Nutrition and Exercise

Outsmarting Brain Tumors
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Lifestyle Change

• You don’t have to see the whole staircase; just that first step.

  *Martin Luther King, Jr.*

Feel pride in how far you’ve come and confidence in where you are going.
Nutrition and Exercise Benefits

Prevent and decrease risks for development of cancer, cancer recurrence and/or other diseases.

Nutrition and Exercise keep the immune system strong.

“Following Cancer Prevention Guidelines Reduces Risk of Cancer, Cardiovascular Disease, and All-Cause Mortality”
AICR Cancer Epidemiological Biomarkers Prevention 2011
Immune System

Inadequate stores of protein may diminish immune function.

- Skin and GI tract serve as barriers
- Proteins, peptides and amino acids have important functions in the immune system.

Inadequate calories do not enable protein intake to be used.
Adequate Nutrition and Exercise

Combat Fatigue
Eat small meals every 3 hours.
Eat healthier fats and protein, and fiber if tolerated.
Avoid simple sugars,
spread out complex carbohydrates.
Be active. Start low intensity activity.
Prevent Cancer Recurrence

Your choice of foods may make a difference.

Diet related factors are believed to account for 30% of cancer in developed countries.

Key, et. al. The Lancet, Sept 14, 2002
What and How Much Do You Need?

Protein with adequate Calories
Fat
Carbohydrate
Vitamins, Minerals
Phytochemicals
  Antioxidants /
  Other Anti-Cancer items in plants
Fiber
What to Choose?

What’s on your plate?

ChooseMyPlate.gov

Before you eat, think about what and how much food goes on your plate or in your cup or bowl. Over the day, include foods from all food groups: vegetables, fruits, whole grains, low-fat dairy products, and lean protein foods.

- Make half your plate fruits and vegetables.
- Make at least half your grains whole.
- Switch to skim or 1% milk.
- Vary your protein food choices.
Making Protein Choices

Animal: Egg whites, fish, shellfish, turkey, chicken, lean beef, pork, lamb, dairy.

Plant:
Grains - amaranth and quinoa are complete proteins, whole wheat.
Legumes - kidney beans, red beans, black beans, garbanzos, soybeans
Nuts
Protein Guidelines

• More plant-based proteins in legumes and whole grain
• Non-fat or low-fat poultry and dairy
• Lean beef, pork or lamb limited to maximum 18 cooked ounces per week
• Less processed meat (bologna, salami, sausage)
• Less food cooked at high heat (remove charred parts)
• Soy, but not processed
Optimal Carbohydrate Choices

5 Colorful Fruits and Vegetables
Whole Grain starches.

Phytonutrients/chemicals may be antioxidants,

inhibit inflammation and/or block tumor growth.

Foods containing Fiber, and Fiber itself, may reduce risk, provide immune support, keep GI tract healthy.

Limit sugar.
Limit “added” sugar (read labels) to 6 teaspoons/day for women, and for 9 teaspoons/day men.
Fiber

Insoluble fiber: Whole grain foods, wheat and corn bran, nuts and seeds, flax seed, vegetables cauliflower, celery and nopal, skins of fruits and tomatoes.

Soluble fiber: Oats, legumes, some fruits such as prune juice, berries, bananas, apples and pear, some vegetables such as broccoli and carrots, root tubers such as sweet potatoes and onions, and psyllium seed husk.
Antioxidant/Anticancer Phytonutrients

Berries, citrus, apricot and cantaloupe have antioxidant flavonoids.
Cruciferous vegetables: broccoli, Brussel sprouts, cauliflower, kale have sulforaphane, which is anti-bacterial and reduces risk for stomach cancer.
Grapes, has resveratrol, an antioxidant and is anti-inflammatory.
Green tea, has quercetin, an antioxidant flavonoid.
Onion, shallot, leaks and garlic have allicin which is anti-bacterial and lowers risk of cancer.
Soybeans have isoflavones, to block tumor formation.
Spices: Cloves, oregano, ginger, cinnamon, and turmeric have antioxidant activity.
Tomatoes have lycopene, an antioxidant.
Beneficial Nutrients

Omega 3 fatty acids – polyunsaturated essential fatty acid

- Fish 2 times a week; avoid King mackerel, tile, shark and swordfish. Plant sources include English walnuts and soybeans.
6 Small Meals

BREAKFAST:
Oatmeal, blueberries, almonds, NF milk
• Hummus, carrots, green tea

LUNCH:
Black bean soup, whole grain crackers, spinach salad, dried fruit, nuts, tuna, olive oil and vinegar, peach, tomato juice
• Peanut butter and apple

DINNER:
Salmon, brown rice, bok choy, mushrooms, green tea
• Low fat string cheese, purple or red grapes
“Excess body weight is thought to contribute to as many at 1 out of 5 of all cancer-related deaths. Being overweight or obese is clearly linked with an increased risk of several types of cancer.”

American Cancer Society
Guidelines for Nutrition and Physical Activity, 2012
Weight goal

Set an initial REALISTIC goal. BMI or body mass index healthy weight = 18.5-24.9. BMI may be higher if muscle mass is higher.

$$\text{BMI} = \frac{\text{Weight in pounds} \times 703}{\text{height in inches} \times \text{height in inches}}$$

BMI Graph
### BMI Table

<table>
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<th>Overweight</th>
<th>Obese</th>
<th>Extreme Obesity</th>
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**Body Weight (pounds)**

| BMI  | 19   | 20   | 21   | 22   | 23   | 24   | 25   | 26   | 27   | 28   | 29   | 30   | 31   | 32   | 33   | 34   | 35   | 36   | 37   | 38   | 39   | 40   | 41   | 42   | 43   | 44   | 45   | 46   | 47   | 48   | 49   | 50   | 51   | 52   | 53   | 54   |
|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|
| 19   | 191  | 196  | 201  | 205  | 210  | 215  | 220  | 224  | 229  | 234  | 239  | 244  | 249  | 254  | 259  | 264  | 269  | 274  | 279  | 284  | 289  | 294  | 299  | 304  | 309  | 314  | 319  | 324  | 329  | 334  |
| 22   | 221  | 226  | 231  | 236  | 241  | 246  | 251  | 256  | 261  | 266  | 271  | 276  | 281  | 286  | 291  | 296  | 301  | 306  | 311  | 316  | 321  | 326  | 331  | 336  | 341  | 346  | 351  | 356  | 361  |
| 24   | 229  | 234  | 239  | 244  | 249  | 254  | 259  | 264  | 269  | 274  | 279  | 284  | 289  | 294  | 299  | 304  | 309  | 314  | 319  | 324  | 329  | 334  | 339  | 344  | 349  | 354  | 359  | 364  | 369  | 374  |

Optimal Activity and Levels

Adults:
- Weekly 150 minutes of moderate intensity
- or 75 minutes of vigorous intensity activity
- (or a combination).

- Remember, any activity helps your health!
Physical Activity Guidelines
How to start...

• Ensure medical clearance
  ▫ Especially if you have bone, nerve or cardiac issues.

• Start parking further from your destination.
• Take a daily stroll.
• Start a regular walk with a friend or family member.
Physical Activity Guidelines
How to start...continued

- Find a DVD that motivates you.
- Enroll in a movement program.
  - Consider CSHS exercise program for Cancer Survivors.
- Try Tai Chi or Qi Gong for exercise and mindfulness.
Heart Rate

- Do not over do it! Check your pulse every 10-15 minutes.
- Warm up and cool down...

Maximal Heart Rate:
- 220 – age in years (use if you are under 40 years of age)
- 208 – 0.7 x age in years (use if you are 40 and over)

Optimal Heart Rates (approximate):
- 50-60% of the MHR is a comfortable zone, for walkers.
- 60-70% of the MHR is a fitness zone.
- 70-80% of the MHR is the “cardio” zone.
As intensity increases, you burn more calories in less time.
Signs of Over-exertion

- Increased shortness of breath
- Nausea or vomiting
- Irregular heartbeat
- Excessive fatigue
- Faint or lightheaded
- Pain or pressure in the chest or arm.
Intensity Levels

Low intensity:
- Breathing is regular, not sweating, able to talk and sing.

Moderate intensity:
- Breathing is often and deep, sweating after 10 minutes, not able to sing, able to talk.

High intensity:
  Breathing is rapid and deep, sweating after 3-5 minutes, not able to sing, able to talk briefly

- WeightWatchers Rating of Perceived Exertion 2012
Activities and Intensity

Low:

Light walk, stretching routine, light gardening, vacuuming, washing the car.

Moderate:

Walking briskly, water aerobics, ballroom and line dancing, sports where you catch and throw, doubles tennis, using hand cyclers.

Vigorous:

Aerobic dance, singles tennis, jogging or running, hiking uphill, heavy gardening.
Resistance Exercise

Helps build muscle tissue, increase metabolic rate.

• Strength train 2-3 times a week to reduce risk of chronic disease.
• Fatigue muscles within 8-12 repetitions or use lighter weights for 10-15 repetitions per set.
• Goal: Do 8 strength training exercises, for about 20 minutes.
Enhance quality of life

- Feed your mind, body and spirit.
- Eat with friends and family in a calm, social gathering.
- Increase physical activity to bolster defenses, enhance well-being and maintain strength. Be active after a meal to help regulate your blood sugars.
- Enjoy 20 to 30 minutes of brisk walking outdoors, preferably with nature, 5 days a week.
- Do resistance training with bands or weights interspersed throughout the week.
- Laugh.
- Reduce stress. Sleep well.
- Practice breathing exercises. Breathe in slowly and hold a bit, breathe out slowly.
On-line References

American Cancer Society       www.cancer.org
American Dietetic Association www.eatright.org
National Cancer Institute     www.cancer.gov
American Institute of Cancer Research www.aicr.org
National Center for Complementary and Alternative Medicine www.nccam.nih.gov
U.S. Pharmacopeia             www.usp.org