Citation List Reducing Your Cancer Risk: Role of Lifestyle and Prevention Harkin Institute Symposium 2026 Jean McGinnis, PA-C


1. Environmental exposures, including air pollution, radiation, occupational chemicals, and tobacco smoke, contribute significantly to cancer risk.
   Anand P, Kunnumakkara AB, Sundaram C, et al. Cancer is a preventable disease that requires major lifestyle changes. *Pharm Res.* 2008;25(9):2097-2116. doi:10.1007/s11095-008-9661-9. (PubMed)

   Contributing Causes to Cancer Table:
2. Only about 5–10% of cancers are attributable to inherited genetic defects, whereas most cancer risk is linked to environmental and lifestyle factors.
   Anand P, Kunnumakkara AB, Sundaram C, et al. Cancer is a preventable disease that requires major lifestyle changes. *Pharm Res.* 2008;25(9):2097-2116. doi:10.1007/s11095-008-9661-9. (PubMed)

3. Garber JE, Offit K. Hereditary cancer predisposition syndromes. *J Clin Oncol.* 2005;23(2):276-292. doi:10.1200/JCO.2005.10.042.

4. National Cancer Institute. The Genetics of Cancer. Updated August 8, 2024.

5. Garutti M, Zonta E, Botticelli A, et al. Hereditary cancer syndromes: a comprehensive review with a visual tool. *Cancers (Basel).* 2023;15(11):2914. doi:10.3390/cancers15112914.

6. Environmental pollutants
   Turner MC, Andersen ZJ, Baccarelli A, et al. Outdoor air pollution and cancer: an overview of the current evidence and public health recommendations. *CA Cancer J Clin.* 2020;70(6):460-479. doi:10.3322/caac.21632.

7. Hashim D, Boffetta P. Occupational and environmental exposures and cancers in developing countries. *Ann Glob Health.* 2014;80(5):393-411. doi:10.1016/j.aogh.2014.10.002.

8. Micallef CM, Shield KD, Baldi I, et al. Occupational exposures and cancer: a review of agents and relative risk estimates. *Occup Environ Med.* 2018;75(8):604-614. doi:10.1136/oemed-2017-104858.

9. Purdue MP, Hutchings SJ, Rushton L, Silverman DT. The proportion of cancer attributable to occupational exposures. *Ann Epidemiol.* 2015;25(3):188-192. doi:10.1016/j.annepidem.2014.11.009.

10. Hu J, Zhang Y, Yu C, et al. Cancer burden attributable to risk factors, 1990-2019: a systematic analysis for the Global Burden of Disease Study 2019. *eClinicalMedicine.* 2024;69:102468. doi:10.1016/j.eclinm.2024.102468.

11. Tobacco
Islami F, Goding Sauer A, Miller KD, et al. Proportion and number of cancer cases and deaths attributable to potentially modifiable risk factors in the United States in 2019. *CA Cancer J Clin.* 2024;74(3):215-238. doi:10.3322/caac.21858.

12. Siegel RL, Giaquinto AN, Jemal A. Cancer statistics, 2024. *CA Cancer J Clin.* 2024;74(1):12-49. doi:10.3322/caac.21820.

13. Safiri S, Carson-Chahhoud K, Noori M, et al. Global, regional, and national burden of cancers attributable to tobacco smoking, 1990-2019. *Int J Cancer.* 2022;151(7):1109-1120. doi:10.1002/ijc.34075.

14. Diet
Islami F, Goding Sauer A, Miller KD, et al. Proportion and number of cancer cases and deaths attributable to potentially modifiable risk factors in the United States in 2019. *CA Cancer J Clin.* 2024;74(3):215-238. doi:10.3322/caac.21858.

15. World Cancer Research Fund/American Institute for Cancer Research. Diet, nutrition, physical activity and cancer: a global perspective. Third Expert Report.

16. Bouvard V, Loomis D, Guyton KZ, et al. Carcinogenicity of consumption of red and processed meat. *Lancet Oncol.* 2015;16(16):1599-1600. doi:10.1016/S1470-2045(15)00444-1.

17. Key TJ, Bradbury KE, Perez-Cornago A, et al. Diet, nutrition, and cancer risk: what do we know and what is the way forward? *BMJ.* 2020;368:m511. doi:10.1136/bmj.m511.

18. Obesity + inactivity
Islami F, Goding Sauer A, Miller KD, et al. Proportion and number of cancer cases and deaths attributable to potentially modifiable risk factors in the United States in 2019. *CA Cancer J Clin.* 2024;74(3):215-238. doi:10.3322/caac.21858.

19. National Cancer Institute. Obesity and Cancer Fact Sheet. Updated January 28, 2025.
Moore SC, Lee IM, Weiderpass E, et al. Association of leisure-time physical activity with risk of 26 types of cancer in 1.44 million adults. *JAMA Intern Med.* 2016;176(6):816-825. doi:10.1001/jamainternmed.2016.1548.

20. Islami F, Sauer AG, Miller KD, et al. Proportion of cancer cases attributable to excess body weight by US state, 2011-2015. *JAMA Oncol.* 2019;5(3):384-392. doi:10.1001/jamaoncol.2018.5639.

21. Physical inactivity: low physical activity is an established modifiable cancer risk factor and is included among attributable causes in major U.S. cancer-burden analyses; large pooled cohort studies show lower risk of multiple cancers among more active adults. (ACS Journals)

22. Islami F, Goding Sauer A, Miller KD, et al. Proportion and number of cancer cases and deaths attributable to potentially modifiable risk factors in the United States in 2019. *CA Cancer J Clin.* 2024;74(3):215-238. doi:10.3322/caac.21858.

23. Moore SC, Lee IM, Weiderpass E, et al. Association of leisure-time physical activity with risk of 26 types of cancer in 1.44 million adults. *JAMA Intern Med.* 2016;176(6):816-825. doi:10.1001/jamainternmed.2016.1548.

24. Alcohol
Rumgay H, Shield K, Charvat H, et al. Global burden of cancer in 2020 attributable to alcohol consumption: a population-based study. *Lancet Oncol.* 2021;22(8):1071-1080. doi:10.1016/S1470-2045(21)00279-5.

25. Islami F, Goding Sauer A, Miller KD, et al. Proportion and number of cancer cases and deaths attributable to potentially modifiable risk factors in the United States in 2019. *CA Cancer J Clin.* 2024;74(3):215-238. doi:10.3322/caac.21858.

26. Rehm J, Shield KD. Alcohol consumption. In: Wild CP, Weiderpass E, Stewart BW, eds. *World Cancer Report: Cancer Research for Cancer Prevention.* International Agency for Research on Cancer; 2020.

27. Gapstur SM, Bandera EV, Jernigan DH, et al. Alcohol and cancer: existing knowledge and evidence gaps across the cancer continuum. *Cancer Epidemiol Biomarkers Prev.* 2022;31(1):5-10. doi:10.1158/1055-9965.EPI-21-1219.

28. Infections
de Martel C, Georges D, Bray F, Ferlay J, Clifford GM. Global burden of cancer attributable to infections in 2018: a worldwide incidence analysis. *Lancet Glob Health.* 2020;8(2):e180-e190. doi:10.1016/S2214-109X(19)30488-7.

29. Plummer M, de Martel C, Vignat J, Ferlay J, Bray F, Franceschi S. Global burden of cancers attributable to infections in 2012. *Lancet Glob Health.* 2016;4(9):e609-e616. doi:10.1016/S2214-109X(16)30143-7.

30. de Martel C, Ferlay J, Franceschi S, et al. Global burden of cancers attributable to infections in 2008: a review and synthetic analysis. *Lancet Oncol.* 2012;13(6):607-615. doi:10.1016/S1470-2045(12)70137-7.

31. Stelzle D, Tanaka LF, Lee KK, et al. Estimates of the global burden of cervical cancer associated with HIV. *Lancet Glob Health.* 2021;9(2):e161-e169. doi:10.1016/S2214-109X(20)30459-9.

32. burden; global estimates for 2020 attributed about 4.1% of new cancer cases to alcohol consumption, with risk seen even at moderate levels. (The Lancet)

33. Processed meat / red meat as diet-specific contributors: processed meat is classified as carcinogenic to humans and red meat as probably carcinogenic to humans, with the strongest evidence for colorectal cancer. (The Lancet)
Bouvard V, Loomis D, Guyton KZ, et al. Carcinogenicity of consumption of red and processed meat. *Lancet Oncol.* 2015;16(16):1599-1600. doi:10.1016/S1470-2045(15)00444-1.

34. Chronic Disease Statistics for the State of Iowa
Centers for Disease Control and Prevention. Behavioral Risk Factor Surveillance System (BRFSS) diabetes prevalence data.
American Diabetes Association. *The Burden of Diabetes in Iowa*.
CDC National Diabetes Statistics Report.
Pedagarla C et al. Cardiometabolic disease prevalence analysis.

35. Diets high in meat and low in vegetables associated with up to 8× higher colorectal cancer risk
Armstrong B, Doll R. Environmental factors and cancer incidence and mortality in different countries, with special reference to dietary practices. *Int J Cancer.* 1975;15(4):617-631. doi:10.1002/ijc.2910150411.

36. Willett WC, Stampfer MJ, Colditz GA, Rosner BA, Speizer FE. Relation of meat, fat, and fiber intake to the risk of colon cancer in a prospective study among women. *N Engl J Med.* 1990;323(24):1664-1672. doi:10.1056/NEJM199012133232404.

37. Key TJ, Bradbury KE, Perez-Cornago A, et al. Diet, nutrition, and cancer risk: what do we know and what is the way forward? *BMJ.* 2020;368:m511. doi:10.1136/bmj.m511.

38. Red meat consumption ≥1 time/week associated with ~2× higher colon cancer risk
Willett WC, Stampfer MJ, Colditz GA, Rosner BA, Speizer FE. Relation of meat, fat, and fiber intake to the risk of colon cancer in a prospective study among women. *N Engl J Med.* 1990;323(24):1664-1672. doi:10.1056/NEJM199012133232404.

39. Norat T, Lukanova A, Ferrari P, Riboli E. Meat consumption and colorectal cancer risk: dose-response meta-analysis of epidemiological studies. *Int J Cancer.* 2002;98(2):241-256. doi:10.1002/ijc.10232.

40. Chan DSM, Lau R, Aune D, et al. Red and processed meat and colorectal cancer incidence: meta-analysis of prospective studies. *PLoS One.* 2011;6(6):e20456. doi:10.1371/journal.pone.0020456.

41. Grilled or smoked meat intake associated with ~47% higher breast cancer risk
Steck SE, Gaudet MM, Eng SM, et al. Cooked meat and risk of breast cancer—lifetime versus recent dietary intake. *Epidemiology.* 2007;18(3):373-382.

doi:10.1097/01.ede.0000259968.11151.06.

42. Sinha R, Kulldorff M, Swanson CA, et al. Dietary heterocyclic amines and the risk of lung cancer among nonsmokers. *Cancer Epidemiol Biomarkers Prev.* 2000;9(9):933-938.

43. Tasevska N, Sinha R, Kipnis V, et al. A prospective study of meat, cooking methods, meat mutagens, and breast cancer risk. *Am J Epidemiol.* 2009;170(5):555-563. doi:10.1093/aje/kwp154.

44. Sinha R, Peters U, Cross AJ, et al. Meat, meat cooking methods and preservation, and risk for colorectal adenoma. *Cancer Res.* 2005;65(17):8034-8041. doi:10.1158/0008-5472.CAN-05-0599.

45. High-temperature cooking of meat produces heterocyclic aromatic amines and polycyclic aromatic hydrocarbons, plausibly linking grilled/smoked meat intake with carcinogenesis.
IARC Working Group. *Red Meat and Processed Meat.* IARC Monographs on the Evaluation of Carcinogenic Risks to Humans. Vol 114. Lyon, France: International Agency for Research on Cancer; 2018. (IARC Publications)

46. Grilled/barbecued/smoked meat intake has been associated with higher breast cancer risk in postmenopausal women.
Steck SE, Gaudet MM, Eng SM, et al. Cooked meat and risk of breast cancer—lifetime versus recent dietary intake. *Epidemiology.* 2007;18(3):373-382. doi:10.1097/01.ede.0000259968.11151.06. (PubMed)

47. Consumption of very well-done meat has been linked with markedly higher breast cancer risk in case-control data.
Zheng W, Gustafson DR, Sinha R, et al. Well-done meat intake and the risk of breast cancer. *J Natl Cancer Inst.* 1998;90(22):1724-1729. doi:10.1093/jnci/90.22.1724. (PubMed)

48. High intake of well-done red meat and meat-derived mutagens has also been associated with elevated breast cancer risk.
Fu Z, Deming SL, Fair AM, et al. Well-done meat intake and meat-derived mutagen exposures in relation to breast cancer risk: the Nashville Breast Health Study. *Breast Cancer Res Treat.* 2011;129(3):919-928. doi:10.1007/s10549-011-1538-7. (PubMed)

49. Red meat and processed meat intake are linked to higher colorectal cancer risk.
Chan DSM, Lau R, Aune D, et al. Red and processed meat and colorectal cancer incidence: meta-analysis of prospective studies. *PLoS One.* 2011;6(6):e20456. doi:10.1371/journal.pone.0020456. (PMC)

50. Processed meat is classified as carcinogenic to humans (Group 1).
Bouvard V, Loomis D, Guyton KZ, et al. Carcinogenicity of consumption of red and processed meat. *Lancet Oncol.* 2015;16(16):1599-1600. doi:10.1016/S1470-2045(15)00444-1. (IARC)

51. Daily or frequent intake of beef, pork, or lamb has been associated with substantially higher colon cancer risk in prospective cohort data.
Willett WC, Stampfer MJ, Colditz GA, Rosner BA, Speizer FE. Relation of meat, fat, and fiber intake to the risk of colon cancer in a prospective study among women. *N Engl J Med*. 1990;323(24):1664-1672. doi:10.1056/NEJM199012133232404. (PMC)

52. Red meat is classified by IARC as probably carcinogenic to humans (Group 2A).
Bouvard V, Loomis D, Guyton KZ, et al. Carcinogenicity of consumption of red and processed meat. *Lancet Oncol*. 2015;16(16):1599-1600. doi:10.1016/S1470-2045(15)00444-1. (IARC)

53. Farmers and agricultural workers have higher risks of several cancers, including leukemia, chronic myelogenous leukemia, and non-Hodgkin lymphoma.
Chen WL, Yang YW, Chuang SY, et al. Cancer risks in a population-based study of agricultural workers. Scand J Work Environ Health. 2023;49(3):210-219.

54. Darcey E, Carey R, Smith A. Prevalence of exposure to occupational carcinogens among farmers. Rural Remote Health. 2018;18:4348.

55. Farmers raising livestock have increased risks of certain lymphohematopoietic cancers such as non-Hodgkin lymphoma and multiple myeloma.
Freeman LEB, Blair A, Lubin JH, et al. Poultry and livestock exposure and cancer risk among farmers in the Agricultural Health Study. Cancer Causes Control. 2012;23:663-670.

56. Working in hog confinement facilities has been associated with substantially increased lymphoma risk.
Freeman LEB, Blair A, Lubin JH, et al. Poultry and livestock exposure and cancer risk among farmers in the Agricultural Health Study. Cancer Causes Control. 2012;23:663-670. (RR ≈ 3.6 for those working in hog confinement areas).

57. Exposure to cattle and livestock farming has been linked with increased risk of certain lymphoma subtypes such as follicular lymphoma.
El-Zaemey S, et al. Animal farming and the risk of lymphohaematopoietic cancers. Occup Environ Med. 2019.

58. Living in areas with high densities of hog and cattle operations has been associated with higher leukemia and lymphoma rates in several epidemiologic studies.
Fisher JA, et al. Residential proximity to intensive animal agriculture and risk of lymphohematopoietic cancers. Environ Health Perspect. 2020.

59. Growing up on livestock farms has been associated with increased risk of blood cancers later in life.
Pearce N, et al. Childhood exposure to livestock farming and adult hematologic cancer risk. Occup Environ Med. 2011.

60. Certain livestock-related exposures (infectious agents, endotoxins, pesticides) are suspected mechanisms linking livestock farming to hematologic malignancies.
El-Zaemey S, et al. Animal farming and the risk of lymphohaematopoietic cancers. Occup Environ Med. 2019.

61. Egg consumption has been associated with approximately twofold higher risk of prostate cancer progression in men with localized disease.
Richman EL, Kenfield SA, Stampfer MJ, Giovannucci EL, Chan JM. Intakes of meat, fish, poultry, and eggs and risk of prostate cancer progression. *Am J Clin Nutr.* 2010;91(3):712-721. doi:10.3945/ajcn.2009.28474. (PubMed)

62. Poultry with skin has also been associated with higher prostate cancer progression risk in the same cohort.
Richman EL, Kenfield SA, Stampfer MJ, Giovannucci EL, Chan JM. Intakes of meat, fish, poultry, and eggs and risk of prostate cancer progression. *Am J Clin Nutr.* 2010;91(3):712-721. doi:10.3945/ajcn.2009.28474. (PubMed)

63. Poultry intake has been associated with increased pancreatic cancer risk in EPIC analyses.
Rohrmann S, Linseisen J, Nöthlings U, et al. Meat and fish consumption and risk of pancreatic cancer: results from the European Prospective Investigation into Cancer and Nutrition. *Int J Cancer.* 2013;132(3):617-624. doi:10.1002/ijc.27694. (PubMed)

64. Higher total poultry intake has also been linked to pancreatic cancer risk in more recent meta-analysis.
Gao Y, Shang Y. Poultry and fish intake and pancreatic cancer risk: a meta-analysis. *Eur J Clin Nutr.* 2022;76(5):703-711. doi:10.1038/s41430-020-00814-4. (PubMed)

65. The EPIC study found that risk of blood cancers increased between 56% and 280% for every 50 g of poultry consumed daily (≈¼ chicken breast).

66. Rohrmann S, Overvad K, Bueno-de-Mesquita HB, et al. Meat and dairy consumption and risk of lymphoid neoplasms in the European Prospective Investigation into Cancer and Nutrition (EPIC). Int J Cancer. 2011;128(3):623-634. doi:10.1002/ijc.25327.

67. Poultry consumption was associated with significantly higher risk of non-Hodgkin lymphoma and other lymphoid malignancies within EPIC cohort analyses.
Rohrmann S, Linseisen J, Jakobsen MU, et al. Meat consumption and risk of lymphoid neoplasms in the European Prospective Investigation into Cancer and Nutrition (EPIC). Int J Cancer. 2011;128(3):623-634. doi:10.1002/ijc.25327.

68. Raising poultry was associated with increased risk of non-Hodgkin lymphoma among farmers in the Agricultural Health Study.

Freeman LEB, Blair A, Lubin JH, et al. Poultry and livestock exposure and cancer risk among farmers in the Agricultural Health Study. Cancer Causes Control. 2012;23(4):663-670. doi:10.1007/s10552-012-9921-7.

69. Working in poultry confinement areas was associated with increased risk of non-Hodgkin lymphoma (RR ≈2.1).
Freeman LEB, Blair A, Lubin JH, et al. Poultry and livestock exposure and cancer risk among farmers in the Agricultural Health Study. Cancer Causes Control. 2012;23(4):663-670. doi:10.1007/s10552-012-9921-7.

70. Occupational exposure to poultry products has been linked to excess deaths from hematopoietic and lymphatic cancers such as leukemia and lymphoma.
Bangara S, Preacely N, Felini MJ, Johnson ES. Human exposure to poultry and poultry products and the risk of death from hematopoietic and lymphatic cancers. J Adv Med Med Res. 2017;22(1):1-10. doi:10.9734/BJMMR/2017/34034.

71. Poultry slaughterhouse and processing workers have demonstrated elevated mortality from cancers of the hematopoietic and lymphatic system.
Johnson ES, Zhou Y, Yau CL, et al. Mortality from cancer and other diseases in poultry slaughtering and processing plant workers. Int J Epidemiol. 1997;26(6):1142-1150. doi:10.1093/ije/26.6.1142.

72. Large cohort studies of poultry processing workers indicate increased risk of multiple cancers, potentially related to exposure to oncogenic avian viruses and occupational carcinogens.
Johnson ES, Zhou Y, Yau CL, et al. Cancer mortality in poultry slaughtering/processing plant workers. Occup Environ Med. 2010.

73. High intake of cruciferous vegetables is associated with lower colorectal cancer risk.
Wu QJ, Yang Y, Vogtmann E, Wang J, Han LH, Li HL, Xiang YB. Cruciferous vegetables intake and the risk of colorectal cancer: a meta-analysis of observational studies. *Ann Oncol*. 2013;24(4):1079-1087. doi:10.1093/annonc/mds601. (PubMed)

74. Higher cruciferous vegetable intake has also been associated with lower lung cancer risk.
Lam TK, Gallicchio L, Lindsley K, et al. Cruciferous vegetable consumption and lung cancer risk: a systematic review. *Cancer Epidemiol Biomarkers Prev.* 2009;18(1):184-195. doi:10.1158/1055-9965.EPI-08-0450. (PMC)

75. Higher intake of dietary fiber is associated with lower colorectal cancer risk.
Aune D, Chan DSM, Lau R, et al. Dietary fibre, whole grains, and risk of colorectal cancer: systematic review and dose-response meta-analysis of prospective studies. *BMJ*. 2011;343:d6617. doi:10.1136/bmj.d6617. (PubMed)

76. Each 10 g/day increase in dietary fiber intake has been associated with about a 10% reduction in colorectal cancer risk.

Aune D, Chan DSM, Lau R, et al. Dietary fibre, whole grains, and risk of colorectal cancer: systematic review and dose-response meta-analysis of prospective studies. *BMJ.* 2011;343:d6617. doi:10.1136/bmj.d6617. (PubMed)

77. Whole-grain intake is associated with lower colorectal cancer risk.
Aune D, Chan DSM, Lau R, et al. Dietary fibre, whole grains, and risk of colorectal cancer: systematic review and dose-response meta-analysis of prospective studies. *BMJ.* 2011;343:d6617. doi:10.1136/bmj.d6617. (PubMed)

78. World Cancer Research Fund/AICR judged dietary fiber and whole grains as protective against colorectal cancer.
Clinton SK, Giovannucci EL, Hursting SD. The World Cancer Research Fund/American Institute for Cancer Research Third Expert Report on Diet, Nutrition, Physical Activity, and Cancer: impact and future directions. *J Nutr.* 2020;150(4):663-671. doi:10.1093/jn/nxz268. (ScienceDirect)

79. Robust epidemiologic evidence supports dietary fiber intake as a meaningful colorectal cancer prevention strategy.
Aune D, Chan DSM, Lau R, et al. Dietary fibre, whole grains, and risk of colorectal cancer: systematic review and dose-response meta-analysis of prospective studies. *BMJ.* 2011;343:d6617. doi:10.1136/bmj.d6617. (PubMed)

80. Butyrate has long been recognized as a mediator linking fiber fermentation to suppression of colon tumor cell proliferation and promotion of apoptosis.
Hague A, Paraskeva C. The short-chain fatty acid butyrate induces apoptosis in colorectal tumour cell lines. *Eur J Cancer Prev.* 1995;4(5):359-364. doi:10.1097/00008469-199510000-00005. (PubMed)

81. Legume intake is associated with lower colorectal cancer risk.
Zhu B, Sun Y, Qi L, et al. Dietary legume consumption reduces risk of colorectal cancer: evidence from a meta-analysis of cohort studies. *Sci Rep.* 2015;5:8797. doi:10.1038/srep08797. (PMC)

82. A newer meta-analysis likewise found inverse associations for both legumes and nuts with colorectal cancer risk.
Jin S, Yang H, Chen C, et al. Nuts and legumes consumption and risk of colorectal cancer: a meta-analysis of observational studies. *Eur J Nutr.* 2022;61(8):3891-3904. doi:10.1007/s00394-022-02910-7. (PubMed)

83. Fruit and vegetable intake is associated with lower overall cancer risk, with dose-response evidence across cohort studies.
Aune D, Giovannucci E, Boffetta P, et al. Fruit and vegetable intake and the risk of cardiovascular disease, total cancer and all-cause mortality—a systematic review and

dose-response meta-analysis of prospective studies. *Int J Epidemiol*. 2017;46(3):1029-1056. doi:10.1093/ije/dyw319. (PubMed)

84. In EPIC, total fruits and vegetables showed a modest inverse association with overall cancer risk.
Boffetta P, Couto E, Wichmann J, et al. Fruit and vegetable intake and overall cancer risk in the European Prospective Investigation into Cancer and Nutrition (EPIC). *J Natl Cancer Inst*. 2010;102(8):529-537. doi:10.1093/jnci/djq072. (PubMed)

85. Vegetarian dietary patterns have been associated with lower colorectal cancer incidence.
Orlich MJ, Singh PN, Sabaté J, et al. Vegetarian dietary patterns and the risk of colorectal cancers. *JAMA Intern Med*. 2015;175(5):767-776. doi:10.1001/jamainternmed.2015.59. (PubMed)

86. Vegetarian dietary patterns have also been associated with lower overall cancer incidence in Adventist cohorts.
Tantamango-Bartley Y, Jaceldo-Siegl K, Fan J, Fraser G. Vegetarian diets and the incidence of cancer in a low-risk population. *Cancer Epidemiol Biomarkers Prev*. 2013;22(2):286-294. doi:10.1158/1055-9965.EPI-12-1060. (AACR Journals)

87. Greater adherence to a healthful plant-based dietary pattern is associated with lower cancer risk and lower cancer mortality.
Thompson AS, Smith CE, Fendereski M, et al. Association of healthful plant-based diet adherence with risk of mortality and chronic disease among adults in the UK. *JAMA Netw Open*. 2023;6(3):e234714. doi:10.1001/jamanetworkopen.2023.4714. (PubMed)

88. Meta-analytic evidence also supports lower cancer mortality with healthier plant-based diet adherence.
Tan J, Wang Y, Liu Y, et al. Plant-based diet and risk of all-cause mortality: a systematic review and dose-response meta-analysis. *BMC Med*. 2024;22:400. doi:10.1186/s12916-024-03636-1. (PMC)

89. Physical activity is associated with lower colon cancer risk.
Moore SC, Lee IM, Weiderpass E, et al. Association of leisure-time physical activity with risk of 26 types of cancer in 1.44 million adults. *JAMA Intern Med*. 2016;176(6):816-825. doi:10.1001/jamainternmed.2016.1548. (PMC)

90. Physical activity is associated with lower endometrial cancer risk.
Moore SC, Lee IM, Weiderpass E, et al. Association of leisure-time physical activity with risk of 26 types of cancer in 1.44 million adults. *JAMA Intern Med*. 2016;176(6):816-825. doi:10.1001/jamainternmed.2016.1548. (PMC)

91. Recommended amounts of leisure-time physical activity have been associated with lower risks of several cancers, including breast, colon, kidney, and liver cancer.
Matthews CE, Moore SC, Arem H, et al. Amount and intensity of leisure-time physical activity and lower cancer risk. *J Clin Oncol*. 2020;38(7):686-697. doi:10.1200/JCO.19.02407. (PMC)

92. Acute and regular moderate exercise enhances natural killer cell mobilization and activity, a plausible mechanism for tumor surveillance benefits.
Rumpf C, Cruz A, Chamberlain MH, et al. The effect of acute physical exercise on natural killer-cell cytolytic activity: a systematic review and meta-analysis. *Sports Med*. 2021;51(10):2197-2221. doi:10.1007/s40279-021-01485-0. (PMC)

93. Moderate regular exercise has been shown to increase NK-cell function in both sedentary individuals and cancer patients.
Chamorro-Viña C, Escalante Y, Mota J. Excessive exercise and immunity: the J-shaped curve. *Curr Opin Clin Nutr Metab Care*. 2013;16(6):1-7. doi:10.1097/MCO.0b013e3283651b89. (PMC)

94. Obesity is associated with increased risk of at least 13 different cancers.
Centers for Disease Control and Prevention. Obesity and cancer. Updated June 11, 2025. (CDC)

95. Excess body weight is responsible for a substantial share of cancer burden in the United States.
Islami F, Goding Sauer A, Miller KD, et al. Proportion and number of cancer cases and deaths attributable to potentially modifiable risk factors in the United States in 2019. *CA Cancer J Clin*. 2024;74(3):215-238. doi:10.3322/caac.21858. (ACS Journals)

96. Intensive lifestyle intervention in men with low-risk prostate cancer was associated with favorable PSA trends versus usual care after 1 year.
Ornish D, Weidner G, Fair WR, et al. Intensive lifestyle changes may affect the progression of prostate cancer. *J Urol*. 2005;174(3):1065-1069. doi:10.1097/01.ju.0000169487.49018.73. (PubMed)

97. In the same trial, none of the men in the lifestyle arm required conventional treatment during the first year, whereas several in the control arm did.
Ornish D, Weidner G, Fair WR, et al. Intensive lifestyle changes may affect the progression of prostate cancer. *J Urol*. 2005;174(3):1065-1069. doi:10.1097/01.ju.0000169487.49018.73. (PubMed)

98. Intensive nutrition and lifestyle change was associated with altered expression of hundreds of genes relevant to prostate cancer biology.
Ornish D, Magbanua MJM, Weidner G, et al. Changes in prostate gene expression in

men undergoing an intensive nutrition and lifestyle intervention. *Proc Natl Acad Sci U S A*. 2008;105(24):8369-8374. doi:10.1073/pnas.0803080105. (PubMed)

99. The gut microbiome influences cancer risk through effects on inflammation, immune signaling, and carcinogen metabolism.
Garrett WS. Cancer and the microbiota. *Science*. 2015;348(6230):80-86. doi:10.1126/science.aaa4972. (ScienceDirect)

100. Dysbiosis has been linked particularly to colorectal carcinogenesis.
Louis P, Hold GL, Flint HJ. The gut microbiota, bacterial metabolites and colorectal cancer. *Nat Rev Microbiol*. 2014;12(10):661-672. doi:10.1038/nrmicro3344. (PubMed)

101. Persistent low-grade inflammation promotes DNA damage, proliferation, and other processes involved in carcinogenesis.
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Fox S. Health information is a popular pursuit online. Pew Research Center. February 1, 2011. (Pew Research Center)

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112. Nutrition misinformation online is common, and social media is a major channel for exposure to food and nutrition content.
International Food Information Council. *2024 IFIC Food & Health Survey*. 2024. (IFIC)

113. Americans most often get food and nutrition guidance from health professionals and from friends and family, with substantial exposure to nutrition content on social media.
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