Nursing Perspectives

CE 2.0 ANCC Contact Hours

REDUCING THE RISK FOR COLON CANCER WITH HEALTHY FOOD CHOICES AND PHYSICAL ACTIVITY

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Cancer is a major cause of deaths for Americans, and men have a higher lifetime probability (44%) of getting cancer than women (38%). Each year the American Cancer Society publishes a report on cancer statistics in which the numbers of new cases and deaths for various cancers are estimated. Colorectal cancers (CRC) rank third for new cases and deaths for both men and women. Much can be done to reduce the risk of CRC and decrease the mortality rate of this preventable cancer (Siegel, Ma, Zou, & Jemal, 2014).

Colorectal Cancer Statistics

The leading causes of new cancer cases for men include prostate (233,000 or 27%) and lung and bronchus (116,000 or 14%), whereas the leading causes of cancer deaths for men are lung and bronchus (86,930 or 28%) and prostate (29,480 or 10%). The leading causes of new cancer cases for women include breast (232,670 or 29%) and lung and bronchus (108,210 or 13%), whereas the leading causes of cancer deaths for women are lung and bronchus (72,300 or 26%) and breast (40,000 or 15%). Men have a slightly higher number of new cases of CRC than women (71,830 or 8% vs. 65,000 or 8%) and also a slightly greater number of deaths than women (26,270 or 8% vs. 24,040 or 9%) (Siegel et al., 2014).

Progress on Colorectal Cancer Prevention

The incidence of CRC has gradually decreased since the mid-1980s but particularly in recent years: by about 3.3%–4% per year in both men and women. This decreased incidence is due to decreased risk factors such as

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TABLE 1. Five-Year Survival Rates for Colorectal Cancers by Race and Stage of Diagnosis, 1995–2000 (Jemal et al., 2005) and 2003–2009 (Siegel et al., 2014)

	1995–2000			2003–2009		
Stage	All races (%)	White (%)	African American (%)	All races (%)	White (%)	African American (%)
Localized	90	90	83	90	91	87
Regional	67	68	61	70	71	64
Distant	10	10	9	13	13	9
All stages	63	64	55	65	66	58

smoking and especially due to improved prevention by the increased uptake of colonoscopy and the removal of polyps before they become cancers (Siegel et al., 2014). Table 1 shows the improved 5-year survival rates for CRC by race and stage of diagnosis in 1995–2000 (Jemal et al., 2005) compared with 2003–2009 (Siegel et al., 2014). Table 2 shows the stage at diagnosis for CRC by race for 1995–2000 (Jemal et al., 2005) compared with 2003–2009. A further reduction in risk factors will help control this preventable cancer (Siegel et al., 2014).

Cancer Risk Reduction

The most significant, modifiable risk factors for cancer prevention are physical activity, weight control, and dietary choices for Americans who do not use tobacco (which is responsible for one third of cancers, including CRC). Fortunately, the ACS Nutrition and Physical Activity Guideline recommendations also reduce the risk of dying from cardiovascular disease and all other causes (Kushi et al., 2012).

Physical Activity

Most Americans are less physically active than is recommended. Physical activity can reduce the risk for breast, colon, endometrial, prostate, and possibly pancreatic cancer. The mechanisms for these benefits may include regulating sex hormones, prostaglandins, and insulin and by enhancing the immune system. Non-cancer-related benefits of physical activity include decreased hypertension, heart disease, diabetes, and osteoporosis (Kushi et al., 2012).

Sedentary behavior should be limited; examples include sitting, lying down, and screen-based activities. Unfortunately, the American workplace has reduced occupational activity, increased sitting at work, and lengthened commute times, and there is an increased amount of television, computer, and other screen time at home (Kushi et al., 2012).

The physical activity recommendation for children and adolescents is 1 hour of moderate to vigorous activity daily, with a vigorous activity selected on a minimum of 3 days per week. Children who are active are more likely to become active adults. Moderate activities are equivalent to a brisk walk. Some examples of moderate activity include walking, dancing, a leisurely bike ride, canoeing, yoga, ice and roller skating, skiing, golfing, softball, tennis, and yard work. Vigorous activity utilizes large muscle groups, elevates the heart and respiratory rates, and results in sweating. Vigorous activity includes running, weight training, fast bicycling, swimming, soccer, hockey, basketball, and digging, carpentry, and other heavy manual labor. Adults should get a minimum of 75 minutes of vigorous activity or 150 minutes of moderate activity weekly *in addition* to their activities of daily living. This activity would preferably be distributed throughout the week in 20- to 30-minute sessions.

TABLE 2. Stage at Diagnosis for Colorectal Cancers by Race, 1995–2000 (Jemal et al., 2005) and 2003–2009 (Siegel et al., 2014)

	1995–2000			2003–2009		
Stage	All Races (%)	White (%)	African American (%)	All Races (%)	White (%)	African American (%)
Localized	39	39	35	40	40	37
Regional	38	38	35	36	36	34
Distant	19	19	24	20	20	24

Regardless of current activity levels, there are health benefits to increasing activity even if not to these recommended levels. A gradual increase in physical activity levels is desirable. Moderate to vigorous activity for 300 or more minutes per week is desired to prevent weight gain or to assist with weight loss. Moderate physical activity does reduce CRC risk, but vigorous activity appears to have a greater risk reduction. Men aged 40 years and older, women aged 50 years and older, and all people with chronic conditions or cardiovascular risk factors should consult their physicians before starting a physical activity program (Kushi et al., 2012).

Weight Control

America has become obese and overweight and approximately two-thirds are in these categories. The body mass index (BMI) is used to determine overweight (BMI 25.0–29.9 kg/m^2) and obesity (BMI 30 kg/m^2 and more). A normal BMI is considered to be 18.5–24.9 kg/m^2. Obesity and overweight are associated with several types of cancers including colon, breast, endometrium, kidney, esophagus, and pancreas. Studies have supported the possible association of excess weight with non-Hodgkin lymphoma, multiple myeloma, and gall bladder, liver, cervical, ovarian, and prostate cancers. The association between overweight and obesity and CRC is stronger among men than among women. A taller height is also associated with CRC, as is central adiposity and a higher ratio of waist-to-hip circumference. Overall, obesity and overweight may contribute to 14%–20% of cancer deaths (Kushi et al., 2012).

The ACS therefore recommends the maintenance of a healthy weight throughout the lifespan. They recommend for obese and overweight individuals to lose a small amount of weight as a heathy starting point. Some key strategies for weight control include the following: limit high-caloric foods and beverages and incorporate a routine of physical activity. Portion control, limiting between-meal snacks, and reduction of fats and added sugars are helpful strategies (Kushi et al., 2012).

Dietary Choices

An emphasis on whole foods rather than processed foods is better, particularly limiting processed meat (bacon, hot dogs, sausage, and lunch meats) and red meat. There is evidence that 100 g of red meat or 50 g of processed meat consumed daily increases the risk of CRC by 15%–20%. Therefore, smaller portions of lean meats (beef, lamb, and pork) or substituting fish, poultry, and beans are preferred. Meat preparation by baking, broiling, or poaching is preferred over charbroiling or frying. Grilling meat can produce carcinogenic polycyclic aromatic hydrocarbons and heterocyclic amines. The iron content of red meat may catalyze nitrosamine formation, which may generate DNA damaging free radicals (Kushi et al., 2012).

Choose plant foods including whole grains (wheat, rice, barley, and oats) instead of processed grains. Whole grains are higher in fiber, minerals and vitamins and can reduce the risk of cardiovascular disease, diabetes, and diverticulosis. Whole grains are preferred over fiber supplements. Refined carbohydrates (candies, pastries, and sugary cereals) should be limited (Kushi et al., 2012).

A minimum of 2½ cups of various fruits and vegetables should be eaten daily. Fruits and vegetables should be eaten at every meal and for snacks (with limited or no creamy sauces, dips, or dressings). Increased fruit and vegetable intake appears to reduce the risk for colon, lung, mouth, pharynx, larynx, stomach, and esophageal cancers as well as improve cardiovascular health (Kushi et al., 2012).

Vitamin D may play a role in CRC and other cancers risk reduction. Vitamin D is important for calcium absorption, which in some studies has also been shown to reduce CRC risk. The ACS does not advise higher calcium intake, however, for men due to the increased risk of prostate cancer with a higher calcium intake. The recommended calcium intake for people aged 19–50 years is 1,000 mg/day and for those older than 50 years, 1,200 mg/day. The daily recommendation for vitamin D was recently increased from 400 to 600 international units (IU) per day for adults and an even higher recommendation for those aged 70 years and older: 800 IU/day. The maximum daily dose of vitamin D was also increased to 4,000 IU from 2,000 IU (Kushi et al., 2012).

Food labels can be utilized to determine serving sizes and calorie content of foods. A food diary can help monitor adherence to these recommendations (Kushi et al., 2012).

Beverages

The consumption of sugary beverages should be limited, particularly because they add calories that contribute to weight gain without nutrient benefits. The numbers of alcoholic drinks should also be limited. Men should drink no more than two alcoholic drinks per day, whereas women who have smaller body size and slower metabolisms should drink only one. An alcoholic drink is defined as 5 ounces of wine, 1.5 ounces of 80-proof distilled spirits, or 12 ounces of beer. Drinking in excess or binge drinking should be avoided as these behaviors may lead to increased risk of accidents, violence, suicide, unprotected sex, disease transmission, and other problems. Cancers of the colon, esophagus, liver, breast, mouth, pharynx, larynx, and possibly the pancreas are associated with alcohol intake. A possible explanation for this increase is the

effect of acetaldehyde, a product of alcohol metabolism, on the DNA of cells (Kushi et al., 2012).

Other Recommendations

Individuals may be better able to implement these recommendations for healthy choices while living in a healthy environment. Healthy communities supported by social, economic, and physical resources can make it easier for individuals to adhere to cancer-reducing lifestyles. The ability to access affordable, nutritious foods and beverages in schools, worksites, and communities will help in this endeavor. Limiting foods and beverages of little or no nutritional value should be a goal. Providing opportunities for physical activity in a safe, pleasant environment at school and work contributes to cancer risk reduction. Community action will ensure that all individuals have the opportunity to implement these healthy choices (Kushi et al., 2012).

Conclusion

Colorectal cancer risk can be reduced with physical activity by limiting processed and red meat and alcohol intake; consuming the recommended fruits and vegetables, vitamin D, and calcium; and maintaining a healthy weight throughout the lifespan. Proper screening for CRC saves lives by early identification and treatment. Removal of polyps by colonoscopy can prevent CRC (Kushi et al., 2012).

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