

# Botanical (Herbal) supplements in the Elderly

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# Objectives

Upon completion of this educational activity, you will be able to:

Know and understand basics of

- The prevalence of complementary and alternative medicine (CAM) use in the older adult population
- Common herbs used and medical indications
- Understand the various drug interactions with Herbal supplements



# Faculty Disclosure

- My spouse , significant other , or I have not any relevant financial relationships or conflicts to disclose during the past 12 months.

# Educational Need/Practice Gap

37 % of patients use Herbs  
and supplements in the past  
12 months

Only 26 % of providers discuss  
about Herbs and supplements  
at office visits





# Expected Outcome

- Increased awareness of Herbal supplements usage among primary care providers
- More discussions between patient and provider about herb side effects and interactions

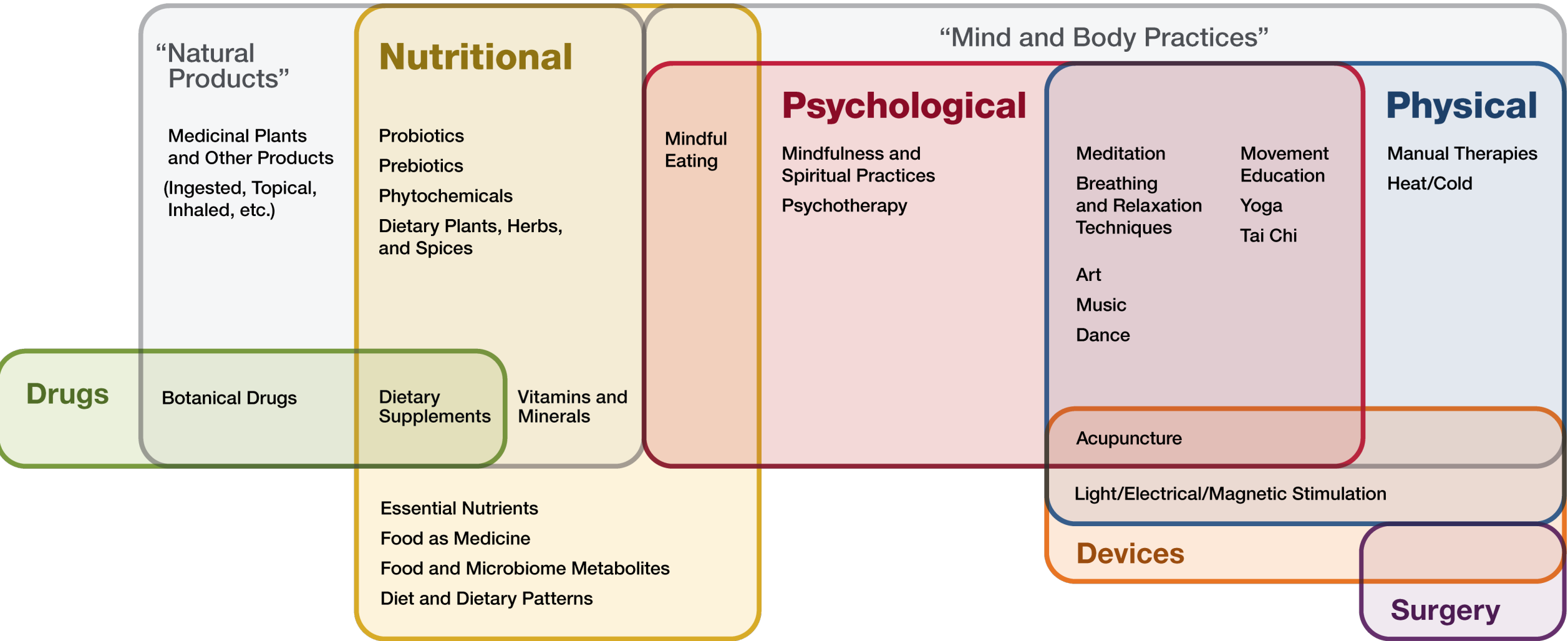
# BACKGROUND INFORMATION

The National Center for Complementary and Integrative Health (NCCIH) defines terms for CIM

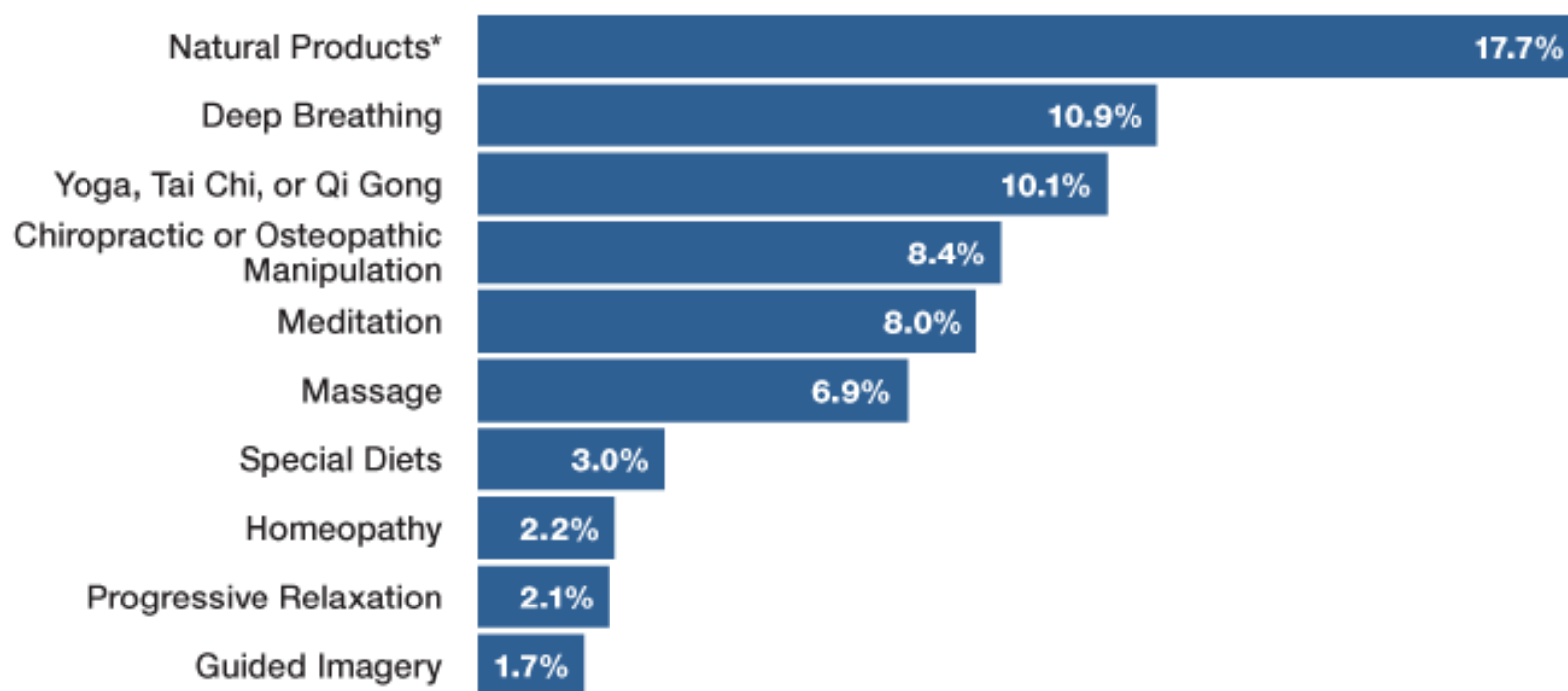
- ***Alternative Medicine:*** Non-mainstream practice of medicine that is used in place of conventional medicine
- ***Complementary Medicine:*** Non-mainstream practice that is used together with conventional medicine
- ***Integrative Medicine:*** Use of conventional and complementary approaches in a coordinated way

## NCCIH CATEGORIZATION OF CIM

- ***Natural products:*** Including herbal medicines, botanicals, vitamins, minerals, probiotics and other dietary supplements
- ***Mind and body practices:*** Such as massage therapy, meditation, yoga, acupuncture, chiropractic/osteopathic manipulation, hypnotherapy, tai chi, qi gong, healing touch, relaxation exercises
- ***Other complementary health approaches:*** Including indigenous healing practices, Chinese medicine, Ayurvedic medicine, homeopathy, naturopathy



## 10 most common complementary health approaches among adults—2012



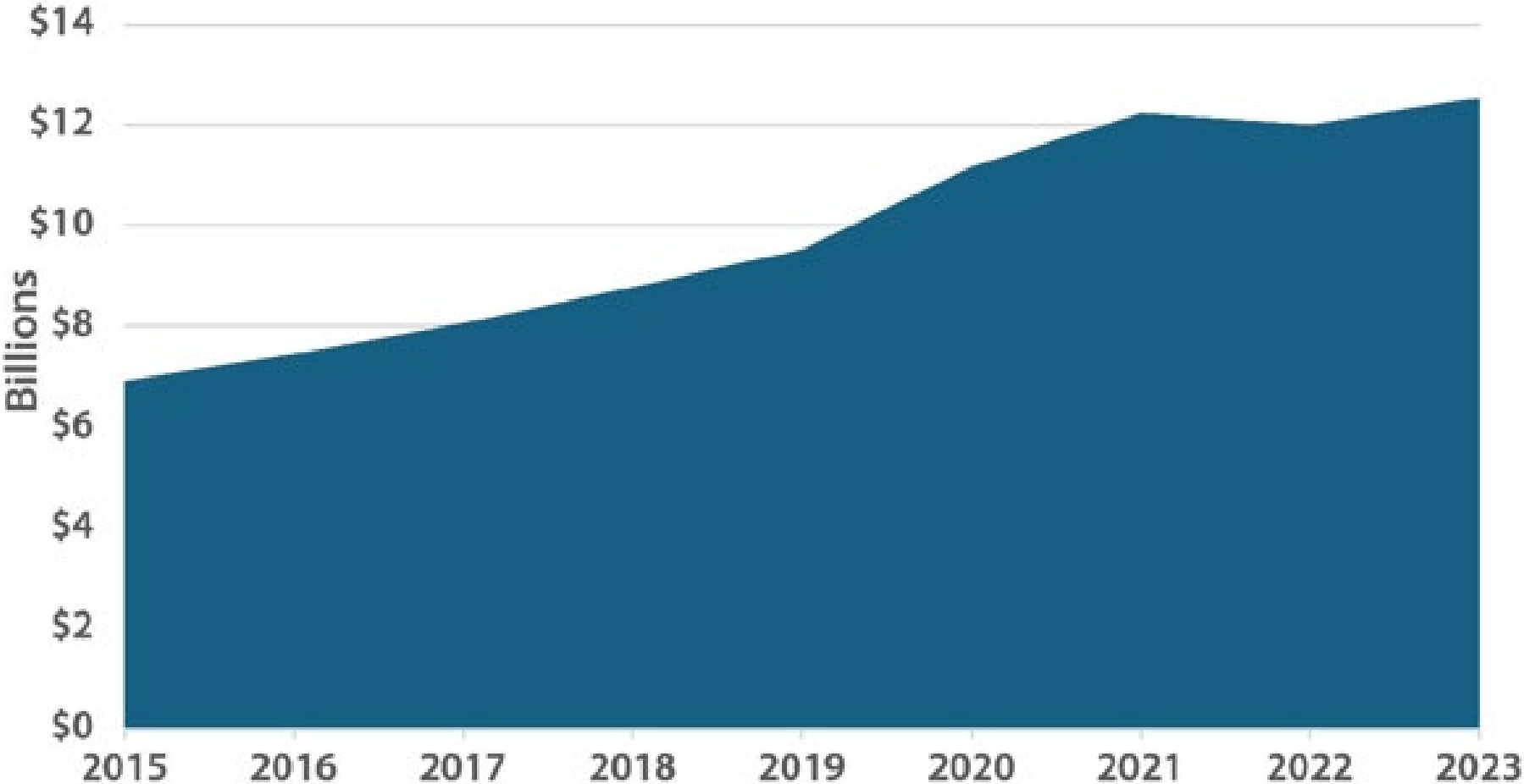
\*Dietary supplements other than vitamins and minerals.

Source: Clarke TC, Black LI, Stussman BJ, Barnes PM, Nahin RL. Trends in the use of complementary health approaches among adults: United States, 2002-2012. National health statistics reports; no 79. Hyattsville, MD: National Center for Health Statistics. 2015.

# Dietary Supplement

- Dietary supplement is a product (other than tobacco) intended to supplement the diet;
- Contains one or more dietary ingredients (including vitamins; minerals; herbs or other botanicals; amino acids; and other substances) or their constituents;
- Taken by mouth as a pill, capsule, tablet, or liquid
- Labeled on the front panel as being a dietary supplement

Total US Retail Sales of Herbal Supplements (2015-2023)



# Herbs and Marketing

- Huge Industry- multi-billion industry 10 B \$
- Not standardized before 1994– No FDA oversight but Good Manufacturing practices standards are applicable- safe and labels are truthful
- Quality control is determined by manufacturers
- Issues are related to contaminants, toxic metals, herb strength, identification of plants, adulteration, added drugs
- The U.S. Federal Trade Commission (FTC), which regulates advertising, requires that advertising be truthful and not misleading.

- 1994 Dietary Supplement Health and Education Act (DSHEA)
- 2007 Good Manufacturing Practices (cGMPs) for dietary supplements
- United States Pharmacopeia (USP), National Sanitation Foundation (NSF International), and Natural Products Association (NPA) seal

# Health and Function claims

- The labels on dietary supplements cannot claim that the product can diagnose, treat, cure, mitigate, or prevent any disease; claims like these are only permitted for drugs.
- Structure/function claims on dietary supplement labels must be accompanied by this disclaimer: “This statement has not been evaluated by the Food and Drug Administration. This product is not intended to diagnose, treat, cure, mitigate, or prevent any disease.”

# Herbs and Efficacy

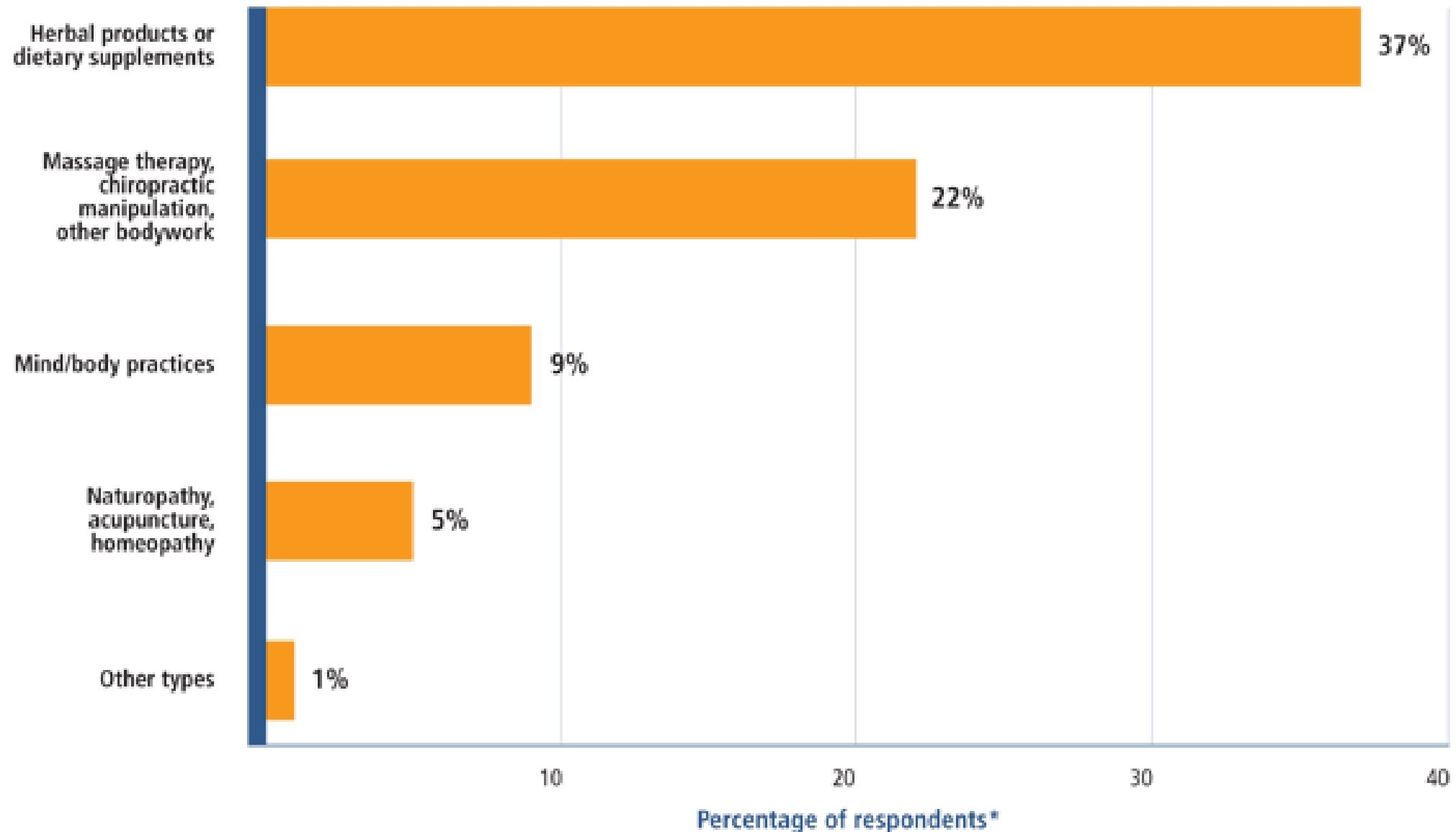
- More rigorous studies are available now compared to in past
- Botanicals are not required to be tested for safety and effectiveness
- Pay attention to dosage, form , active ingredient and Botanic name of plant
- Studies ideally should compare herb vs placebo vs standard treatment
- U.S. Pharmacopeial Convention, NSF International and ConsumerLab.com seal of approval



## BACKGROUND INFORMATION

- Many CIM therapies are not accessible to all older adults because of limitations of insurance reimbursement
  - Acupuncture can sometimes be covered with visit limitations
- CIM may be a helpful option in management of multiple disorders associated with aging
  - Improved tolerability and adverse effect profile
- Risk-benefit analysis must be done for each individual patient

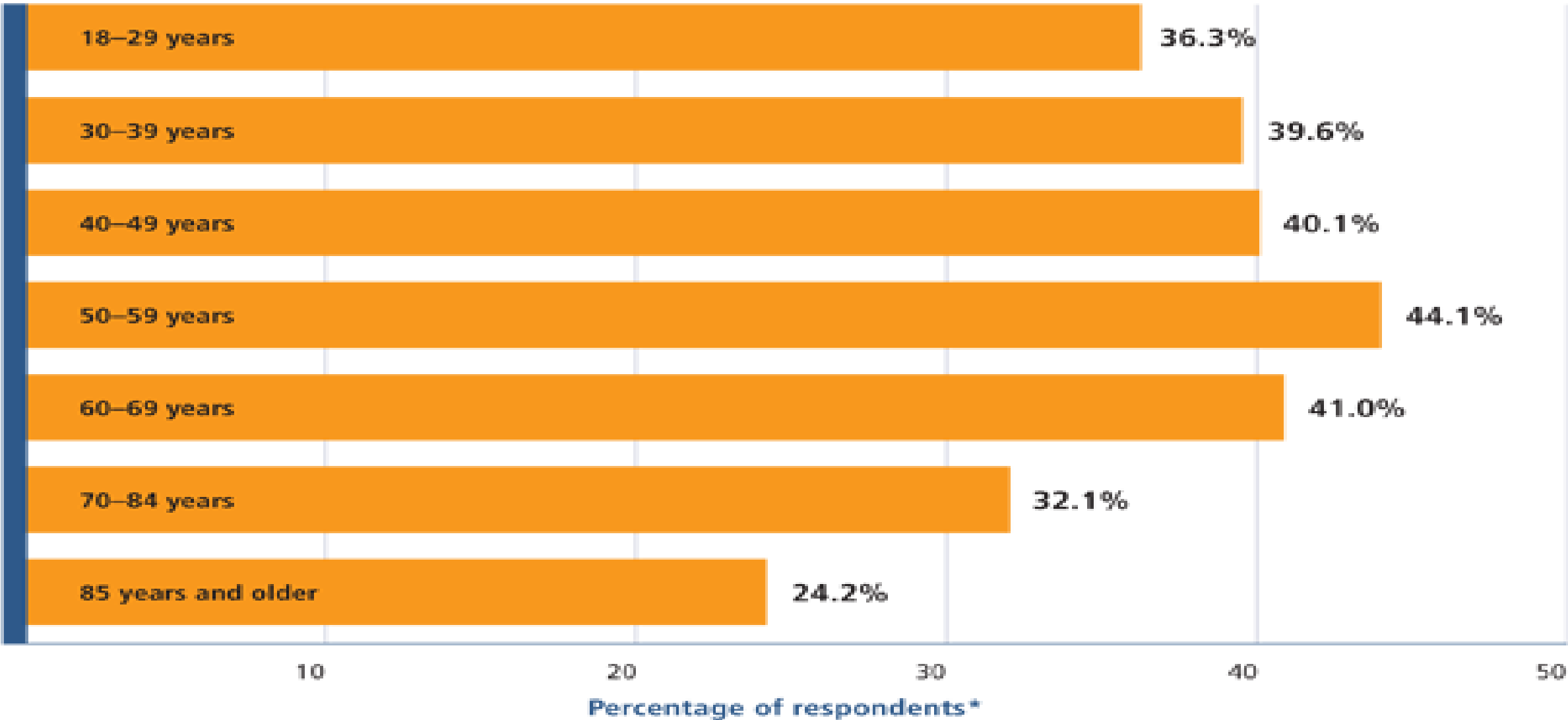
## Type of CAM Used in the Past 12 Months



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

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

# CAM Use in the Past 12 Months Among U.S. Adults, by Age Category

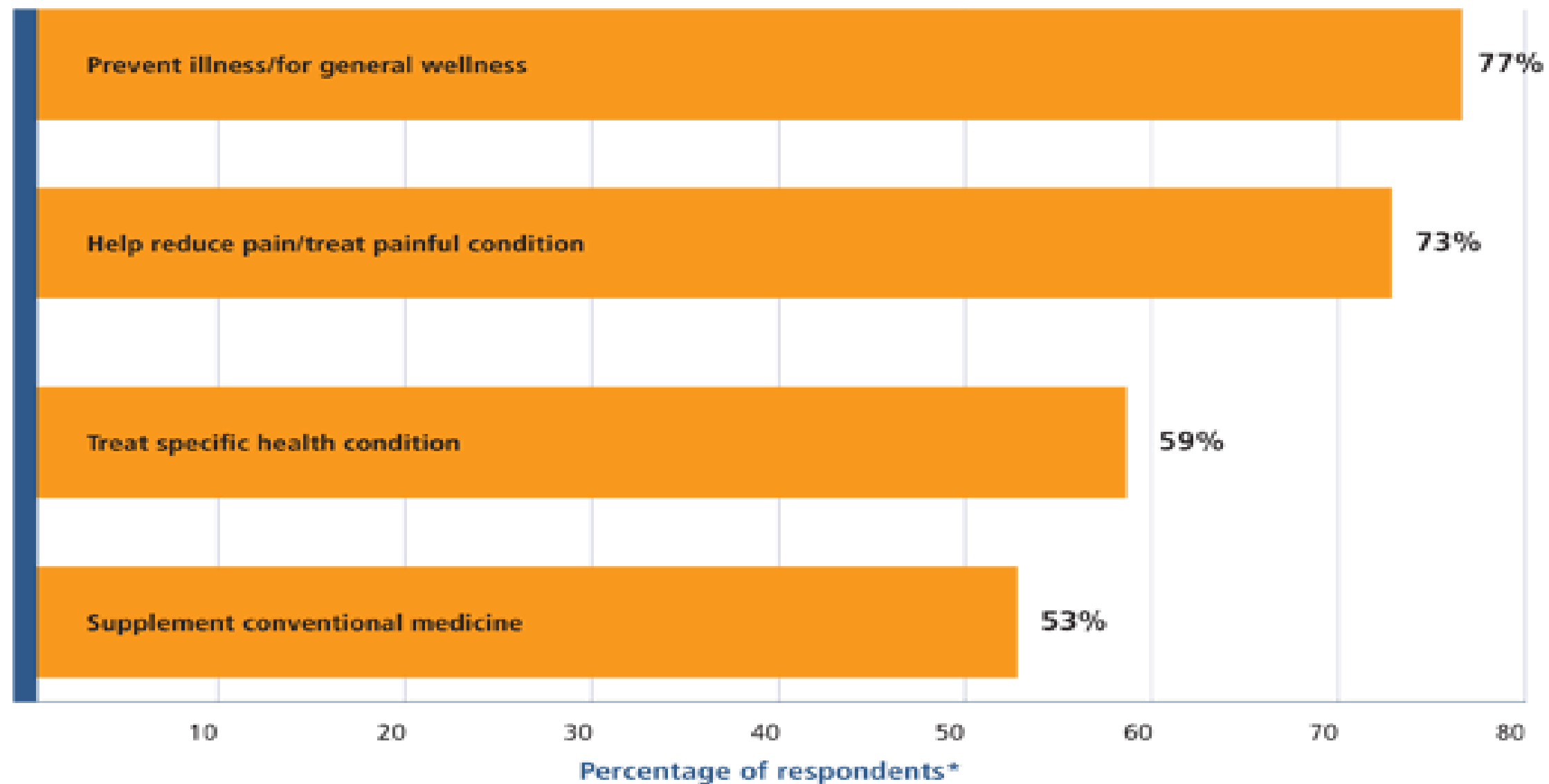


\*Base: All adult respondents 18+ (n=23,393)  
Source: National Health Interview Survey, 2007

## BACKGROUND INFORMATION

- Older adults are showing increasing acceptance and use of complementary and integrative medicine (CIM) treatments
- Growing evidence to support the use of CIM; however high-quality research that includes older adults is needed to quantify the benefits and the risks
- In 2012, a comprehensive assessment of CIM use in the US found that roughly 40% of U.S. adults had used at least one CIM therapy within the past year

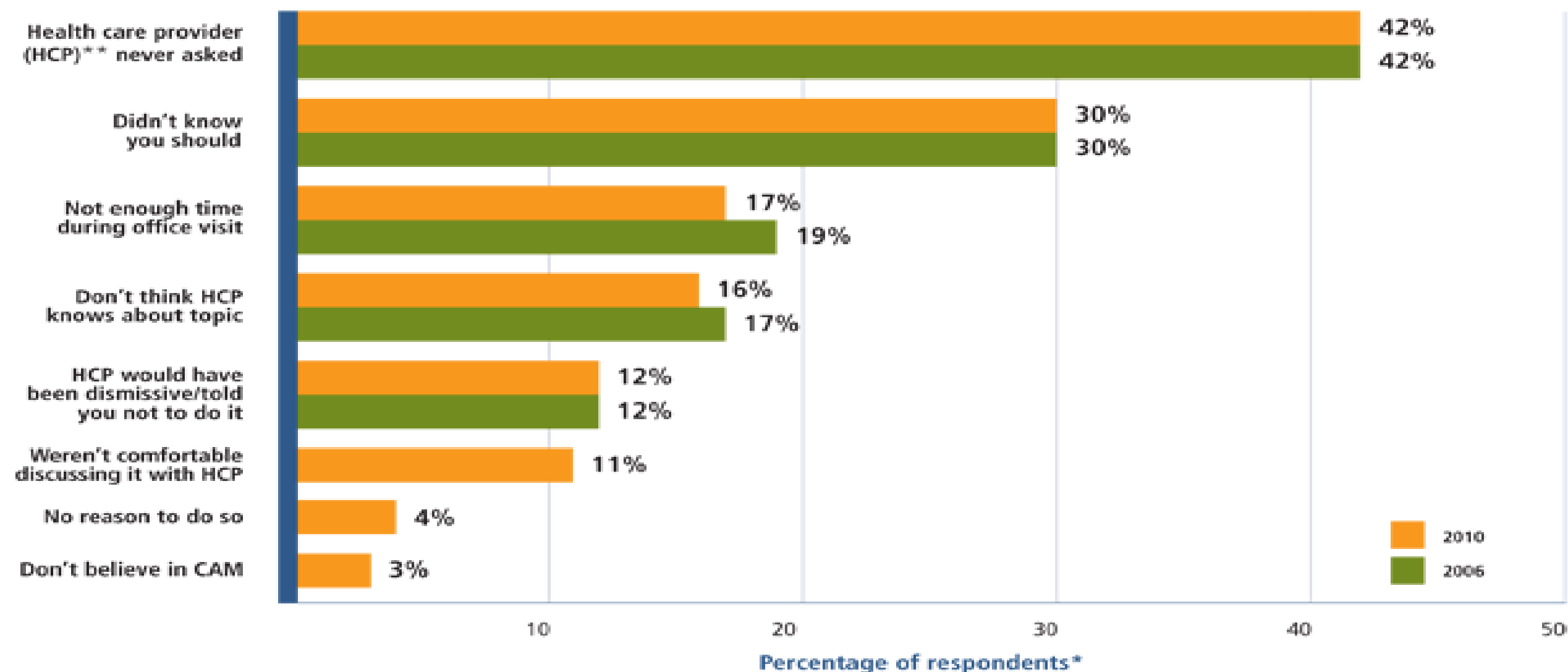
# Reasons for CAM Use



\*Base: Respondents who used CAM in past 12 months or ever (n=539). Sampling error:  $\pm 4.2$  percentage points. Respondents could choose more than one answer.

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

## Reasons CAM Was Not Discussed With Health Care Provider

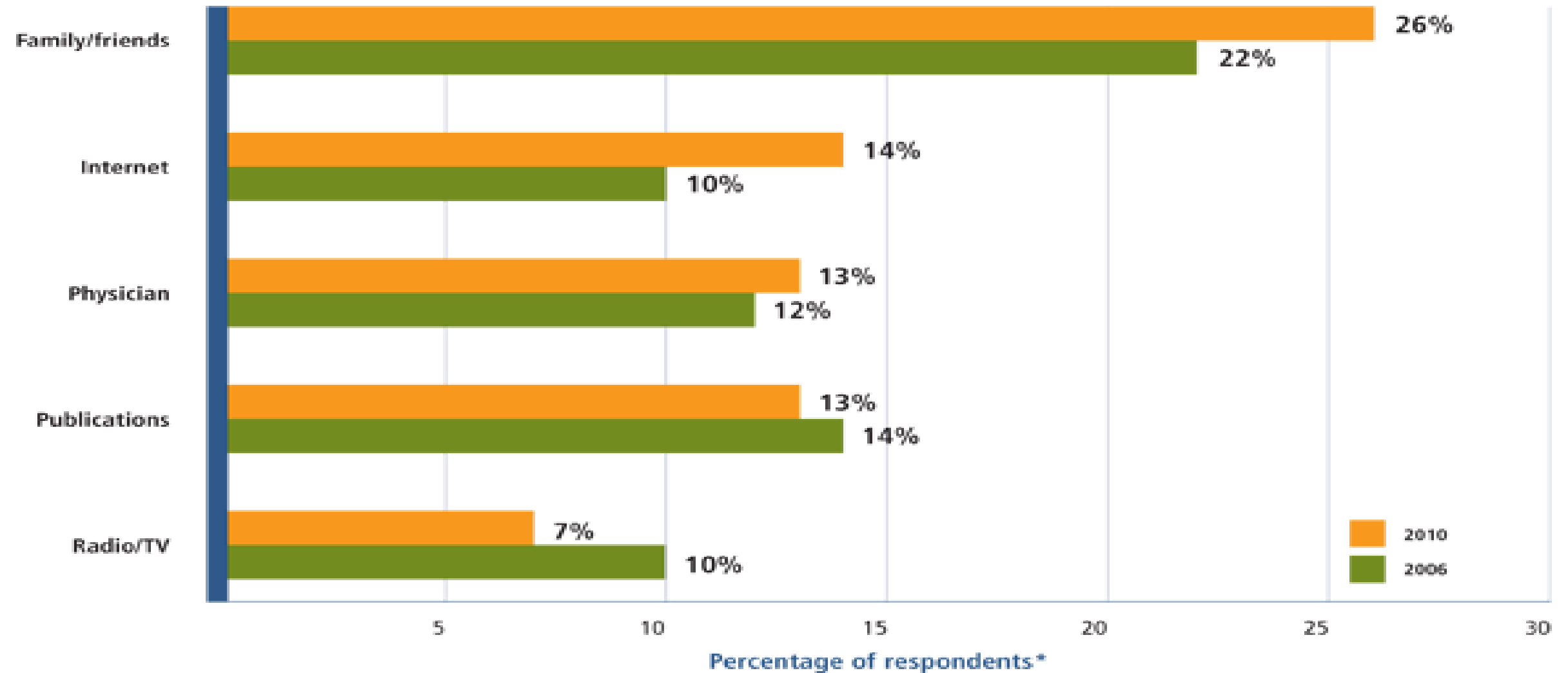


\*Base: Respondents who have never discussed CAM with a health care provider. 2010: n=656; sampling error =  $\pm$  3.8 percentage points.  
2006: n=1,097; sampling error =  $\pm$  3.0 percentage points.

\*\*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

## Primary Source of CAM Information



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

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

# CAM USE AMONG OLDER ADULTS

- In a 2010 telephone survey of 1012 adults  $\geq 50$  yr:
  - 53% reported some lifetime use
  - 47% reported use in last 12 months
  - Most commonly used were herbal & dietary supplements and massage / chiropractic / bodywork
  - 67% had not discussed with their health provider
- Safety concerns exist about potential drug interactions with herbal preparations
- [https://nccih.nih.gov/sites/nccam.nih.gov/files/news/camstats/2010/NCCAM\\_aarp\\_survey.pdf](https://nccih.nih.gov/sites/nccam.nih.gov/files/news/camstats/2010/NCCAM_aarp_survey.pdf)

# GEM study – Gingko evaluation of memory study 2008

- 82 % used atleast one dietary supplement ( 3700 participants )
- Average was 3
- 50% used Vitamin supplements
- Common herbal supplements was garlic, Gingko , saw palmetto and Echnicea
- Believe that supplements are safer than conventional drugs

| Table 4. Top-Selling Herbal Supplements in 2023 — US Mainstream Channel                                                                                                                                                                                                                                                                                                                                                                                             |                             |                                                   |               |          |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------|---------------------------------------------------|---------------|----------|
| Rank                                                                                                                                                                                                                                                                                                                                                                                                                                                                | Primary Ingredient          | Latin Binomial                                    | Total Sales   | % Change |
| 1                                                                                                                                                                                                                                                                                                                                                                                                                                                                   | Psyllium <sup>a</sup>       | <i>Plantago ovata</i>                             | \$276,124,315 | 2.7%     |
| 2                                                                                                                                                                                                                                                                                                                                                                                                                                                                   | Elder berry                 | <i>Sambucus nigra</i> and <i>S. canadensis</i>    | \$176,953,924 | −27.7%   |
| 3                                                                                                                                                                                                                                                                                                                                                                                                                                                                   | Turmeric <sup>b</sup>       | <i>Curcuma longa</i>                              | \$133,300,417 | 3.7%     |
| 4                                                                                                                                                                                                                                                                                                                                                                                                                                                                   | Ashwagandha                 | <i>Withania somnifera</i>                         | \$120,445,117 | 8.7%     |
| 5                                                                                                                                                                                                                                                                                                                                                                                                                                                                   | Apple cider vinegar         | <i>Malus</i> spp.                                 | \$101,048,008 | −19.8%   |
| 6                                                                                                                                                                                                                                                                                                                                                                                                                                                                   | Cranberry                   | <i>Vaccinium macrocarpon</i>                      | \$89,359,040  | −0.8%    |
| 7                                                                                                                                                                                                                                                                                                                                                                                                                                                                   | Wheatgrass / Barley grass   | <i>Triticum aestivum</i> / <i>Hordeum vulgare</i> | \$65,460,305  | 103.6%   |
| 8                                                                                                                                                                                                                                                                                                                                                                                                                                                                   | Beet root                   | <i>Beta vulgaris</i>                              | \$65,022,645  | 108.0%   |
| 9                                                                                                                                                                                                                                                                                                                                                                                                                                                                   | Ginger                      | <i>Zingiber officinale</i>                        | \$51,303,645  | 11.0%    |
| 10                                                                                                                                                                                                                                                                                                                                                                                                                                                                  | Green tea                   | <i>Camellia sinensis</i>                          | \$40,703,222  | 9.7%     |
| 11                                                                                                                                                                                                                                                                                                                                                                                                                                                                  | Fenugreek                   | <i>Trigonella foenum—graecum</i>                  | \$40,522,172  | −8.9%    |
| 12                                                                                                                                                                                                                                                                                                                                                                                                                                                                  | Ivy leaf                    | <i>Hedera helix</i>                               | \$35,522,755  | −28.5%   |
| 13                                                                                                                                                                                                                                                                                                                                                                                                                                                                  | Ginkgo                      | <i>Ginkgo biloba</i>                              | \$33,114,457  | 42.8%    |
| 14                                                                                                                                                                                                                                                                                                                                                                                                                                                                  | Guarana                     | <i>Paullinia cupana</i>                           | \$29,493,609  | 36.0%    |
| 15                                                                                                                                                                                                                                                                                                                                                                                                                                                                  | Maca                        | <i>Lepidium meyenii</i>                           | \$29,418,051  | 7.7%     |
| 16                                                                                                                                                                                                                                                                                                                                                                                                                                                                  | Saw palmetto                | <i>Serenoa repens</i>                             | \$29,147,836  | −5.3%    |
| 17                                                                                                                                                                                                                                                                                                                                                                                                                                                                  | Cinnamon                    | <i>Cinnamomum</i> spp.                            | \$25,559,120  | 57.3%    |
| 18                                                                                                                                                                                                                                                                                                                                                                                                                                                                  | Echinacea <sup>c</sup>      | <i>Echinacea</i> spp.                             | \$24,665,527  | −18.4%   |
| 19                                                                                                                                                                                                                                                                                                                                                                                                                                                                  | Tribulus                    | <i>Tribulus terrestris</i>                        | \$23,845,751  | −4.3%    |
| 20                                                                                                                                                                                                                                                                                                                                                                                                                                                                  | Pycnogenol <sup>®</sup>     | <i>Pinus pinaster</i>                             | \$23,130,138  | 6.7%     |
| 21                                                                                                                                                                                                                                                                                                                                                                                                                                                                  | Garlic                      | <i>Allium sativum</i>                             | \$23,103,285  | −5.4%    |
| 22                                                                                                                                                                                                                                                                                                                                                                                                                                                                  | Milk thistle                | <i>Silybum marianum</i>                           | \$20,937,232  | 10.1%    |
| 23                                                                                                                                                                                                                                                                                                                                                                                                                                                                  | Black cohosh                | <i>Actaea racemosa</i>                            | \$19,885,112  | −5.1%    |
| 24                                                                                                                                                                                                                                                                                                                                                                                                                                                                  | Aloe                        | <i>Aloe vera</i>                                  | \$19,855,094  | 4.2%     |
| 25                                                                                                                                                                                                                                                                                                                                                                                                                                                                  | Flax seed / Flax oil        | <i>Linum usitatissimum</i>                        | \$19,603,040  | −7.6%    |
| 26                                                                                                                                                                                                                                                                                                                                                                                                                                                                  | Valerian                    | <i>Valeriana officinalis</i>                      | \$18,290,146  | −12.5%   |
| 27                                                                                                                                                                                                                                                                                                                                                                                                                                                                  | Pumpkin                     | <i>Cucurbita pepo</i>                             | \$16,444,778  | −12.8%   |
| 28                                                                                                                                                                                                                                                                                                                                                                                                                                                                  | Goji berry                  | <i>Lycium</i> spp.                                | \$15,497,248  | −7.2%    |
| 29                                                                                                                                                                                                                                                                                                                                                                                                                                                                  | Red yeast rice <sup>d</sup> | <i>Oryza sativa</i>                               | \$15,382,466  | 5.3%     |
| 30                                                                                                                                                                                                                                                                                                                                                                                                                                                                  | Yohimbe                     | <i>Pausinystalia johimbe</i>                      | \$13,670,726  | −16.8%   |
| 31                                                                                                                                                                                                                                                                                                                                                                                                                                                                  | Horny goat weed             | <i>Epimedium</i> spp.                             | \$12,178,485  | −2.4%    |
| 32                                                                                                                                                                                                                                                                                                                                                                                                                                                                  | Cannabidiol (CBD)           | <i>Cannabis sativa</i>                            | \$11,147,381  | −25.9%   |
| 33                                                                                                                                                                                                                                                                                                                                                                                                                                                                  | Fennel                      | <i>Foeniculum vulgare</i>                         | \$10,835,152  | −0.1%    |
| 34                                                                                                                                                                                                                                                                                                                                                                                                                                                                  | Oats / Oatstraw             | <i>Avena sativa</i>                               | \$10,643,718  | 57.7%    |
| 35                                                                                                                                                                                                                                                                                                                                                                                                                                                                  | Bacopa                      | <i>Bacopa monnieri</i>                            | \$9,997,966   | 71.7%    |
| 36                                                                                                                                                                                                                                                                                                                                                                                                                                                                  | Senna <sup>e</sup>          | <i>Senna alexandrina</i>                          | \$9,721,771   | −6.4%    |
| 37                                                                                                                                                                                                                                                                                                                                                                                                                                                                  | Rhodiola                    | <i>Rhodiola</i> spp.                              | \$9,381,370   | 1.0%     |
| 38                                                                                                                                                                                                                                                                                                                                                                                                                                                                  | Dandelion                   | <i>Taraxacum officinale</i>                       | \$9,220,759   | 19.3%    |
| 39                                                                                                                                                                                                                                                                                                                                                                                                                                                                  | Rhubarb                     | <i>Rheum</i> spp.                                 | \$8,220,104   | −15.5%   |
| 40                                                                                                                                                                                                                                                                                                                                                                                                                                                                  | Ginseng                     | <i>Panax</i> spp.                                 | \$8,080,788   | 12.6%    |
| Source: SPINS (52 weeks ending December 31, 2023)                                                                                                                                                                                                                                                                                                                                                                                                                   |                             |                                                   |               |          |
| <sup>a</sup> Excludes over-the-counter (OTC) drugs that contain psyllium.<br><sup>b</sup> Includes standardized turmeric extracts with high levels of curcumin.<br><sup>c</sup> Includes three <i>Echinacea</i> species: <i>E. angustifolia</i> , <i>E. pallida</i> , and <i>E. purpurea</i> .<br><sup>d</sup> Red yeast rice is fermented with the yeast <i>Monascus purpureus</i> .<br><sup>e</sup> Excludes OTC laxative drugs that contain senna or sennosides. |                             |                                                   |               |          |

**Table 1. Herbal Dietary Supplements with Overall Low Risk of Drug Interactions**

| <i>Herbal supplement</i>                         | <i>Comments</i>                                                                                                                               |
|--------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------|
| Black cohosh ( <i>Actaea racemosa</i> )          | May reduce effectiveness of statins <sup>7</sup> ; single case report of elevated liver enzymes with atorvastatin (Lipitor) <sup>8</sup>      |
| Cranberry ( <i>Vaccinium</i> spp.)               | —                                                                                                                                             |
| Ginkgo ( <i>Ginkgo biloba</i> )                  | Potential increased bleeding risk with warfarin (Coumadin) <sup>9</sup>                                                                       |
| Ginseng, American ( <i>Panax quinquefolius</i> ) | May reduce international normalized ratio by 0.2 <sup>10</sup> ; may modestly reduce blood glucose level                                      |
| Milk thistle ( <i>Silybum marianum</i> )         | May decrease concentrations of medications metabolized by CYP2C9, such as warfarin, phenytoin (Dilantin), and diazepam (Valium) <sup>11</sup> |
| Saw palmetto ( <i>Serenoa repens</i> )           | —                                                                                                                                             |
| Valerian ( <i>Valeriana officinalis</i> )        | —                                                                                                                                             |

NOTE: *Interaction risks primarily based on human studies of major CYP enzymes (i.e., 1A2, 2C9, 2C19, 2D6, 2E1, and 3A4), P-glycoprotein, and uridine diphosphate-glucuronosyltransferase. Most, but not all, of these enzyme systems were evaluated for each herbal supplement listed.*

*CYP = cytochrome P450.*

*Information from references 7 through 11.*

**Common Herbal dietary supplements – drug interactions**  
**Asher et al AFP Journal Volume 96, Number 2 ♦ July 15,**  
**2017**

# Q

- The dietary herbal supplement with the highest risk for drug interactions with antiretrovirals is
  - A. Black Cohosh
  - B. Ginseng
  - C. St. John's wort
  - D. Saw Palmetto
  - E. Valerian

# CAUTION

- Drug interactions with goldenseal and St. John's wort are highly likely, and clinicians should counsel patients to avoid concurrent use with over-the-counter or prescription medications.

All CYP 450 – Six CYP enzymes account for 80 % of all drug metabolism (CYP1A2, CYP2C9, CYP2C19, CYP2D6, CYP2E1, CYP3A4)



Q

In 2004, the FDA banned the sale of dietary supplements containing this herb because they represent an unreasonable risk of illness or injury ( increased heart problems and stroke).

- A. Comfrey
- B. Ephedra
- C. Chaparral
- D. Kava







Q

Which one of the following supplements does not increase the effect of bleeding when taken with aspirin ?

- A) Ginkgo
- B) Ginger
- C) Garlic
- D) Echinacea
- E) Ginseng

# HERBS

Many herbal medications and supplements can significantly increase bleeding during and after surgery

- Ginkgo biloba
- Garlic
- Ginger
- Ginseng
- Omega-3
- Vitamin E
- Chondroitin
- Dong quai
- Saw palmetto



# Q

- Which of the following herbs should be stopped 5 days before surgery due to interactions with General anesthesia?
- 1. Garlic
- 2. Kava
- 3. Cranberry
- 4. Butterbur

# HERBS

Many herbal supplements can prolong sedation during and after surgery, which slows recovery from anesthesia.

- Ginkgo Biloba
- Echinacea
- St. John's Wort
- Valerian
- Kava
- Goldenseal

# HERBS

Some Herbal Supplements are known to affect the skin and may cause: sensitivity and healing

- St John's Wort
- Ginko Biloba
- Kava
- Echinacea
- Goldenseal
- Arnica

The American Society of Anesthesiologists recommends that patients discontinue the use of herbal medications 2–3 weeks before surgery.<sup>2</sup>

- They have risk of surgery or procedure because :
  - Prolong the effects of anesthesia
  - Increase the risks of bleeding
  - Raise blood pressure
  - Interfere with other medications
  - Cause heart problems

# Potential risks of common herbs and supplements

Ephedra (Ma-Huang) — An appetite suppressor, it can interact with some blood pressure medication to cause dangerous increases in blood pressure or heart rate.

Garlic — Some people take it to lower their cholesterol and blood pressure, but it can increase bleeding.

Ginkgo — Used to improve memory, it can increase the risk of bleeding.

Ginseng — Taken to improve concentration, ginseng can increase your heart rate and the risk of bleeding.

Kava — Used to ease anxiety, Kava can increase the effect of anesthesia.

St. John's Wort — Used to ease anxiety and help with sleep problems, but it may prolong the effects of anesthesia.

Valerian — A sleep aid, it can prolong the effects of some types of anesthesia.

Vitamin E — Some people take it to slow the aging process but it can increase bleeding and cause blood pressure problems.

Q

62-year-old woman has chronic venous insufficiency and is interested in using something natural. Which of the following herbal extracts is approved for this condition by the German Commission E and supported by positive clinical trials?

**A. Horse chestnut**

B. Black cohosh

C. Eleuthero

D. Evening primrose

Q

Which of the following botanicals has been associated with a withdrawal syndrome that includes symptoms of abdominal pain, headache and diarrhea after abrupt discontinuation in long-term users?

- A. Feverfew**
- B. Ginseng
- C. St. John's wort
- D. Chaste tree



Q

This botanical(s) is purported to reduce the risk of gastrointestinal cancer and inhibit *Helicobacter pylori*.

- A. Ginger
- B. Garlic
- C. Turmeric
- D. Only B and C
- E. All of the above**

Q

- Which one of the following is considered first line therapy for nausea and vomiting of pregnancy ?
- A. Ginger
- B. Cranberry Juice
- C. Vitamin B6
- D. Fenugreek





Q

The mother of an 11-year-old boy brings him to the urgent care because of an acute asthma attack. He has had asthma for the past 5 years and has been stable on his medication. The mother reports that within 15 minutes of taking an herbal supplement, he started wheezing. Which of the following is most likely the cause?

- A. Goldenseal
- B. Astragalus
- C. Echinacea**
- D. None of the above

Q

- 20 year old here for mood changes , irritability and breast pain before her period. The following herbs are marketed for PMS symptoms except
- 1. Chasteberry
- 2 Evening Primrose oil
- 3 Black Cohosh
- 4 St. Johns wort

Q

- Which one of the following therapies reduces abdominal cramping in patient with IBS
- A. Peppermint Oil
- B. Polyethylene Glycol
- C. Probiotics
- D. Wheat Bran



# SAFETY ISSUES RELATED TO DIETARY SUPPLEMENTS

| Supplement   | Adverse effects                                                                                                                                                            | Interacts with:                                                                       | Common uses                                                                                                                |
|--------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------|
| Cannabis     | <ul style="list-style-type: none"> <li>• Drowsiness, dizziness, ataxia, dry mouth, headache, increased appetite, derealization, hallucinations, anxiogenesis</li> </ul>    | Potential induction or inhibition at high dosages of CYP450 2C19, 3A4, 2C9 isoenzymes | Chemo induced nausea and vomiting; AIDS related anorexia and weight loss; chronic and neuropathic pain; spasticity from MS |
| Coenzyme Q10 | <ul style="list-style-type: none"> <li>• Infrequent nausea, emesis, epigastric pain, headaches</li> <li>• &gt;300 mg/day linked to increased liver transaminase</li> </ul> | Warfarin                                                                              | Statin-related myopathy; Parkinson disease                                                                                 |
| Curcumin     | <ul style="list-style-type: none"> <li>• Nausea, diarrhea, allergic skin reactions, increase calcium oxalate kidney stones</li> </ul>                                      | Anticoagulants, immunosuppressants, induction CYP3A4                                  | OA, IBD bactericidal                                                                                                       |

# SAFETY ISSUES RELATED TO DIETARY SUPPLEMENTS

| Supplement | Adverse effects                                                                                                                                                                                 | Interacts with:                      | Common uses                                                                        |
|------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------|------------------------------------------------------------------------------------|
| DHEA       | <ul style="list-style-type: none"><li>• Women: weight gain, voice changes, facial hair, headaches</li><li>• Men: prostatic hypertrophy, possible increase in hormone-sensitive tumors</li></ul> | Calcium-channel blockers, sildenafil | Osteoporosis, sarcopenia, or frailty (no evidence of effectiveness for these uses) |
| Echinacea  | Allergic reactions, hepatitis, asthma, vertigo, anaphylaxis (rare)                                                                                                                              | Immuno-suppressants                  | Prevention and treatment of colds<br>Start within 2 days                           |

# SAFETY ISSUES RELATED TO DIETARY SUPPLEMENTS

| Supplement          | Adverse effects                                                     | Interacts with:                                  | Common uses                                                                                 |
|---------------------|---------------------------------------------------------------------|--------------------------------------------------|---------------------------------------------------------------------------------------------|
| Ginkgo biloba       | All rare: serious bleeding, seizures, headaches, dizziness, vertigo | Anticoagulants                                   | Treatment of AD, prevention of memory loss, intermittent claudication, macular degeneration |
| Glucosamine         | Nausea, diarrhea, heartburn                                         | Hypoglycemic drugs (reduces effectiveness)       | OA, RA                                                                                      |
| Omega-3 fatty acids | Belching, halitosis, blood glucose elevations                       | Antiplatelets, anticoagulants, antihypertensives | Hypertension, increased HDL, decreased triglycerides and LDL                                |

# SAFETY ISSUES RELATED TO DIETARY SUPPLEMENTS

| Supplement      | Adverse effects                                                                              | Interacts with:                                | Common uses                                                                                                           |
|-----------------|----------------------------------------------------------------------------------------------|------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------|
| SAM-e           | Nausea, vomiting, diarrhea, anxiety, restlessness                                            | Tricyclics and SSRIs                           | Depression, fibromyalgia, insomnia, OA, RA                                                                            |
| Saw palmetto    | All rare: constipation, diarrhea, decreased libido, headaches, hypertension, urine retention | Warfarin                                       | Benign prostatic hyperplasia, pelvic pain<br>High quality study – but doses high – no better than placebo<br>low/high |
| St. John's wort | Nausea, allergic reactions, dizziness, headache, photosensitivity (rare)                     | Anticoagulants, antivirals, SSRIs, statin, OCP | Mild – Mod Depression, anxiety and menopausal symptoms                                                                |

# Herbs at a glance

| Herb                                                                                            | use                                                                  | Side effects                             | comment                  |
|-------------------------------------------------------------------------------------------------|----------------------------------------------------------------------|------------------------------------------|--------------------------|
| <b>Acai berry</b>                                                                               | Wt loss/anti-aging/Antioxidant                                       | <b>? MRI interaction</b>                 | No evidence              |
| Aloe Vera                                                                                       | Skin- burns/wounds                                                   | Diarrhea, ? Blood sugars<br>low- caution | Low quality evidence     |
| Asian ginseng( Panax)-<br>wild Ginseng KY<br>(GINSANA siberian –<br>Eleuthero                   | Tonic-Immune, fatigue,<br>aphrodisiac,”feel<br>good”ED,DM,BP         | Headache, GI, coumadin<br>Short term-OK  | No high quality evidence |
| Bilberry ( Mirteselect)<br>Huckleberry                                                          | Food, Acute diarrrhea,<br>menstrual, varicose veins,<br>night vision | Not available                            | NE                       |
| Bitter orange (synephrine)                                                                      | GI issues/weight loss                                                | BP increased                             | NE                       |
| Black Cohosh( blue cohosh<br>is different- used to induce<br>labor) ( Remifemin and<br>Menofem) | Arthritis/menstrual issues-<br>hotflashes                            | Liver,GI side effects                    | Mixed results            |

| Herb                                                | use                                     | Side effects                             | evidence               |
|-----------------------------------------------------|-----------------------------------------|------------------------------------------|------------------------|
| <b>Butterbur ( petasites)</b>                       | Prevent Migraine HA, allergies          | GI side effects                          | High quality studies   |
| Chamomile( Kamilllosan)                             | Insomnia and GI                         | May interact with cyclosporine           | NE                     |
| Chasteberry (Premens or Mastodynon)                 | PMS/ breast pain                        | GI /avoid with OC pills or breast cancer | LE                     |
| Cinnamon                                            | DM and GI<br>SR – no effect on Diabetes | safe                                     | LE                     |
| Cranberry 20 OZ of cranberry juice or 2 pills a day | UTI /H.pylori                           | Safe- diarrhea                           | Evidence is building - |
| <b>Ephedra</b>                                      | Energy /weight loss supplements/URI     | Banned from US- high BP,stroke CVD       | LE                     |
| Elderberry                                          | Flu symptoms                            | Diarrhea GI                              | LE                     |

| herbs               | use                                              | Side effects             | comments                |
|---------------------|--------------------------------------------------|--------------------------|-------------------------|
| Fenugreek           | Labor, milk production, DM                       | GI                       | LE                      |
| Feverfew            | Prevent HA, RA, aches                            | GI, withdrawal-insomnia  | LE                      |
| Flaxseed            | Laxative, cholesterol(ALA)                       | Diarrhea- well tolerated | LE                      |
| Garlic              | CVS benefits- reduces cholesterol and GI cancers | Safe- odor and heartburn | LE                      |
| Ginger              | Nausea, stomach ache, arthritis                  | Safe- bloating           | LE- short term benefits |
| Grapeseed extract   | Venous insufficiency, retinopathy                | GI,HA                    | LE                      |
| Horse Chestnut seed | Chronic venous insufficiency                     | GI                       | LE                      |

| Herbs                            | Use                                    | Side effects                                                               | comments                 |
|----------------------------------|----------------------------------------|----------------------------------------------------------------------------|--------------------------|
| Kava                             | Anxiety, insomnia                      | Liver failure FDA warning                                                  | LE                       |
| Licorice root- Glycyrrhizic acid | Gi ulcers,,IBD, cold ( mucolytic)      | Na retention and K loss<br>Pseudoaldosteronism                             | NE                       |
| Milk thistle ( silmyrin)         | Liver protection from ETOH /cirrhosis- | hypoglycemia                                                               | Trial showed no evidence |
| Peppermint oil – enteric coated  | IBS                                    | Safe- Heartburn                                                            | ME                       |
| Redclover                        | Postmenopausal                         | Estrogen like effect avoid in Breast cancer                                | LE                       |
| Red Yeast Rice-Monacolin K       | Cholesterol- LDL                       | Kidney, liver and myopathy                                                 | LE                       |
| Soy-isoflavones/protein          | Hotflashes, LDL                        | GI no consitant evidence that increases breast CA /endometrial hyperplasia | Inconsistent results     |
| Golden Seal ( berberine)         | Hpylori, Gastritis, entameoba,         | CI in pregnancy ( kernicterus)                                             | No clinical trials       |

| Herbs                                                            | use                                                      | Side effects                          | comments                                     |
|------------------------------------------------------------------|----------------------------------------------------------|---------------------------------------|----------------------------------------------|
| Turmeric- curcumin<br>( Pepper and Turmeric improves absorption) | GI, skin arthritis- prevent colon cancer, FAP, H. Pylori | Safe – high dose cause liver problems | Animal studies- antiinflammatory/anti cancer |
| Valerian<br>( valerian and Hops works synergistic)               | Sleep, anxiety, calming agent                            | Safe-4-6wk HA,GI                      | LE- studies not well designed                |
| Yohimbe                                                          | ED, aphrodisiac                                          | BP,HR increased/MAO                   | NE                                           |
| Noni                                                             | Cancer/ immune                                           | High in potassium                     | NIH –s tudy                                  |
| Evening primrose oil(<br>Gamma Linoleic Acid)                    | Arthritis, PreM and post M symptoms, breast pain         | Well tolerated<br>HA/GI               | LE                                           |
| Tea tree oil topical use                                         | Skin-fungal, acne                                        | topical                               | LE                                           |

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

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

## [Herbal Supplements - ClinicalKey for Nursing](#)

To Read Health Information on Herbs

[https://medlineplus.gov/druginfo/herb\\_All.html](https://medlineplus.gov/druginfo/herb_All.html)



To Install NIH's HerbList App

<https://www.nccih.nih.gov/health/herblist-app>

