Over the Counter Supplements and Essential Oils

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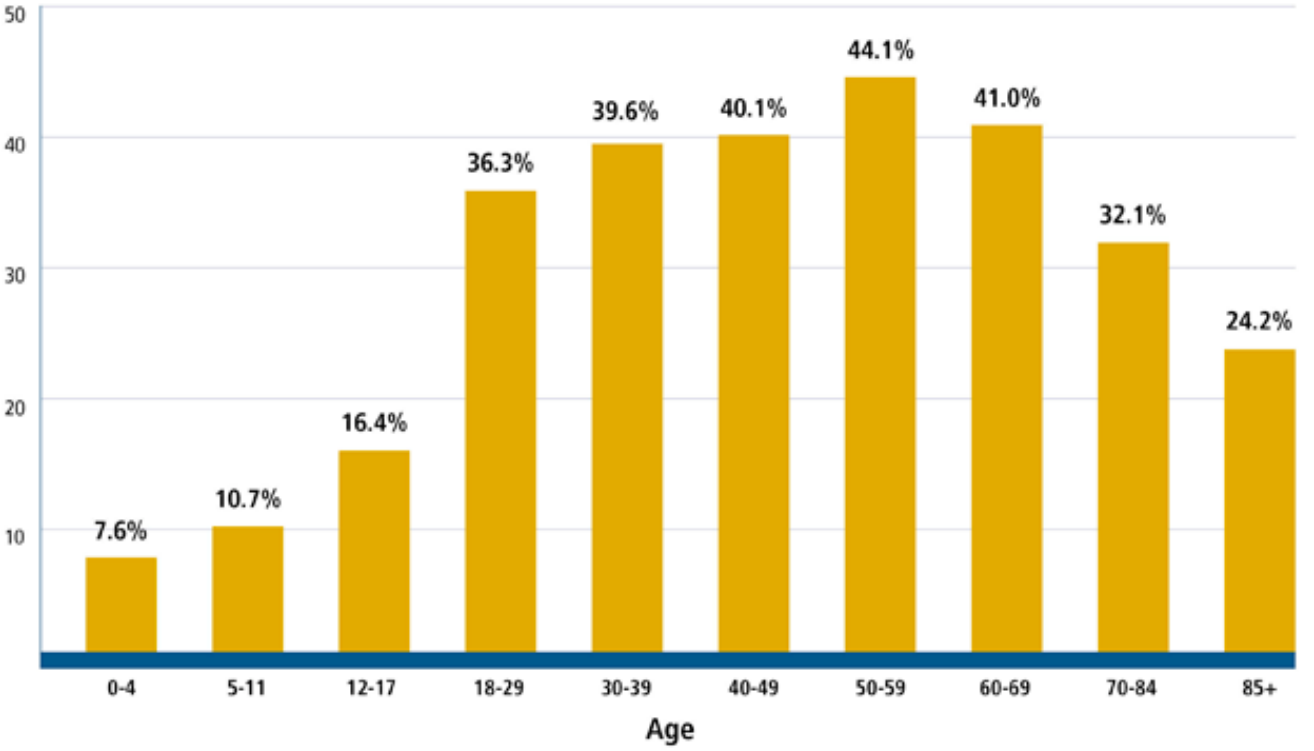
Objectives

- Review Complementary and Alternative Medicine use in the United States
- Discuss the use of Dietary Supplements and Interactions
- Review commonly used Essential Oils

CAM Use by Age - 2007

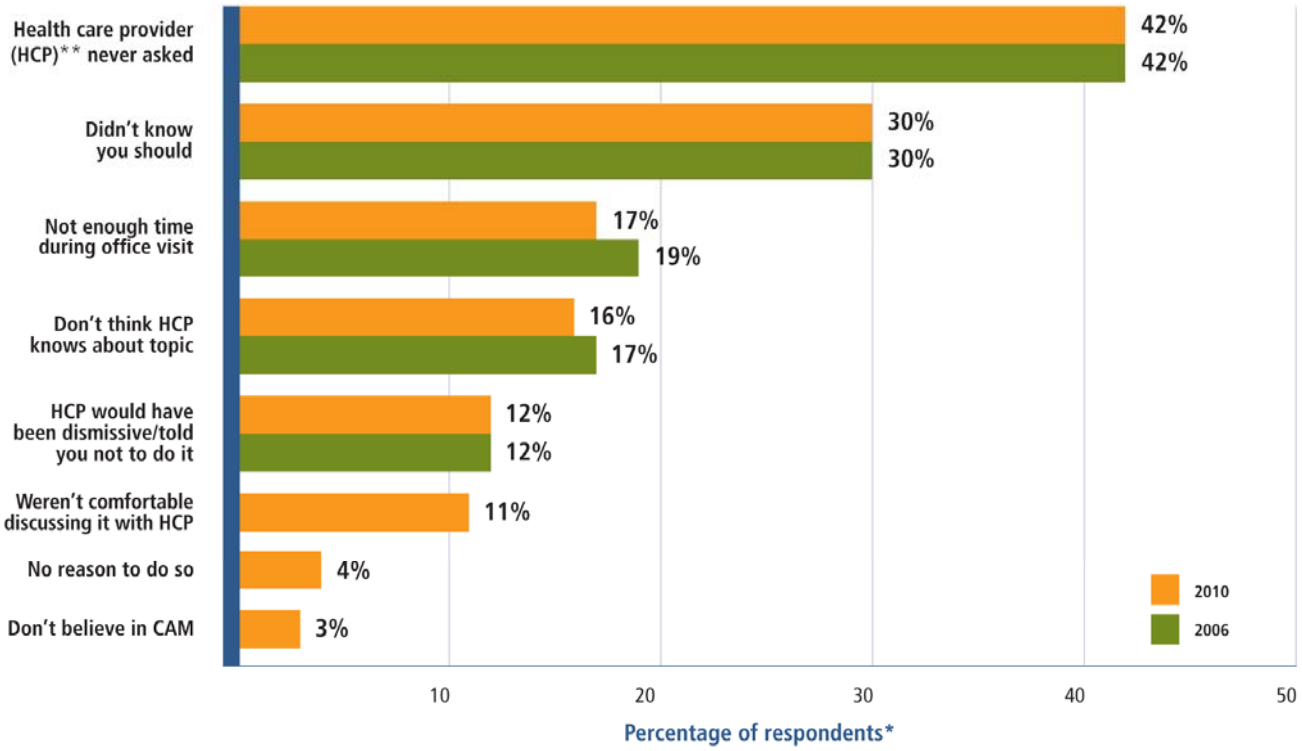


Source: Barnes PM, Bloom B, Nahin R. *CDC National Health Statistics Report #12*. Complementary and Alternative Medicine Use Among Adults and Children: United States, 2007. December 2008.

Discussion…

- 67% of respondents reported that they had not discussed CAM with any health care provider
- Of the 33% who did, it was reported to be brought up by:
  - 55% of patients
  - 26% of health care providers
  - 14% a relative or friend
  - 1% someone else
  - 4% did not know or refused to respond.

Reasons CAM Was Not Discussed With Health Care Provider



*Base: Respondents who have never discussed CAM with a health care provider. 2010: n=656; sampling error = ± 3.8 percentage points. 2006: n=1,097; sampling error = ± 3.0 percentage points.

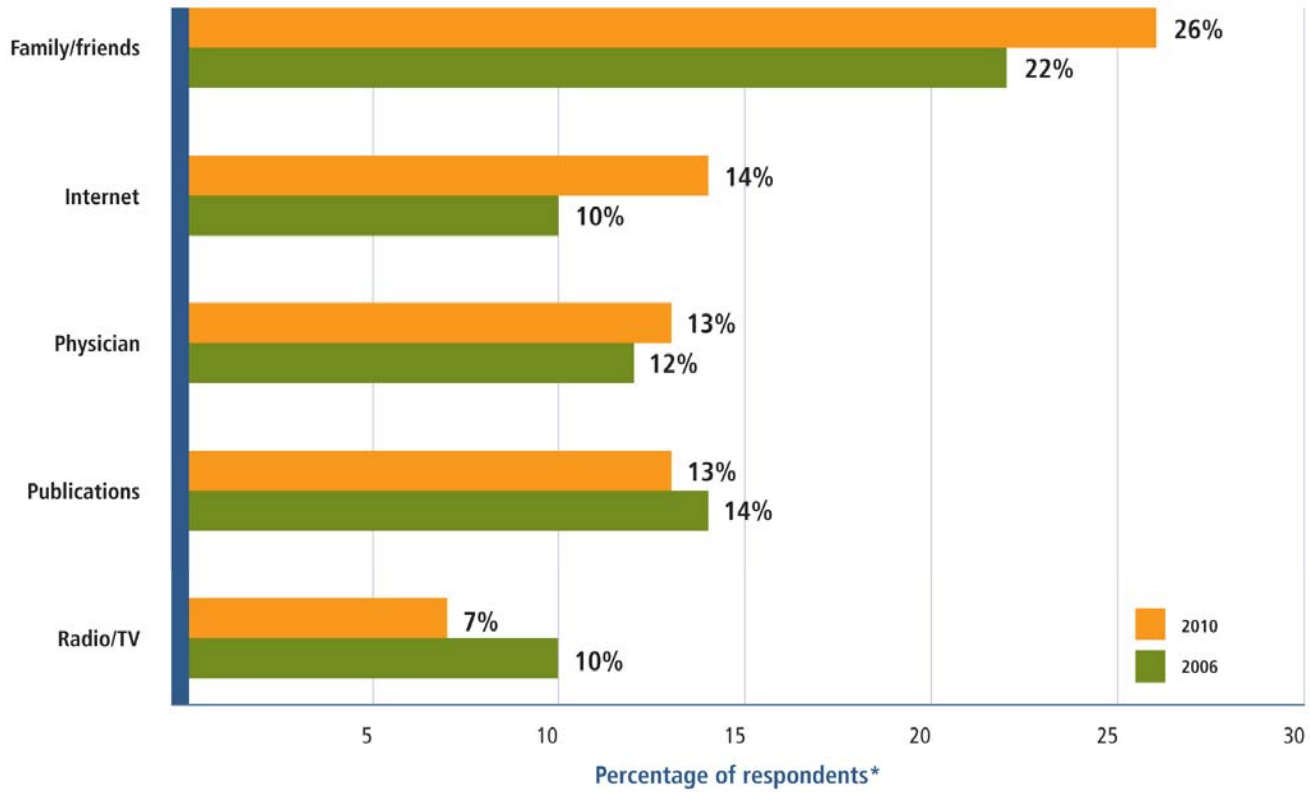
**The term "health care provider" was used in the 2010 survey; "doctor" was used in the 2006 survey.

Source: AARP/NCCAM Survey of U.S. Adults 50+, 2006 and 2010

Health Care Providers most often discussed:

- Potential of interactions between CAM and other medications or treatments, 44%
- Advice on whether to pursue CAM treatments, 41%
- Effectiveness of CAM therapies, 41%
- Types of CAM to use, 40%
- Safety of CAM therapies, 38%
- Getting more information, 28%
- Referrals to CAM practitioners, 21%

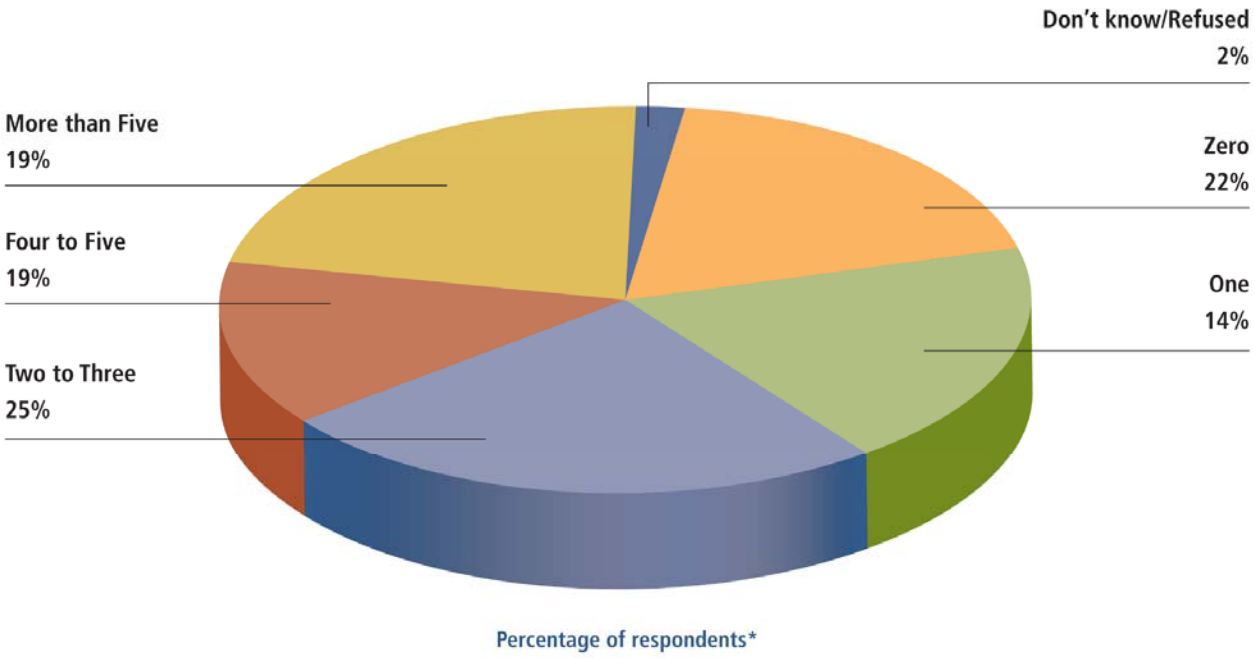
Primary Source of CAM Information



*Base: Respondents who used CAM in past 12 months or ever. 2010: n=539; sampling error = ± 4.2 percentage points.
2006: n=1,005; sampling error = ± 3.1 percentage points.

Source: AARP/NCCAM Survey of U.S. Adults 50+, 2006 and 2010

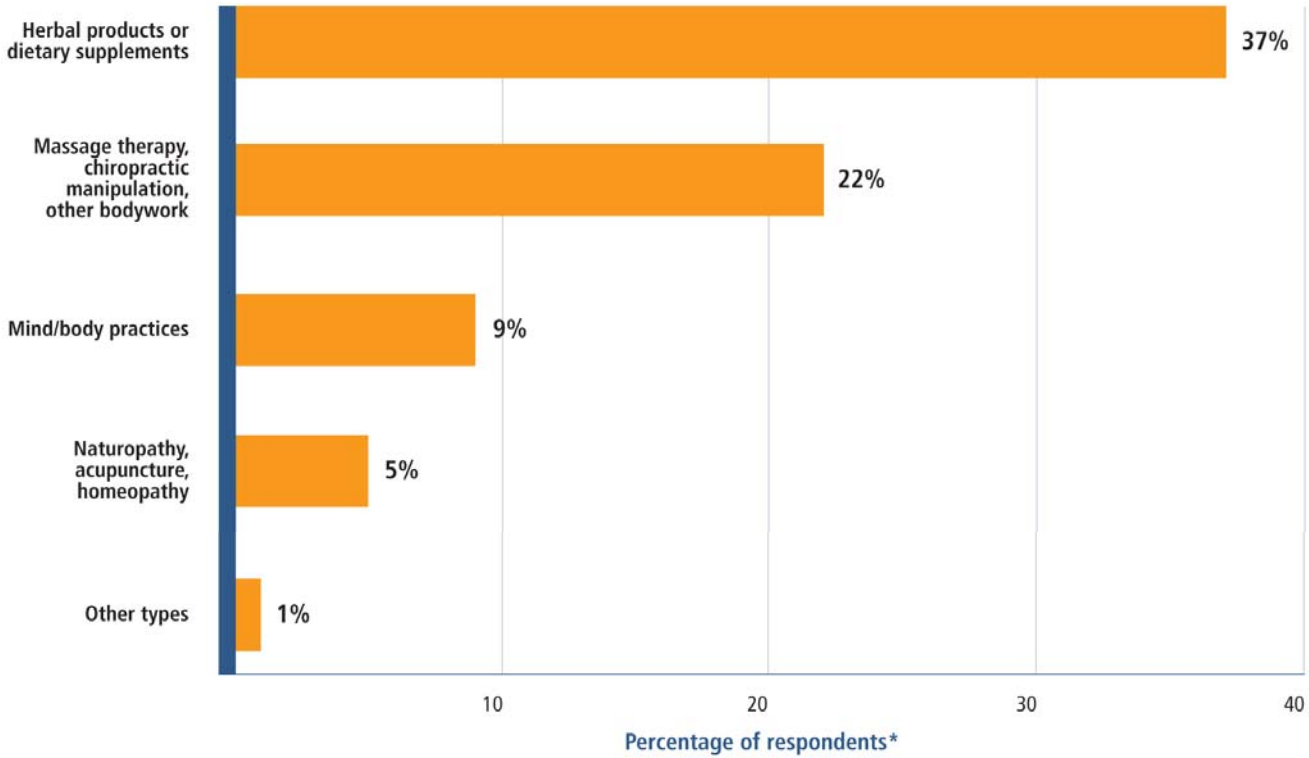
Number of Prescription Medications Currently Taken by CAM Users



*Base: Respondents who used CAM in the past 12 months (n=473). Sampling error: ± 4.5 percentage points.

Source: AARP/NCCAM Survey of U.S. Adults 50+, 2010

Type of CAM Used in the Past 12 Months



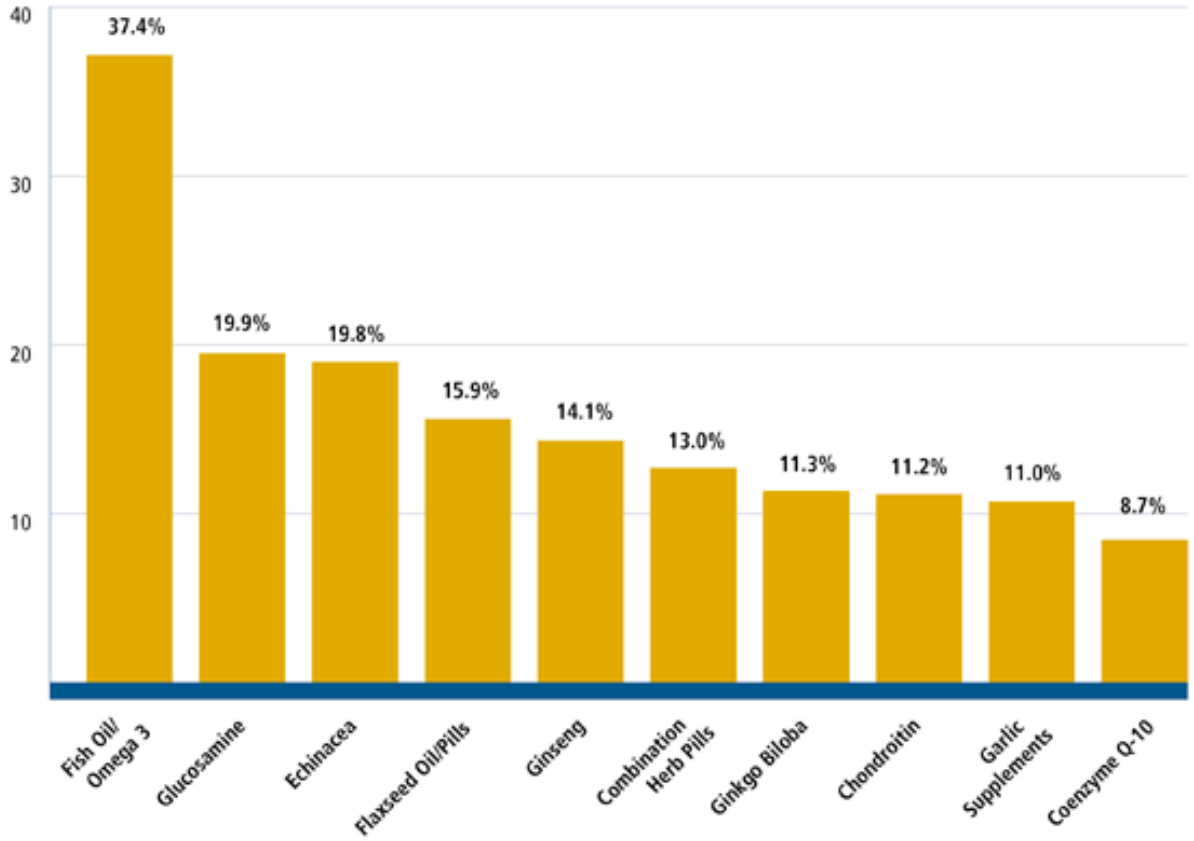
*Base: All respondents (n=1,013). Sampling error: ± 3.1 percentage points. Respondents could choose more than one answer.

Source: AARP/NCCAM Survey of U.S. Adults 50+, 2010

Dietary Supplement

- A dietary supplement, as defined by the Dietary Supplement Health and Education Act (DSHEA), is a product that:
  - Is intended to supplement the diet
  - Contains one or more dietary ingredients (including vitamins, minerals, herbs or other botanicals, amino acids, and certain other substances) or their constituents
  - Is intended to be taken by mouth
  - Is labeled as a dietary supplement
- 52% of American adults took at least one dietary supplement
  - Multivitamin most common, and 31% of all adults took them
  - Women were more likely than men to take dietary supplements

10 Most Common Natural Products Among Adults* - 2007



*Percentages among adults who used natural products in the last 30 days.

Source: Barnes PM, Bloom B, Nahin R. *CDC National Health Statistics Report #12*. Complementary and Alternative Medicine Use Among Adults and Children: United States, 2007. December 2008.

Common Herbs

- Echinacea (aka Kansas Snakeroot, Black Sampson, Purple Cone Flower) is believed to provide immune enhancement and improve resistance to flu-like illnesses and colds.
  - Can be associated with allergic reaction, cause liver damage, and when taken for long periods may actually suppress the immune system
- Ginko (aka Ginko Biloba) is an extract from the gingko tree from China, Japan, and Korea. It is promoted for tinnitus, dizziness, motion sickness, and is believed to improve memory.
  - May interfere with normal blood clotting, cause stomach upset, headache, and allergic skin reactions
- Ginseng is a perennial plant that grows in China, Korea, Japan, Russia, and the United States. The dried root is promoted as a remedy to provide energy to people who are fatigued and improve concentration.
  - Ginseng can cause restlessness, insomnia, headaches, hypertension, alter normal blood clotting and have estrogen-like effects, Ginseng may have adverse effects in women with breast cancer or ovarian cancer
- St. John's Wort (aka Goatweed, Amber, Klamath Weed, Kira) is a shrub-like plant native to Asia, northern Africa, and Europe and is also cultivated in the United States. The bright yellow flowers of this plant are parts used in herbal remedies. St. John's Wort is commonly used to treat mild to moderate depression, anxiety, and sleep disorders.
  - Side effects are not common but may include dizziness, fatigue, gastrointestinal pain, a rash, and hypersensitivity to sunlight, and may interfere with conventional medications including coumadin, digoxin, antidepressants, anticoagulants, anesthesia, and certain types of chemotherapy

Table 3. Resources for Dietary Supplement–Drug Interactions and Quality

Resource	*Website*	*Comments*
About Herbs, Botanicals & Other Products	https://www.mskcc.org/cancer-care/treatments/symptom-management/integrative-medicine/herbs	Dietary supplement monographs and interaction checker from Memorial Sloan Kettering Cancer Center
The Allied and Complementary Medicine Database*	https://www.ebscohost.com/academic/amed-the-allied-and-complementary-medicine-database	Bibliographic records for more than 600 journals dating back to 1995
ConsumerLab.com*	https://www.consumerlab.com/	Quality testing of many dietary supplements
Facts & Comparisons eAnswers*	http://online.factsandcomparisons.com/index.aspx	Drug and dietary supplement monographs
Indiana University Clinical Pharmacology	http://medicine.iupui.edu/clinpharm/ddis/clinical-table	Lists of drugs metabolized by common cytochrome P450 enzymes
Lexi-Natural Products*	http://webstore.lexi.com/Store/Individual-Databases/Lexi-Natural-Products	Software for dietary supplement monographs
Micromedex*	http://micromedex.com/	Drug and dietary supplement monographs with interaction checker
Natural Medicines*	https://naturalmedicines.therapeuticresearch.com/	Dietary supplement database with interaction checker
NIH's National Cancer Institute Office of Cancer Complementary and Alternative Medicine	https://cam.cancer.gov/	Cancer-specific, evidence-based information on many dietary supplements and complementary therapies
NIH's National Center for Complementary and Integrative Health	https://nccih.nih.gov/	Evidence-based information on many complementary therapies
NIH's Office of Dietary Supplements	https://ods.od.nih.gov/	Fact sheets and information on many dietary supplements
NSF International	http://www.nsf.org/services/by-industry/dietary-supplements	Dietary supplement safety information and testing
PubMed	http://www.ncbi.nlm.nih.gov/pubmed	Search engine for U.S. National Library of Medicine
U.S. Pharmacopeial Convention*	http://www.usp.org/	Dietary supplement monographs and product quality information

NIH = National Institutes of Health.

**—May require product purchase or subscription fees.*

Asher GN, Corbett AH, Hawke RL. "Common Herbal Dietary Supplement–Drug Interactions". *Am Fam Physician*. 2017 Jul 15;96(2):101-107.

Essential Oils

- Research on the effectiveness of aromatherapy (the therapeutic use of essential oils extracted from plants) is limited.
- Two interesting facts
  - Essential oils are also used by plants themselves. Naturally occurring essential oils in plants help with infection control, humidity control, hormonal effects, wound healing, and attracting or repelling insects, birds, and animals.
  - Essential oils do not feel oily; they are called "oils" because they contain the oil-soluble chemicals in the plant (usually 100 to 200 chemicals per essential oil). This complex chemistry gives essential oils their therapeutic properties and explains why different essential oils may have overlapping effects.
- Some studies have shown that aromatherapy might have health benefits, including:
  - Relief from anxiety and depression
  - Improved quality of life, particularly for people with chronic health conditions
  - Improved sleep
  - Reduce pain

What are some issues in conducting research on essential oils?

- Essential oils are not standardized
- It is difficult to conduct blinded studies with aromatic substances
- It is difficult to get approval and funding for research on essential oils
- It is difficult to tell what caused the outcome

Aromatherapy

- Aromatherapy is the therapeutic use of essential oils (also known as volatile oils) from plants (flowers, herbs, or trees) for the improvement of physical, emotional, and spiritual well-being
- Essential oils are volatile liquid substances extracted from aromatic plant material by steam distillation or mechanical expression; oils produced with the aid of chemical solvents are not considered true essential oils
- Essential oils are available in the United States for inhalation and topical treatment
- The effects of aromatherapy are theorized to result from the binding of chemical components in the essential oil to receptors in the olfactory bulb, impacting the limbic system
- Topical application of aromatic oils may exert antibacterial, anti-inflammatory, and analgesic effects
- Studies in animals show sedative and stimulant effects of specific essential oils and positive effects on behavior and the immune system.
- Functional imaging studies in humans support the influence of odors on the limbic system
- Aromatherapy has a relatively low toxicity profile

Aromatherapy products are not subject to approval by the U.S. Food and Drug Administration unless there is a claim for treatment of specific diseases

Are Essential Oils Safe?

- Purity
  - Sometimes essential oils are altered by adding synthetic chemicals or other, similar smelling, essential oils or they are sometimes diluted with vegetable oil.
  - Look for language indicating purity on the label.
  - Professional quality essential oils, which are generally much more concentrated, you need to dilute them to be safe.
- Application Method
  - Some oils are considered safe if inhaled, and yet may be irritating if applied to the skin in concentrations as low as 3-5%.
  - Patch Test prior to use if sensitive skin
  - Citrus oils can cause phototoxicity (severe burns or skin cancer) if there is exposure to natural sunlight or sun-bed radiation following skin applications.
- Possible drug interactions
  - There is little published research on interactions between pharmaceutical drugs and essential oils.
  - However peppermint and eucalyptus oils increase the skin absorption of 5-fluorouracil, an anti-cancer drug (Abdullah et al 1996, Williams & Barry, 1989).
- Toxicity
  - Toxicity rarely occurs with appropriate use of essential oils and is primarily attributed to misuse and accidental ingestion, especially in young children.
  - *Essential Oil Safety* (1995) is a valuable reference to understanding potential toxicity and lethal dosages.

Using Essential Oils

- Inhalation
  - Diffuser: Essential oils are placed in this device, sometimes with water and sometimes with heat so they evaporate
  - Dry Evaporation: Several drops of essential oil are placed on a cotton ball or tissue and allowed to evaporate into the air.
  - Steam: Drops of essential oil are added to a bowl of steaming water, which quickly vaporizes the oil. Place a towel over your head and over the bowl of water with essential oil drop(s) and breathe deeply.
  - Spray: Drops of essential oils are placed in a water-based solution, shaken, and sprayed into the air in order to deodorize a room or set a mood.
- Topical
  - Essential oils can be applied to the skin using a variety of techniques.
  - **Most essential oils cannot be applied directly to the skin without being diluted.**
  - As a rule of thumb, essential oils should be diluted in a carrier substance (vegetable or nut oil, or water) at no greater concentration than 3-5%.
  - For infants, using a 0.25% solution is recommended (.5% for toddlers).

Quality

- **Plants:** The quality of essential oils can be negatively impacted by the use of pesticides and other chemicals, the variability in altitude, soil conditions and rainfall, and the difficulty of differentiating plant species and varieties
- **Processing:** Because of the growing popularity of essential oils and aromatherapy, there are many products on the market that may not be suitable for clinical use. They can be found nearly everywhere, from health food stores to discount stores to the Internet. These products may include pure essential oils, but sometimes they are adulterated or diluted
- **Packaging and handling:** Other considerations include packaging, storage, and handling. Chemical degradation can occur with exposure to heat, light, or oxygen. Essential oils from citrus products are especially prone to oxidation that can quickly alter the chemistry of those essential oils
- **Storage:** Essential oils should be stored in tightly closed, darkened glass containers in a cool place to ensure lasting quality (Buckle, 2003; Tisserand & Balacs, 1995). Oxidation rates vary, but most essential oils can be safely used for 1-2 years or more after opening

Quality

- **Is the Latin name of the plant provided** so that you are sure you are getting the right essential oil? For example, there are several species of lavender.
- **Is the name of the country in which the plants were grown provided?** A consumer would not be expected to differentiate oils from different countries, but this information is important to aromatherapists because quality can vary by country.
- **Is there a statement about purity?** You should be informed if it is not 100% essential oil (meaning, it has been altered or mixed with something else).
- **Is the cost comparable in comparison with other brands of the same essential oil?** If it's really cheap, it probably isn't the real thing.
- **Does it smell as you expect it to smell?** If doesn't, it probably isn't the real thing or it has been adulterated.

Most Commonly Used Essential Oils

- Clary Sage
- Cypress
- Eucalyptus
- Fennel
- Geranium
- Ginger
- Helichrysum
- Lemongrass
- Lemon
- Lavender
- Mandarin
- Melaleuca
- Neroli
- Patchouli
- Peppermint
- Roman Chamomile
- Rose
- Rosemary
- Vetiver
- Ylang Ylang

National Association for Holistic Aromatherapy https://naha.org/explore-aromatherapy/about-aromatherapy/most-commonly-used-essential-oils

Lavender

- Improve Sleep
- Improve Skin Irritation
- Reduce Anxiety
- Enhance Memory

National Association for Holistic Aromatherapy https://naha.org/explore-aromatherapy/about-aromatherapy/most-commonly-used-essential-oils

Peppermint

- IBS
- Non-ulcer dyspepsia
- Nausea
- Tension Headache
- Energize/Enhance Mood

National Association for Holistic Aromatherapy https://naha.org/explore-aromatherapy/about-aromatherapy/most-commonly-used-essential-oils

Lemon

- Enhances/uplifts mood
- Decrease stress
- Cleaning

National Association for Holistic Aromatherapy https://naha.org/explore-aromatherapy/about-aromatherapy/most-commonly-used-essential-oils

Melaleuca (Tea Tree)

- Supports Immune System
- Cleaning

National Association for Holistic Aromatherapy https://naha.org/explore-aromatherapy/about-aromatherapy/most-commonly-used-essential-oils

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