

In the name of Allah, the Beneficent, the Merciful



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ازىسىتى و فراوردەھاى

Technology Incubator for Traditional Medicine & Traditional Pharmacy and Natural Products

Herbs & Natural products in Cancer











need not eclipse your life.

With early detection and prompt treatment, you can beat the Big'C'. And the full moon will shine once again.

As it has for Nelson Mandela, Arnold Palmer, Colin Powel, Lance Armstrong and so many others...









جایگاه طب تلفیقی و فراگیر در سرطان: جهان و ایران

Story of the World



سه گزارهٔ خبری:

بیش از ۹۲ درصد از بیماران سرطانی از حداقل یک روش یا داروی غیررایج استفاده میکنند!

بیش از ۷۵ درصد از این بیماران به دلایل مختلف پزشک خود را در جریان نمیگذارند!

بیش از ۸۰ درصد پزشکان چنانچه مورد سوال قرار بگیرند در مورد اثربخشی یا تداخلات احتمالی نمیتوانند اظهار نظر کنند! در آمریکا تحقیقات منتشر شده نشان میدهد ۲۵ تا ۸۳ درصد از بیماران مبتلا به سرطان در مراحل مختلف بعد از تشخیص بیماری از طب مکمل استفاده کردهاند

که البته جغرافیای محل زندگی و نوع سرطان بر آن تأثیر گذار است.

مطالعات اخیر نشان میدهد استفاده از طب مکمل برای کودکان مبتلا به سرطان از ۳۱ تا ۸۷ درصد متغیّر اس^ت.

جامعه تحصیل کرده با سطح تحصیلات بالاتر و کسانی که درآمد بیشتری دارند بیشتر از طب مکمل استفاده می کنند. همچنین در زنان جوانی که جراحی یا شیمی درمانی کردهاند و یا سابقه قبلی در استفاده از طب مکمل داشتهاند این نوع روش درمانی شایع تر

است.

بررسیها نشان میدهند بیماران سرطانی امیدوارند با استفاده از روشهای طب سنتی، سیستم ایمنی بدن خود را تقویت نمایند، درد خود را کم کنند و عوارض جانبی ناشی از بیماری یا درمان آن را کاهش دهند.

تنها تعداد کمی از بیماران مبتلا به سرطان میگویند به خاطر این از درمانهای مکمل استفاده میکنند که از درمانهای استاندارد ناامید هستند و انگیزه آنها در استفاده از طب سنتی و مکمل، بهطور عمده تمایل به احساس کنترل بیشتر بر سلامتی خود، کاهش عوارض بیماری و باور قوی به درمانهای طبیعی است.



Definitions

• Integrative Oncologist: the specialist in the treatment of both the cancer as well as the person who has the cancer. Teams with Western Specialists for providing the best therapeutic options in that individual's cancer care. The expert on the team who prescribes Nutrition, Stress Management, Exercise, and Orthomolecular as well as non-traditional drug treatment options.

The Role of the Integrative Oncologist

• Truly primary care for the cancer patient.

• Due to the fear that a diagnosis of cancer brings, and the severe limitations in the Western medical approach to cancer, people are going to the internet for answers which should be provided by their primary care physician.



Dedicated



ARIZONA Cancer Treatment Centers of America

CALIFORNIA University of California San Francisco, Osher Center for Integrative Medicine Simms/Mann-UCLA Center for Integrative Oncology

ILLINOIS <u>The Block Center for Integrative Cancer Treatment</u> <u>Cancer Treatment Centers of America</u>

MARYLAND Johns Hopkins Center for Complementary and Alternative Medicine

MASSACHUSETTS Dana Farber Cancer Institute, Leonard P. Zakim Center for Integrative Therapies

MINNESOTA Mayo Clinic's Complementary and Integrative Medicine Program

NEW YORK Memorial Sloan Kettering Cancer Center, Integrative Medicine Service

OKLAHOMA Cancer Treatment Centers of America

PENNSYLVANIA Cancer Treatment Centers of America

TEXAS The University of Texas MD Anderson Cancer Center, Integrative Medicine Program

MD Anderson Cancer Center: http://www.mdanderson.org

STRESS, ANXIETY & DEPRESSION POOR APPETITE & WEIGHT LOSS NAUSEA & VOMITING **CONSTIPATION** DIARRHEA **TASTE CHANGE** DIFFICULTY SWALLOWING **MOUTH SORES** DRY MOUTH FATIGUE **SLEEPING PROBLEMS & INSOMNIA** PAIN SHORTNESS OF BREATH HOT FLASHES **NEUROPATHY** VAGINAL DRYNESS & PAIN **SKIN CARE & NAIL CARE** LYMPHEDEMA

Psychological Support, Mind-Body Approaches, Groups & Counseling Nutrition, Supplements Complementary Medicine Psychiatry & Oncology Insights Into Cancer

•Ayurveda •Acupuncture •Massage •Spirituality •Aromatherapy •Art therapy •Biofeedback Meditation •Music therapy •Tai chi •Yoga •Botanical Medicine •Breathwork •Chinese Herbs •Chiropractic •Clinical Hypnosis •Craniosacral Therapy •Creative Therapies •Cupping •Dermal Friction •Dietary Therapies

•Food As Medicine •Healing Environment •Healing Touch •Homeopathy •Imagery •Mind-Body Therapies •Mindful Movement •Moxibustion •Naturopathy •Osteopathy •Praver •Oigong •Reflexology •Reiki •Shamanism •Shiatsu Social Support •Therapeutic Touch •Traditional Chinese Medicine

•<u>Tui na</u>



TABLE 1

Red flags item description and rationale

Red Flag Item	Description	Rationale
Trauma	History of minor or major trauma, motor vehicle accident, fall, strenuous lifting	Possible fracture, especially in an older or osteoporotic patient
Age	50 years or more	Increased risk of cancer, abdominal aortic aneurysm, fracture, infection
History of cancer	Past or present history of any type of cancer	History of cancer increases the risk of cancer-causing low back pain. Back pain may be caused by metastic tumors arising from the kidney, thyroid, prostate, breast, lung
Fever, chills, night sweats	Fever over 100 degrees Fahrenheit, a sensation of being cold, waking up sweating, temperature changes at night	Constitutional symptoms may increase the risk of infection or cancer
Weight loss	Unexplained weight loss of over 10 pounds in 3 months, not directly related to a change in activity or diet	May be indicative of infection or cancer
Recent infection	Recent bacterial infection such as a urinary tract infection	Increases the risk of infection
Immunosuppression	Immunosuppresssion resulting from a transplant, intravenous drug abuse, or prolonged steroid use	Increases the risk of infection
Rest/night pain	Pain that is not relieved with rest or awakens a patient at night, unrelated to movement or positioning	Increases the risk of cancer, infection, or an abdominal aortic aneurysm
Saddle anesthesia	Absence of sensation in the second-fifth sacral nerve roots, the perianal region	Cauda equina syndrome
Bladder dysfunction	Urinary retention, changes in frequency of urination, incontinence, dysuria, hematuria	May indicate cauda equina syndrome or infection
Lower extremity neurological deficit	Progressive or severe neurological deficit in the lower extremity	May indicate cauda equina syndrome

- Bleeding per rectum
- New bowel symptoms over 50
- New pain after the menopause
- Pelvic mass
- Suicidal ideation
- Excessive weight loss
- Irregular vaginal bleeding over 40
- Post coital bleeding

Abdominal distension or 'bloating' Early satiety +/- loss of appetite Pelvic or abdominal pain Increased urinary urgency or frequency Systemic symptoms- unexplained weight loss or fatigue Unexplained change in bowel habit > 50 years with new symptoms of IBS Ascites or pelvic / abdominal mass on examination

Recent significant trauma, or milder trauma age >50 years Unexplained weight loss Unexplained fever Immunosuppression History of cancer Intravenous (IV) drug use Osteoporosis, prolonged use of corticosteroids Age >70 Focal neurologic deficit progressive or disabling symptoms Duration greater than 6 weeks

Reproduced with permission from: Low back pain. American College of Radiology (ACR) Appropriateness Criteria. Copyright ©2005 American College of Radiology. The complete version of the ACR Appropriateness Criteria Low Back Pain can be accessed on the ACR website at www.acr.org

- Persistent rectal bleeding for 6 weeks without anal symptoms (>60 yrs)
- 2 Change in bowel habit to looser stools/increased frequency for 6 weeks (>60 yrs)
- 3 Change in bowel habit to looser stools/increased frequency and rectal bleeding (>40 yrs)
- 4 Palpable right iliac fossa mass
- 5 Palpable rectal mass (intraluminal)
- 6 Unexplained iron deficiency anaemia (Hb<11g/dL men, <10g/dL non-menstruating women)

7 WARNING SIGNS OF CANCER

Change in bowel or bladder habits. A sore that does not heal. Unusual bleeding or discharge. hickening of breast tissue or a lump. ndigestion &/or difficulty swallowing. Obvious changes to moles/warts. Nagging cough that lasts for weeks.

RED FLAGS HISTORICAL and EXAMINATION CLUES to MORE SERIOUS CAUSES OF HEADACHE

ACUTE – likely to need	SYMPTOMS AND SIGNS OF BLEED OR OTHER INTRACRANIAL CATASTROPHE	e.g. sudden onset severe headache or acute new neurological deficit			
admission	SYMPTOMS AND SIGNS OF INFECTION (Meningitis, encephalitis, abscess)	e.g. fever, meningism, photophobia, confusion, falling conscious level, seizures			
	SYMPTOMS AND SIGNS OF CRANIAL ARTERITIS	e.g. jaw claudication, polymyalgia, tempo- ral artery tenderness, raised ESR			
	SYMPTOMS AND SIGNS OF RAISED INTRACRANIAL PRESSURE	e.g. brief episodes of uniocular visual loss, morning headache that clears on sitting, cough headache, papilloedema			
ACUTE/ SUBACUTE – likely to need urgent admission or urgent	SYMPTOMS AND SIGNS OF PROGRESSIVE NEUROLOGI- CAL DEFICIT	Progressive limb or facial weakness, gait unsteadiness, confusion, personality change. New visual field deficit, double vision, ptosis (including Horner's syndrome), dysarthria or cranial nerve palsy.			
Specialist Teview	SYMPTOMS AND SIGNS OF CORTICAL IRRITATION	Focal or generalised seizures Bizarre or stereotyped sensory or visual symptoms (unless typical for migraine)			
	SYMPTOMS AND SIGNS OF MENINGEAL IRRITATION (see also signs of infection above)	Postural headache; cough headache			
 PAY PARTICULAR ATTENTION IN PATIENTS: With new onset headache plus past history of neoplasm 					

- · With new onset headache in older age groups
- · If progressively worsening headache without other features



Teamwork to Integrative Oncology WHO ; NCCAM ; NIH





Diagnosis & Treatment > Care Centers & Clinics > Integrative Medicine Center





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OSHER CENTER FOR INTEGRATIVE MEDICINE

HARVARD MEDICAL SCHOOL AND BRIGHAM AND WOMEN'S HOSPITAL

Research Map



Search

BWH







National Center for Complementary and Integrative Health

NIH

Mind and Body Practices

stress, anxiety, 8, other sympton What NCCIH studies

acupuncture, massage, meditation, spinal manipulation, deep-breathing exercises, hypnotherapy, qi gong, tai chi, etc.

healthy behaviors

herbs, botanicals, dietary supplements, probiotics, etc.

mechanisms

Natural Products

interactions & sarety

piological effects

🦑 U.S. Department of Health and Human S	rvices 🔪 National Institutes of Health	\rangle		Información en Españ	
NIH National Center f Complementary Integrative Healt	or and		Sea	arch NCCIH	
	Health Info	Research	Grants & Funding	Training	Ne

Home > Health Information > Cancer and Complementary Health Approaches: What You Need To Know

Cancer and Complementary Health Approaches: What You Need To Know

What's the Bottom Line?

Complementary health approaches may play a role in cancer care, but using them inappropriately can be harmful. For your safety:

- Don't use unproven products or practices to replace or delay medical treatment for cancer.
- If you have cancer, consult your health care provider before adding any complementary health products or practices to your treatment program.



Integrative Medicine and Cancer



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- Patients, Care Partners & Advocates
- Don't Believe Everything you Read
- Natural Medicines Database
- Monthly Integrative Oncology Digest
- Clinical Trials
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https://integrativeonc.org/




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Integrative Medicine

Integrative Medicine

Developing Your Personal Care Plan

Therapies, Classes & Workshops +

About Herbs, Botanicals & Other Products +

About Mind-Body Therapies

Our Research & Clinical Trials

Multimedia +









For Adult Patients

For Child & Teen Patients

For Healthcare Professionals

For Research Scientists

More 📃

PERSONALIZED CARE

A Treatment Plan that Fits Your Whole Life

Life doesn't stop when cancer strikes. Our resources help you keep doing what matters most.

See Suzanne's Story





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Integrative Medicine

Developing Your Personal Care Plan

Therapies, Classes & Workshops 🕇

About Herbs, Botanicals & Other Products +

About Mind-Body Therapies

Our Research & Clinical Trials

Multimedia 🕇

About Mind-Body Therapies

Mind-body therapies are a group of healing techniques that enhance the mind's interactions with bodily function, to induce relaxation and to improve overall health and well-being. Daily practice is essential for deriving benefit from these therapies, which have become increasingly popular over the last two decades. A growing body of research indicates that mind-body therapies are safe and effective ways of mitigating physical and emotional symptoms, and improving coping skills in cancer patients. Because these practices are pleasant, noninvasive and beneficial, they are most suited for patients and survivors to help manage their own care.



Memorial Sloan Kettering Cancer Center's About Mind-Body Therapies database, a tool for the public as well as healthcare professionals, can help you evaluate the benefits of mind-body interventions. The database is continually updated to provide you with objective and evidence-based information.

Aromatherapy



For Adult Patients

ents For Child & Teen Patients

For Healthcare Professionals For Re

For Research Scientists More

😚 Languages

4

Integrative Medicine



About Herbs, Botanicals & Other Products





Memorial Sloan Kettering Cancer Center



Search About Herbs

Search by keywords:

Enter a search term.

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278 Herbs found



5-HTP

5-HTP is marketed as a dietary supplement for sleep, to improve mood and well-being, and to...

Purported Uses: Anxiety, Depression, Fibromyalgia, Hot Flashes, Insomnia, Migraines, Obesity

Al Ex su tre



Therapies, Classes & Workshops

About Herbs, Botanicals & Other Products

Overview

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Jump to:

For Patients & Caregivers

For Healthcare Professionals

For Patients & Caregivers

Tell your healthcare providers about any dietary supplements you're taking minerals, and natural or home remedies. This will help them manage your ca

How It Works	
Purported Uses	
Do Not Take If	
Side Effects	

For Healthcare Professionals	
Clinical Summary	+
Purported Uses	+
Mechanism of Action	+
Contraindications	+
Adverse Reactions	+
Herb-Drug Interactions	+
Herb Lab Interactions	+



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Integrative Medicine

Developing Your Personal Care Plan

Integrative Medicine at Home Membership Program

Therapies, Classes & Workshops

About Herbs, Botanicals & Other Products

Our Research & Clinical Trials

Memorial Sloan Kettering Cancer Center is an international leader in integra and education. Since our Integrative Medicine Service was established in 199 scientific research to evaluate complementary (integrative) therapies for ca determining which specific therapies are most useful in treating particular sy

We know that a therapy works only when it has been scientifically tested and found to be effective and safe. Anecdotal reports may provide research ideas, but they are not proof that a therapy works. Patients and the public have a right to know whether therapies of all kinds fulfill the claims they make.

Our Publication
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The hurdeoning interest in integrative medicine has been accompanied by in



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Herbs, Botanicals & Other Products: FA

- Integrative Medicine
- Dietary Supplements for Cancer Prevention
- Dietary Supplements During Cancer Treatment
- Dietary Supplements to Alleviate Side Effects of Cancer Treatment
- Herb-drug Interactions
- Acupuncture

Dietary Supplements for Cancer Prevention

What are free radicals? Do they cause cancers?

Free radicals are chemicals that have unpaired electrons. They are present in the environment and are also generated in the body through normal metabolism. Free radicals are highly active and are thought to interact with DNA causing cell damage and cancer.

What are antioxidants?

Antioxidants are substances that can inhibit the process of oxidation associated with free radicals. Many foods and dietary supplements, such as vitamin C and pycnogenol, have antioxidant effects.

Can antioxidants be used to prevent cancers?

Some believe a diet rich in antioxidants helps prevent cancer. However, there is no conclusive evidence that antioxidant supplements can reduce cancer incidence. Moreover, high intake of certain antioxidants is associated with increased cancer risk.

Should I use a daily multivitamin to prevent cancer?

Studies of multivitamin use for cancer prevention have yielded mixed results. Most found that multivitamins have little or no effect in reducing the overall risk of cancer. And some studies suggest that multivitamin supplementation may actually increase the risk of certain cancers. But according to a **recent study from the Physicians' Health Study published in the Journal of the American Medical Association**, multivitamins can lower cancer incidence in male cancer survivors. Because of variation in the populations studied and the formulations of multivitamins used, the benefits of a daily multivitamin for general cancer prevention remain unclear.

Dietary Supplements During Cancer Treatment

Are there any herbs that can be used to treat cancer?

Many chemotherapeutic drugs used in cancer treatment are derived from plants. They are developed after rigorous clinical trials for safety and efficacy. Only a few oral herbal supplements, like turmeric, and some medicinal mushrooms have been tested this way. However, even those that showed promising results in lab studies may not have the same effects in humans. In addition, the optimal dosages are often not determined. More studies are needed before they can be recommended for general use.

Can I use herbs or supplements safely during chemotherapy?

Most herbs and dietary supplements have not been studied together with chemotherapy drugs and their interactions remain unclear. Many oncologists advise their patients to avoid these products during chemotherapy.

How do herbs interact with chemotherapy drugs?

Herbs can interact with chemotherapy drugs through different mechanisms. Some herbs can interfere with the metabolism of the drugs, making them less effective. Other herbs may potentiate the adverse effects, such as bleeding, of chemotherapy drugs.

While undergoing cancer therapy, do I have to avoid spices and herbs in cooking?

Culinary herbs used in small quantities for flavoring are generally safe. However, consuming large amounts for prolonged period of time may have adverse effects. For example, there are reports of post-operative hemorrhage associated with use of garlic.

Dietary Supplements to Alleviate Side Effects of Cancer Treatment

Can I take antioxidants to prevent the side effects of cancer therapies?

There are prescription drugs that act as antioxidants to help protect against the adverse effects of cancer therapies. The precise mechanism and the side effects of these drugs have been thoroughly examined. However, very few antioxidant dietary supplements have been studied for their safety and usefulness. Current information about the use of these products is confusing. Some think they help kill cancer cells or protect healthy cells from the damage caused by chemotherapy drugs or radiation therapy. But antioxidant supplements may also make these treatments less effective. Until more is known, it is wise to avoid them during chemotherapy.

I heard some herbal formulas can be used to treat the side effects of chemotherapy. Is that true?

Herbs like Astragalus have immunomodulating effects. They have been studied in humans and have been shown to help reduce some of the adverse reactions induced by chemotherapy. However, they are not appropriate for all patients and larger clinical trials are needed to confirm their safety and efficacy.

I have peripheral neuropathy following chemotherapy. Is there a natural treatment to relieve my symptoms?

Several nutritional supplements, such as glutamine, glutathione, vitamin Bs, vitamin E and alpha-lipoic acid, have been tested as treatments for peripheral neuropathy. Early clinical trials indicate that glutamine may reduce the incidence and severity of chemotherapy-induced peripheral neuropathy. Preliminary studies show that acupuncture can reduce pain and improve nerve function and sensation, and can help relieve peripheral neuropathy associated with chemotherapy. But larger studies are needed to confirm these effects.

Are there any herbs that can help my hair grow back?

Hair loss is a common adverse effect from chemotherapy. Most patients' hair will grow back after discontinuing treatment. Currently, there is no evidence that herbs can help regrow hair.

What is good for "dry mouth"?

Many patients may experience xerostomia (dry mouth) after surgery or radiation therapy for head and neck cancer. Prescription drugs can be used to help relieve this symptom but they are often associated with other side effects. Currently, there is convincing evidence that acupuncture can be used to address this symptom safely and effectively. Patients can consult with a qualified practitioner for more information.

What are phytoestrogens?

These are herbs that have estrogen-like activities. A few popular examples include soy, red clover, flaxseed, and dong quai.

I have estrogen-receptor positive breast cancer. Can I take soy products?

The use of soy products by patients with hormone sensitive cancer remains controversial. Animal studies show that constituents in soy may stimulate the growth of breast cancer cells and increase risk of metastasis. They can also work against tamoxifen, a drug used for estrogen-dependent breast cancer. However, epidemiological data suggest that soy foods help reduce breast cancer risk and have a positive effect on breast cancer survivors. Soy foods also have other health benefits as they are naturally rich in protein and low in fat. Until more is known, many experts agree that moderate consumption of soy foods is acceptable but concentrated soy supplements should be avoided.



Patient–Clinician Communication Regarding Complementary and Alternative Medicine



Safety Concerns

- Many CAM therapies can potentially cause adverse outcomes
- Non-biologically based CAM therapies (massage or acupuncture)
- Herbs and supplements
- Especially when natural plants are processed into concentrated powders, liquids, or pills.

• The pathways :

- metabolic interactions
- treatment interactions
- direct organ toxicity
- direct biological effects on the cancer
- unregulated manufacturing of biologically based CAM

Metabolic Interactions

Many botanical agents are pharmacologically active

Common chemotherapy agents metabolized through the cytochrome P-450 system and the specific isoenzymes responsible for their metabolism are at times a starting point to consider possible interactions.

St. John's wort (*Hypericum perforatum*) : inhibit the hepatic enzyme cytochrome P-450 3A4 acutely, then induce it with repeated administration.

A study of individuals given **irinotecan (CPT11)** reports a greater than **50% reduction in serum levels of the active metabolite SN38** after concomitant administration of St. John's wort.

Imatinib levels appear to be altered by similar mechanisms



Treatment Interactions

Antioxidant Interference with Chemotherapy or Radiation

Because oxidative damage to cells may increase the risk of cancer the use of antioxidant herbs and vitamins has been proposed for cancer treatment or prevention. Examples include vitamins A, C, and E, as well as lycopene, green tea, soy, grape seed extract, melatonin, and selenium.

Concern has been raised that antioxidants may interfere with radiation therapy or some chemotherapy agents (e.g., alkylating agents, anthracyclines, or platinums), which themselves can depend on oxidative damage to tumor cells for their cytotoxic effects. Studies of the effects of antioxidants on cancer therapies have yielded mixed results

 A large randomized trial of head and neck cancer patients evaluated the use of beta carotene and vitamin E for the reduction of radiation side effects...

Results found a **reduction in side effects**, but also found **decreased survival** among patients taking beta carotene and vitamin E. Additionally, the use of these antioxidants seemed to correlate to an **increase in second primary cancer**.

Direct Organ Toxicity

Nephrotoxicity

. A recent report evaluating the risk for end-stage renal disease in **Taiwan** found that chronic use of **traditional Chinese medicine herbs** carried an increased risk of kidney failure.

Ackee (Blighia sapida),	
Alkanna spp	
American (false) pennyroyal (Hedeoma	
pulegioides),	
bee pollen	Echium vulgare)
birch oil (Betula lenta)	
blessed thistle (Cnicus Benedictus)	
boldo (Peumus boldus)	
borage (Borago officinalis)	
bush tea (Crotalaria spp.)	
butterbur (Petasites hybridus)	
chaparral (Larrea tridentata)	
coltsfoot (Tussilago farfara),	
comfrey (Symphytum spp.)	
creatine	

dehydroepiandrosterone (DHEA)	
echinacea (Echinacea purpurea)	
Echium spp	
germander (Teucrium spp.)	
greater celandine (Chelidonium majus)	
groundsel (Senecio spp.)	
heliotrope (Heliotropium spp.)	
horse chestnut (Aesculus hippocastanum)	
jequirity (Abrus precatorius)	
jin-bu-huan (Lycopodium serratum)	
kava (Piper methysticum	
lesser celandine (Ranunculus ficaria)	
lobelia (Lobelia inflata)	
L-tetrahydropalmatine (THP),	
mistletoe (Viscum album),	

niacin (vitamin B ₃)	
niacinamide	
nux vomica (Strychnos nux-vomica)	
Paraguay tea/yerba mate (Ilex paraguariensis)	
periwinkle (Catharanthus roseus)	
ragwort (Senecio spp.)	
plantain (<i>Plantago</i> spp.)	
pride of Madeira (Echium fastuosum)	
polysaccharide K (PSK)	
rooibos (<i>Aspalathus linearis</i>)	
rosy periwinkle (Catharanthus roseus)	
rue (<i>Ruta graveolens</i>)	
sassafras (<i>Sassafras albidum</i>)	
skullcap (Scutellaria spp.)	
sorrel (Rumex acetosa)	

tea (<i>Camellia sinensis</i>)	
turmeric (Curcuma longa)	
tu-san-chi (<i>Gynura segetum</i>)	
uva ursi (Arctostaphylos uva-ursi)	
valerian (Valeriana officinalis)	
white chameleon (Atractylis gummifera)	
white oak (<i>Quercus alba</i>)	
yerba mate (Ilex paraguariensis)	

^aContains tannins and may be hepatotoxic in large quantities. ^bContains pyrrolizidine alkaloids

Hematologic Toxicity

- *Ginkgo biloba* : Multiple case studies have reported clinically significant bleeding
- Isolated case reports of bleeding :
- saw palmetto (Serenoa repens)
- fish oil
- \$ garlic (Allium sativum)

The suspected mechanism: interference with platelet function

Clinicians should also be cautious about combining natural products concurrently with **warfarin**, which is known to be sensitive to **vitamin K** intake and possible drug interactions

Agents with coumarin constituents:

- ✤ alfalfa (Medicago sativa)^a
- ✤ angelica (Angelica archangelica)^a
- ✤ anise (Pimpinella anisum)^a
- ✤ asafoetida (Ferula foetida)
- celery (Apium graveolens)
- chamomile (Matricaria recutita)^a
- cinnamon (Cinnamomum spp.)
- dandelion (Taraxacum officinale)
- horse chestnut (Aesculus hippocastanum)
- prickly ash (Zanthoxylum spp.)
- quassia (Picrasma excelsa)
- red clover (Trifolium pratense)
- sweet clover (*Melilotus* spp.)

- Agents with salicylate constituents
- ✤ aspen (*Populus* spp.)
- birch (Betula barosma)
- black cohosh (Cimicifuga racemosa)
- heartsease (Viola tricolor)
- meadowsweet (Spirea/Filipendula ulmaria)
- ✤ poplar (*Populus* spp.)
- ✤ sarsaparilla (Smilax regelii)
- sweet birch (Betula lenta)
- willow (Salix spp.)
- wintergreen (Gaultheria spp.)

- Agents that inhibit platelets
- feverfew (Tanacetum parthenium)
- ✤ garlic (Allium sativum)
- ginger (Zingiber officinalis)
- ginkgo (Ginkgo biloba)
- ✤ ginseng (Panax spp.)^c
- licorice (liquorice)
- soy (Glycine max)
- vitamin C
- 🛠 vitamin E

Phytoestrogens



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- structurally similar to estradiol, and capable of binding to estrogen receptors as agonists or antagonists
- black cohosh (*Cimicifuga racemosa*)
 red clover (*Trifolium pratense*)
 soy (*Glycine max*)

Effects of these agents in hormone-sensitive cancers remain unclear, and use in patients with estrogen receptor-positive breast cancer is controversial

- Estriol, estrone, estradiol, or estrogen:
- Iicorice (liquorice) (*Glycyrrhiza glabra*)
- pomegranate (*Punica granatum*)
- Isoflavone
- ✤ kudzu (Pueraria lobata)^b
- red clover (Trifolium pratense)
- soy (*Glycine max*)
- ^cEstrogen and isoflavone
- black cohosh (Cimicifuga racemosa)


Beta Carotene

- Two large randomized for the prevention of lung cancer: the Alpha-Tocopherol and Beta-Carotene Cancer Prevention Trial (ATBC) and the Beta-Carotene and Retinol Efficacy Trial (CARET)
- Among patients at elevated risk, primarily smokers or those with secondhand smoke exposure
- Neither trial showed any efficacy of beta carotene to prevent lung cancer.
- Additionally, the ATBC study showed a trend toward increased risk for lung cancer
- Both trials found a higher mortality rate among those randomized to beta carotene supplementation.
- A meta-analysis of nine randomized clinical trials of beta carotene supplement also indicated an increase in stomach cancer with daily supplementation of 20 mg or higher

• **Coenzyme Q10** (Ubiquinol/Ubiquinone)

prevention of anthracycline cardiotoxicity based on purported antioxidant effects, but without conclusive results.

Cortes et al observed ten patients who received adriamycin and received CoQ10 at a dose of 50 mg/d. This was reported to show a decreased incidence of cardiac dysfunction.

In another study, 20 children with (ALL) or (NHL) who were treated with anthracyclines were randomized to CoQ10 therapy. There was decreased fractional shortening in both the CoQ10-treated and untreated groups, but no comparison was made between these two groups.

The **small sample size and poor study design** limit any ability to draw firm conclusions.

• Safety

High doses (greater than 300 mg/d) for long periods may elevate liver enzymes Concern also exists when CoQ10 is used with antihyperglycemic, psychiatric, cardiovascular agents, and warfarin or anticoagulants,

Essiac Herbal Combination Tea

The original proprietary formula of Essiac[®] contained: burdock root (*Arctium lappa*) sheep sorrel (*Rumex acetosella*) slippery elm inner bark (*Ulmus fulva*) Turkish rhubarb (*Rheum palmatum*).

There is a lack of reliable research

Mouse studies at Memorial Sloan-Kettering Cancer Center in the 1970s were not formally published

and 86 human case reports collected retrospectively in 1988 by the Canadian Department of National Health and Welfare yielded unclear results

• <u>Safety</u>

- tonic's potential to stimulate the growth of human breast cancer cells through estrogen receptor
- A 2004 systematic review did not identify any published clinical trials to evaluate this herbal complex in patients with cancer.
- Despite this lack of evidence, Essiac and Essiac-like products (which may contain additional herbs) remain popular among cancer patients. Rhubarb and sheep sorrel contain oxalic acid, which is known to cause hepatic and renal damage in high doses.

Ginger(*Zingiber officinale*)

- some evidence supports the use of ginger for nausea or emesis during pregnancy, ginger's effects on other types of nausea or emesis, such as chemotherapy-induced postoperative nausea or motion sickness, remain undetermined.
- overall the studies suggest that ginger is more effective than placebo.

Safety

 The most frequent side effects: gastrointestinal upset, heartburn, gas, and bloating. Estrogen receptor—positive patients
 Inhibit platelet aggregation or decrease platelet thromboxane production
 Synergistic effect on the inhibition of platelet aggregation with nifedipine



Ginseng(Panax ginseng, Panax quinquefolius)

- treat cancer-related fatigue : nonsignificant
- in quality of life : improvement
- decreased length of respiratory symptoms.

Safety

• The most frequent side effects:

headache, insomnia, and gastrointestinal toxicities



- Concern exists when used in combination with: diabetes medications (due to possible hypoglycemic properties), anticoagulants (due to increased risk of bleeding) monoamine oxidase inhibitors
 Stimulants
- Caution should be used when ginseng is taken with medications that are metabolized by cytochrome P-450 2D6.

Green Tea (*Camellia sinensis*

Overall, the epidemiologic evidence suggests that t green tea consumption may protect against cancer



some clinical benefits;

- A decreased occurrence of prostate cancer: green tea extract (GTE) versus placebo in a recent randomized, placebo-controlled study in 60 volunteers with high-grade prostate intraepithelial neoplasia.
- Treat premalignant oral lesions: three doses of GTE or placebo for 12 weeks. The two higher dose levels were associated with a higher response rate
- stage I and II cancers: green tea ingestion was associated with improved prognosis, but no effect on grade III cancers

Safety

- source of caffeine: central nervous system (CNS) stimulant, diuretic; increase stomach acid, worsen ulcer symptoms, increase heart rate, and raise blood pressure
- One cup of green tea contains approximately 30 to 50 mg of caffeine, and excessive tea consumption may lead to adverse effects or toxicity. Green tea supplement capsules usually contain less caffeine (approximately 5 mg of caffeine per 500 mg extract).



Lycopene is a carotenoid present in human serum, liver, adrenal glands, lungs, prostate, colon, and skin at higher levels than other carotenoids.

tomatoes and tomato-based products, apricots, pink grapefruit, guava, rose hip, palm oil, and watermelon.

more than 75 case-control or cohort studies: two-thirds of these studies suggest benefits in the range of 40% cancer risk reduction

intake of lycopene and specific tomato products and **prostate cancer** risk among **29,361 men** during an **average of 4.2 years** of follow-up: reduction of prostate cancer risk among men with a family history of prostate cancer, but not in the male population overall



Milk Thistle(Silybum marianum)

One randomized clinical trial in **children with ALL** found a lower incidence of **liver toxicity**



- Safety
- generally been reported as well tolerated in recommended doses for up to 6 years of use
- Several studies report mild gastrointestinal symptoms, including nausea, heartburn, diarrhea, epigastric pain, abdominal discomfort, dyspepsia, flatulence, and loss of appetite. Urticaria, eczema, and headache have also been reported. Hypersensitivity and anaphylactic reactions have been associated with milk thistle ingestion in case reports
- Data from *in vivo* and *in vitro* studies suggest inhibition of cytochrome p-450 (CPY450) 3A4 and 2C9 to varying levels.

Mistletoe (Viscum album, Iscador[®])

- Subsequent publications have not provided definitive evidence of efficacy but have suggested survival advantages in patients with colorectal, gastric, or breast cancer.
- According to a 2006 reanalysis of previously published nonrandomized studies on mistletoe therapy, breast cancer patients showed increased survival;
- In another randomized trial of mistletoe, researchers evaluated potential side effects from chemotherapy among breast cancer patients and concluded that patients randomized to mistletoe reported fewer side effects. No long-term evaluation was performed to explore the impact on efficacy of treatment.

Safety

- Mistletoe is contraindicated in patients with protein hypersensitivity or chronic progressive infections (e.g., tuberculosis)
- The most common reactions are erythema and hyperemia
- anorexia, general malaise, depressive moods, fever, local skin inflammation or pain at injection site, mydriasis and myosis/myalgia, and elevated liver enzymes.

• Omega-3 Fatty Acids (alpha-linolenic acid) or fish oil

- Several population (epidemiologic) studies report that dietary omega-3 may reduce the risk of developing breast, colon, or prostate cancer
- Two randomized controlled trials report no significant benefits of supplementation with omega-3 fatty acids or fish oil in cancer patients with cachexia.
- Safety
- The FDA classifies intake of up to 3 g/d of omega-3 fatty acids from fish as "generally recognized as safe."

Caution:

diabetic patients (due to potential hyperglycemic effects), patients at risk of bleeding those with low blood pressure high low-density lipoprotein (LDL) cholesterol levels. • **Soy**(*Glycine max*)

Recent studies have indicated that **moderate dietary soy** intake (observed in most traditional Asian diets—no more than three servings daily) shows no risk and may have possible benefits to breast cancer patients, even among women with estrogen-positive breast cancers.

avoid the high doses of soy and soy isoflavones

Preliminary clinical evidence suggests that short-term use of soy isoflavones does not elicit endometrial hypertrophy.

Safety

• Soy is "generally regarded as safe" according to the FDA, and has long been a staple of Asian diets

- **Turmeric**(*Curcuma longa*, curcumin)
- limited toxicity with doses of tumeric as high as 8 g daily.
- A Phase II clinical trial in pancreatic cancer found a limited response rate with 3 of 25 patients with either stable disease or reduction in tumor size.
- Multiple clinical trials are ongoing to evaluate the use of turmeric and associated compounds for the treatment of cancer.
- Safety
- gastrointestinal upset, including epigastric burning, dyspepsia, nausea, and diarrhea
- Caution is warranted when using turmeric with hepatotoxic agents.
- Increased bleeding risk is a concern with high doses of curcumin.
- There is evidence that turmeric may interfere with cytochrome P-450 (CYP450) enzymes, which are responsible for breaking down various agents in the liver.



Approach to Oncology based on Persian Medicine





SPRINGER BRIEFS IN PHARMACEUTICAL SCIENCE & DRUG DEVELOPMENT

New Approaches to Natrual Anticancer Drugs

Soodabeh Saeidnia Ahmad R. Gohari Niloofar Kahkeshani Roja Rahimi Hossein Rezaeizadeh Tayebeh Taheripanah Samineh Jafari Maryam Hamzeloo-Moghadam Azadeh Manayi Mahdi Vazirian

Drugs Anticancer New Approaches to Natural

SPRINGER BRIEFS IN PHARMACEUTICAL SCIENCE & DRUG DEVELOPMENT

Soodabeh Saeidnia

New Approaches to Natural Anticancer Drugs

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An Evidence Based Approach to Integrative Oncology (Traditional Herbal Remedies and Complementary Medicine) for the Management of Complications in Head and Neck Cancers

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Reports of Radiotherapy and Oncology

Integrative Oncology: Hope or Hype?

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Abstract

Context: According to Association of Academic Health Centers definition, integrative medicine is as a healing-oriented approach of medicine that takes account of the whole person, including all aspects of lifestyle by employing both conventional and unconventional as traditional or complementary and alternative medicine to achieve the best treatment and recovery which is the focus of the present study. **Evidence Acquisition:** Main oncology resources pointing to complementary and alternative medicine in cancer care,





زن

مرد

70.0

















Natural Concentrated Syrup Containing Pure Medical Honey & Royal Jelly & Jujube Fruit Extract Without Preservative



Standard on the basis of exclusive material: 10HDA







Supportive Cancer Care

Prevention & Reducing Risk of cancer recurrence and metastasis

Hope is Near

Anti-oxidant & Immunomodulator

Natural Traditional Persian Medicine Formula



۶ کارآزمایی بالینی و ۱ طرح تحقیقاتی:

- - تأثیر فرآورده طب سنتی بر پیشگیری از موکوزیت ناشی از پرتودرمانی در بیماران مبتلا به سرطان سر و گردن
 - مقایسه اثر فراورده طب سنتی و بزاق مصنوعی (هایپوزالیکس)
 بر خشکی دهان ناشی از رادیوتراپی و کیفیت زندگی در بیماران
 مبتلا به سرطانهای سر و گردن
 - تکرار هر دو مطالعه بر اساس بهینه سازی فرمول / درمان پس از ابتلا / تبدیل از حالت ذهنی (Subjective) به عینی (Objective)

6 کارآزمایی بالینی و ۱ طرح تحقیقاتی:



- بررسی اثر فرآورده منتخب طب ایرانی بر سوزش ادرار ناشی از پرتودرمانی در بیماران مبتلا به سرطان پروستات
- بررسی اثر فر آورده طب سنتی بر پروکتیت و عوارض گوارشی تحتانی ناشی از پر تودرمانی ناحیه لگن

مرور برخی نکات و خواص گیاهی









People learning from each other and with each other.





Personalized Herbal Medicine

Dr. Javidi

Outline

- History
- Palliative vs toxicity
- Subcellular & systemic mechanism of action
- Pharmacogenomics
- Personalized herbal medicine
History is important



Each plant has its own history of usage



Dr. Javidi

From palliative to cytotoxic





Subcellular & systemic mechanism of action





Pharmacogenomics

- P4-medicine (Personalization, Prediction, Prevention, and Participation)
- Primaquine anemia, succinylcholine apnea, and isoniazid peripheral neuropathy
- Pharmacogenomics is a study of how the genome background is associated with drug resistance and how therapy strategy can be modified for a certain person to achieve benefit.



• Aside from the predisposition to diseases, various body metabolic functions are also determined genetically; namely, genetic variations.



How is the metabolizing function determined?



How is the metabolizing function determined?

PHARMACOGENOMIC TESTING CYCLE



Personalized Herbal Medicine





Pathophysiological condition	Common co-morbidities	^a Commonly prescribed drugs	Herbal medicines (formulations)
Breast cancer	Diabetes, hypertension, myocardial infarction	Tamoxifen, metformin, amlodipine, pravastatin	Paeoniae alba, Paeonia lactiflora, Angelicae sinensis, Angelica sinensis Ligusticum striatum, Rehmanniae preparata, Rehmannia elutinosa Ster
Lung cancer	Myocardial infarction, CVA, peptic ulcer disease, diabetes, dementia	Gemcitabine, cisplatin, trametinib, gefitinib, erlotinib, vinblastine, pravastatin, amlodipine	Astragalus membranaceus, Rhizoma Atractylodis, Atractylodes macrocephala, Glycyrrhizae Preparata, Glycyrrhiza uralensis, Angelicae sinensi, Angelica sinensis, Citrus reticulata, Cimicifuga foetida, Bupleurum chinense
Thyroid cancer	Hypertension, diabetes mellitus, chronic obstructive pulmonary disease, CVA	Cabozantinib doxorubicin, streptozocin, metformin, amlodipine	Marticaria chamomilla, Salvia fruticosa, Laminaria digitata
Prostate cancer	Diabetes, CVD, peptic ulcer disease	Abiraterone, abiraterone acetate, immunotherapy, cabazitaxel, metformin, amlodipine	Ganoderma lucidum, Scutellaria baicalensis, Rabdosia rubescens, Isatis indigotica, Dendranthema morifolium, Serenoa repens,
Esophageal cancer	Myocardial infarction, connective tissue disease, congestive heart failure, peptic ulcer disease, diabetes, cerebrovascular disease	Docetaxel, trastuzumab, metformin, pravastatin	^b Huachansu injection (Bufo gargarizans skin)
Diabetes	Hypertension, retinopathy, nephropathy, cerebrovascular disease, CVD, peripheral vascular disease	Metformin, sulfonylureas, glibenclamide, gliclazide, glipizide, glimepiride, chlorpropamide, thiazolidinediones	Acacia arabica, Allium sativum, Azadirachta indica, Mangifera indica, Phyllanthus amarus
Hypertension	Hyperglycemia, dyslipidemia, CVA, CVD	Nifedipine, atenolol, lisinopril, losartan, verapamil, amlodipine, metformin	A. sativum, Hibiscus sabdariffa, Camellia sinensis, Nigella sativa
HIV/AIDS	Dyslipidemia, hypertension, diabetes, myocardial infarction	EFV; lopinavir, nevirapine, tenofovir, zidovudine, stavudine, metformin	Hypoxis hemerocallidea (African potato), Sutherlandia frutescens



THANKS FOR YOUR ATTENTION HOPE YOU ENJOY IT



The Use of

Cannabinoids

Cancer Care & Palliation

Endocannabinoids: brain, liver, NS

• Phytocannabinoids:

Cannabis sativa L.

• Synthetic cannabinoids

The Sources of Cannabinoids



- Endocannabinoids
- Phytocannabinoids
- Synthetic cannabinoids

Endocannabinoids

Retrograde Synaptic Neurotransmitters

Fundamental roles



anandamide

arachidonoylethanolamide



2-arachidonoyl glycerol

2-AG





Endocannabinoids

CB2 and Immune System

- Phytocannabinoids
- Synthetic cannabinoids

Detection of cannabinoid receptors in immune cells and tissues					
Cell Type/Tissue	Species	Receptor Type	Method of Detection		
B lymphocytes	Human	CB_2	RT-PCR ^a or confocal microscopy ^b		
Macrophages	Human, mouse, rat	CB_2	$\operatorname{RT-PCR}^{a,c,d}$		
Mast cells	Rat	CB_2	RT-PCR ^e		
Microglia	Rat	CB_1, CB_2	Mutational RT-PCR, ^{d,f} Western immunoblot, ^{d,f} or immunocytochemistry ^{f,g}		
Natural killer cells	Human	CB_2	$RT-PCR^{a}$		
Peripheral mononuclear cells	Human, rat	CB_2	$\operatorname{RT-PCR}^{a,e}$		
CD4 lymphocytes	Human	CB_2	$\mathrm{RT} ext{-}\mathrm{PCR}^a$		
CD8 lymphocytes	Human	CB_2	RT-PCR ^a		
Lymph nodes	Human	CB_2	RT-PCR ^a		
Peyer's patches	Rat	CB*	Radioligand binding" or radioligand autoradiography"		
Spleen	Human, mouse, rat	CB_1, CB_2	Radioligand binding,", radioligand autoradiography," Northern blot, in situ		
Tanaila	Uuman	CP	PT PCP ^a or immun cautach amiatur ^d		
Thumus	Human	CB ₂ CB	RT-PCK or immunocytochemistry		
Thymus	Human	CB_2	RI-FOR		
Inymus	Human	CB_2	KI-LOK.		
Tonsils	Human	CB ₂	KT-PCK [*] or immunocytochemistry [*]		





- Endocannabinoids
- Phytocannabinoids
- Synthetic cannabinoids

THC CBG (CannaBiGerol) CBC THCV (TetraHydroCannabiVarin) CBD CBN & CBDL Miscellaneous types

Brain's ChemicalDrugImage: DrugImage: DrugIma

Phytocannabinoids

- Endocannabinoids
- Phytocannabinoids
- Synthetic cannabinoids

Phytocannabinoids in Cancer



• Palliative effects

• Therapeutic potential

- Phytocannabinoids
- Endocannabinoids
- Synthetic cannabinoids

OH OH OH OH

CP47,497(C8) Non-Classical

CP47,497(C7) CP55,940 HU-308

Synthetic Cannabinoids



JWH-073 JWH-081 JWH-122 JWH-200 JWH-210 JWH-398 WIN55,212-2



Approved for Use in Human

Marinol

Cannador

Nabiximol

Cannabinoids as Anticancer Agents







- Promoting cancer cell death
 - The effects of delta-9-THC and a synthetic agonist of the CB2 receptor were investigated in HCC
 - CB1 and CB2 receptors may be potential targets in non-small cell lung carcinoma and breast cancer.
 - Chemopreventive effect in a mouse model of colon cancer.
- Angiogenesis impairing
- Invasion and metastasis blocking



Cannabinoids and hormone-sensitive breast cancer





Clinical Trial





- A small double-blind was conducted in the United Kingdom
- Nabiximols, in conjunction with dose-dense temozolomide
- 27 Patients with recurrent glioblastoma multiforme
- 6 were part of an open-label group and 21 were part of a randomized group
- 12 treated with Nabiximols and 9 treated with placebo
- PFS-6 in 33% of patients in both arms
- 83.3% of the patients who received Nabiximols were alive at 1 year compared with 44.4% of the patients who received placebo (P = .042)
- OS at 2 years Nabiximols arm (50%), placebo arm (22%)

Cannabis Extracts or Pure Cannabinoids

• Smoking

- Which Administration is used?!
- Oral capsule

• Oro-mucosal spray

Oral Sublingual Drops



NIMEL

The U.S. Food and Drug Administration (FDA) has not approved the use of *Cannabis* as a treatment for any medical condition



Combinational Therapies Based on Cannabinoids

THC and TMZ

THC and HU-20

THC, CBD & TMZ



Medicinal Cannabis Products—Guide to Terminology

	Name/Material	Constituents/Composition
Cannabis species, including C. sativa		Cannabinoids; also terpenoids and flavonoids
	• Hemp (aka industrial hemp)	Low Δ^9 -THC (<0.3%); high CBD
	• Marijuana/marihuana	High Δ^9 -THC (>0.3%); low CBD
Nabiximols (trade name: Sativex)		Mixture of ethanol extracts of <i>Cannabis</i> species; contains Δ^9 -THC and CBD in a 1:1 ratio
Hemp oil/CBD oil		Solution of a solvent extract from <i>Cannabis</i> flowers and/or leaves dissolved in an edible oil; typically containing 1%–5% CBD
Hemp seed oil		Edible, fatty oil produced from <i>Cannabis</i> seeds; contains no or only traces of cannabinoids
Medicinal Cannabis Products—Guide to Terminology

Name/Material	Constituents/Composition
Dronabinol (trade names: Marinol and Syndros)	Synthetic Δ ⁹ -THC
Nabilone (trade names: Cesamet and Canemes)	Synthetic THC analog
Cannabidiol (trade name: Epidiolex)	Highly purified (>98%), plant- derived CBD
CBD = cannabidiol; THC = tetrahydrocannabinol.	

Palliation with Cannabis products

GI complications:

Anti Emetic

Appetite stimulationn, Anti

Diarrhea, Anti Constipation

Pain Relief



Antiemetic (second line)



Cesamet:

1 to 3 hours before receive

chemotherapy treatment

 may also be used 2 or 3 times each day of the chemotherapy treatment cycle, and for 48 hours after

treatment ends, if needed.

Cesamet:

- Nabilone is a synthetic cannabinoid
 - Antiemetic
- Adjunct analgesic for neuropathic pain
- Mimics tetrahydrocannabinol (THC)

Common side effects may include:

- headache, dizziness, drowsiness
 - feeling "high"
 - weakness, lack of coordination
 - depressed mood
 - dry mouth or
 - trouble concentrating.

Antiemetic (second line)



Marinol:

• Initial dose: 5 mg/m2 orally 1 to 3

hours prior to chemotherapy

administration, then every 2 to 4

hours after chemotherapy for a

total of 4 to 6 doses a day

Marinol:

• **Dronabinol** is used to treat loss

of appetite and AIDS cashexia

Severe CINV

Common side effects may include:

- Clumsiness or unsteadiness
 - Dizziness
 - Drowsiness
 - false sense of well-being
 - Nausea
 - trouble with thinking
 - vomiting

Pain Relief



Sativex:

• A gradient increase of 1 to 12

puffs a day during 2 weeks

• Oromucosal surface

Sativex:

- Nabiximols, a Cannabis extract with a 1:1 ratio of THC:CBD
- Approved in Canada (under the Notice

of Compliance with Conditions) for

symptomatic relief of pain in

advanced cancer and MS

Common side effects may

include:

- Dizziness
- Drowsiness
- false sense of well-being

The American Academy of Pediatrics has not endorsed Cannabis and cannabinoid use because of concerns about brain development.

Recommended Dose and Management with CBD oil



Full spectrum CBD oil





Onconabis 10%:

3 drops sublingually, TID

Onconagel 10%:

- 16 mg CBD softgel
 - 1 softgel, TID

Onconabis:

- **CBD oil,** a Cannabis super critical full spectrum extract
 - <0.3% THC
 - 10% CBD
- Complementary supplement

Common side effects may

include:

- Dizziness
- Drowsiness
- false sense of well-being

Mayo Clinic suggests CBD dosages based on scientific research,

publications, traditional

use, and expert opinion.



Cannabinoid dosages and duration of treatment depend mainly

on the illness

Loss of Appetite in Cancer Patients: 2.5mg of THC (orally),

with or without 1mg of CBD for six weeks

Chronic Pain: 2.5-20mg of CBD [with or without THC]

(orally)

Movement Problems : 10mg of CBD per kg of body weight

daily for six weeks (orally)

Sleep Disorders: 40mg-160mg of CBD (orally)

There is no established lethal dose of CBD, and chronic

use/high doses of up to 1500 mg per day (30x MORE than

the Serving Standard!) have been repeatedly shown to be

well tolerated by humans



