Myths Vs Facts: Dr. Google

Allison Rosen
Facilitator, CRC Survivor & Patient Advocate

Santhosshi Narayanan MD, FACP
Associate Professor, Integrative Medicine

Meroë B. Morse MD, ABOIM
Assistant Professor, Integrative Medicine
Learning Objectives

➢ Discuss a few myths vs. facts in colon cancer

➢ Outline differences of alternative vs. complementary vs. integrative medicine

➢ Describe a whole-person approach to patient care

➢ Review different integrative medicine strategies:
  ➢ Nutrition
  ➢ Exercise
  ➢ Stress management
  ➢ Acupuncture
  ➢ Oncology massage
  ➢ Herbs and supplements
Dr. Google: Good or Bad?

The emerging use of the internet for searching health information, commonly referred to as 'Dr Google', is not seen as a threat by GPs and leads to a better mutual understanding of symptoms and diagnosis.
Googling and using health apps showed comparable adverse emotional and behavioral effects.

The findings are in line with current models of cyberchondria in which health-related Internet use represents an essential factor in maintaining and amplifying emotional distress.
Complementary and Alternative Medicine Use Among Cancer Patients

Patient goals: Reduce the side effects of conventional treatments such as organ toxicity, improve quality of life, protect and stimulate immunity, or to prevent further cancers or recurrences

<table>
<thead>
<tr>
<th>Type of CAM</th>
<th>Heard of CAM (%)</th>
<th>If Heard of CAM, Ever Used (%)</th>
<th>Combined CAM With Conventional Therapy (% of users)</th>
<th>Discussed CAM With Physician (% of users)</th>
</tr>
</thead>
<tbody>
<tr>
<td>CAM overall</td>
<td>99.3</td>
<td>83.3</td>
<td>88.0</td>
<td>61.8</td>
</tr>
<tr>
<td>CAM overall excluding spiritual/psychotherapy</td>
<td>95.8</td>
<td>68.7</td>
<td>75.2</td>
<td>60.7</td>
</tr>
<tr>
<td>Spiritual practices</td>
<td>95.7</td>
<td>80.5</td>
<td>91.0</td>
<td>36.6</td>
</tr>
<tr>
<td>Vitamins/herbs</td>
<td>88.1</td>
<td>62.6</td>
<td>76.6</td>
<td>64.1</td>
</tr>
<tr>
<td>Movement/physical therapies</td>
<td>78.4</td>
<td>59.2</td>
<td>66.9</td>
<td>48.4</td>
</tr>
<tr>
<td>Psychotherapy</td>
<td>74.0</td>
<td>41.2</td>
<td>58.3</td>
<td>41.1</td>
</tr>
<tr>
<td>Mind/body</td>
<td>71.3</td>
<td>48.6</td>
<td>79.5</td>
<td>26.3</td>
</tr>
<tr>
<td>Special diet</td>
<td>65.2</td>
<td>32.3</td>
<td>63.2</td>
<td>41.9</td>
</tr>
<tr>
<td>Other therapies</td>
<td>64.2</td>
<td>10.5</td>
<td>40.0</td>
<td>15.8</td>
</tr>
</tbody>
</table>
Integrative Medicine

Physical
- Exercise
- Nutrition
- Acupuncture
- Oncology Massage
  - Primary Oncology team
  - Physical Medicine & Rehabilitation
  - Supportive Care
  - Cancer Pain

Mind-Body
- Health Psychology
- Meditation
- Music Therapy
- Tai Chi/Qi Gong
- Yoga
  - Psychiatry
  - Spiritual Care

Social
- Group Programs
  - Social Work
  - Support Groups
Alternative medicine is used in place of conventional medicine.

Complementary medicine is used together with conventional medicine.

Complementary and integrative medicine (CIM) refers to the use of evidence-informed, non-mainstream approaches together with conventional medical approaches (per NCCIH)
A ketogenic (keto) diet is a very high-fat, low-carbohydrate way of eating.

It can help you lose weight by forcing your body to burn fat instead of carbs as its main source of energy.

There is interest in how a ketogenic diet may help treat some types of cancer. One theory is that cancer feeds on the sugar you eat, but a high-fat diet starves the tumors.

So far, no major cancer group recommends keto diets for either prevention or treatment of cancer.
Diet and Cancer: Google

Health-Supporting Dietary Pattern

Vegetables

Fruits

Lean clean animal protein

Grains

Nuts and seeds

Beans and legumes
Myth: Natural Cure (exists) for colon cancer
Fact: Human studies are needed for human use

• First, they used cell lines of human colorectal cancer, cultivated in the lab.

• Cell lines, of course, do not represent the whole body, so the second step was to look at the effects using animal tissue.

• Knowing that it worked on an animal model, the third step was to further confirm these findings in a 3D-organoid model, grown from human colorectal tumor tissue excised from an actual patient.
Anti-Oxidants During Treatment

Randomized Trial of Antioxidant Vitamins to Prevent Acute Adverse Effects of Radiation Therapy in Head and Neck Cancer Patients

Isabelle Bairati, François Meyer, Michel Gélinas, André Fortin, Abdenour Nabad, François Brochet, Jean-Philippe Mercier, Bernard Tëtu, François Harel, Belkacem Abdous, Éric Vigneault, Sylvie Vass, Pierre del Vecchio, and Jean Roy†

- 540 H&N cancer patients treated with radiation

- Randomized to:
  - Vitamin E and Beta-carotene
  - Placebo

- Supplement arm:
  - Decreased acute adverse effects
  - Increased rate local recurrence

JCO 2005
Conclusion:
Survival and response rates not statistically different between the control group and the experimental group.

Further exploration needed:
Patients with RAS mutation had significantly longer PFS with Vitamin C than control group (median PFS, 9.2 vs. 7.8 months; HR, 0.67; 95% CI, 0.50–0.91; P = 0.01)
Medicinal Mushroom Supplements in Cancer: A Systematic Review of Clinical Studies

Santhossh Narayanan, Aline Rozman de Mores, Lorenzo Cohen, Mohammed Moustapha Anwar, Felippe Lazar, Rachel Hicklen, Gabriel Lopez, Peiyi Yang & Eduardo Bruera

Abstract

Purpose of Review

Patients seek clinical guidance on mushroom supplements that can be given alongside conventional treatments, but most research on such fungi has been preclinical. The current systematic review focused on clinical studies of mushrooms in cancer care conducted in the past 10 years. We searched Medline (Ovid), Embase (Ovid), Scopus (Wiley), and Cochrane Library to identify all mushroom studies conducted in humans published from January 2010 through December 2020. Two authors independently assessed papers for inclusion.

Summary

Of 136 clinical studies identified by screening 2349, 39 met inclusion criteria. The studies included 12 different mushroom preparations. A survival benefit was reported using Huaier granules (*Trametes robiniophila* Murr) in 2 hepatocellular carcinoma studies and 1 breast cancer study. A survival benefit was also found in 4 gastric cancer studies using polysaccharide-K (polysaccharide-Kureha; PSK) in the adjuvant setting. Eleven studies reported a positive immunological response. Quality-of-life (QoL) improvement and/or reduced symptom burden was reported in 14 studies using various mushroom supplements. Most studies reported adverse effects of grade 2 or lower, mainly nausea, vomiting, diarrhea, and muscle pain. Limitations included small sample size and not using randomized controlled trial design.

Many of the reviewed studies were small and observational. Most showed favorable effects of mushroom supplements in reducing the toxicity of chemotherapy, improving QoL, favorable cytokine response, and possibly better clinical outcomes. Nevertheless, the evidence is inconclusive to recommend the routine use of mushrooms for cancer patients. More trials are needed to explore mushroom use during and after cancer treatment.
Myth: No scientific basis for integrative therapies

Fact: Integrative Oncology is science-informed

INTEGRATIVE INTERVENTIONS

Consider integrative interventions in conjunction with pharmacologic interventions as needed. Integrative interventions may be especially important in vulnerable populations (e.g., frail, elderly) in whom standard pharmacologic interventions may be less tolerated or based on patient preference. The utility of integrative interventions underscores the necessity for pain management to be carried out with a team approach that contains a wide range of treatment options. [See PAIN-L]

Pain likely to be relieved or function improved with cognitive, physical, or interventional modalities:

- Cognitive Modalities
  - Cognitive behavioral therapy (CBT), cognitive restructuring
  - Mindfulness-based stress reduction (MBSR)
  - Imagery
  - Hypnosis
- Biofeedback
- Acceptance-based training
- Distraction training
- Relaxation training
- Active coping training
- Graded task assignments, setting goals, pacing, and prioritizing
- Behavioral activation

- Spiritual Care (See NCCN Guidelines for Distress Management)

- Physical Modalities
  - Bed, bath, and walking supports
  - Positioning instruction
  - Instruction in therapeutic and conditioning exercise
  - Energy conservation, pacing of activities
  - Massage
  - Heat and/or ice
  - Transcutaneous electrical nerve stimulation (TENS)
  - Acupuncture, electro-acupuncture, or acupressure
  - Ultrasonic stimulation

- See Interventional Strategies (PAIN-M)

Note: All recommendations are category 2A unless otherwise indicated.
Clinical Trials: NCCN believes that the best management of any patient with cancer is in a clinical trial. Participation in clinical trials is especially encouraged.
### Nonpharmacologic

- **Physical activity (category 1)**
  - Maintain optimal level of activity
  - Cautions in determining level of activity:
    - Bone metastases
    - Fever or active infection
    - Thrombocytopenia
    - Limitations secondary to metastases or other comorbid illnesses
    - Anemia
    - Safety issues (i.e., assessment of risk of falls)
- **Consider initiation and/or encourage maintenance of a physical activity/exercise program, as appropriate per health care provider, consisting of cardiovascular endurance (walking, jogging, or swimming) and resistance (weights) training.**
- **Consider referral to rehabilitation: physical therapy, occupational therapy, and physical medicine**
- **Yoga (category 1)**
- **Physically based therapies**
- **Massage therapy (category 1)**
- **Psychosocial interventions**
  - Cognitive behavioral therapy (CBT)\(^\text{K}\) Behavioral therapy (BT)\(^\text{L}\) (category 1)
  - Psycho-educational therapies/Educational therapies (category 1)
  - Supportive expressive therapies\(^\text{M}\)
  - Nutrition consultation
  - CBT\(^\text{K}\) for sleep
  - Stimulus control/Sleep restriction/Sleep hygiene
  - Bright white light therapy\(^\text{N}\)

### Pharmacologic

- **Consider psychostimulants\(^\text{O}\) (methylphenidate) after ruling out other causes of fatigue**
- **Treat for pain, emotional distress, and anemia as indicated per NCCN Guidelines**
  (See appropriate NCCN Guidelines for Supportive Care)
- **Optimize treatment for sleep dysfunction, nutritional deficit/imbalance, and comorbidities**

\(^{\text{K}}\)See Discussion for information on differences between active treatment, post-treatment, and end-of-life treatment.df (See MS-1)

\(^{\text{L}}\)Interventions should be culturally specific and tailored to the needs of patients and families along the illness trajectory, because not all patients may be able to integrate these options due to variances in individual circumstances and resources.

\(^{\text{M}}\)See NCCN Guidelines for Supportive Care (SE-3).

\(^{\text{N}}\)A type of psychotherapy that focuses on recognizing and changing maladaptive thoughts and behaviors to reduce negative emotions and behaviors and to facilitate psychological adjustment.

\(^{\text{O}}\)CBT/BT influences thoughts and promotes changes in behavior, which includes relaxation strategies.

\(^{\text{P}}\)Supportive expressive therapies (e.g., support groups, counseling, journal writing) facilitate expression of emotion and foster support from one or more people.

\(^{\text{Q}}\)Bright white light therapy of 10,000 lux is most frequently self-administered in the morning for 30–50 minutes. Timing needs to be adjusted for those who sleep during the day.

\(^{\text{R}}\)Pharmacologic interventions remain investigational, but have been reported to improve symptoms of fatigue in some patients. Methylphenidate should be used cautiously and should not be used until treatment- and disease-specific morbidities have been characterized or excluded. Optimal dosing and schedule have not been established for use of psychostimulants in older adults and patients with cancer.
"Consider" yoga for improving some survivorship areas such as:

- Distress
- Cognitive functioning
- Menopausal symptoms
- Pain
ANTICIPATORY EMESIS PREVENTION/TREATMENT

- Prevention is key:
  - Use optimal antiemetic therapy during every cycle of treatment
  - Avoid strong smells that may precipitate symptoms
- Behavioral therapy:
  - Relaxation/systematic desensitization
  - Hypnosis
  - Relaxation exercises
    - Guided imagery
    - Progressive muscle relaxation (PMR)
    - Biofeedback
    - Music therapy
  - Cognitive distraction
  - Yoga (if approved by physician)
- Acupuncture/acupressure
- Consider anxiolytic therapy:
  - For example, lorazepam 0.5–2 mg PO beginning on the night before treatment and then repeated the next day 1–2 hours before chemotherapy begins

Note: All recommendations are category 2A unless otherwise indicated.
Clinical Trials: NCCN believes that the best management of any patient with cancer is in a clinical trial. Participation in clinical trials is especially encouraged.

See Emesis Prevention and Breakthrough Treatment for Chemotherapy-Induced Nausea and Vomiting (Antiemesis Table of Contents)

See Principles of Emesis Control for the Cancer Patient (AE-1)
Myth: Stress has nothing to do with cancer
Fact: Stress impacts cancer biology and even survival

“Stress is killing you—you need an easier job, a smaller house, and a different family.”

Depression as a Predictor of Disease Progression and Mortality in Cancer Patients
A Meta-Analysis
Jillian R. Satin, MA; Wolfgang Linden, PhD; and Melanie J. Phillips, BSc

BACKGROUND: Cancer patients and oncologists believe that psychological variables influence the course of cancer, but the evidence remains inconclusive. This meta-analysis assessed the extent to which depressive symptoms and major depressive disorder predict disease progression and mortality in cancer patients.

METHODS: Using the MEDLINE, PsycINFO, CINAHL, and EMBASE online databases, the authors identified prospective studies that examined the association between depressive symptoms or major/minor depression and risk of disease progression or mortality in cancer patients. Two raters independently extracted effect sizes using a random effects model.

RESULTS: Based on 3 available studies, depressive symptoms were not shown to significantly predict cancer progression (risk ratio [RR] unadjusted = 1.23; 95% confidence interval [CI], 0.85-1.77; P = .28). Based on data from 25 independent studies, mortality rates were up to 28% higher in patients experiencing depressive symptoms (RR unadjusted = 1.25; 95% CI, 1.12-1.40; P < .001), and up to 53% higher in patients diagnosed with major or minor depression (RR unadjusted = 1.39; 95% CI, 1.10-1.89; P = .03). In support of a causal interpretation of results, there was no evidence that adjusting for known clinical prognostic factors diminished the effect of depression on mortality in cancer patients.

CONCLUSIONS: This meta-analysis presented reasonable evidence that depression predicts mortality, but not progression, in cancer patients. The associated risk was statistically significant but relatively small. The effect of depression remains after adjustment for clinical prognosticators, suggesting that depression may play a causal role. Recommendations were made for future research to more clearly exam-
Molecular mechanisms for "Fight or Flight" regulation of tumors

Cole et al., *Nature Reviews Cancer*, 2015
Approach & Care Plan

Meroë B. Morse MD, ABOIM
Assistant Professor, Integrative Medicine
“Integrative oncology is a patient-centered, evidence-informed field of cancer care that utilizes mind and body practices, natural products, and/or lifestyle modifications from different traditions alongside conventional cancer treatments.

Integrative oncology aims to optimize health, quality of life, and clinical outcomes across the cancer care continuum and to empower people to prevent cancer and become active participants before, during, and beyond cancer treatment.”
Integrative Medicine

Physical
- Exercise
- Nutrition
- Acupuncture
- Oncology Massage

- Primary Oncology team
- Physical Medicine & Rehabilitation
- Supportive Care
- Cancer Pain

Mind-Body
- Health Psychology
- Meditation
- Music Therapy
- Tai Chi/Qi Gong
- Yoga
  - Psychiatry
  - Spiritual Care

Social
- Group Programs
  - Social Work
  - Support Groups
Our Focus During Integrative Consults

- Eating Patterns
- Movement
- Toxin Avoidance
- Social Connectivity
- Herbs & Supplements
- Stress Management
- Sleep
Integrative Medicine Care Plan

Diet  Exercise  Mood/Stress  Sleep  Symptoms

Follow up:
- Physical Therapy
- Clinical Nutrition
- Health Psychology
- Acupuncture
- Oncology Massage
Nutrients, Eating Patterns and Cancer

Hazard Ratio

Tanatamango-Bartley, CEBP, 2012
S.A.D. & Harmful 😞

↓ vegetables, fruits and plant fiber

↓ raw foods or fermented foods

↑ calorie-dense beverages/HFCS

↑ industrially processed foods

↑ refined grains

↑ industrial animal products (meat, milk, cheese)
Link Between Obesity & Cancer

What You Need to Know About Obesity and Cancer

After not smoking, **being at a healthy weight** is the most important thing you can do to prevent cancer.

Overweight and obesity increase risk for:

- Esophageal cancer
- Liver cancer
- Kidney cancer
- Stomach cancer
- Colorectal cancer
- Advanced prostate cancer
- Post-menopausal breast cancer
- Gallbladder cancer
- Pancreatic cancer
- Ovarian cancer
- Endometrial cancer

AICR estimates that **excess body fat** is a cause of approximately **132,800** U.S. cancer cases every year.

And yet... 7 in 10 Americans are currently overweight or obese, 69% only about half of all Americans are even aware of the obesity-cancer link.
Health-Supporting Dietary Pattern

- Vegetables
- Fruits
- Lean clean animal protein
- Nuts and seeds
- Grains
- Beans and legumes
The Gut Microbiome
Exercise
# Exercise Guidelines - ACSM

<table>
<thead>
<tr>
<th>MODE OF EXERCISE</th>
<th>RECOMMENDATION</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Aerobic</strong></td>
<td>Achieve 150 minutes of moderate intensity exercise or 75 minutes of vigorous intensity exercise weekly, or some combination of the two.</td>
</tr>
<tr>
<td><strong>Resistance</strong></td>
<td>Perform strength training exercises 2-3 times per week targeting all major muscle groups.</td>
</tr>
<tr>
<td><strong>Flexibility</strong></td>
<td>Include stretching exercises for all major muscle groups on exercise days.</td>
</tr>
</tbody>
</table>
Behavior Change Tips For... *Everybody!*

- Start with small, achievable goals
- Do something active, however small, everyday
- Use a pedometer, fitness tracker, or your phone to track progress
- Embrace technology: Fitness apps, YouTube videos
- Set goals and break them down into smaller steps
- Find an exercise buddy to boost accountability
The Mind-Body Connection
Mind-Body Practices

➢ Relieve anxiety & stress
➢ Improve quality of life
➢ Improve sleep
➢ Reduce pain
➢ Reduce nausea

Music Therapy

Meditation

Yoga

Tai Chi & Qi Gong
## Table. Benefits of Yoga in Cancer Based on Current Evidence

<table>
<thead>
<tr>
<th>During Cancer Treatment</th>
<th>Post-Treatment</th>
</tr>
</thead>
<tbody>
<tr>
<td>Quality of life</td>
<td>Quality of life</td>
</tr>
<tr>
<td>Fatigue</td>
<td>Fatigue</td>
</tr>
<tr>
<td>Biomarkers: cortisol, pro-inflammatory cytokines</td>
<td>Sleep</td>
</tr>
<tr>
<td>Perceived stress</td>
<td>Biomarkers: pro-inflammatory cytokines</td>
</tr>
<tr>
<td>Psychological outcomes such as benefit finding and spirituality</td>
<td>Decreased menopausal symptoms</td>
</tr>
<tr>
<td>Anxiety, depression, sleep (mixed evidence)</td>
<td>Decreased arthralgia</td>
</tr>
<tr>
<td></td>
<td>Improved cognitive function</td>
</tr>
<tr>
<td></td>
<td>Improved lymphedema</td>
</tr>
</tbody>
</table>

Narayanan, S. et al., *Journal of Clinical Outcomes Investigation*, 2019
Acupuncture

Insertion of needles at specific points to help relieve cancer or treatment-related symptoms.

How can Acupuncture help?

➢ Pain
➢ Nausea
➢ Dry Mouth
➢ Hot Flashes
➢ Fatigue
➢ Neuropathy
➢ Insomnia

Oncology massage therapists have special training to provide safe and optimal massage through awareness of the unique needs of cancer patients.

How can Oncology Massage help?

- Relieve Anxiety & Stress
- Decrease Pain
- Relieve Constipation
- Relieve Neuropathy
Herbs & Supplements

- Unregulated industry
- Evidence of toxins/lead, unlisted ingredients
- Case reports of liver and kidney injury
- Can hinder efficacy of chemotherapy, immunotherapy and XRT
- Need more unbiased, high-quality (RCT) human research studies
Green Tea and Liver Injury

Figure 1  Year of presentation of 10 cases of turmeric liver injury. Shown are the years of the clinical presentation of 10 cases of turmeric liver injury reported in the Drug-Induced Liver Injury Network Prospective Study. Cases with turmeric exposure only are shown in blue; those with combined turmeric and piperine exposure (based upon product label and chemical analysis) are shown in orange.
Let “Food Be Thy Medicine”
## Evidence-based Resources

<table>
<thead>
<tr>
<th>Organization/web site (alphabetical order)</th>
<th>Address/URL</th>
</tr>
</thead>
<tbody>
<tr>
<td>Anticancer Lifestyle Website</td>
<td><a href="http://www.anticancerlifestyle.org">www.anticancerlifestyle.org</a></td>
</tr>
<tr>
<td>Cochrane Review Organization</td>
<td><a href="http://www.cochrane.org">www.cochrane.org</a></td>
</tr>
<tr>
<td>Consumer Lab</td>
<td><a href="http://www.consumerlab.com">www.consumerlab.com</a></td>
</tr>
<tr>
<td>Memorial Sloan-Kettering Cancer Center Integrative Medicine Service</td>
<td><a href="http://www.mskcc.org/aboutherbs">www.mskcc.org/aboutherbs</a></td>
</tr>
<tr>
<td>National Center for Complementary &amp; Integrative Health (NCCIH)</td>
<td><a href="http://nccih.nih.gov">http://nccih.nih.gov</a></td>
</tr>
<tr>
<td>Natural Medicines Comprehensive Database</td>
<td><a href="http://naturalmedicines.therapeuticresearch.com">http://naturalmedicines.therapeuticresearch.com</a></td>
</tr>
<tr>
<td>University of Texas, MD Anderson Cancer Center, Integrative Medicine Center</td>
<td><a href="http://www.mdanderson.org/integrativemedcenter">www.mdanderson.org/integrativemedcenter</a></td>
</tr>
<tr>
<td>American Cancer Society</td>
<td><a href="http://www.cancer.org/">www.cancer.org/</a></td>
</tr>
<tr>
<td>National Cancer Institute</td>
<td><a href="http://www.cancer.gov/publications/pdq">www.cancer.gov/publications/pdq</a></td>
</tr>
</tbody>
</table>
Integrative Medicine Resources

www.mdanderson.org/integrativemedcenter
Key Take Away

➢ Integrative Medicine involves a whole-patient approach: physical and emotional health aspects.

➢ Consider making changes in diet, exercise, stress management and sleep.

➢ Use mind-body approaches such as yoga, tai-chi, meditation and music for stress management.

➢ Acupuncture, Oncology massage can be integrated, if indicated and without contraindications.

➢ Herbs and supplements may be harmful: Open communication will help build physician-patient trust and use the right resources.

Thank you!