



Commonly Used Herbs and Supplements in the US during the pandemic

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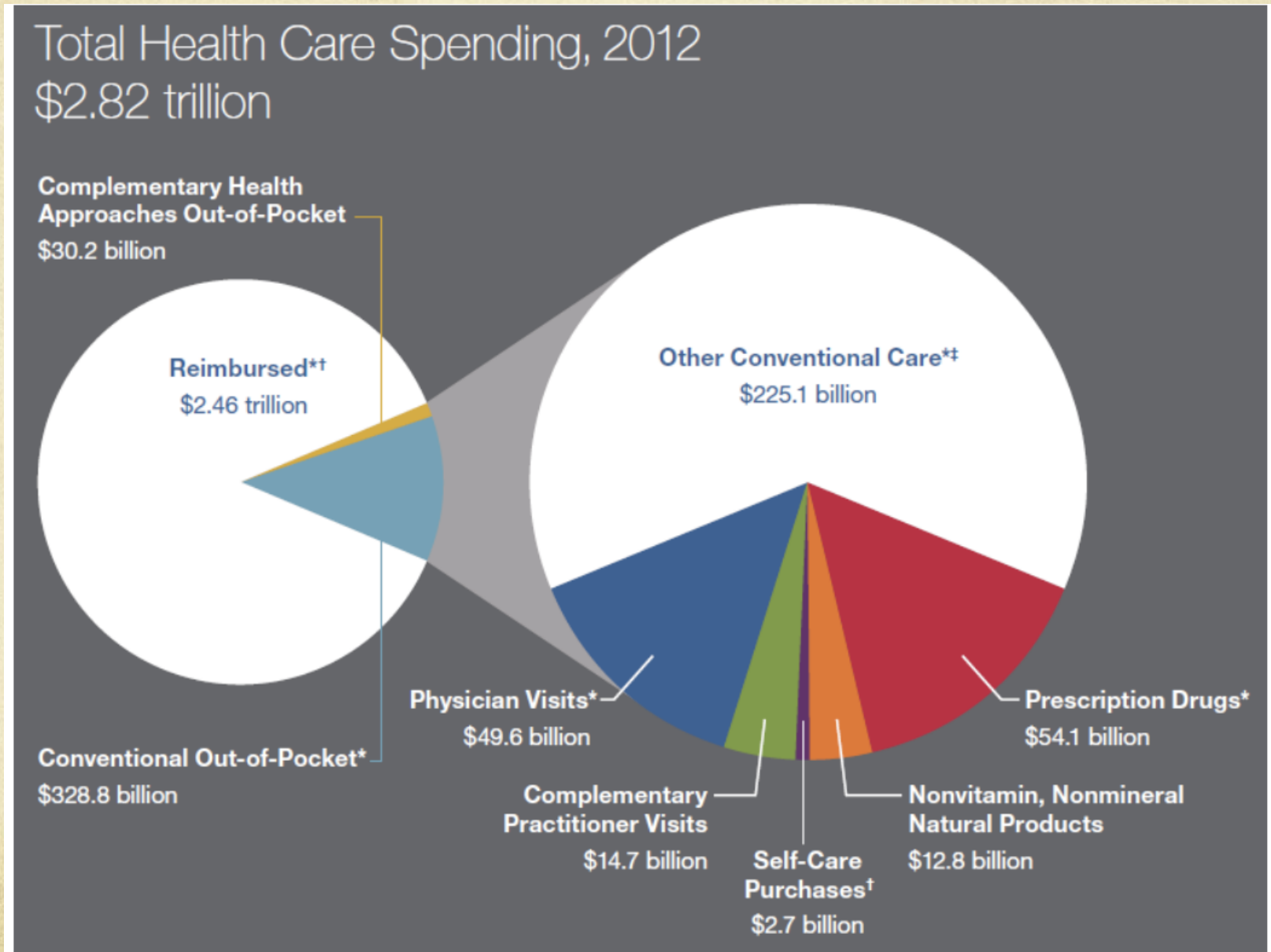
Objectives

- Intro to dietary supplements in the US
- Discuss commonly used/recommended dietary supplements during the pandemic
- Discuss evidence behind these supplements

What is a dietary supplement

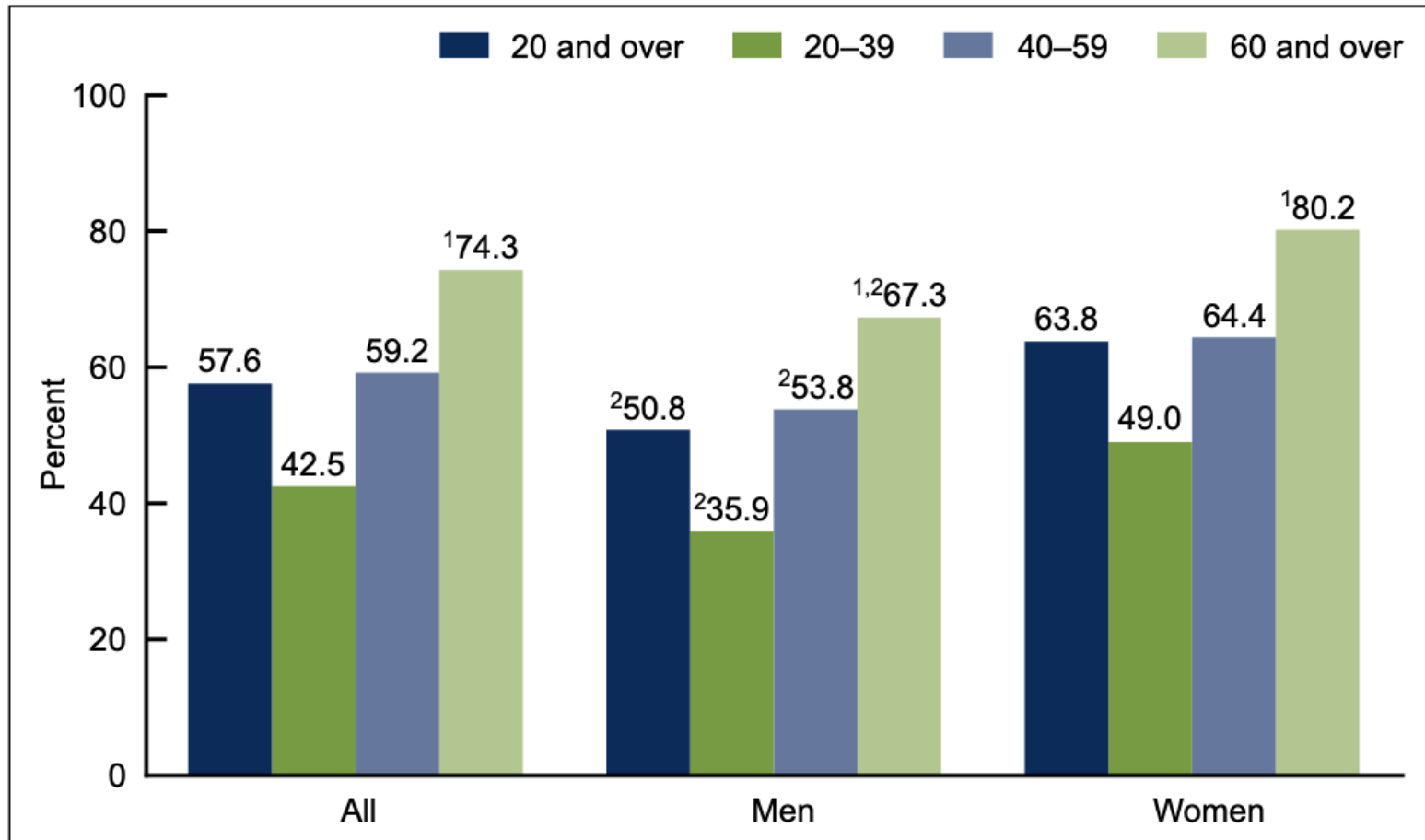
- A product (other than tobacco) that is intended to supplement the diet
- Contains one or more dietary ingredients (vitamins, minerals, herbs, or other botanicals, amino acids, and other substances)
- Taken by mouth (pill, capsule, tablet, liquid)
- Labeled on the front panel as being a dietary supplement

Complementary Health Approaches: NHIS 2012



Dietary supplement use in US: NCHS 2017-2018

Figure 1. Percentage of adults aged 20 and over who used any dietary supplement, by sex and age: United States, 2017–2018



¹Significant linear increasing trend with age.

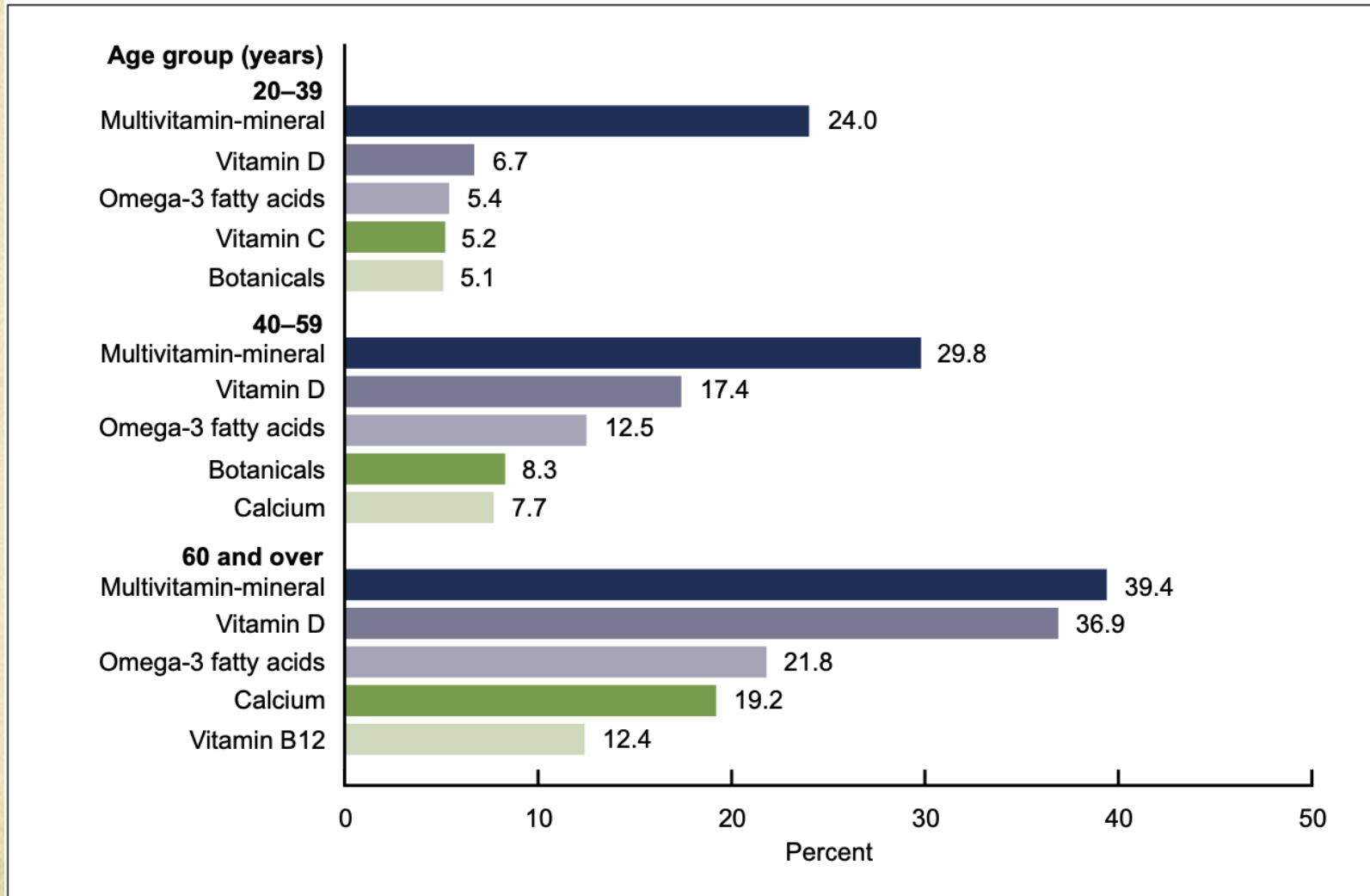
²Significantly different from women of the same age group.

NOTE: Access data table for Figure 1 at: <https://www.cdc.gov/nchs/data/databriefs/db399-tables-508.pdf#1>.

SOURCE: National Center for Health Statistics, National Health and Nutrition Examination Survey, 2017–2018.

Most common dietary supplement types: NCHS 2012

Figure 3. Most common types of dietary supplements used by adults aged 20 and over, by age: United States, 2017–2018

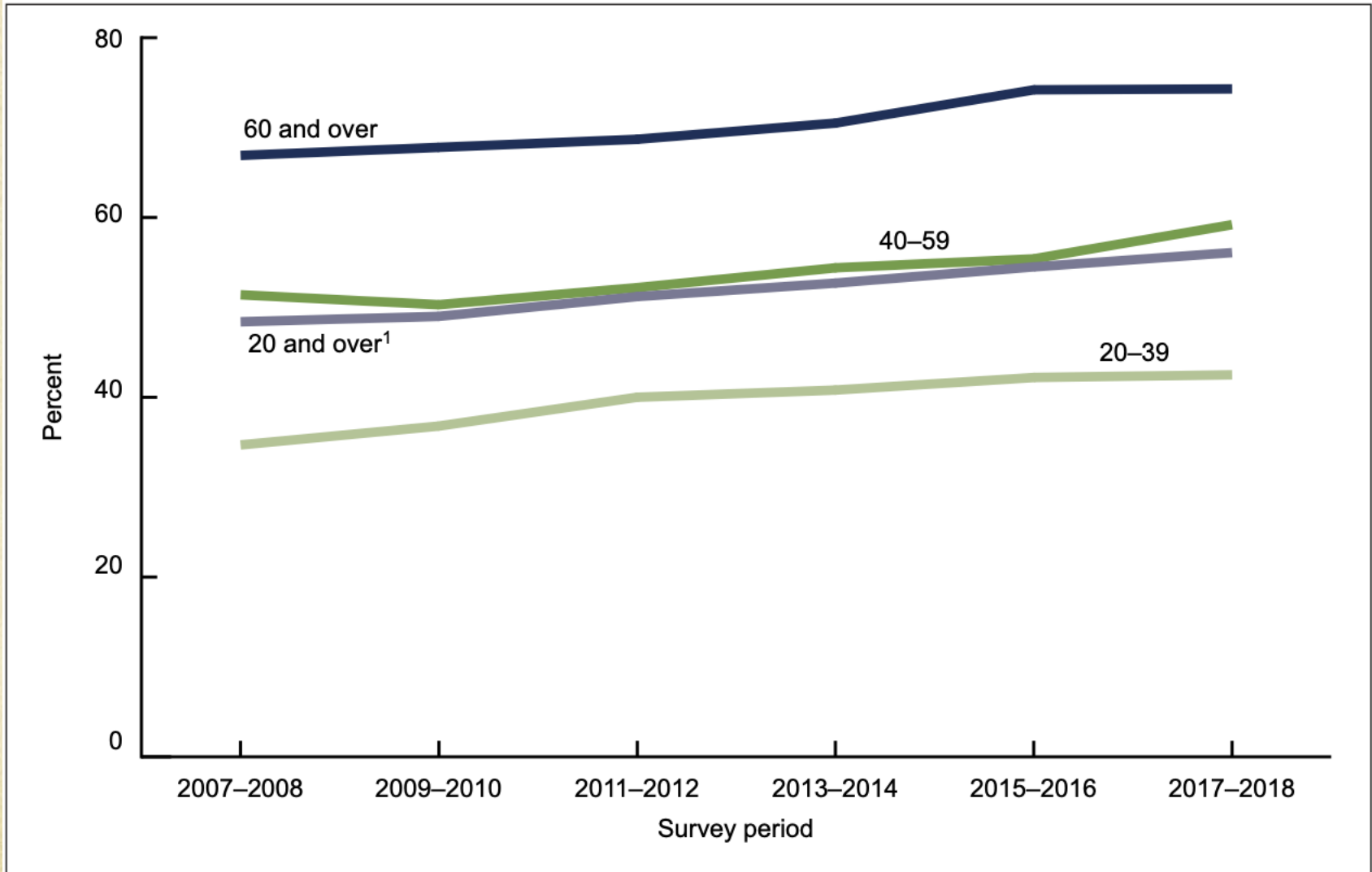


NOTE: Access data table for Figure 3 at: <https://www.cdc.gov/nchs/data/databriefs/db399-tables-508.pdf#3>.

SOURCE: National Center for Health Statistics, National Health and Nutrition Examination Survey, 2017–2018.

Trend in dietary supplement use 2007-2008 through 2017-2018 NCHS

Figure 4. Trends in age-adjusted percentage of adults aged 20 and over who used any dietary supplement: United States, 2007–2008 through 2017–2018



¹Estimates were age adjusted by the direct method to the 2000 U.S. Census population using age groups 20-39, 40-59, and 60 and over.

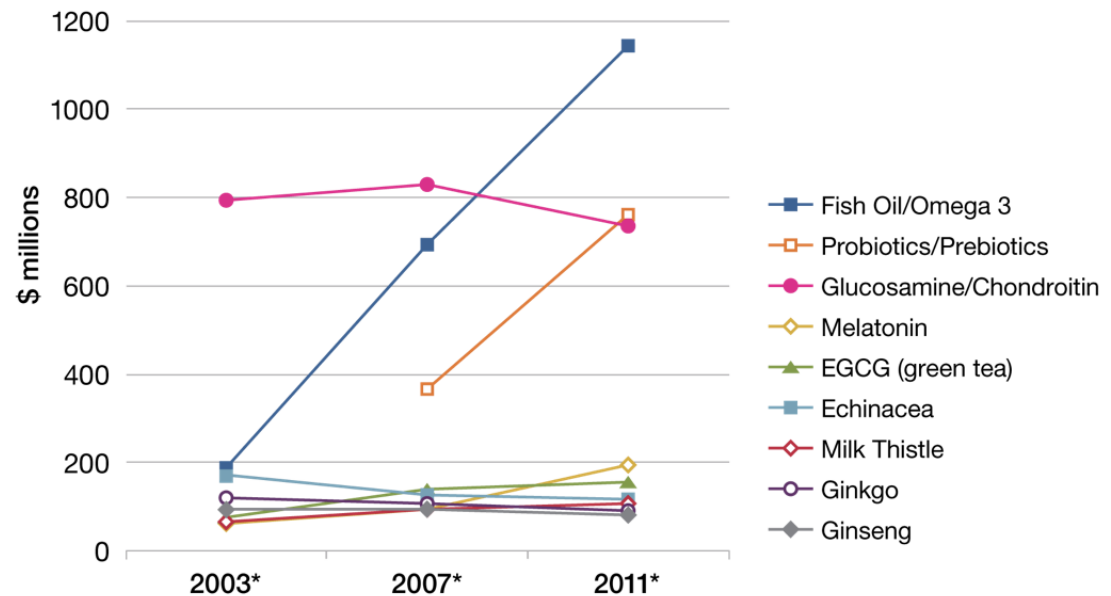
NOTES: Significant linear increasing trend for all groups. Access data table for Figure 4 at: <https://www.cdc.gov/nchs/data/databriefs/db399-tables-508.pdf#4>.

SOURCE: National Center for Health Statistics, National Health and Nutrition Examination Survey, 2007-2018.

Most commonly used Non-vitamin/Non mineral dietary supplement - NHIS 2012

1. Fish oil 7.8% ↑
2. Glucosamine/chondroitin 2.6% ↓
3. Probiotic/prebiotic 1.6% ↑
4. Melatonin 1.3% ↑
5. CoQ10 ↑
6. Echinacea ↓
7. Garlic ↓
8. Ginseng ↓
9. Ginko biloba ↓
10. Saw palmetto ↓

8-year sales trends* for individual non-vitamin, non-mineral natural products



Herbs: Hepatotoxicity

- US Drug-Induced Liver Injury Network (DILIN¹)
 - 20% of cases of drug-induced liver injury could be attributed to dietary herbs and supplements
 - Need for disclosure of herbal drug supplements (HDS) as “medications”

¹ DILIN - [The National Institute of Diabetes and Digestive and Kidney Diseases \(NIDDK\)](#) has established the Drug-Induced Liver Injury Network (DILIN) to collect and analyze cases of severe liver injury caused by prescription drugs, over-the-counter drugs, and alternative medicines, such as herbal products and supplements.

Natural Medicines Database

- Comprehensive database on dietary herbs and supplements
 - <http://naturaldatabase.therapeuticresearch.com/home.aspx?cs=&s=ND>
- **Effectiveness rating:**

Effective	High level of reliable clinical evidence. FDA passed, evidence of 2+ RTC or meta-analysis with hundred to thousands of patients. High quality studies
Likely Effective	High level of reliable clinical evidence. High quality studies, multiple RTC with several hundred patients
Possibly Effective	Some clinical evidence supporting its use for a specific indication. Limited by quantity, quality, or contradictory findings. 1 or more RTC or meta analysis. Low/mod bias.
Possibly Ineffective	Some clinical evidence showing ineffectiveness. Limited by quantity, quality. Overall negative outcomes.
Likely Ineffective	High level of reliable clinical evidence showing ineffectiveness. Negative outcome.
Ineffective	High level of reliable clinical evidence showing ineffectiveness
Insufficient Evidence	Not enough scientific evidence

Echinacea



- What is it?
 - North American plant
 - One of the most widely used herbal product in US is liquid extract from root of *Echinacea purpurea*

- Mechanism:
 - “boost” the immune system
 - Increase immunologic activity by increasing levels of interferons and phagocytosis, cellular respiratory activity, and lymphocyte activation through TNF, IL-1 and Interferon B2

Echinacea

- **Uses:**

- **Likely effective**

- **URI (cold/flu) treatment: within 3 days of onset**

- **Raus K, et al. Effect of an Echinacea-Based Hot Drink Versus Oseltamivir in Influenza Treatment: A Randomized, Double-Blind, Double-Dummy, Multicenter, Noninferiority Clinical Trial.**

- *Curr Ther Res Clin Exp.* 2015 Apr 20;77:66-72

Echinacea

- **Dosage:**

- URI: 1g TID x3-7 days improve cold/flu symptoms
- No standard (no active ingredient)

- **Formulation:**

- Echinaforce Hot drink: \$14
- Trunature® Echinacea 20:1 Extract 210 mg capsules
- Gaia Herbs: 700mg (2 tabs) every 2 hours with onset

Echinacea

- **Safety:**
 - Possibly safe in children and pregnant women
 - Use for 8 weeks or less
 - Avoid use: CHF, Afib
- **Interactions:**
 - Possible: Cytochrome P450 (1A2 and 3A4): increase drug levels, Etoposide, immunosuppressants
- **Side Effect:**
 - Uncommon and minor: upset stomach, nausea, dizziness

St. John's Wort



- What is it?
 - Flower native to Europe, West Asia, North Africa
 - Documented back to Greeks and Romans
 - Germany: most prescribed anti-depressant
- Mechanism:
 - Active components: hypericin and hyperforin,
 - Inhibition of reuptake of serotonin, dopamine, and noradrenaline
 - Activation of gamma-amino-butyrate and glutamate receptors

St. John's Wort

- Indicated for depression:
 - Cochrane Systematic Review (27 studies): 1996
 - Conclusion: superior to placebo and equivalent to standard antidepressants for tx of mild-moderate depression

St. Johns Wort: Uses

○ Effective:

- Depression

○ Likely effective:

- Somatoform disorders

○ Possibly Effective:

- Anxiety
- PMS
- ADHD
- OCD
- Pain

St. John's Wort

- Dose:
 - Depression:
 - 900mg Qday, 450mg BID, 300mg TID
 - Takes 2-4 weeks to manifest
 - Anxiety: 900mg BID x several weeks
- Formulations:
 - \$10-\$25 for 1 month supply



St. Johns Wort

- **Safety:**
 - Bipolar disease: SI
 - HIV/ Chemo/ transplant
 - Bleeding disorders/ on anticoagulants
 - Cytochrome P450 drugs
 - MAOI's, SSRI, TCA
 - Pregnancy/ breastfeeding
- **Interactions**
 - Serotonin syndrome
 - SSRI
 - TCA
 - Digoxin- decreases efficacy
 - OCP- decreases efficacy
 - Coumadin- decreases efficacy
 - Antiretrovirals
- **Side Effects: Generally well tolerated**
 - GI upset
 - increased anxiety
 - minor palpitations
 - photosensitivity,
 - fatigue
 - Restlessness
 - dry mouth
 - HA
 - increased depression

Turmeric



- What is it?
 - Asian spice from a root, member of the ginger family native to Southeast Asia (India)
 - Curcumin is the primary active ingredient in turmeric
- Mechanism of action
 - Anti-inflammatory (reduces inflammatory cytokines and prostaglandins) → pain, allergies, cancer



Turmeric: Uses

- Possibly Effective
 - Allergic rhinitis
 - Depression
 - HLD
 - Osteoarthritis
- Insufficient evidence to rate
 - Alzheimer disease / cognitive performance
 - Colorectal cancer
 - CAD
 - Crohn's disease
 - Diabetes
 - Joint pains/ RA *prelim research promising



Turmeric

- Dose
 - General:
 - 500mg daily (AR) to BID (OA and depression)
- Formulation
 - Root: cooking
 - Extract
 - Topical
 - Capsules (CuraMed, Turmacin, Organika Health Products)



Turmeric

- Safety
 - Used safely up to 4grams daily for 30 days
 - Likely unsafe when used orally in medicinal amounts during pregnancy. Unclear during lactation
 - Avoid in patients with gallstone, bile duct obstruction, stomach ulcers
- Interactions
 - High: Anticoagulants, camptothecin (inhibited), cyclophosphamide, Tacrolimus
 - Moderate: anti-diabetes, cytochrome P450 3A5 (theoretical)
 - Herbs: other antiplatelet/anticoagulants theoretically increase risk of bleeding
- Side Effects
 - Generally well tolerated.
 - GI upset is most common though rare, pruritus, pitting edema

Magnesium



- What is it?
 - Mineral
 - Diet: dark leafy greens, nuts, seeds, fish, beans, whole grains, avocado, yogurt, banana, dried fruit, dark chocolate
- Mechanism of action:
 - Co-factor for 300 enzyme systems that regulate
 - Protein synthesis
 - Muscle and nerve function
 - Blood glucose control
 - Blood pressure regulation
 - Energy production (oxidative phosphorylation, glycolysis)

Magnesium: Uses

- Effective:
 - Constipation
 - Dyspepsia
- Possibly effective:
 - Migraine headaches
 - Fibromyalgia
 - PMS
 - Arrhythmia (Torsades)
 - Asthma
 - Neuropathic pain (2/2 cancer)
 - Metabolic syndrome (diabetes) ¹
- Insufficient evidence to rate
 - Anxiety
 - HTN
 - Restless leg
 - Insomnia/poor sleep

> J Res Med Sci. 2012 Dec;17(12):1161-9.

The effect of magnesium supplementation on primary insomnia in elderly: A double-blind placebo-controlled clinical trial

Behnood Abbasi ¹, Masud Kimiagar, Khosro Sadeghniaat, Minoo M Shirazi, Mehdi Hedayati, Bahram Rashidkhani

Affiliations + expand

PMID: 23853635 PMCID: [PMC3703169](#)

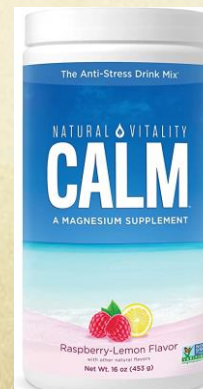
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Magnesium

- Dose:
 - Constipation: 25g Magnesium oxide
 - Headache: 400mg Magnesium citrate/ glycinate daily
 - General:
 - Start 250mg magnesium citrate. Can increase to 500mg daily. Hold for loose stools.
- Formulations
 - Mg citrate/glycinate.
 - Glycinate for sensitive GI prone to loose stools
 - Mg oxide
 - Topical magnesium oil
 - Epsom salt



Magnesium

○ Safety:

- Generally safe orally and appropriately in pregnant women and children
- Unsafe in excessive doses

○ Interaction:

- Other herbs/supplements that inhibit platelet aggregation (clove, garlic, ginger, glucosamine, ginseng) that may increase risk of bleeding
- Antacids, bisphosphonate, calcium channel blockers, spironolactone
- Antibiotics: aminoglycoside, tetracycline

○ Side Effects:

- GI effects: n/v/d
- Toxicity: hypotension, drowsiness, confusion, loss of tendon reflexes, muscle weakness, respiratory depression, arrhythmia, cardiac arrest

Lemon Balm



- What is it
 - Perennial, lemon-scented herb in the mint family
 - Historically used as a sedative and anxiolytic agent for centuries in many cultures
- Mechanism of action
 - Leaf and oil have anti-pain effects, antibacterial effects, anti-inflammatory effects, antiviral effects (HSV-1)

Lemon Balm: Uses

- Possibly effective
 - Herpes Labialis (cold sores) topical 1% lotion
 - Stress ¹⁻²
- Insufficient reliable evidence to rate
 - Anxiety
 - Hot flashes
 - Insomnia
 - IBS
 - Somatic symptom disorder



1. Kennedy DO, Little W, Scholey AB. Attenuation of laboratory-induced stress in humans after acute administration of *Melissa officinalis* (Lemon Balm). *Psychosom Med*. 2004 Jul-Aug;66:607-13
2. Scholey A, et al. Anti-stress effects of lemon balm-containing foods. *Nutrients*. 2014;6(11):4805-4821. doi: 10.3390/nu6114805

Lemon Balm

- Dose
 - No standard dosing
 - Tincture: 40 drops= 440mg at night
 - Traditional Medicinal Teabag = 1500mg/bag



Lemon Balm

- Safety: Generally recognized as safe status in the US
 - Safe in children for short term 3-6mg/kg in 6-7 years old
 - Infants up to 4 weeks old 64-97mg daily safe for 7 days
 - Not enough data for pregnancy
- Interaction
 - Possibly thyroid medication
- Side effects: generally well tolerated
 - Serious adverse effects rare. Wheezing

Omega 3- fatty acids



- What is it?
 - Essential fats the body cannot make
 - EPA (eicosapentaenoic acid) and DHA (docosahexaenoic acid) come mainly from fish
 - ALA (alpha-linolenic acid), the most common fatty acid in western diet foods in soy, leafy greens, plant oils, nuts
- Mechanism of action
 - Part of cell membranes throughout the body and affect the function of cell receptors in these membranes
 - Starting point for making hormones that regulate blood clotting, contraction and relaxation of artery walls, and inflammation

Omega 3 fatty acid: Uses



- Effective:
 - Hyperlipidemia

- Likely Effective
 - Heart Disease
 - GISSI Prevention Trial, Japan JELIS trial, US physicians Health Study

- Possibly Effective
 - HTN
 - Depression, ADHD, Bipolar disease, psychosis *
 - Osteoporosis
 - Psoriasis, Rheumatoid Arthritis *LOTS OF ONGOING RESEARCH

- Insufficient evidence:
 - Alzheimer's disease/ Cognitive function */ Dementia
 - Eczema
 - Other Inflammatory disease:
 - IBD, Lupus, MS, Migraine

Omega 3 fatty acids

- Dose:
 - Prevention: Fish: twice weekly
 - Therapeutic (fish oil)
 - HLD: 2-4g daily
 - All others: 1-3g daily
- Formulation:
 - Fish oil: DHA+ EPA goal >1000mg combined
 - Plants ALA: Tofu, soybeans, walnuts, flaxseed oil, flaxseed, and canola oil
 - Algae: EPA+DHA
 - Liquid fish oil- 5mL's daily (ex: Nordic Naturals)



Omega 3 fatty acids

- Safety
 - Avoid excessive fish and fish oil in pregnant, breastfeeding, young children
- Interactions
 - None significant
- SE:
 - Fishy after taste
 - (Lemon flavor, freeze, or take at night)
 - GI: nausea, vomiting





American Ginseng



- **What is it?**
 - Root in the slow growing perennial genus *Panax*
 - Valued for over 2000 years in Chinese medicine for invigorating, adaptogenic, tonic properties. AKA: “Cure All”
 - 2 most common species: Asian ginseng (extinct in natural) and American ginseng (wild and cultivated)
- **Mechanism of action: unclear**
 - Anticancer
 - Immunomodulatory: anti-viral and enhances antibody response

American Ginseng: Uses

- Possibly effective:
 - Immune system enhancement:
prevention of cold/ flu ¹⁻²
 - Cancer related fatigue*
- Insufficient reliable evidence:
 - Cognitive function
 - Kidney dysfunction
 - Menopausal symptoms
 - Obesity
 - Quality of life
 - Sexual arousal/ libido
 - Stress
 - Stroke prevention
 - Wrinkle prevention

1. McElhaney JE, Gravenstein S, Cole SK, et al. A Placebo-Controlled Trial of a Proprietary Extract of North American Ginseng (CVT-E002) to Prevent Acute Respiratory Illness in Institutionalized Older Adults. *J Am Geriatr Soc* 2004;52:13-9
2. Predy GN, Goel V, Lovlin R, et al. Efficacy of an extract of North American ginseng containing poly-furanosyl-pyranosyl-saccharides for preventing upper respiratory tract infections: a randomized controlled trial. *CMAJ* 2005;173:1043-8

American Ginseng

- **Dose:** Typical extract 4-7% ginsenoside
 - 200-400mg capsule (dry root or extract)
 - 1-2g of raw herb (root) for 12 weeks
 - Max dose 2g x15 days or 1g daily for long term
- **Formulation:** Labeled *Panax Ginseng* with 4-7% ginsenosides
 - Teabags
 - Fresh root
 - Dry root
 - Premium woodsgrown 4oz \$100
 - Half wild/half cultivated 4oz \$50



American Ginseng



- Safety
 - Avoid in pregnancy, breastfeeding, and children
- Interactions
 - Warfarin- possible
 - Diabetes medications- hypoglycemia
 - Antidepressants – increased antidepressant effect, mania
- SE: well tolerated
 - Most studies: none
 - Possible rash, hypoglycemia, HTN, n/v, diarrhea, insomnia
 - Bloody nose

Glutathione

- What is it?
 - Tripeptide made from amino acids
 - glycine, cysteine, and glutamic acid
 - Powerful antioxidant that reduces oxidative stress
 - Naturally in asparagus, avocado, spinach
- Mechanism of action
 - Synthesized in the liver and involved with DNA synthesis and repair, protein and prostaglandin synthesis, amino acid transport, metabolism of toxins and carcinogens, immune system function, prevents oxidative cell damage



Glutathione: Use

- Possibly effective
 - Cisplatin-induced neurotoxicity
- Insufficient reliable evidence to rate
 - Aging
 - Alcoholism
 - Athletic performance
 - Alzheimer disease
 - Chronic fatigue syndrome
 - Covid 19 prevention/treatment¹



1. Silvagno F, Verone A, et al. The Role of Glutathione in Protecting against the Severe inflammatory response Triggered by COVID-19. [Antioxidants \(Basel\)](#). 2020 Jul; 9(7): 624.

Glutathione



- Dose
 - Research limited.
 - Typical dosing unavailable
 - 500mg daily for 2 months for adults appears safe
- **Natural ways to increase glutathione in the body**
 - Spinach, Avocados, asparagus, okra richest dietary sources of glutathione
 - Foods that help with synthesis of glutathione in the body
 - Cruciferous vegetables: broccoli, Brussel sprouts, cauliflower, kale, watercress
 - Vitamin C rich foods: kiwi, citrus, strawberry, papaya
 - Selenium rich foods: beef, chicken fish, cottage cheese, brown rice, Brazil nuts

Glutathione

- Safety
 - 500mg daily for 2 months for adults
 - Not for pregnancy, lactating women, or children
- Side effects
 - Generally well tolerated though thorough evaluation of safety has not been conducted





Vitamin D



○ What is it?

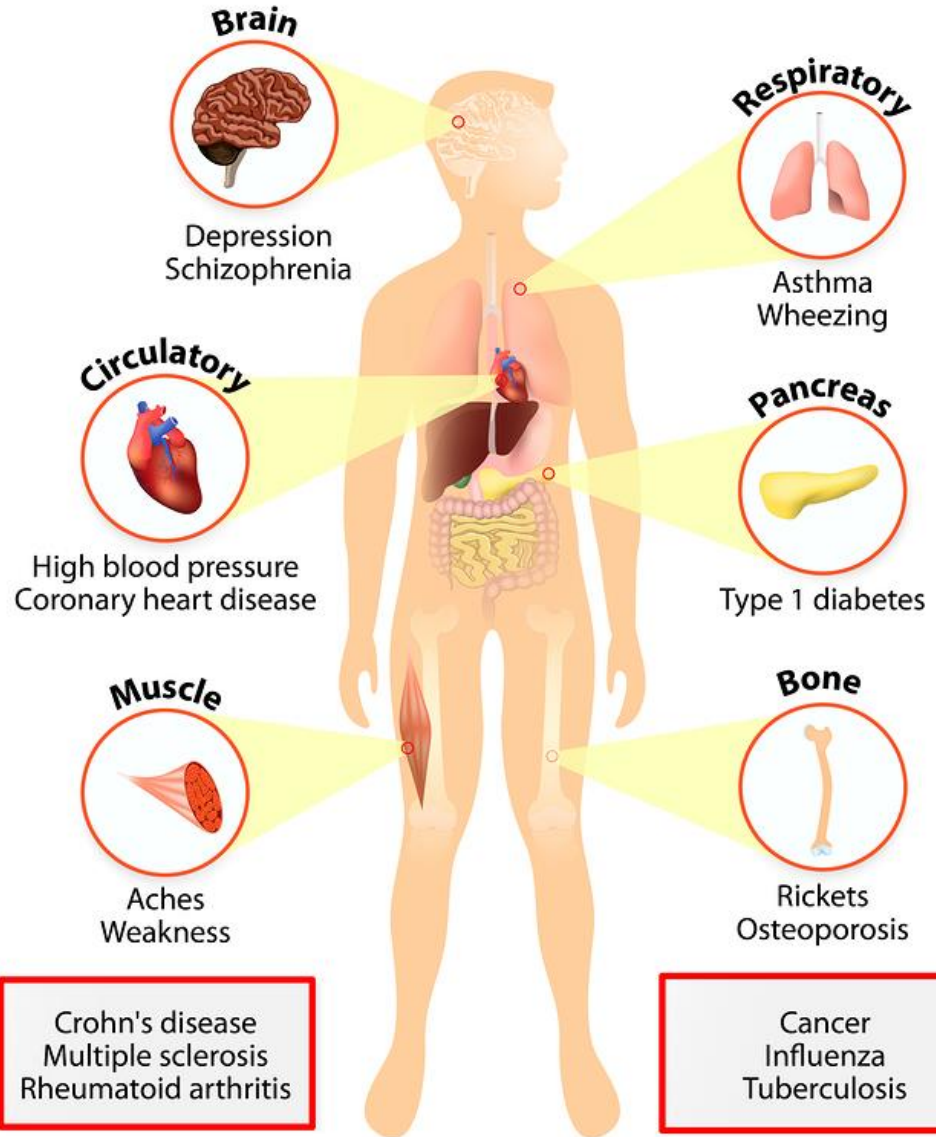
- Fat soluble vitamin fatty fish (salmon, tuna), fortified foods, beef liver, cheese, and egg yolk
- Originally discovered due to rickets. Endemic in 3rd world countries
- **Definitions**
 - Deficiency: <20 ng/mL (IOM)
 - Insufficiency: 21-29 ng/mL (Endo, NOS, IOF, AGS)
 - Goal: 30-40 ng/mL

○ Mechanism of action

- Synthesized by diet or by UV light
- Calcium and bone homeostasis
- Effects on muscle function, cancer, immune, cardiovascular, and metabolic system → *Suppresses inflammation

Vitamin D

VITAMIN D deficiency



Vitamin D: Uses

○ Effective

- Vitamin D deficiency

○ Likely effective:

- Osteoporosis/
steroid induced
osteoporosis
- Psoriasis

- Possibly effective:
 - Cancer²
 - Dental cavities
 - Heart Failure
 - Respiratory tract infections³
 - Rheumatoid arthritis
 - Weight loss
 - IBS¹
- Possible ineffective
 - Muscle strength
 - Cardiovascular disease
 - COPD
 - Cognitive function
 - Diabetes

1. Effect of vitamin D on gastrointestinal symptoms and health-related quality of life in irritable bowel syndrome patients: a randomized double-blind clinical trial. [Abbasnezhad A¹, Amani R², Hajiani E³, Alavinejad P³, Cheraghian B⁴, Ghadiri A⁵. Neurogastroenterol Motil.](#) 2016 May 7. doi: 10.1111/nmo.12851.
2. Lappe JM, Travers-Gustafson D, Davies KM, et al. Vitamin D and calcium supplementation reduces cancer risk: results of a randomized trial. *Am J Clin Nutr* 2007;85:1586-91
3. Jolliffe DA, Camargo CA Jr, Sluyter JD, et al. Vitamin D supplementation to prevent acute respiratory infections: a systematic review and meta-analysis of aggregate data from randomised controlled trials. *Lancet Diabetes Endocrinol.* 2021 May;9(5):276-292.

Vitamin D: Covid-19

- In adults, vitamin D supplementation does not seem to reduce the risk of respiratory infections.
- However low levels of vitamin D associated with worsened respiratory tract infection and even increased mortality from respiratory tract infections in older adults 50-75¹
- Children 1-16 years old taking vitamin D decreases odds of URI by 29% compared with control²
- May be reasonable to supplement at usual age-appropriate safe doses for patients with COVID-19

1. Brenner H, Holleczeck B, Schöttker B. Vitamin D insufficiency and deficiency and mortality from respiratory diseases in a cohort of older adults: potential for limiting the death toll during and beyond the COVID-19 pandemic. *Nutrients* 2020;12(8)E2488; doi:10.3390/nu12082488.

2. Jolliffe DA, Camargo CA Jr, Sluyter JD, et al. Vitamin D supplementation to prevent acute respiratory infections: a systematic review and meta-analysis of aggregate data from randomised controlled trials. *Lancet Diabetes Endocrinol.* 2021 May;9(5):276-292.

Vitamin D

- Dose
 - Deficiency: 50,000units Qweek x 8-12 weeks then 2,000units daily
 - Generally safe doses:
 - Children 400- 600 IU daily
 - Pregnant or lactating 600 IU daily
 - NFO recommends 400-800IU for adults <50 and 800-1000IU for adults >50
 - Should not exceed 4000 IU daily unless advised by healthcare provider
- Formulations
 - Oral capsule
 - Topical (Calcipotriene) for Psoriasis, warts, vitiligo, etc

Vitamin D

- Safety
 - Generally safe in children, pregnant/ lactating woman in appropriate doses
 - No more than 1000 IU in 0-6month
 - No more than 1500 IU in 6-12 mo
 - No more than 2500 IU in 1-3 years old
 - No more than 3000 IU in 4-8 years old
 - No more than 4000 IU in 9+
- Interaction
 - No major
- Side effect
 - Generally well tolerated
 - Rare GI complaints

Vitamin C



- What is it
 - Water soluble vitamin essential for human survival. We must obtain through diet (fruit, vegetables)
 - Anti-oxidant benefits and helps maintain immune function
- Safety: Safe in children and pregnant women
 - Dose dependent:
 - Do not exceed 2,000mg daily in adults and pregnant women.
 - No more than 400mg daily in 1-3 years old
 - No more than 650mg in 4-8 years old
 - No more than 1200mg daily 9-13 years old
 - No more than 1800mg 14-18 years old

Vitamin C

- Effective:
 - Vitamin C deficiency
- Possibly Effective
 - Anemia of chronic disease
 - Afib after cardiac surgeries
 - Common cold treatment
 - High dose can reduce duration of cold symptoms ¹⁻³

Top 10 Foods Highest in Vitamin C

90mg of Vitamin C = 100% of the Daily Value (%DV)

1 Guavas



419% DV (377mg)
per cup
112 calories

2 Kiwifruit



185% DV (167mg)
per cup
110 calories

3 Bell Peppers



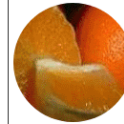
169% DV (152mg)
per cup
31 calories

4 Strawberries



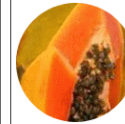
108% DV (98mg)
per cup
53 calories

5 Oranges



106% DV (96mg)
per cup
85 calories

6 Papaya



98% DV (88mg)
per cup
62 calories

7 Broccoli



90% DV (81mg)
per cup
31 calories

8 Tomato



61% DV (55mg)
per cup cooked
43 calories

9 Snow Peas



42% DV (38mg)
per cup
26 calories

10 Kale

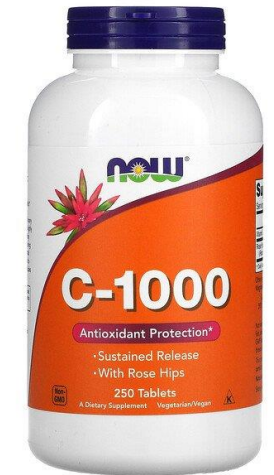


26% DV (23mg)
per cup cooked
47 calories

1. Martin NG, Carr AB, Oakeshott JG, Clark P. Co-twin control studies: vitamin C and the common cold. Prog Clin Biol Res 1982;103:365-73.
2. Pitt HA, Costrini AM. Vitamin C prophylaxis in marine recruits. JAMA 1979;241:908-11
3. Anderson TW. Vitamin C and the common cold. J Med Soc N J 1979;76:765-6

Vitamin C

- Dose
 - Treatment of acute virus: 2 grams daily
 - Otherwise 400-1000mg daily for up to 6 months
- Avoid in patients
 - Alcohol use disorder
 - Cancer
 - Nephrolithiasis
 - Smoking/smokeless tobacco use
- Side effects: Rare
 - Most common: abdominal cramping, esophagitis, headache, diarrhea, nausea, vomiting, kidney stones. SE only if taking >2g daily.



Zinc



○ What is it

- Mineral and essential nutrient. Deficiency can lead to short stature, hypogonadism, reduced ability to taste food, anorexia

- Gibson RS. A historical review of progress in the assessment of dietary zinc intake as an indicator of population zinc status. *Adv Nutr.* 2012 Nov 1;3(6):772-82.

- Common in red meat, poultry, fish, legumes, avocado

○ How does it work

- Reduces viral replication. 300 different types of enzymes in the body needs zinc as a catalyst. Zinc is important for the function of our immune system (neutrophil, NK cells, T lymphocytes)

○ Safety

- Safe in amounts if <40mg daily or <80mg daily for short courses in adults and pregnant women and lactating women
- Safe in kids 4mg for 0-6mo, 5mg for 7-12mo, 7mg for 1-3yo, 12mg for 4-8yo, 23mg for 9-13yo and 34mg for 14-18mo

Zinc

- **Effective**
 - Zinc deficiency
- **Likely effective**
 - Diarrhea in malnourished children
- **Possibly effective**
 - Acne
 - Common cold
 - Mossad SB, Macknin ML, Medendorp SV, Mason P. Zinc gluconate lozenges for treating the common cold. A randomized, double-blind, placebo-controlled study. *Ann Intern Med* 1996;125:81-8.
 - Godfrey JC, Conant Sloane B, Smith DS, et al. Zinc gluconate and the common cold: a controlled clinical study. *J Int Med Res* 1992;20:234-6
 - Depression
 - Age-related macular degeneration
 - Diabetes



Zinc

- Dose
 - Acute treatment of virus: up to 75mg daily
 - Zinc picolinate better absorbed compared with citrate or gluconate
 - 15-30mg daily for other conditions
- Side effects: rare
 - Common: abdominal cramp, diarrhea, metallic taste, N/V
 - Overdose: 450-1600mg shown to cause sideroblastic anemia, copper deficiency, myeloneuropathies



TCM Covid 19 Prevention

- Yu Ping Feng San (Jade Screen)
 - Preventative patent medicine for anti- upper respiratory infections
 - 3 ingredients
 - Astragalus, Fangfeng, Atracylodes
 - Yang Y, Islam MS, Wang J, Li Y, Chen X. Traditional Chinese Medicine in the Treatment of Patients Infected with 2019-New Coronavirus (SARS-CoV-2): A Review and Perspective. *Int J Biol Sci.* 2020;16(10):1708-1717. Published 2020 Mar 15. doi:10.7150/ijbs.45538

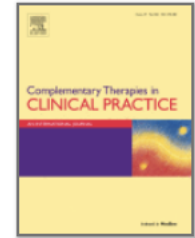


TCM Treatment Covid 19



Complementary Therapies in Clinical Practice

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Traditional Chinese Medicine treatment of COVID-19

Jia Xu  , Yunfei Zhang

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TCM Treatment COVID 19

- Yin Chiao San
 - For treatment of patients with mild viral infection including fever, headache, cough, sore throat
 - Antibacterial and antiviral functions ¹
 - Patent formula with 9 ingredients
 - Forsythia 15g, Bamboo leaves 6g
 - Burdock 6g, Chinese Bellflower 6g
 - Licorice root 3g, Honeysuckle 15g
 - Mint 6g, Light Tempeh 5g, Nepeta 6g

1. Jung-Sheng Yu, Chung-Han Ho, Yao-Chin Hsu, Jhi-Joung Wang, Ching-Liang Hsieh, Traditional Chinese medicine treatments for upper respiratory tract infections/common colds in Taiwan, European Journal of Integrative Medicine, Vol 6, Issue 5, 2014, Pages 538-544



FDA approved UCSD/UCLA Chinese Herbal Study for treatment of Covid 19

- Qing Fei Pai Du Tang Formula
- <https://clinicaltrials.gov/ct2/show/NCT04939415>
 - Amazon: Sun Ten brand \$32
 - Amazon: TianJiang brand: \$24



FDA approved UCLA/UCSD Mushroom study for treatment of covid 19

- <https://clinicaltrials.gov/ct2/show/NCT04667247>
- Fomitopsis officinalis and Trametes versicolor (Turkey tail)



Covid 19 Summary

- Prevention consideration
 - Yu Ping FengSan (Jade Screen)
 - American Ginseng
- Acute covid
 - Vitamin C 1000mg daily
 - Vitamin D 2000mg daily
 - Zinc 30-50mg daily
 - Nyquil as needed for sleep
 - Yin Chiao
- Post covid symptoms
 - American ginseng for fatigue, brain fog, cough
 - Fish oil for brain fog

Conclusions

- Avoid taking too many supplements
- Consider in patients resistant to medications and are otherwise uncomplicated
- We need more research on herbs and supplements and the role of functional foods
- Avoid in pregnant/breastfeeding women/ and kids

Resources

- **AFP by Topic:** App
- **Natural Medicines:** Authority on Integrative Medicine
 - Most comprehensive
 - Scientific evidence grade for efficacy of uses
 - Dosage for various uses
- **NIH- Office of Dietary Supplements (ODS):** Health Professional resources