

Nutrition and Wellness in Cancer Survivorship

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Childhood Cancer Survivorship

- 5 year survival rates approaching 90%
- ~1 in 530 young adults (29-39 years) is a survivor of childhood cancer
- As of Jan 2015, approx. 429,000 survivors of childhood and adolescent cancer in the U.S., projected to growth to more than 500,000 by 2020



Childhood Cancer Survivorship

- Many survivors report unhealthy lifestyle habits:
 - Almost 80% of survivors not meeting RDI for fruits/vegetables
 - >80% consume 1/3 of their diet from fat sources
 - 50% do not meet exercise guidelines
- Why?....
 - Too tired
 - Too busy
 - Lack of access to gym
 - Fatty foods have visual appeal
 - High fat foods consumed socially
 - **Lack of knowledge about choosing healthier foods** *(major barrier)*

Survivorship Wellness Guidelines

- Eat 5 or more servings of fruits + vegetables
- Choose a variety of food
- Include high-fiber food in the diet (whole grains, legumes, vegetables, fruits)
- Limit red meat (beef, pork, lamb) and processed meats
- Minimize fat
 - Choose low fat dairy products or dairy alternatives
 - When eating meat, choose leaner cuts prepared by broiling or boiling
 - Decrease high fat foods (butter, potato chips, french fries)

Survivorship Wellness Guidelines

- Limit salt
- Limit processed foods (*choose whole foods*)
 - Especially cured, smoked, and nitrite-preserved foods
- Limit sugary drinks and added sugar
 - candy, syrups, fruit snacks, sugary cereal, pop tarts, etc
- Limit the use of alcohol
 - If consumed: 2/day for men, 1/day for women
- Take vitamin D (*more later*)
- Do not smoke or chew tobacco and avoid second hand smoke
- Handle food safely
- Be physically active (30 minutes on most days)
- Eat in moderation (mindful eating)



Mindful eating:

- Bring full attention and awareness to the experience
 - Eat sitting down and away from distraction
- Honor and appreciate the food
- Engage all six senses
 - Look at, smell, feel, chew and taste
- Eat slowly and take time to breathe
 - Set down utensils between bites
- Serve in modest portions → consider a smaller plate
- Stay aware of your thoughts, feelings and physical sensations but reserve judgement
- Connect with your innate inner wisdom about hunger and satiety
 - Stop eating when pleasantly satisfied, even if food is left on your plate
 - Allow time for the body to digest
 - Don't skip meals to avoid feeling ravenous



Rethink your plate!

Maximize plant-based foods

- **Phytochemicals** = biologically active compounds from plants:
 - Have antioxidant effects:
 - stops DNA damage to cells and tissues → protects against cancer and chronic disease
 - Promote cellular repair
 - Boost the immune system
 - Have anti-inflammatory, antiviral, and antibacterial activity
 - Inhibit harmful pathways activated during the inflammatory process



Maximize plant-based food!

Dietary Polyphenols, Inflammation, and Cancer

Weimin Guo , EunHee Kong & Mohsen Meydani

Page 807-810 | Received 01 May 2009, Accepted 13 Aug 2009, Published online: 10 Nov 2009

Journal

Nutrition and Cancer

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- **Polyphenols** (bioactive compounds in some natural foods) are proven to be a major factor in reducing the risk of cancer and preventing different diseases
- Polyphenols act as an antioxidant, anti-aging and anti-inflammatory agent
- High amounts are found in:
 - Fruits (citrus, apples, cherries, pomegranates, berries, grapes)
 - Vegetables (onions, artichokes, spinach)
 - Cocoa products and dark chocolate
 - Whole grain (Oats)
 - Plant Extracts (green tea, red wine, olive oil, curcumin)
 - Beans
 - Nuts
 - Soy



Anti-Inflammatory Diet

- Inflammation is a component of the immune response to tissue injury.
- Uncontrolled or prolonged inflammation can cause damage to host tissue and have effects contributing to disease states.
- Polyunsaturated fatty acids play an important role in inflammatory response
 - Initiation, exacerbation, but also regulation and prevention

Anti-Inflammatory Diet: Polyunsaturated fatty acids

- Classified as omega-3 and omega-6 FA based on location of the last double bond
- Constitute an important component of all cell membranes and influence their function
- Regulate blood pressure and clotting and support brain function
- Help regulate inflammatory responses through production of inflammatory mediators called eicosanoids
- Dietary ratio of 4:1 (omega-6) : (omega-3) is recommended as optimal
 - Diets tend to be low in omega-3s

Anti-Inflammatory Diet: Omega-3 fatty acids

- Omega-3s help control inflammation, improve heart health and brain function and decrease the risk of cancer and other diseases
- Sources of omega-3 fatty acids:
 - Fish/fish oil
 - Omega-3 eggs
 - Plant sources: nuts/seeds/oats/avocado
 - Especially walnuts/oil, flaxseed/oil, pumpkin seed, chia seed, acai oil (“ah-sah-ee”), canola oil, and soybean oil



Sources of Omega- 3 Fatty Acids

	Per 3 oz serving– cooked
	<u>Omega-3 (mg)</u>
• Herring	2300
• Salmon	2300
• Trout	2000
• Mackerel	1571
• Tuna	900
• Halibut	800
• Cod	200

Best choices: wild seafood has higher Omega-3 value than farm raised



The 2010 Dietary Guidelines advise to consume 8 ounces of seafood per week to reach an average intake of 250 mg/d of omega-3 fatty acids EPA and DHA

Foods Influencing Inflammation



Pro-Inflammatory Foods:

- High intakes of red meat (beef, pork, lamb)
(choose grass-fed, higher in omega-3's)
- High fat diets, especially those high in trans-fats, hydrogenated fats and saturated fats
- Fried foods
- Refined carbohydrates/grains
- Sugar, drinks with sugar and high fructose corn syrup
- Processed foods
- Charred foods (pro-oxidative effects)
- Alcohol

Anti-Inflammatory Foods

FOODS THAT FIGHT INFLAMMATION

Chronic inflammation has been linked to cancer, heart disease, diabetes, arthritis, depression, and Alzheimer's. Fight inflammation with a healthy diet.



ANTI-INFLAMMATION FOODS



Tomatoes



Fruits

Strawberries, blueberries, oranges and cherries.



Nuts

Almonds, walnuts, and other nuts.



Olive oil



Leafy greens

Spinach, kale, collards, and more.



Fatty fish

Salmon, mackerel, tuna, and sardines.

INFLAMMATION FOODS



Fried foods



Sodas



Refined carbs



Lard



Processed meats

Research shows the foods we eat and lifestyle choices we make can lower inflammatory markers and reduce the risks of chronic disease, such as diabetes, cardiovascular disease, and some types of cancer



Eat food.
Not *too* much.
Mostly plants.

Michael Pollan,
In Defense of Food





Bone Health and Diet

Cancer survivors are at increased risk for osteopenia and osteoporosis, as a result of too little bone formation or too much bone loss

Suggestions for improving bone health:

- Get adequate calcium
 - Generally 1000-1500 mg elemental calcium, but may vary by age, history and results of DEXA scan
- Get adequate vitamin D
 - Adults: 2000-4000 IU/day
 - Children over 1 year: 1000-3000 IU/day
- Engage in activity with weight-bearing
 - Walking, jogging, hiking, climbing stairs, yoga, tennis, dancing, martial arts
- Engage in resistance exercises → light weight lifting



*Check with provider before starting an exercise program

ABM = Always Be Moving!

- Aim for 10,000 steps/day
- Stand whenever possible
- Consider light forms of exercise while watching t.v.
- Stand up and stretch or take breaks to walk when working
- Take the stairs
- Find the parking spot furthest away
- Walk to the coffee shop or to run errands
- Find a hobby that involves moving: gardening, dog walking, neighborhood clean up

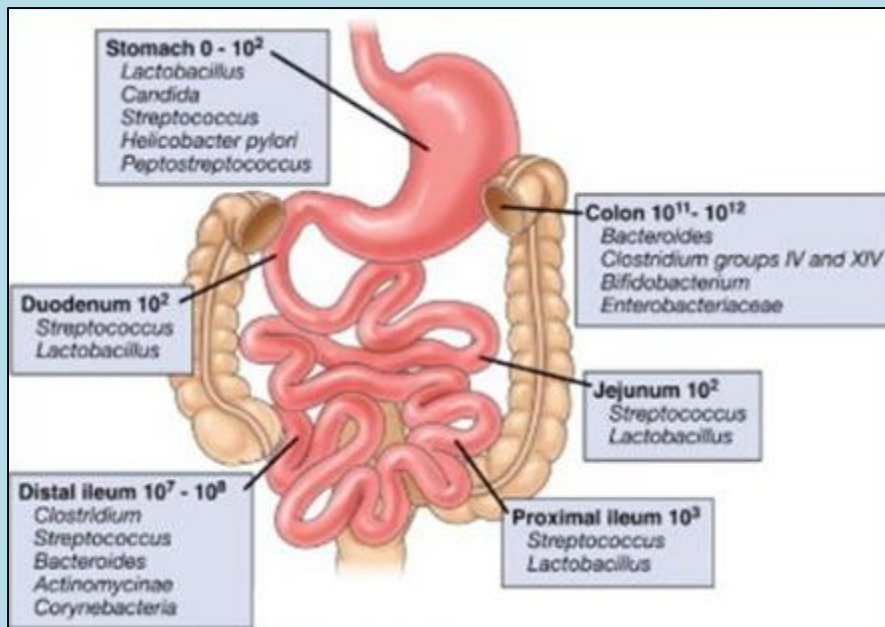
***Be intentionally physically active for 30 minutes on most days**

The background is a solid teal color. It features three decorative white dotted patterns: a circular sunburst-like pattern in the top left, a larger, more complex dotted pattern in the top right, and another circular sunburst-like pattern in the bottom right.

Gut Health

Treatment for childhood cancer can result in chronic problems of the gastrointestinal tract.

Microbiota and Gut Health



- G.I. Tract contains bacteria species called Microbiota (or “normal flora”)
 - Different types of bacteria inhabit different areas of the GI tract.
 - The human gut contains 2 - 3 pounds of bacteria
 - Majority of bacteria are located in distal part of the colon
- Microbiota produce nutrients that nourish your colon cells and they play a crucial role in human health by preventing disease
- Microbiota can be both good and harmful both preventing and causing infection and disease

How Microbiota Play an Important Role in Our Health

- Help keep the digestive tract healthy so allergens and bacteria cannot cross into the blood stream
- Play a role in the development of healthy cells and tissue
- Help make B vitamins and synthesize amino acids
- Aid in fermentation of non digestible substrates like fibers and mucus
- Bacteria are fermented in the colon where they help absorb fatty acids, salts and water
- Help prevent harmful bacteria from living in our GI tract and support our immune system



Microbiota and Gut Health

Dysbiosis: Any negative change to the host microbial ecosystem that causes an imbalance or disruption to the normal gut microflora

Causes:

- Invasion and overgrowth of pathogenic bacteria (can be antibiotic associated)
- Alteration in the immune system
- Change in health status; new disease development (IBD); GVHD

Probiotics: “Live microorganisms” which when administered in adequate amounts confer a health benefit on the host by:

- Competing with pathogens to prevent their adhesion to the intestinal epithelium and prevent bacteria from invading the GI tract
- Help modulate the immune system within the GI mucosa

Prebiotics: Nondigestible carbohydrates (fiber) that positively promote GI homeostasis by producing butyrate and other short chain fatty acids that serve to stimulate mucin production and contribute energy for the cells in the body

- Most are oligosaccharides and are resistant to digestive enzymes.
- Serve as food for probiotics and bacteria in the GI tract
- Are known to be important in preventing colon cancer and inflammation

Some Fermented Foods Contain Probiotic and Improve Gut Health



- Transport Probiotics into the GI tract



- Enhance absorption of food by producing helpful enzymes



- Introduce friendly bacteria into the digestive system



- Friendly bacteria keep illness away



*Note: Use of probiotics and raw, unpasteurized food during active cancer treatment is not recommended as they may cause infection in immunocompromised patients



Prebiotics in food

- Chicory root, Jicama root, Yacon root
- Dandelion greens
- Jerusalem artichoke
- Garlic, onion and leeks
- Asparagus
- Bananas (under-ripe better), apples,
- Barley and oats
- Cocoa
- Flaxseeds



In Conclusion.....

Try something new and build on those habits!

- Aim to go meat-free one day/week
- Include a different vegetable in one meal each day
- Aim to be mindful at one meal/day
- Explore a new physical activity
- Assess your Vitamin D intake
- Try a new fermented food
- Include a food high in omega-3s daily



Thank You!



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