

Herbs and Supplements: Are They Safe for Transplant Recipients?

Celebrating a Second Chance at Life Survivorship Symposium

April 29 – May 5, 2023



Colleen Timlin, PharmD, BCOP
Hospital of the University of Pennsylvania

1

Learning Objectives

At the conclusion of the workshop, attendees should understand the following:

1. How herbs and supplements can vary in potency and contamination
2. How herbs and supplements may interact with medications prescribed by a doctor
3. Popular herbs and supplements that should be avoided by HCT survivors, and why
4. How to find reliable information about the safety and effectiveness of particular herbs and supplements

2

Disclosures

- I have no financial disclosures
- This presentation will not provide individualized recommendations
- This presentation will not cover marijuana/CBD/THC

3

What are supplements?

- Herbs/flowers
- Food
 - Spices
- Beverages
 - Teas
- Tablets/capsules/powders
- Topicals



4

Use of Herbals/Supplements

- Use dates back thousands of years
- Common in many cultures
- Many people consume supplements
- Supplement industry growing exponentially



5

Why People Take Supplements

- Meet daily requirements of essential nutrients
- Improve or maintain overall health



6

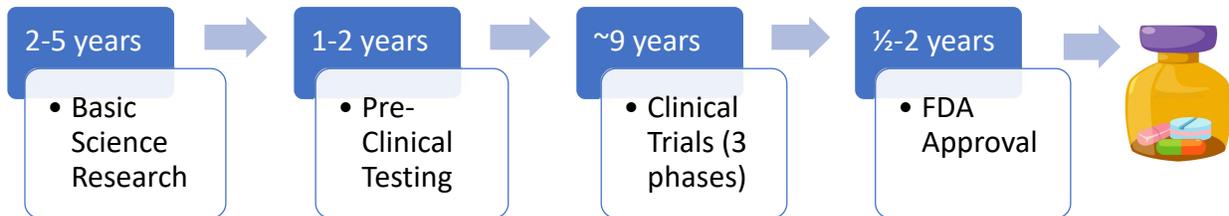
Herbs/Supplements vs Medications

- Food & Drug Administration (FDA) considers vitamins/herbs/botanicals as food, not drugs
- Supplements do not require FDA approval
- Drugs have testing, manufacturing, labeling standards
- Drugs undergo rigorous safety/efficacy testing



7

FDA Drug Approval Process



8

Deceptive Practices

- Incorrect label
 - Wrong product
 - Wrong dose
- Additional products included
 - Toxins or chemicals
 - Sometimes even prescription medicines!



9

How to Find a Reputable Product

- Quality standards on label
 - USP, NF, NSF, CL
- Company contact
 - Location within United States
- Minimal ingredients

Buy supplements that carry a seal of approval.



10

Risks in Taking Supplements

- Take too much of some supplements
- Combine supplements
- Use supplements with medications (prescription or over-the-counter)
- Take supplements instead of medications



11

Liver Function

- Body filtration system
- Important part of blood system
- Important part of dietary and medication break down



12

Food Label



Nutrition Facts			
Serving Size 1 bottle (8 fl oz)			
Amount Per Serving		Calories from Fat 100	
		% DV*	% DV*
Total Fat 11g	17%	Sodium 230mg	10%
Saturated Fat 1.5g	8%	Potassium 630mg	18%
Trans Fat 0g		Total Carb. 50g	17%
Polysaturated Fat 4g		Dietary Fiber 1g	4%
Monounsaturated Fat 5g		Sugars 18g	
Cholesterol 10mg	3%	Protein 13g	26%
Vitamin A 25% • Vitamin C 60% • Calcium 30%		Iron 25% • Vitamin D 80% • Vitamin E 30%	
Vitamin K 25% • Thiamin 25% • Riboflavin 25%		Niacin 25% • Vitamin B₆ 25% • Folate 25%	
Vitamin B₁₂ 25% • Biotin 25% • Pantothenic Acid 25%		Phosphorus 30% • Iodine 25% • Magnesium 25%	
Zinc 30% • Selenium 30% • Copper 25%		Manganese 25% • Chromium 25% • Molybdenum 25%	
Chloride 8%			

*Percent Daily Values (DV) are based on a 2,000 calorie diet.

INGREDIENTS: WATER, CORN MALTOESTER, SUGAR, BLEND OF VEGETABLE OILS (CANOLA, CORN), MILK PROTEIN CONCENTRATE, COCOA POWDER PROCESSED WITH ALKALI, SOY PROTEIN ISOLATE, LESS THAN 0.5% OF: ROASTED MILK, MAGNESIUM PHOSPHATE, POTASSIUM CITRATE, SOY LECITHIN, CALCIUM PHOSPHATE, SODIUM CITRATE, POTASSIUM CHLORIDE, NATURAL AND ARTIFICIAL FLAVOR, CHOLINE CHLORIDE, ASCORBIC ACID, SALT, CARAGEENAN, 6-ALPHA-TOCOPHERYL ACETATE, ZINC SULFATE, NIACINAMIDE, FERROUS SULFATE, CALCIUM PANTOTHENATE, COPPER SULFATE, MANGANESE SULFATE, CHROMIUM CHLORIDE, VITAMIN A PALMITATE, THIAMINE HYDROCHLORIDE, PYRIDOXINE HYDROCHLORIDE, RIBOFLAVIN, FOLIC ACID, BIOTIN, SODIUM SELENATE, POTASSIUM IODIDE, SODIUM MOLYBDATE, VITAMIN B₁₂, PHYLLOQUINONE AND VITAMIN D₃. CONTAINS MILK AND SOY INGREDIENTS.

Abbott Nutrition, Abbott Laboratories, Columbus, Ohio 43219-3034 USA

13g

HIGH-QUALITY
PROTEIN

350

CALORIES

26

VITAMINS &
MINERALS

2023 SURVIVORSHIP SYMPOSIUM

13

Dietary Supplement Label

Serving size

Number of servings per container

Each dietary ingredient included

Percent of recommended daily amount

Additional Ingredients

All other "inactive" ingredients

Supplement Facts		
Serving Size: 4 Capsules Servings Per Container: 30		
	AMOUNT PER SERVING	%DV
Vitamin A (as Beta-Carotene)	(5000 IU) 1563 mcg	174%
Vitamin C (as Camu Camu Fruit Extract)	60 mg	67%
Vitamin D (as Cholecalciferol)	(2500 IU) 62.5 mcg	313%
Biotin (as D-Biotin)	3000 mcg	10000%
Iodine (from Organic Kelp) (<i>Laminaria Digitata</i>)	225 mcg	150%
Zinc (as Zinc Amino Acid Chelate)	25 mg	227%
Selenium (as Selenium Amino Acid Chelate)	200 mcg	364%

SYNERGEN COMPLEX* 1720 mg **

Saw Palmetto (Fruit) CO₂ Extract (>45% Fatty Acids), Hydrolyzed Marine Collagen Type I & III, Sensoril® Ashwagandha (Root and Leaf) Extract (10% Withanolides), Curcumin (Rhizome) Extract (95% Curcuminoids), Full Spectrum Palm Extract (20% Tocotrienol/Tocopherol Complex), Hyaluronic Acid

NUTRAFOL BLEND* 575 mg **

L-Cysteine, L-Lysine, L-Methionine, Horsetail (Stem and Leaf) Extract, Japanese Knotweed (Root) Extract (50% Resveratrol), Solubilized Keratin, Black Pepper (Fruit) Extract (95% Piperine), Capsicum (Fruit) Extract (2% Capsaicinoids)

**Daily Value (DV) not established

OTHER INGREDIENTS: Vegetable Cellulose Capsule, Organic Rice Hulls.
CONTAINS: North Atlantic Cod (Collagen).

14

FDA Disclosure Statement

* These statements have not been evaluated by the Food and Drug Administration. This product is not intended to diagnose, treat, cure, or prevent any disease"



FDA Disclosure Statement

* These statements have not been evaluated by the Food and Drug Administration. This product is not intended to diagnose, treat, cure, or prevent any disease"

Supplements to Discuss

- Vitamin D
- Melatonin
- Milk thistle
- Saw Palmetto
- Biotin
- Curcumin/turmeric
- Glucosamine
- Garlic
- Probiotics
- Fish oil
- St. John's wort
- Apoaequorin

17

Vitamin D

Reported Use	Prevent certain cancers, prevent osteoporosis, help seasonal affective disorder
Food Sources	Fortified milk and cereals, egg yolks, fatty fish, fish liver oils Sunlight
Possible Interactions	Atorvastatin, thiazide diuretics (water pills), aluminum hydroxide (antacids)
Possible Side Effects	Vomiting, abdominal pain, high calcium levels in blood, high level of calcium in urine, kidney stones
Take Home Message	Avoid with history of kidney stones, kidney disease, high blood calcium levels, heart disease, liver disease, diseases that affect calcium

18

Melatonin

Reported Use	Trouble sleeping, seasonal affective disorder (SAD), migraines, chemotherapy/radiation side effects (low platelet counts, weakness, depression)
Food Sources	Fruits, nuts, olive oil, wine
Possible Interactions	Blood thinners, nifedipine, fluvoxamine, ciprofloxacin, cimetidine, peginterferon, acyclovir, caffeine, omeprazole, allopurinol
Possible Side Effects	Headaches, drowsiness, change in sleep, trouble sleeping, bad dreams, confusion, fast heart rate, flushing (red in face), itching, stomach cramps, low body temperature
Take Home Message	Should not be taken when driving or operating heavy machinery, keep out of reach of children, talk with your provider first if you have hormone-sensitive cancers (breast, prostate)

19

Milk Thistle

Reported Use	Liver damage, Alzheimer's disease
Food Sources	Derived from the seed, pod, or fruit of milk thistle
Possible Interactions	Warfarin, haloperidol, sirolimus, alprazolam, etoposide, amlodipine, diltiazem, verapamil, carbamazepine, cyclosporine, tacrolimus, clarithromycin, erythromycin, atorvastatin, testosterone, ondansetron, thiotepa, zolpidem, aripiprazole
Possible Side Effects	Increase in liver tests (bilirubin), upset stomach
Take Home Message	Lots of drug interactions!

20

Saw Palmetto

Reported Use	Prostate cancer, urination, benign prostatic hypertrophy (BPH), anti-inflammatory
Food Sources	Fruid of a dwarf palm that grows in the coastal lands of North America, West Indies, and Mediterranean countries
Possible Interactions	Blood thinners, anti-inflammatory drugs (NSAIDs)
Possible Side Effects	Upset stomach (diarrhea), tiredness (fatigue), headache, decreased libido, runny nose, bleeding time
Take Home Message	Many drug interactions!

21

Biotin

Reported Use	Healthy skin, nails, hair
Food Sources	Organ meats (like liver or kidney), eggs, almonds, soy beans, peanuts, wholegrain cereals, brewer's yeast, and vegetables
Possible Interactions	May interfere with certain lab tests (Inaccurate thyroid tests, inaccurate pregnancy tests, missed diagnosis of heart disease, elevated testosterone)
Possible Side Effects	Not reported
Take Home Message	Interference with labs tests may mask diseases, require unnecessary diagnostic procedures, or overestimate response to therapy

22

Curcumin/Turmeric

Reported Use	Cancer, infections, reduce inflammation, joint pain
Food Sources	Underground part of the turmeric plant's stem, curry powder
Possible Interactions	aspirin, ibuprofen (Advil®, Motrin®), or Acetaminophen (Tylenol®), indomethacin (Indocin®), warfarin (Coumadin®) or other blood thinners, chemotherapy medications such as camptothecin (Camptosar®), mechlorethamine (Mustargen®), doxorubicin (Adriamycin®, Rubex®), or cyclophosphamide (Cytoxan®, Neosar®), tacrolimus (Prograf®)
Possible Side Effects	Abdominal pain/discomfort, rash, hives
Take Home Message	Generally safe to use turmeric in food and tea. Avoid in history of kidney stones. Many drug and lab interactions!

23

Glucosamine

Reported Use	Osteoarthritis, joint swelling, temporomandibular joint disease (TMJ)
Food Sources	N/A; chemical found in body
Possible Interactions	Blood thinners
Possible Side Effects	Upset stomach, diarrhea, heartburn, itching, skin rash, low blood pressure, sleepiness, trouble breathing, blood sugar levels
Take Home Message	Avoid in allergy to shellfish, diabetes, glaucoma, liver disease or taking blood thinners

24

Garlic

Reported Use	Cancer, heart disease, infections
Food Sources	Bulb or clove of the garlic plant
Possible Interactions	Blood thinners, cyclosporine, protease inhibitors (darunavir/Prezista®, saquinavir/Fortovase®, Invirase®), insulin, tacrolimus, lovastatin, sirolimus, budesonide, sildenafil, venetoclax
Possible Side Effects	Headache, tiredness, bad breath, upset stomach, diarrhea, sweating, low blood sugar, increased bleeding risk, liver disease
Take Home Message	Garlic supplements should be discontinued 1–2 weeks before surgery because of the potential for increased bleeding Topical use of garlic preparations should be avoided Many drug interactions!

25

Probiotics

Reported Use	Digestion, bowel function
Food Sources	Yogurt, miso, tempeh, kefir, pickled vegetables, sauerkraut, kimchi and buttermilk and cottage cheese
Possible Interactions	GVHD treatments
Possible Side Effects	Infection
Take Home Message	Avoid if on immunosuppression, neutropenic, or treatment for GVHD

26

Fish Oil

Reported Use	Cancer, heart disease, depression, cholesterol levels, lupus
Food Sources	Fish oil, such as krill oil and cod liver oil. It's also found in foods like flaxseed, linseed oil, walnuts, and chia seeds.
Possible Interactions	Blood thinners (aspirin, heparin, warfarin (Coumadin [®] , Jantoven [®]), clopidogrel (Plavix [®]), apixaban (Eliquis [®]), or rivaroxaban (Xarelto [®]), steroids
Possible Side Effects	Fishy taste, diarrhea, nausea
Take Home Message	Not all fish oil supplements are the same

27

St. John's Wort

Reported Use	Depression, anxiety, fatigue, sleep, menopause, heal wounds
Food Sources	Herb with yellow flowers used in traditional European medicine
Possible Interactions	Blood thinners, cholesterol medications, digoxin, fluoxetine, paroxetine, oral contraceptives, cyclosporine, tacrolimus, imatinib, irinotecan, indinavir, sam-e
Possible Side Effects	Headache, nausea, dry mouth, sleepiness, abdominal upset, sun sensitivity, kidney injury
Take Home Message	LOTS of drug interactions! May decrease efficacy of some chemotherapy medications Stop at least one week before surgery or chemotherapy

28

Apoaequorin

Reported Use	Memory loss
Food Sources	Protein found in glow-in-the-dark jellyfish called Aequorea victoria
Possible Interactions	Not studies/reported
Possible Side Effects	Headache, nausea, constipation, swelling, high blood pressure
Take Home Message	Supplement maker charged with false advertising

29

Herbals to Avoid

- Alfalfa
- Borage
- Chaparral
- Coltsfoot
- Comfrey
- DHEA
- Ephedra or MaHuang
- Groundsel
- Kava Kava
- Laetrile
- Licorice Root
- Lobelia
- L-tryptophan
- Pennyroyal
- Sassafras
- Yohimbe

30

Concerns for Stem Cell Transplant Patients

- Interfere/interact with chemotherapy
- Drug interactions
- Supplement reactions
- GVHD
- Changes organ function

31

Timing is Important

- Avoid in first 100 days
- Avoid while on immunosuppression
- Avoid when GVHD
- Start one new product at a time

32

Additional Resources

- Food and Drug Administration Website (FDA)
 - <https://www.fda.gov/food/dietary-supplements>
- National Institutes of Health (NIH)
 - <https://www.nccih.nih.gov/health/dietary-and-herbal-supplements>
- Memorial Sloan Kettering website
 - <https://www.mskcc.org/cancer-care/diagnosis-treatment/symptom-management/integrative-medicine/herbs>

33

THANK YOU



34



QUESTIONS?



Colleen Timlin, PharmD, BCOP
Hospital of the University of Pennsylvania



2023 SURVIVORSHIP SYMPOSIUM

35

LET US KNOW HOW WE CAN HELP YOU



Visit our website: bmtinfonet.org

Email us: help@bmtinfonet.org

Phone: 888-597-7674 or 847-433-3313



2023 SURVIVORSHIP SYMPOSIUM

36