

CANCER RELATED

Fatigue

-HOW EXERCISE CAN HELP



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Dana-Farber Cancer Institute

Fatigue is one of the most common side effects that you may experience as a cancer survivor.

The fatigue can precede your diagnosis, or start when treatments begin. It can become chronic, meaning that it can linger. Many survivors are surprised to learn that being physically active can help decrease the fatigue.

Over the past decade there has been a significant increase in research focused on how beneficial exercise can be. Being active can help build lean muscle mass and reduce side effects of treatment like deconditioning, which may cause fatigue during and after treatment. Physical activity can also reduce anxiety and depression, which can contribute to tiredness.

A common reaction to fatigue might be to pull back and rest, and for caretakers to be very protective and try to take over. Encouraging survivors to be more active, such as offering to go for a 10-minute walk together, can make some of the most significant positive impacts. Ironically, too much rest and too little activity actually promotes fatigue.

One of the single most important things to do when struggling with cancer related fatigue is to create a plan to remain active throughout the cancer journey. Below are some other tips to help get started or stay motivated:

CHECK WITH YOUR DOCTOR

Before you begin, make sure that your exercise plan won't interfere with treatment or recovery. Ask your doctor about any precautions you should take and whether there are activities you should avoid.

CHOOSE AN EXERCISE YOU ENJOY

You're more likely to stay active if you enjoy what you're doing. Many cancer patients choose walking as their preferred exercise, but other examples include bicycling, swimming, or using an elliptical. You may also benefit from mind and body exercises, such as Qigong, Tai Chi, and Yoga.

START AT A PACE THAT MATCHES YOUR FITNESS LEVEL

Ideally, you'll want to build up to at least 3 hours of moderate activity each week to help reduce your fatigue. Focus on small incremental goals. Do not try to increase your activity level by more than 10 percent per week. Start with light activity for short periods of time and build up until you've reached 3 to 5 hours of activity a week.

FIND A FITNESS BUDDY

Consider joining an exercise class or walking with a friend. Exercising with other people can give you the motivation and support to make exercise a regular part of your recovery. Find the right exercise routine for you and then do your best to stick with it!

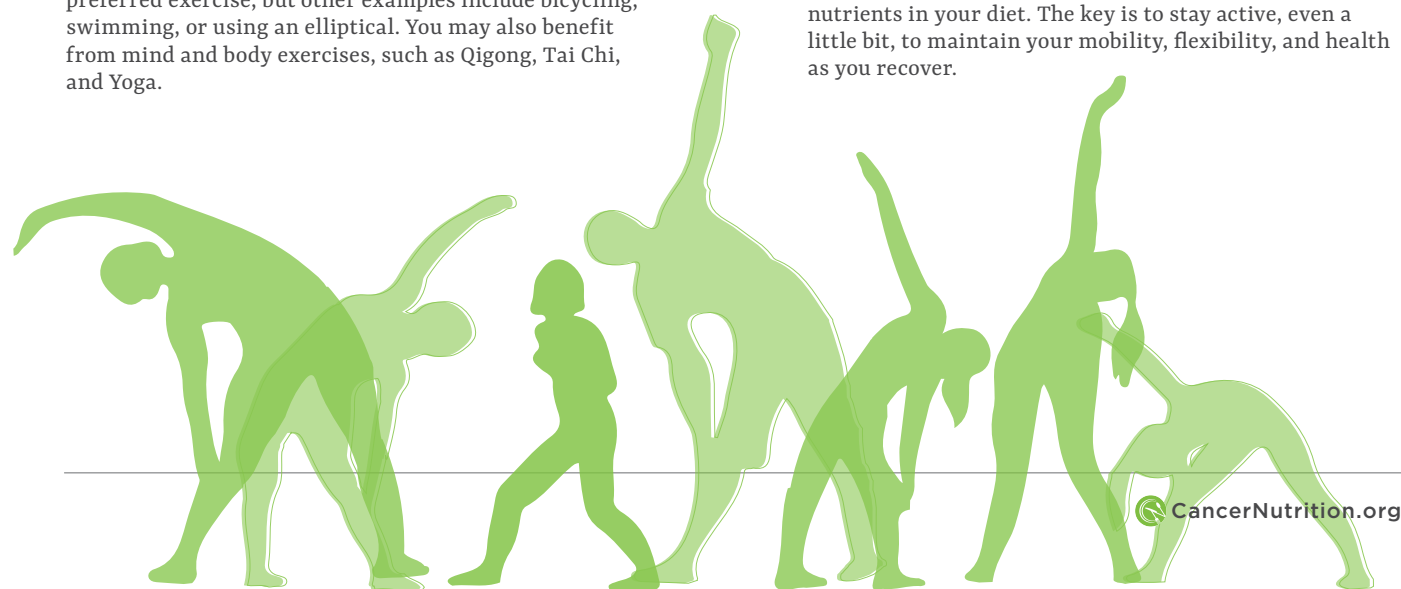
FOCUS ON CONSISTENCY

Use a calendar to pencil in when you are planning to do your physical activity for the coming week. Make sure to protect that time like you would a doctor's appointment.

DON'T OVERDO IT

If you find that fatigue is becoming worse when you exercise, you're probably going too hard. Other warning signs to watch for when exercising include: extreme shortness of breath, an unusually fast heart rate, or dizziness. Listen to your body; if it doesn't feel right, dial back the intensity of your workout.

Remember, a little bit of something is better than nothing – even small steps can help. Physical activity offers a range of benefits for cancer patients. It can help lower stress, strengthen muscle mass, elevate mood, improve sleep patterns and more. If you're not feeling well enough to exercise, stepping out the door to take a short walk around the block or starting a stretching program to regain your range of motion can be helpful. You may also want to make an appointment with a nutritionist to make sure that you are getting the appropriate amounts of hydration and nutrients in your diet. The key is to stay active, even a little bit, to maintain your mobility, flexibility, and health as you recover.



CancerNutrition.org

Research ...to Reality

CNC COLLABORATION WITH HORMEL FOODS™

“While on the faculty at Harvard Medical School, I conducted numerous clinical nutritional research studies that resulted in publications. It always frustrated me that despite finding positive results – which could help patients – we were unable to find any company to adopt the new science and make new products.

That's the amazing thing about what we've done with the CNC. In our first research study, we conducted a survey of cancer patients being actively treated by chemotherapy or radiation therapy. We determined what things precluded them from consuming an adequate diet. The scientific literature was sparse in this area, yet we knew that meeting nutritional needs during this time was critically important.

Armed with our published research, we found Hormel Foods to be an excellent partner. The CNC and Hormel Foods were willing to adopt the new information gleaned from our study, and created nutrition products that addressed the needs of a specific group of cancer patients.

I am proud to say that the entire experience has been rewarding as a scientist, knowing that these new products will benefit patients. This is the first time in my career that has ever happened, and I am grateful to the CNC and Hormel Foods for making it happen.”

Dr. Stacey J. Bell | Board of Directors
Chief Science Officer of Nutrient

Dr. Bell earned a doctorate in nutrition from Boston University with Honors, and has been a registered dietitian nutritionist for 35+ years. Dr. Bell formerly served on the faculty at Harvard Medical School, where she conducted nutrition-focused clinical studies. She has helped develop numerous dietary supplements, including for motivational speaker Tony Robbins, and Twinlabs. Dr. Bell has published over 100 peer-reviewed scientific articles, and has lectured around the world on nutrition.

Our Mission

To bring together resources in health, culinary and industry to raise awareness of the issues of food, taste and nutrition related to cancer treatment in an effort to improve the quality of life of patients and survivors.

Contact the CNC

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NEWSLETTER | Issue No. 2
RESEARCH, RESOURCES, AND RECIPES

CancerNutrition.org

“IF YOU WANT TO BE INTERESTING, BE INTERESTED.”

If you subscribe to Dale Carnegie's aphorism, then Joel Epstein is one of the more interesting people you're likely to meet. Epstein – whose full title is Joel B. Epstein, DMD, MSD, FRCD(C), FDS RCSE – is, among many other things, a member of the Medical-Dental staff at Cedars-Sinai Medical Center in Los Angeles and a consulting staff member at the City of Hope in Duarte, CA.

While his CV and his multiple degrees are impressive, Epstein has never been motivated by following a pre-ordained career path. Instead, he's followed his interests and created his own area of specialty. Those interests have led him from Canada to the U.S. and back (with a fellowship from the Royal College of Surgeons in Edinburgh, Scotland thrown in for good measure), and from dentistry to oncology to taste and nutrition science. Along the way, he's published more than 750 publications.

“I always had difficulty choosing between medicine and dentistry,” Epstein says. “I'm still in the middle.”

PASSIONATELY CURIOUS

While treating oncology patients at Cedars-Sinai and City of Hope, Epstein became interested in finding ways to address a problem faced by most cancer patients during and after treatment: chemotherapy and radiation therapy change taste perception, often radically. Now Epstein is teaming up with the Cancer Nutrition Consortium (CNC) on a new study designed to much more precisely identify and measure the physiological aspects of taste that undergo change during cancer treatment. The study's goal, Epstein says, is to help nutrition scientists come up with new solutions that will enable cancer patients during and after therapy to enjoy food and get the nutrition they need.

ACCOUNTING FOR TASTE

It's an area that has been explored for decades, but most studies to date have relied on relatively general and subjective patient questionnaires about taste, which is extremely difficult to quantify.

“Taste is much more complex than we thought,” Epstein says. While it's generally supposed that there are four or five main taste categories – sweet, sour, bitter, salty and, acknowledged more recently, umami or savory – there's surprisingly little definitive scientific detail on the exact mechanisms of taste in oncology.

A NEW APPROACH

Epstein's CNC study will combine a highly-detailed interview process with new methods of chemosensory testing designed to reveal an unprecedented level of detail about the individual elements of taste – and the factors that enhance or negate them. One method recently developed by one of Epstein's collaborators in the study, Temple University biologist Gregory Smutzer: polymer-based “taste strips” that can be applied to specific sets of taste buds, dissolving on the tongue and releasing targeted taste molecules that pinpoint taste sensitivity and recognition levels.

MOLECULAR ENGINEERING

“It will help us be better at designing products,” Epstein says, allowing food scientists to optimize foods to appeal to patients undergoing specific treatment types and stages of cancer. In addition, he says, “There are a lot of these things we can do through molecular management, like blocking specific taste receptors” through pharmaceutical treatments that adapt patients' chemoreceptors to counteract biological changes caused by therapy.

“Many of our treatments damage patients' salivary glands and other things that contribute to the sensation of taste,” Epstein says. “It's deeply interesting to be learning exactly how radiation and chemotherapy affect those things.”

And while his cancer patients at Cedars-Sinai, where he makes his rounds, have benefited from his curiosity and expertise for years, soon Epstein's unique combination of interests could end up significantly improving the daily lives of cancer patients around the world.



Joel B. Epstein
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Is Soy Safe

FOR CANCER PATIENTS?

Stephanie Meyers, MS, RD/LDN | Senior Nutritionist
Dana-Farber Cancer Institute

“What should I do about soy?”

This is a common question among cancer survivors. On one hand, consuming soy foods like edamame, tofu and unsweetened soy milk have been shown to reduce the risk of certain cancers such as breast cancer, prostate cancer and gastric cancer. On the other hand, questions about the potential estrogenic activity of soy can lead to confusion about the safety of eating soy foods, particularly for those with hormone sensitive cancers, such as estrogen-receptor positive breast cancer.

Soy contains compounds called phytoestrogens. It is important to realize that when people eat soy it does not turn into estrogen in the body. Phytoestrogens, specifically genistein and daidzein, are structurally different and significantly weaker than human estrogen. No one food, soy included, is capable of single-handedly disrupting hormones linked to cancer growth. Nonetheless, non-evidence based sources make claims about soy that can create unnecessary fear amongst cancer patients. Let's take a closer look at the scientific research to date.

Ongoing research on soy intake and cancer risk began decades ago when scientists observed lower rates of certain cancers, such as prostate and breast cancer, in Asian countries where soy foods were a regular part of an overall healthy diet. Current research continues to support inclusion of soy foods in the diet for general cancer prevention and for people with cancer.

When deciding about inclusion of soy in your diet, it can be helpful to think about three distinct categories of soy products:

- **Soy Foods** like edamame, tofu and unsweetened soy milk
- **Soy Protein Supplements** like protein powder or nutrition bars made with soy protein isolate
- **Soy Condiments** or by-products, such as soy sauce, soybean oil and soy lecithin

SOY FOODS

Current research supports including soy foods in the diet of cancer survivors and does not suggest harmful effects, even for those experiencing estrogen-receptor positive breast cancer. In fact, research in patients with breast cancer suggests possible benefit to overall survival with consuming moderate amounts of soy foods, or 1-2 servings per day. Examples of serving sizes for soy foods are 1/2 cup of edamame, 1 cup of soy milk, or 1/4 cup of tofu. The bottom line is that soy foods like edamame, tofu

and unsweetened soy milk can safely be included as an alternative protein or dairy source, even for those going through cancer treatment.

SOY PROTEIN SUPPLEMENTS

The effect of soy protein supplements and soy-derived protein powders on cancer growth is less clearly understood. This type of powder is typically used to make a smoothie or shake but can also be the source of protein in nutrition bars, certain pre-packaged frozen veggie burgers and vegetarian/vegan meat alternatives. Research is less clear on the effects of consuming soy protein in this form, as levels of phytoestrogens in soy products are variable. Theoretically, these products could provide higher levels of phytoestrogens if taken consistently due to their concentrated nature. While consensus on clinical guidelines for soy do not yet exist, some patients elect to minimize intake of soy protein powder supplements (soy protein isolate) given the lack of research to support inclusion.

SOY CONDIMENTS

Soy sauce, soybean oil and soy lecithin are examples of soy products that do not contain significant levels of phytoestrogens.

For those who do include soy in their diet, additional questions about genetic modification (GMO) and conventional versus organic options sometimes arise. Undeniably, soy is a crop that undergoes genetic modification in U.S. agriculture. The short- and long-term effects of genetic modification as it pertains to soy and cancer risk have not been well studied and are subject to much debate. Regardless, those seeking to avoid GMO in soy foods can elect to purchase organic options.

The take home message regarding soy and cancer is that eating tofu stir-fry, an edamame appetizer or having unsweetened soy milk as a replacement for dairy is safe for cancer survivors. This is true for women with estrogen-receptor positive breast cancer and all others. Those undergoing treatment for ER+ breast cancer may want to avoid soy protein isolate in powdered form as well as soy protein enriched nutrition bars or vegetarian meat replacements until further data is available.

REFERENCES

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Peanut, Farro and Mushroom Burgers

Chef Suvir Saran
Cookbook Author; Educator

SERVINGS: 8 patties
PREP TIME: 40min
COOK TIME: 8-10min

PER SERVING
CALORIES: 452
PROTEIN: 14g
FAT: 29g
SAT FAT: 6.5g
CARBOHYDRATES: 38g
FIBER: 6.0g
CHOLESTEROL: 10mg
SODIUM: 328mg
POTASSIUM: 485mg

INGREDIENTS

3/4 cup (UNCOOKED) FARRO

1 lb SWEET POTATOES

1 sprig FRESH ROSEMARY

1 sprig FRESH THYME

6 tbsp EXTRA VIRGIN OLIVE OIL

1 tsp BLACK PEPPER

3/4 cup PEANUTS, CHOPPED

1 lb MUSHROOM CAPS, BROWN,
FINELY CHOPPED

3/4 tsp KOSHER SALT

1 tbsp EXTRA VIRGIN OLIVE OIL

3 each SHALLOTS, FINELY CHOPPED

1 tbsp DRY WHITE WINE OR WATER

1/2 cup PARMIGIANO-REGGIANO CHEESE,
FINELY GRATED

1 cup PANKO CRUMBS (WHOLE WHEAT)

3 tbsp EXTRA VIRGIN OLIVE OIL

DIRECTIONS

Bring 2 cups of water to a boil in a **medium saucepan**. Add the farro, return to a boil, cover, and reduce the heat to medium-low, cooking until the farro is tender, about 30 minutes. Turn off the heat, fluff with a fork, cover, and set aside.

While the farro cooks, boil the potatoes. Bring a **large saucepan** of water to a boil, add the sweet potatoes, return to a boil, and cook until a **paring knife** easily slips into the center of the largest potato, about 20 minutes. Drain and set aside. Once the potatoes are cool, peel and place in a **large bowl**.

Remove the needles and leaves from the rosemary and thyme branches, and place in a **large skillet** along with black pepper and 6 tbsp. of olive oil. Warm the olive oil-herb mixture over medium-high, stirring occasionally. Once the herbs start crackling, about 1 minute, add peanuts and cook for 2 minutes or until a nice golden color. Then add the mushrooms and salt. Cook the mushrooms until they release their liquid and the pan is dry again, 6 to 7 minutes, stirring often. Transfer the mushrooms to the bowl with the potatoes and set aside.

Heat 1 tbsp of olive oil over medium-high heat in the skillet. Add the shallots and cook until they are soft and just starting to brown, about 2 minutes. Add the dry white wine (or water) and stir to work in any browned bits from the bottom of the pan. Turn off the heat and scrape the shallots into the bowl with the mushrooms and potatoes. Add the cooked farro and Parmigiano-Reggiano cheese. Use a **potato masher** or fork to mash the ingredients together.

Form the mixture into 10 patties. Place the panko crumbs in a **shallow dish** and press the top and bottom of each patty into the panko crumbs to evenly coat.

Heat 3 tbsp of olive oil in a **clean large skillet** over medium-high heat. Add 5 patties and cook on each side until nicely browned and crusty, 8 to 10 minutes total. Remove the patties from the skillet and place them on a plate. Repeat with the remaining patties, adding more oil between batches if necessary. Serve hot with a lightly dressed green salad.



Bucatini with Butternut Squash and Winter Pesto

Certified Master Chef Ron DeSantis
CulinaryNXT; Yale University

SERVINGS: 8
PREP TIME: 60min
COOK TIME: 25min

PER SERVING
CALORIES: 465
PROTEIN: 12.3g
FAT: 18g
SAT FAT: 3g
CARBOHYDRATES: 66g
FIBER: 7g
CHOLESTEROL: 4mg
SODIUM: 126mg
POTASSIUM: 646mg

DIRECTIONS

Heat 3 tbsp extra virgin olive oil in a **skillet or cast iron pan**. Add cubed butternut squash and leeks. Cook over medium heat until squash is browned and soft, about 12 minutes. Season with salt and black pepper.

In a **food processor** purée the baby kale, baby spinach, Italian parsley, mint, garlic, 1/3 cup of extra virgin olive oil and the lemon juice. When well-puréed, add the Parmesan cheese and season as needed with salt and black pepper.

Boil pasta in **medium sauce pan** according to package directions. Before draining, save some cooking water.

Toss cooked pasta with butternut squash-leek mixture and the pesto. Add some of the cooking water to moisten the pasta.

Serve hot and enjoy!