

Safe Use of Dietary Supplements in Cancer Patients

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Objectives

- Identify key components and resources on assessing safe use of dietary supplements in patients
- Describe some common uses of dietary supplements used by patients
- Identify legal and product regulations around CBD and THD and how to safely use them



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Dietary Supplements (DS)

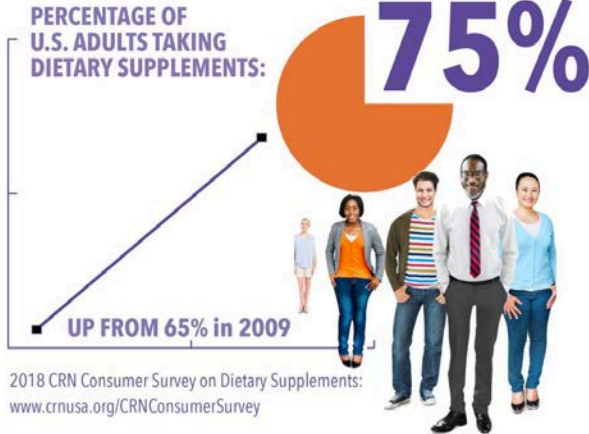


- Vitamins
- Minerals (i.e., magnesium)
- Non-vitamin, non-mineral
 - Plant based products (i.e., herbs...Echinacea)
 - Amino acids
 - Others..(i.e., glucosamine, lycopene, fish oil)
- Protein powders? Juices?

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High % of Adults take Dietary Supplements



PERCENTAGE OF U.S. ADULTS TAKING DIETARY SUPPLEMENTS:

75%

UP FROM 65% in 2009

2018 CRN Consumer Survey on Dietary Supplements:
www.crnusa.org/CRNConsumerSurvey

Council for Responsible Nutrition, 2018 Consumer Survey

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Highly Prevalent Dietary Supplement Use in Cancer Patients

- 70% in breast CA
- 36% in colon CA
- 85% in gynecologic CA
- NHANES (2003-2016) DS Use
 - 70.4% CA survivors vs 51.2% w/o CA

Greenlee, et al. *JAMA Oncol* 2016; Bours, et al. *Br J Nutr*, 2015; Inoue-Choi, et al. *Cancer Epidemiol Biomarkers Prev*, 2014; NHANES 2003-2016, Du, et al. *J of Nutr*, 6/2020

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Pearls for Safe Use of DS

- Potential and/or Known Risks of Herb-Drug Interactions
- Choose products from a reputable source
- Do not recommend essential oils orally
- Caution when using herbs for chronic conditions
- Consider duplication in therapeutic effect with prescription medications
- Best to refer to an expert!



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Regulations on DS in the U.S.

FDA DSHEA Act of 1994

- Definition of a Dietary Supplement
 - [https://ods.od.nih.gov/About/DSHEA_Wording.aspx - sec3](https://ods.od.nih.gov/About/DSHEA_Wording.aspx_sec3)
- Statements of Nutritional Support
- Good manufacturing process
 - <https://www.fda.gov/Food/GuidanceRegulation/CGMP/default.htm>

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Nutritional Support Claims

- Claims may not be made about use to diagnose, prevent, mitigate, treat, or cure a specific disease
 - Can make statements regarding classical nutrient deficiency diseases
 - Can describe supplement's effect on "structure and function" or "well-being" achieved
- All claims must be accompanied by a disclaimer:
"This statement has not been evaluated by the FDA. This product is not intended to diagnose, treat, cure, or prevent any disease."

US Food and Drug Administration

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Nongovernmental Evaluation of Dietary Supplements in the U.S.

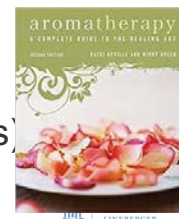
- *United States Pharmacopeial Convention (USP) Dietary Supplements Compendium-2015*
 - <http://hmc.usp.org/>
- *USP Dietary Supplement Verification Program (DSVP)*
 - <http://www.quality-supplements.org/verified-products>
 - <http://www.usp.org/dietary-supplements/overview>
- *NSF International*
 - <http://www.nsf.org/consumer-resources/health-beauty/supplements-vitamins/supplement-vitamin-certification>
- *Consumer Lab*
 - <https://consumerlab.com>



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Essential Oils 101

- Do not use orally
- Dilute oils when used topically with a carrier oil
 - Carrier oil: olive oil, sunflower oil, almond oil, etc.
 - 1-2% to start; max of 5%
- Use a small amount to test for allergic reaction
- Use pure essential oils
- On average 20 drops of EOs = 1mL
- Beware of photosensitivity (ie, citrus oils)
- Be cautious during pregnancy



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Known Risks for Herb-Drug Interactions with Common Herbs

- St Johns Wort: reduced concentration of many Rx meds
- Goldenseal/Berberine: increased concentration of many Rx meds

Asher, Corbett, et al. *Am Fam Physician*, 2017

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Intermediate or Unknown Risk for Herb-Drug Interactions with Common Herbs

- Garlic: P-gp inhibitor (no CYP 450 issues)
- Curcumin (Turmeric): potential for increased medication concentrations
- Echinacea: caution with some meds; others are OK
- Green tea: may inhibit Pgp; OK with CYP likely
- Kava kava: OK with most meds
- Elderberry: no clinical data; in vitro OK
- Lemon balm: No data

Asher, Corbett, et al. *Am Fam Physician*, 2017

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How to Assess HDI

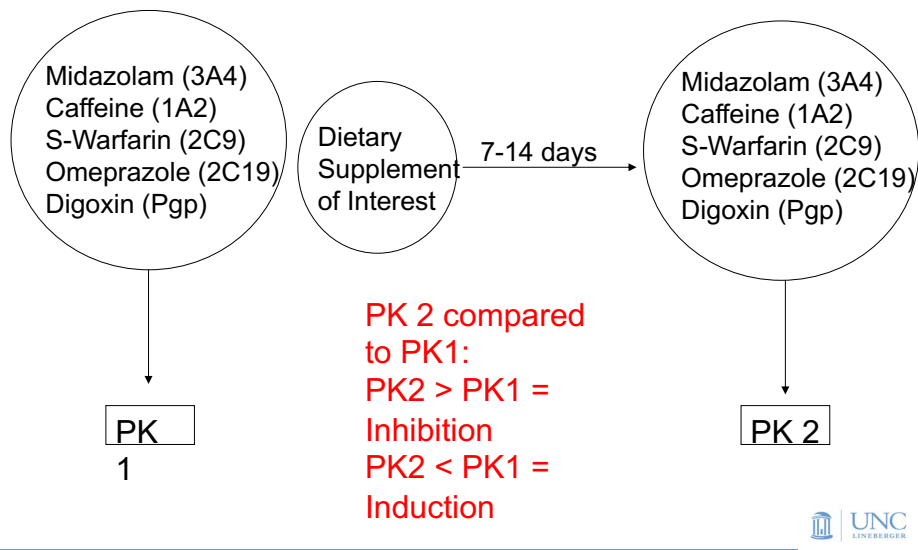
- Natural Medicines Database
- PubMed Search
 - Reviews on HDI
 - Search
- In vitro vs in vivo studies
 - Clinical CYP 450 and Drug Transporter Probe Studies

In vivo effects of goldenseal, kava kava, black cohosh, and valerian on human cytochrome P450 1A2, 2D6, 2E1, and 3A4/5 phenotypes

Gurley, et al. *Clin Pharmacol Ther*, 2005

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CYP 450, Drug Transporter Probe Studies (inhibition or induction)



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Resources for Using Herbs



- Natural Medicines
 - <https://trchealthcare.com/about-us/products/natural-medicines/>
- Lexicomp Natural Products
 - [Lexicomp Natural Products](#)
- NIH National Center for Complementary and Integrative Health
 - <https://nccih.nih.gov/health/herbsataglance.htm>
- NIH Office of Dietary Supplements
 - <https://ods.od.nih.gov>
- Memorial Sloan Kettering
 - <https://www.mskcc.org/cancer-care/treatments/symptom-management/integrative-medicine/herbs>



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Product Selection

- Consumer Lab
 - <https://www.consumerlab.com/>
- Dietary Supplement Label Database
 - <https://www.dsld.nlm.nih.gov/dsld/index.jsp>
- Reputable Distributors
 - <https://www.emersonecologics.com/>
 - <https://fullscript.com/>
- Relationships with Manufacturers



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Common DS used by Cancer Patients

- 59% use among CA pts during treatment in a recent survey
 - 18% use of herbal supplements
- O3FA most common NVNM
- Green tea most common herb
- 75% sought professional advice
 - 44% from media; 47% from lay resources

Luo & Asher. JACM 2018

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Common DS used by Cancer Patients

- Risk of HDIs are BIG concern
- Ginger
- Topical treatment for radiation (ie, calendula cream)
- Omega 3 Fatty Acids (fish oil)
- Green tea
- Medicinal mushrooms
- Soy (food vs isoflavone DS)
- Curcumin
- Calcium, Vitamin D
- Cannabinoids

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History of Cannabis

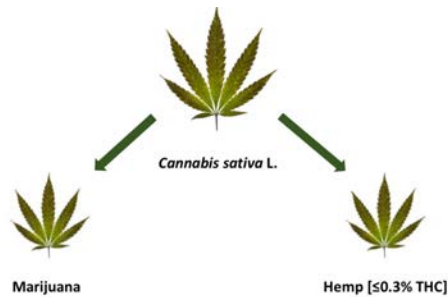
- Plant used as early as 10,000 BC
- Used in many religions
- Used more than 5000 years ago in Chinese medicine



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What is cannabis?

- Commonly used terms for Cannabis: Hemp, Marijuana, Cannabis, CBD



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Regulation of Cannabis in the United States

- THC is fully legal in 23 states*
 - Complex regulation
- CBD Oil is a federal Schedule V substance
 - Complex regulation
 - Epidiolex®-FDA approved medication for certain seizures
 - NOT currently considered a dietary supplement by the FDA

*DISA Global Solutions



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THC and CBD as Medicine

- Rx Products:
 - Sativex, Marinol, Cesamet
 - Epidiolex
- OTC/Recreational Products:
 - Marijuana, CBD Oil
- Dosage forms:
 - Oral solid dosage forms, Oral spray, Liquid, Topical



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THC and CBD as Medicine

- Chemotherapy induced Nausea and vomiting
- Appetite stimulant
- Pain
- Autoimmunity: Crohn's, RA, Multiple sclerosis
- Parkinson's
- Seizure disorder
- Anxiety
- Pain with arthritis, fibromyalgia, back pain, cancer
- Insomnia
- Schizophrenia
- PTSD
- Glaucoma
- Autoimmune disease



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Topical Cannabinoids

- Minimal data for any indication
- Osteoarthritis
- Back Pain
- Pain from wounds
- Animals
- Products should be thoroughly tested for contamination and amount of substances
 - Ask for a Certificate of Analysis
 - Dosing is challenging
 - Not all products are the same




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Herb Drug Interactions:


Potential for serious drug interactions

- THC
 - Can *increase* effects of opioids and many other medications
- CBD Oil
 - Can *increase* effects of certain Anti-anxiety medications, Antidepressants, Antipsychotics, Seizures meds, Blood thinners, Blood pressure meds, and more
- THC & CBD: Certain medications can *increase or decrease*





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Product Selection



- Products should be thoroughly tested for contamination and amount of substances
 - Ask for a Certificate of Analysis
- Resources:





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Some brands.....



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