated. To date, much work has examined the role of EC in nociceptive processing and the potential of targeting the EC system to produce analgesia. Cannabinoid receptors and ligands are found at almost every level of the pain pathway from peripheral sites, such as peripheral nerves and immune cells, to central integration sites such as the spinal cord, and higher brain regions such as the periaqueductal grey and the rostral ventrolateral medulla associated with descending control of pain. EC have been shown to induce analgesia in preclinical models of acute nociception and chronic pain states. The purpose of this review is to critically evaluate the evidence for the role of EC in the pain pathway and the therapeutic potential of EC to produce analgesia. We also review the present clinical work conducted with EC, and examine whether targeting the EC system might offer a novel target for analgesics, and also potentially disease-modifying interventions for pathophysiological pain states.

PMID: 24148358 DOI: 10.1017/S0029665113003650

Polyphenols

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Current Drug Targets, 2016, *17*, 000-000

REVIEW ARTICLE

New Pharmacological Approaches Using Polyphenols on the Physiopathology of Neuropathic Pain

Pere Boadas-Vaello[1,*], José Miguel Vela[2] and Enrique Verdú[1]

[1]*Group of Clinical Anatomy, Embryology, and Neuroscience (NEOMA); Department of Medical Sciences, University of Girona, E-17071 Girona, Spain;* [2]*ESTEVE, Drug Discovery and Preclinical Development. Parc Científic de Barcelona, E-08028 Barcelona, Spain*

ARTICLE HISTORY

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DOI:
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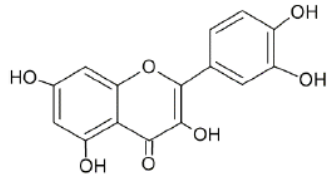
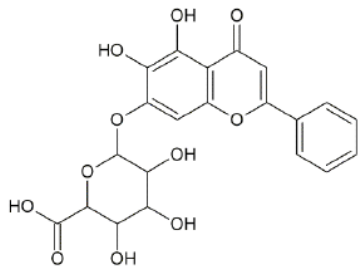
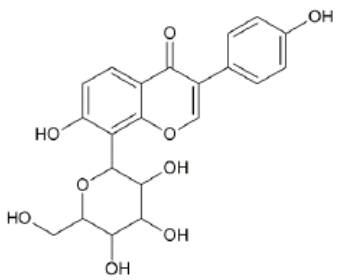
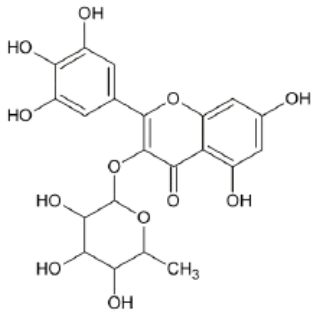
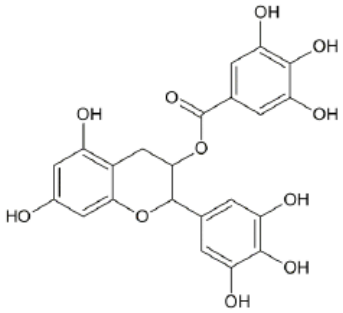
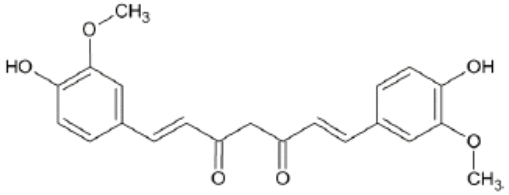
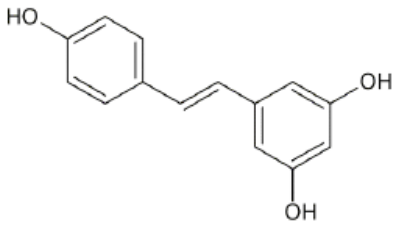
Abstract: Polyphenols constitute a group of a paramount importance within the natural products in the plant kingdom, with an approximate amount of 8000 phenolic structures currently known. Fruits, vegetables, whole grains and several other foods and beverages (as tea, chocolate and wine, for instance) are rich and important sources of polyphenols. The scientific literature provides pre-clinical experimental evidence on the antinociceptive effects of polyphenolic compounds, found in plant extracts, in animal models of neuropathic pain. But not only neuopathic pain is attenuated: in fact, nociceptive pain, caused by stimulation of nerve fibers (either somatic or visceral) responding only to stimuli approaching or exceeding harmful intensity thresholds (nociceptors), and also inflammatory pain, which is associated with tissue damage and infiltration of immune cells, are both reduced and alleviated by polyphenols. In the present work, the antinociceptive effects of polyphenols are reviewed.

Table 1. Anti-nociceptive effects of polyphenols (for details see text).

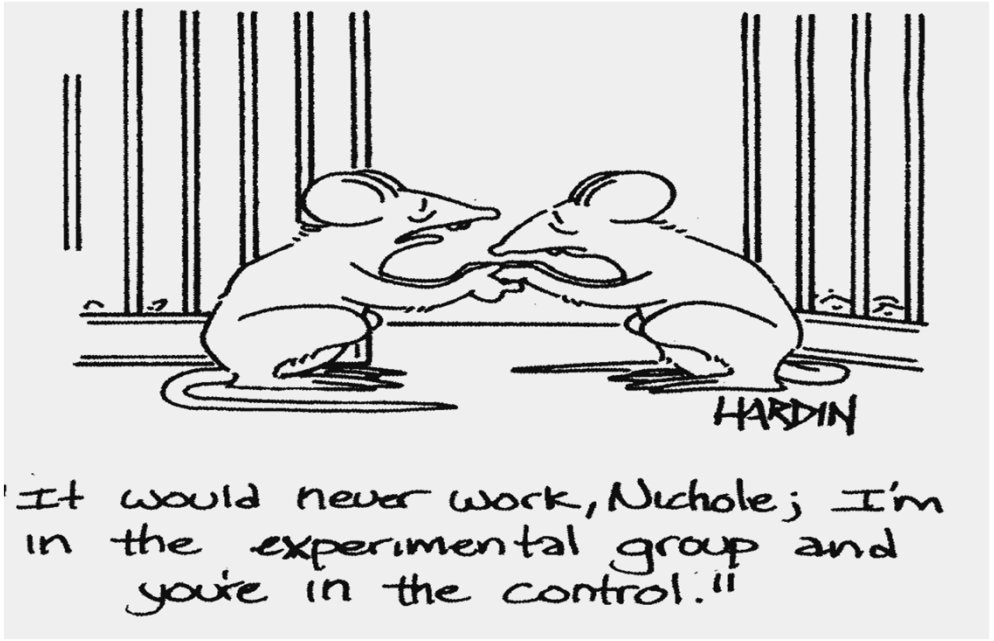
Drug	Chemical Structure	Polyphenol Group	Proposed Mechanism of Action	Dose and Route of Administration	Pharmacological Effects Shown in Animal Models
Quercetin		Flavonol	Involving interaction with L-arginine-NO, serotonin, and GABAergic systems. Scavenges reactive oxygen and nitrogen species. Inhibits phosphodiesterases. Exerts inhibitory effects on prominent pro-inflammatory signaling pathways (STAT1, NF-kappaB, MAPK).	STZ: 100 mg/kg (p.o.) [61]; chemotherapy: 25-100 mg/kg (i.p.) [64]; formalin/carrageenan: 10-100 mg/kg (i.p.) [65].	↓ Hyperalgesia and/or allodynia after: (i) STZ-induced diabetic neuropathic pain, (ii) chemotherapy-induced neuropathic pain, (iii) formalin/carrageenan-induced pain.
Baicalin		Flavone	Inhibition of TNF-α, NO, PGE2 and ROS overexpression. Down-regulation of TRPV1 mRNA and protein expression.	SNL: 2 µg/µL (i.t.) [74]; formalin/carrageenan: 150 mg/kg (p.o) [75], 10-100 mg/kg (i.p.) [77].	↓ Hyperalgesia and/or allodynia after: (i) spinal nerve ligation, (ii) formalin/ carrageenan-induced pain.

Puerarin		Isoflavonoid	Reduced expression of pro-inflammatory cytokines (IL-6, IL-1β, TNF-α). Reduced expression of purinergic receptors ($P2X_3$, $P2X_{2/3}$, $P2X_3$, $P2X_7$).	CCI and STZ: 4-10 mM (i.t.) [80]; CCI: 100 mg/kg (i.p.) [81].	↓ Hyperalgesia and/or allodynia after: (i) chronic constriction injury (CCI), (ii) STZ-induced diabetic neuropathic pain.
Myricitrin		Flavonoid	Inhibition of the activation of nociceptorsvia inhibition of PKC pathways. Inhibition of pro-inflammatory mediators (TNF-α, NO). Modulation of ion channels and p38MAPK.	PSNL and CFA: 30 mg/kg (i.p.) [87]; acetic acid-induced visceral pain: 0,01-10 mg/kg (i.p.) [88]; intraplantar injection of algogens: 10-100 mg/kg (i.p.) [89].	↓ Mechanical allodynia after: (i) partial ligation of the sciatic nerve (PSNL), (ii) inflammatory pain induced by CFA, (iii) acetic acid-induced visceral pain, (iv) intraplantar injection of a variety of chemical algogens, (v) formalin/carrageenan-induced pain.
Epigallocatechin-3-gallate		Flavanol	Reduction of myeloperoxidase, iNOS and COX-2 activities. Reduction of pro-inflammatory cytokines (TNF-α, IL-1β). Modulation of p38MAPK, JNK, NF-kappaB pathways.	SCI: 50 mg/kg (i.p.) [93], 10-20 mg/kg (i.t.) [95], 20 mg/kg (i.v.) [96]; CCI: 1mg/kg (i.t.) [42]; STZ: 2g/L in water drink [97]; CFA: 60 and 120 mg/kg (p.o) [104]; post-traumatic: 25 mg/kg (i.p.) [105].	↓ Hyperalgesia and/or allodynia after: (i) spinal cord injury (SCI), (ii) chronic constriction injury (CCI), (iii) STZ-induced diabetic neuropathic pain, (iv) alcoholic neuropathy, (v) inflammatory pain induced by CFA, (vi) mouse model of post-traumatic osteoarthritis.

Drug	Chemical Structure	Polyphenol Group	Proposed Mechanism of Action	Dose and Route of Administration	Pharmacological Effects Shown in Animal Models
Curcumin		Phenolic acid	Modulation of ERK, STAT3, JNK, NF-kappaB pathways. Reduced expression of BDNF, COX2, 11-β-HSD1, CX3CR1, and pro-inflammatory cytokines (TNF-α, IL-1β, IL-6).	CCI: 50 mg/kg (p.o) [50], 12.5-50 mg/kg (i.p.) [53]; SNL: 200 µg (i.t.) [115]; STZ: 60 mg/kg (p.o.) [114], 50 mg/kg (i.p.) [117]; formalin/carrageenan: 3-400 mg/kg (p.o.) [119]; CFA: 100 mg/kg (i.p.) [122], 10-30 mg/kg (i.p.) [123]; postoperative pain: 50 mg/kg (i.p.) [124].	↓ Hyperalgesia and/or allodynia after: (i) chronic constriction injury (CCI), (ii) spinal nerve ligation (SNL), (iii) STZ-induced diabetic neuropathic pain, (iv) formalin/carrageenan-induced pain, (v) inflammatory pain induced by CFA, (vi) mice models of postoperative pain.
Resveratrol		Stilbene	Reduction of NOS and COX2 activity and NO production. Inhibition of AMPK and production of IL-6. Down-regulation of NMDA (NR1, NR2B) expression.	CCI: 30 mg/kg (p.o.) [133]; SNL: 30 µg/µL (i.t.) [131]; STZ: 10-20 mg/kg (i.p.) [129], 5-20 mg/kg (p.o.) [130]; formalin/carrageenan: 0.4-50 mg/kg (i.p.) [138].	↓ Hyperalgesia and/or allodynia after: (i) chronic constriction injury (CCI), (ii) spinal nerve ligation (SNL), (iii) STZ-induced diabetic neuropathic pain, (iv) formalin/carrageenan-induced pain.

Individualization

- Everyone is different, and while statistically probabilities about what is likely to work are very, very valuable, there can be very different needs among people with the same condition



Bharat B. Aggarwal , Shishir Shishodia
Molecular targets of dietary agents for prevention and
therapy of cancer.
b i o c h e m i c a l pharma c o logy 7 1 (2 0 0 6) 1 3 9 7– 1 4 21

Tea
(Catechins)

Red grapes
(Resveratrol)

Turmeric
(Curcumin)

Communication is important

- Practitioners should share information not just work in parallel
- This helps avoid interactions
- It can also be good for the patient – and remove tension from all of their health care

RESEARCH LETTER

Nondisclosure of Complementary and Alternative Medicine Use to Primary Care Physicians: Findings From the 2012 National Health Interview Survey

Although one-third of US adults report using complementary and alternative medicine (CAM), integration of CAM into the conventional medical system is inconsistent.[1] Patients have shown a desire for their primary care physicians to inquire about CAM and refer to CAM practitioners (acupuncturist, massage therapists, etc), but primary care physicians rarely initiate conversations with patients about their use of CAM.[2,3] Patients have also expressed concerns about discussing the use of CAM with their physicians, fearing disapproval.[4] These communication barriers may prevent CAM from becoming fully integrated into patients' treatment and self-care routines, especially if patients do not disclose their use of CAM to their primary care physicians. Using data from the 2012 National Health Interview Survey (NHIS), we identified patterns of CAM use in the United States and reasons for its nondisclosure from January 1 through December 31, 2012.

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Methods | The NHIS is an annual survey conducted by the National Center for Health Statistics about health and health care use. The 2012 NHIS contains responses from 108 131 individuals in 42 366 households, of whom 34 525 adults completed the Sample Adult component and the Adult Alternative Medicine supplement. Our sample consists of 7493 civilian, noninstitutionalized US adults 18 years and older who completed the CAM supplement and indicated having used CAM during the past 12 months and having a personal primary care physician.

Respondents were asked whether they told their physician about using the CAM modality identified as most important to their health during the previous year. Those who did not were asked whether their nondisclosure was due to one of the following: (1) belief that their physician did not need to know about their CAM use, (2) past discouragement of CAM use by their physician, (3) potential discouragement of CAM use by their physician, (4) a potentially negative response from their physician, (5) doubts concerning their physician's knowledge about their most used CAM modality, (6) their physician not asking about CAM use, (7) not having time to discuss CAM use during visits with their physician, or (8) not using CAM at the time of their visit.

One- and 2-way tabulations were used to elucidate nondisclosure rates and reasons for nondisclosure according to respondents' most-used CAM modality. All analyses were weighted to be nationally representative and were done with Stata, version 11.2 (Stata Corp). All analyses were limited to publicly available, deidentified data, which does not meet the definition of human subjects research as determined by the University of Minnesota Institutional Review Board and therefore did not require board review.

Table 1. Disclosure of CAM Use by 7493 US Adults in the Past Year, NHIS 2012

Characteristic	No. Unweighted (Weighted %)
Used or Disclosed CAM	
Used CAM at least once during past 12 mo	7493 (34.5)
Did not disclose use of most-used CAM modality to primary care physicians	3094 (42.3)
Disclosed Use of CAM Modality	
Herbs and/or supplements	2196 (75.1)
Chiropractic and/or osteopathic manipulation	2037 (61.1)
Massage	1009 (42.2)
Yoga, tai chi, or qi gong	849 (35.3)
Mantra meditation or mindfulness	503 (36.0)
Other	317 (59.9)
Special diets	268 (60.9)
Acupuncture	180 (64.5)
Homeopathy	134 (48.7)

Abbreviations: CAM, complementary and alternative medicine; NHIS, National Health Interview Survey.

Results | Of the 34 525 adults who completed the CAM supplement to the 2012 NHIS, 10 158 (29.6%) reported using CAM at least once in the past year, and 22 765 (66.3%) had a primary care physician. Of 7493 respondents who fit both criteria, 3094 (42.3%) did not disclose the use of their most used CAM modality (**Table 1**). Nondisclosure was most common among those using yoga (537 [64.7%]) and meditation (312 [64.0%]), and least common among users of herbs and/or supplements (564 [24.9%]) and acupuncture (66 [35.5%]). Nondisclosure was most often due to physicians not asking about CAM (1759 [57.0%]) and respondents believing that physicians did not need to know about their CAM use (1432 [46.2%]), and least often due to past (68 [2.0%]) or potential (96 [2.8%]) discouragement of CAM use by physicians (**Table 2**).

Discussion | One-third of the US adult population use CAM; however, 42.3% of CAM users do not discuss CAM use with their primary care physicians. Contrary to earlier findings, our results attribute most nondisclosure to physicians not asking about CAM use or to concerns about physician knowledge regarding CAM rather than to physician discouragement or negativity about the use of CAM. Consequently, physicians should consider more actively inquiring about patients' use of CAM, especially for modalities likely to be medically relevant. Incorporating more education about CAM into medical curricula can better equip physicians to initiate conversations with

- Over a third of patients in this survey who used CAM and had a primary care physician did not disclose their use of CAM therapy.

Thank you and good luck

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