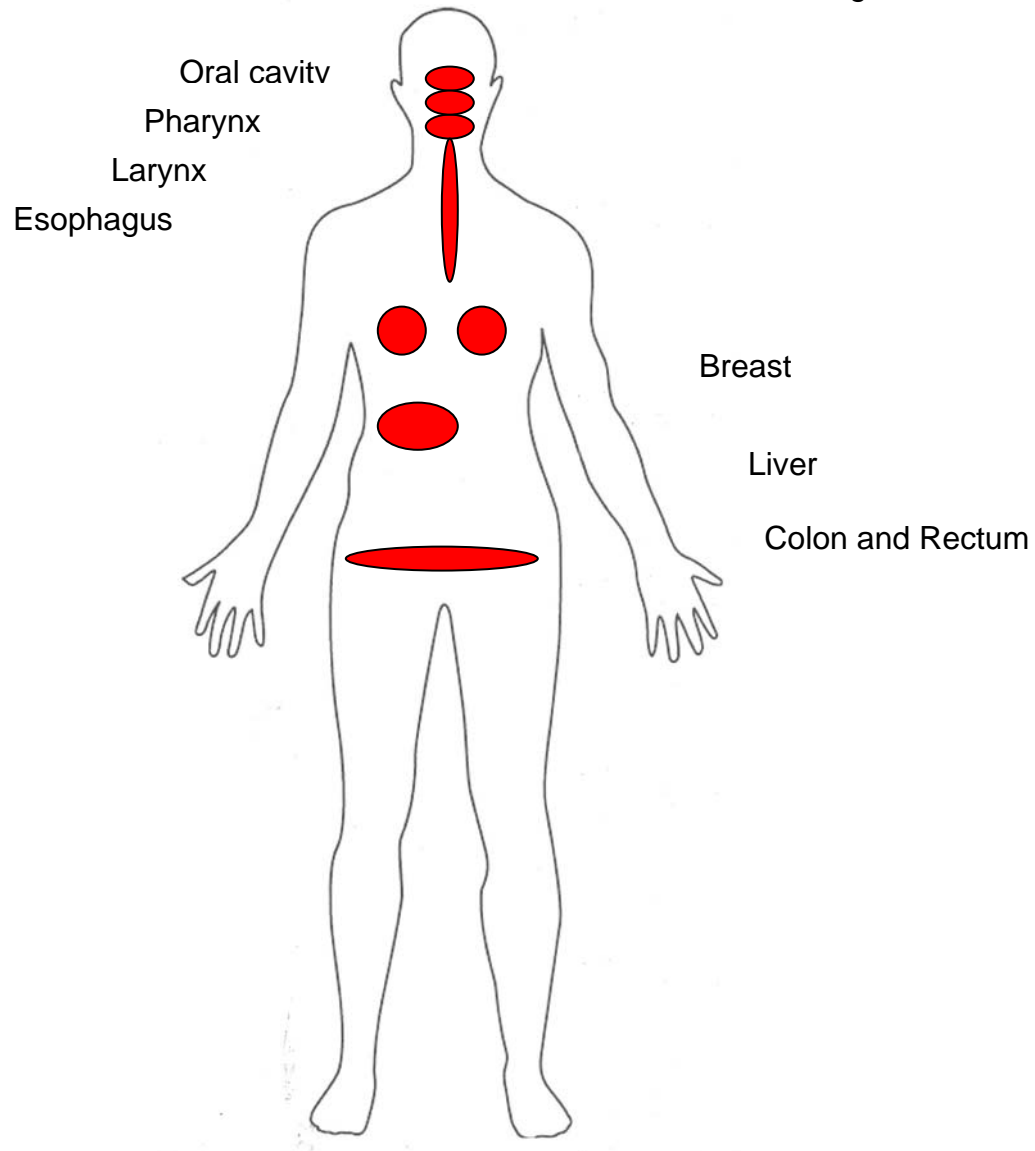


Quarterly Surveillance Report July, 2009

Alcohol and Cancer

Regular alcohol consumption, even as little as a drink or two a day, increases the risk of cancer at several sites throughout the body. Alcohol itself is a carcinogen, as are the chemicals the body produces when it breaks down alcohol, such as acetylaldehyde.¹ In addition, alcohol interferes with the detoxification of other potential carcinogens.^{1,2}



¹ International Agency for Research on Cancer, IARC Monographs on the Evaluation of Carcinogenic Risks to Humans, Vol. 96, Consumption of Alcoholic Beverages, <http://monographs.iarc.fr/ENG/meetings/96-alcohol.pdf>

² Marshall JR, Freudenheim J. 2006. Alcohol. In D Schottenfeld and JF Fraumeni Jr, eds. *Cancer Epidemiology and Prevention*, 3rd Ed. New York: Oxford University Press.

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Table 1 shows the increased risk of developing cancer associated with various levels of alcohol consumption. All available evidence suggests that the risk derives from the alcohol content of beverages, not the kind of beverage.³ Therefore, one beer is equivalent to one glass of wine or one shot of hard liquor in terms of increasing the risk of cancer.

Table 1. Relative Risk of Developing Cancer at Selected Sites by Level of Daily Alcohol Consumption⁴

Cancer site	Daily Alcohol Consumption §		
	Low †	Medium †	High †
Oropharynx	1.25	1.85	5.39
Larynx	1.83	3.90	4.93
Esophagus	1.80	2.37	4.26
Liver	1.45	3.03	3.60
Colorectum	1.04	1.26	1.41
Breast (female)	1.14	1.41	1.59

§ Daily alcohol consumption measured in drinks per day. One drink contains 13.7 grams of alcohol: one 12-ounce beer, one 5-ounce glass of wine, or one 1.5-ounce shot of hard liquor.

† Low = fewer than 2 drinks per day; medium = an average of two or more but fewer than 3.5 drinks per day; high = an average of 3.5 or more drinks per day.

The numbers in the table are the relative risks of developing each type of cancer, compared to someone who does not drink alcohol at all. For example, someone who drinks as few as two drinks per day (medium consumption) on a regular basis has a 85% increased risk for oropharyngeal cancer, is nearly four times more likely to develop laryngeal cancer, more than twice as likely to develop esophageal cancer, three times more likely to develop liver cancer, at a 25% increased risk for colorectal cancer, and a 41% increased risk for breast cancer.

Individuals who regularly consume more than three drinks per day more than five times more likely to develop oropharyngeal cancer, nearly five time more likely to develop laryngeal cancer, more than four times more likely to develop esophageal cancer, and more than three and a half times more likely to develop liver cancer, than someone who does not drink at all. Although the relative risks increase dramatically at higher levels of consumption, there is no evidence that there is a safe level of regular alcohol consumption

³ World Cancer Research Fund / American Institute for Cancer Research. 2007. *Food, Nutrition, Physical Activity, and the Prevention of Cancer: A Global Perspective*. Washington, DC: AICR.

⁴ Centers for Disease Control and Prevention, Alcohol-Related Disease Impact, <http://nccd.cdc.gov/ARDI/HomePage.aspx>

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below which cancer risk for one or more of the sites does not increase.²

Many people who drink also smoke. Smoking increases the risk of oropharyngeal, laryngeal, esophageal, liver, and colorectal cancers. It is sometimes difficult to separate the independent effects of drinking and smoking on these cancers, but many studies indicate that the combination of drinking and smoking greatly increases the risk of developing these cancers in a way that is more than simply additive. This means that the risks associated with alcohol are greater in smokers than in nonsmokers, and the risks associated with smoking are greater in drinkers than nondrinkers.²

Based on self-reported consumption, 56% of adults in Montana consume alcoholic beverages at least once a month; 6% of men consume more than 2 drinks per day and 5% women consume more than 1 drink per day.⁵ Assuming that all drinkers in the population consumed only 2 drinks per day (men) or 1 drink per day (women), the number of cases attributable to alcohol would be 94 per year (Table 2). This computation is based on the relative risks of cancer for the lowest level of alcohol consumption presented in Table 1. In fact, a small proportion of the population regularly consumes alcohol at higher levels, which confer greater risks of developing cancer at each site, in some cases substantially greater, so 94 cases should be interpreted as the minimum estimate of the number of cases of cancer attributable to alcohol consumption in Montana each year.

Table 2. Estimated Number of Cases of Cancer Per Year Attributable to Alcohol Consumption in Montana

	Average number of cases per year ⁶	Percent of cases attributable to alcohol ⁷	Number of cases attributable to alcohol
Oropharynx	109	20	22
Larynx	33	33	11
Esophagus	48	26	13
Liver	39	21	8
Colorectum	475	3	14
Breast (female)	644	4	26
TOTAL			94

⁵ Montana Behavioral Risk Factor Surveillance System 2007, <http://apps.nccd.cdc.gov/brfss/>

⁶ Montana Central Tumor Registry

⁷ McLaughlin J. 2007. *Cancer Prevention in Ontario: Action on Alcohol*. Alcohol, Cancer, and Public Policy Seminar, Toronto.

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The potential benefit of drinking red wine to reduce the risk of coronary heart disease has received a great deal of media attention in the past few years. Red wine contains resveratrol, a type of antioxidant that has beneficial effects on serum cholesterol levels and may possibly inhibit platelet aggregation and reduce blood clotting in the coronary arteries.⁸

Resveratrol in red wine is derived from the skin of red grapes. The benefit does not derive from the wine itself, which also contains the risk factor of alcohol. Resveratrol is also present in red grape juice (at the same concentrations as red wine), whole red grapes, and peanuts and other plant foods.⁹

Alcohol consumption, including red wine, increases the risk of other cardiovascular diseases including high blood pressure and stroke, and increases the risk of cirrhosis of the liver, pancreatitis, osteoporosis, birth defects, and adverse behavioral consequences including unintentional injury, violence, homicide, and suicide.¹⁰ In view of the many potential harms associated with alcohol consumption, health care providers and public health agencies as diverse as the Centers for Disease Control and Prevention,⁹ the National Cancer Institute,¹¹ and the American Heart Association¹² recommend against alcohol consumption. The consensus is to avoid alcohol, or limit consumption to no more than two drinks per day for men and one drink per day for women.

Please visit our website at www.cancer.mt.gov

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⁸ Das DK et al. 1999. *Drugs Exp Clin Res* 25:115-120; Wu JM et al. 2001. *Int J Mol Med* 8:3-17.

⁹ Wenzel E, Somoza V. 2005. *Mol Nutr Food Res* 49:472-481.

¹⁰ Centers for Disease Control and Prevention, Alcohol related public health objectives and guidelines, http://www.cdc.gov/Alcohol/ph_objectives.htm

¹¹ The National Cancer Institute Cancer Trends Progress Report, 2007.

http://progressreport.cancer.gov/doc_detail.asp?pid=1&did=2007&chid=71&coid=706&mid=

¹² The American Heart Association, Alcohol, Wine, and Cardiovascular Disease, <http://www.americanheart.org/presenter.jhtml?identifier=4422>