
Obesity and Cancer

Shawnta Speer, M.D.
Hematology/Oncology
Phoebe Cancer Center

Obesity

- Over 2/3 adults are overweight or obese
 - 1/3 obese adults (1/5 children)
 - Increases risk of heart disease, stroke, high blood pressure, diabetes & early death
 - Increases risk of certain cancers
 - Yearly healthcare costs over \$147 billion dollars
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■ Overweight and Obesity

- ❑ **Overweight**—having a body weight more than 10 percent above the healthy recommended levels; in an adult, having a BMI of 25 to 29
 - ❑ **Obesity**—a body weight more than 20 percent above healthy recommended levels; in an adult, having a BMI of 30 or more
 - ❑ **Morbid Obesity**—having a body weight 100 percent or more above healthy recommended levels; in an adult, having a BMI of 40 or more
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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
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Height

Weight in pounds

4'10"	91	96	100	105	110	115	119	124	129	134	138	143	148	153	158	162	167	172	177	181	186	191	196	201
4'11"	94	99	104	109	114	119	124	128	133	138	143	148	153	158	163	168	173	178	183	188	193	198	203	208
5'	97	102	107	112	118	123	128	133	138	143	148	153	158	163	168	174	179	184	189	194	199	204	209	215
5'1"	100	106	111	116	122	127	132	137	143	148	153	158	164	169	174	180	185	190	195	201	206	211	217	222
5'2"	104	109	115	120	126	131	136	142	147	153	158	164	169	175	180	186	191	196	202	207	213	218	224	229
5'3"	107	113	118	124	130	135	141	146	152	158	163	169	175	180	186	191	197	203	208	214	220	225	231	237
5'4"	110	116	122	128	134	140	145	151	157	163	169	175	180	186	192	197	204	209	215	221	227	232	238	244
5'5"	114	120	126	132	138	144	150	156	162	168	174	180	186	192	198	204	210	216	222	228	234	240	246	252
5'6"	118	124	130	136	142	148	155	161	167	173	179	186	192	198	204	210	216	223	229	235	241	247	253	260
5'7"	121	127	134	140	146	153	159	166	172	178	185	191	198	204	211	217	223	230	236	242	249	255	261	268
5'8"	125	131	138	144	151	158	164	171	177	184	190	197	204	210	216	223	230	236	243	249	256	262	269	276
5'9"	128	135	142	149	155	162	169	176	182	189	196	203	210	216	223	230	236	243	250	257	263	270	277	284
5'10"	132	139	146	153	160	167	174	181	188	195	202	209	216	222	229	236	243	250	257	264	271	278	285	292
5'11"	136	143	150	157	165	172	179	186	193	200	208	215	222	229	236	243	250	257	265	272	279	286	293	301
6'	140	147	154	162	169	177	184	191	199	206	213	221	228	235	242	250	258	265	272	279	287	294	302	309
6'1"	144	151	159	166	174	182	189	197	204	212	219	227	235	242	250	257	265	275	280	288	295	302	310	318
6'2"	148	155	163	171	179	186	194	202	210	218	225	233	241	249	256	264	272	280	287	295	303	311	319	326
6'3"	152	160	168	176	184	193	200	208	216	224	232	240	248	256	264	272	279	287	295	303	311	319	327	335
6'4"	156	164	172	180	189	197	205	213	221	230	238	246	254	263	271	279	287	295	304	312	320	328	336	344
	Healthy weight BMI 18.5–24.9						Overweight BMI 25–29.9					Obese BMI 30–39.9										Morbidly obese BMI ≥40		

Obesity & Cancer

- Contribute to 14-20% of cancer related mortality
 - Increased risk of cancer in:
 - Breast, colon and rectum, endometrium, esophagus, kidney, & pancreas
 - Probable increased risk in:
 - Gall bladder, cervix, ovary, and prostate
 - Maintaining a healthy weight is 2nd avoidable cause of cancer
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Mechanisms of Obesity related Cancers

- Effects on immune function and inflammation
 - Levels and metabolism of hormones
 - Estrogen, insulin
 - Factors that regulate cell growth and proliferation
 - IGF-1
 - Adipokines
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Obesity & Breast Cancer

- Most common cancer in women
 - Increased body weight or weight gain increases risk of postmenopausal breast cancer
 - Increased levels of estrogen from adipose tissue
 - Lower risk with diet & exercise
 - Screening Mammograms
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Obesity & Colorectal Cancer

- 2nd Leading cause of cancer death men and women
 - Increased risk with being overweight or obese
 - Men > women
 - Abdominal obesity
 - Lower risk with diet & exercise
 - Screening colonoscopy
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Obesity and Endometrial Cancer

- Most common gynecological cancer
 - Strong association
 - 2-4 X risk if overweight or obese
 - High levels of estrogen
 - Abdominal obesity
 - Lower risk with diet and exercise
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Obesity & Other Cancers

- Kidney Cancer
 - Association with obesity
 - Mechanism not clear
 - Esophagus Cancer
 - 2X risk of adenocarcinoma
 - GERD/chronic inflammation
 - Pancreatic Cancer
 - Slight increase
 - Abdominal obesity (females>males)
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Obesity and Cancer

■ Prostate Cancer

- Slight increase risk
- More aggressive subtype of cancer

■ Lung Cancer

- Leading cause of all cancer deaths
 - Related to tobacco abuse
 - Diet of 5 servings of vegetables & fruit/day decrease risk
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American Cancer Society guidelines on nutrition and physical activity for cancer prevention

Reducing the risk of cancer with healthy food choices and physical activity

1. Lawrence H. Kushi ScD¹, Colleen Doyle MS, RD^{2,*}, Marji McCullough ScD, RD³, Cheryl L. Rock PhD, RD⁴, Wendy Demark-Wahnefried PhD, RD⁵, Elisa V. Bandera MD, PhD⁶,
2. Susan Gapstur PhD, MPH⁷, Alpa V. Patel PhD⁸, Kimberly Andrews⁹, Ted Gansler MD, MBA, MPH¹⁰, The American Cancer Society 2010 Nutrition and Physical Activity Guidelines Advisory Committee Article first published online: 11 JAN 2012
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ACS RECOMMENDATIONS FOR INDIVIDUAL CHOICES

Achieve and maintain a healthy weight throughout life.

- Be as lean as possible throughout life without being underweight.
- Avoid excess weight gain at all ages. For those who are overweight or obese, losing even a small amount of weight has health benefits and is a good place to start.
- Get regular physical activity and limit intake of high-calorie foods and drinks as keys to help maintain a healthy weight.

Be physically active.

- **Adults:** Get at least 150 minutes of moderate intensity or 75 minutes of vigorous intensity activity each week (or a combination of these), preferably spread throughout the week.
- **Children and teens:** Get at least 1 hour of moderate or vigorous intensity activity each day, with vigorous activity on at least 3 days each week.
- Limit sedentary behavior such as sitting, lying down, watching TV, and other forms of screen-based entertainment.
- Doing some physical activity above usual activities, no matter what one's level of activity, can have many health benefits.

Eat a healthy diet, with an emphasis on plant foods.

- Choose foods and drinks in amounts that help you get to and maintain a healthy weight.
- Limit how much processed meat and red meat you eat.
- Eat at least 2½ cups of vegetables and fruits each day.
- Choose whole grains instead of refined grain products.

If you drink alcohol, limit your intake.

- Drink no more than 1 drink per day for women or 2 per day for men.

Examples of Moderate and Vigorous Intensity Physical Activities

	MODERATE INTENSITY ACTIVITIES	VIGOROUS INTENSITY ACTIVITIES
Exercise and leisure	Walking, dancing, leisurely bicycling, ice and roller skating, horseback riding, canoeing, yoga	Jogging or running, fast bicycling, circuit weight training, swimming, jumping rope, aerobic dance, martial arts
Sports	Downhill skiing, golfing, volleyball, softball, baseball, badminton, doubles tennis	Cross-country skiing, soccer, field or ice hockey, lacrosse, singles tennis, racquetball, basketball
Home activities	Mowing the lawn, general yard and garden maintenance	Digging, carrying and hauling, masonry, carpentry
Work activity	Walking and lifting as part of the job (custodial work, farming, auto or machine repair)	Heavy manual labor (forestry, construction, fire fighting)

ACS Guidelines on Cancer Prevention

- Reduced risk of developing breast, colon, endometrial, and prostate cancer
 - Lowers risk of heart disease, diabetes, and other obesity related illnesses
 - Assist with weight loss and/or maintain healthy weight
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Take Home Points

- Obesity increases risk for certain cancers
 - Lose weight or maintain healthy weight
 - Eat a healthy diet
 - Vegetables, fruits, and whole grains
 - Limit red meats and processed meats
 - Get regular physical activity
 - 150 min moderate activity
 - Limit Alcohol
 - No Smoking!!!!
 - Regular doctor visits for screenings
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