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**American Cancer Society Guideline for Diet and Physical Activity for Cancer Prevention  
With a Focus on Physical Activity Recommendations  
Kaitlin Toth, DPT**

**A little bit about the author:**

Hi there! My name is Kaitlin Toth, DPT, a recent graduate from the University of North Florida. My interest in physical therapy began when I saw the tremendous impact of our care on my own loved ones whether it was my grandfather in hospice care or my father in outpatient care, both veterans for our country. Witnessing the compassionate care delivered to them sparked a fire within me to pursue a career in physical therapy where it became my mission to deliver compassionate care to everyone. My interest in Oncology began when I was younger when my mother became a cancer survivor. Throughout my physical therapy education the topic of cancer always fascinated me since it is a phenomenon that can affect almost every system in the human body. As a student I was passionate about learning many different subjects and not solely one. It was then that I knew I would pursue a career in oncology rehabilitation. As physical therapists we are equipped with the tools to treat the impairments of multiple body systems in this unique patient population. I am currently a member of the APTA Academy of Oncologic Physical Therapy and honored to serve as the Director of Education for the new Student and New Professional Subcommittee.

**A little bit about this blog post:**

Learning objectives: (doesn't it feel like you're in school again?)

1. To understand the guidelines published by the American Cancer Society (ACS) regarding physical activity recommendations for cancer prevention
2. To learn about the most up to date and evidenced based physical activity patterns for specific cancer diagnoses
3. To recognize that these recommendations concur with those of the American Heart Association and the American Diabetes Association for coronary heart disease and diabetes prevention as well as general health and wellness recommendations defined by the Physical Activity Guidelines for Americans

**Side note:**

This article provides recommendations on dietary patterns and nutrition as well but I decided to focus solely on the physical activity component in this blog. Physical therapists, an extension of the Primary Care Provider, have the role in basic education on engaging in a healthy diet and ensuring adequate nutrition to the general public but only within the scope of our practice.

**Questions/comments welcomed:** Email: [tothkann@gmail.com](mailto:tothkann@gmail.com)



**Before we dive in:**

Defining physical activity intensity should be discussed. The intensity of aerobic activity can be tracked as either absolute or relative intensity with absolute not taking into consideration an individual's cardiorespiratory fitness level. Examples of moderate intensity activities defined using absolute intensity include brisk walking at 2.5 to 4.0 mph, playing a relatively taxing sport such as volleyball, and even raking the yard (Piercy et al, 2018). Examples of vigorous intensity activities defined using absolute intensity include jogging or running, carrying a heavy load, or taking a strenuous fitness class (Piercy et al, 2018). Of course some activities such as swimming or bicycling can become moderate or vigorous intensity depending on the individual's effort level (Piercy et al, 2018). That is why the Borg RPE scale is an extremely useful tool to correlate exercise intensity with perceived effort. Two RPE scales exist today with the original Borg or category scale rating exercise intensity from 6 to 20 or the category-ratio scale of 0-10. Using this subjective tool assessment you can assess an individual's perceived exertion and fairly accurately correlate it with an exercise intensity. This table below depicts the correlation with exercise intensity with various forms of quantifying intensity as well as provide activity examples for each.

**TABLE 4.6**

**The Borg Rating of Perceived Exertion Scale**

6	No exertion at all
7	Extremely light
8	
9	Very light
10	
11	Light
12	
13	Somewhat hard
14	
15	Hard (heavy)
16	
17	Very hard
18	
19	Extremely hard
20	Maximal exertion

From (11). © Gunnar Borg. Reproduced with permission. The scale with correct instructions can be obtained from Borg Perception, Radisvagen 124, 16573 Hasselby, Sweden. See also the home page: <http://www.borgperception.se/index.html>.



Intensity	METs	%VO <sub>2</sub> max	%HRR	%HRmax	RPE scale	Examples
Low intensity Light effort	2-4	28-39	30-39	45-54	10-11	light gardening, light walking
Moderate intensity- moderate effort	4-6	40-59	40-59	55-69	12-13	brisk walking
High intensity - vigorous effort	6-8	60-79	60-84	70-89	14-16	jogging
Very hard effort	8-10	>80	> 84	> 89	17-19	running fast
Maximal effort	>10	100	100	100	20	maximum sprinting

METs = metabolic equivalents (1 MET = individual metabolic resting demand, when sitting quiet, about 3.5 mL oxygen per kilogram per minute, or 1 kcal [4.2 kJ] per kilogram per hour in the general population)

HRR = heart rate reserve, HRmax = maximum heart rate, RPE = Borg rating of perceived exertion (6-20 scale)

### Let's get started!

Cancer is the second leading cause of death in both men and women in the United States, falling behind heart disease as first. Besides mortality, the burden of cancer affects various aspects of an individual's being. From physical suffering, disease and treatment related symptoms, chemical, mechanical, or surgical therapies to life long effects of the diagnosis, cancer dramatically impacts an individual's and their surrounding network's quality of life. As rehabilitation professionals, we have the ability to provide evidence based guidance, direction, and support for those individuals and populations to reduce their cancer risk. This guideline was written for those in the health care realm so that we are equipped with the tools to provide a form of primary prevention. The tables below describe the general current physical activity guidelines and the current evidence regarding physical activity recommendations in the prevention of cancer by cancer site.



### The 2020 American Cancer Society Guideline on Physical Activity for Cancer Prevention

Recommendations for individuals
Physical Activity
Adults: <ul style="list-style-type: none"><li>• 150-300 minutes of moderate intensity physical activity per week or</li><li>• 75-150 minutes of vigorous intensity physical activity</li><li>• 300 minutes or greater is optimal</li></ul>
Children and adolescents: <ul style="list-style-type: none"><li>• At least 1 hour of moderate or vigorous physical activity each day</li></ul>
General: <ul style="list-style-type: none"><li>• Limit sedentary behaviors and screen based forms of entertainment (television)</li></ul>

### Evidence for the Role of Physical Activity for the Prevention of Cancer by Site

Cancer Site	Physical Activity
Breast	<ul style="list-style-type: none"><li>• Moderate to vigorous physical activity (PA) lowers risk for postmenopausal disease</li><li>• Moderate to vigorous PA may lower risk for premenopausal disease</li><li>• Regular, vigorous PA lowers risk for premenopausal disease</li></ul>
Colorectal	<ul style="list-style-type: none"><li>• Regular, moderate to vigorous PA lowers risk of colon cancer, but not rectal cancer risk</li><li>• Reducing sedentary behavior may lower risk of colon cancer, but not the risk of rectal cancer</li></ul>
Endometrial	<ul style="list-style-type: none"><li>• Regular, moderate to vigorous PA lowers risk</li><li>• Reducing sedentary time may lower risk</li></ul>
Gallbladder	<ul style="list-style-type: none"><li>• No specific PA guidelines published</li></ul>



Kidney	<ul style="list-style-type: none"><li>● Regular, moderate to vigorous PA lowers risk</li></ul>
Liver	<ul style="list-style-type: none"><li>● Regular PA may lower risk</li></ul>
Lung	<ul style="list-style-type: none"><li>● Regular, moderate to vigorous PA may lower risk</li><li>● Reducing sedentary behavior may lower risk</li></ul>
Ovary	<ul style="list-style-type: none"><li>● Regular, moderate to vigorous PA may lower risk</li></ul>
Pancreas	<ul style="list-style-type: none"><li>● Regular, moderate to vigorous PA may lower risk</li></ul>
Prostate	<ul style="list-style-type: none"><li>● No specific PA guidelines published</li></ul>
Thyroid	<ul style="list-style-type: none"><li>● No specific PA guidelines published</li></ul>
Stomach/gastric	<ul style="list-style-type: none"><li>● Regular, moderate to vigorous PA may lower risk</li></ul>
Upper aerodigestive	<ul style="list-style-type: none"><li>● Regular, moderate to vigorous PA may lower risk of esophageal adenocarcinoma</li></ul>

**Thought provoking discussion:**

If you've made it this far, first off, congratulations and, secondly, it all comes down to moving more and sitting less. It is challenging to articulate clear dosages to achieve optimal cancer prevention. According to the evidence, greater levels of physical activity may be required to prevent cancer than to prevent cardiovascular disease or type II diabetes. You may have also noticed there are no strengthening activity guidelines recommended. Although muscle strengthening is recommended for overall health, there is a lack of evidence linking its relationship to cancer and, specifically, cancer prevention. Thus, the focus of these guidelines is solely aerobic activity. You may have also noticed that moderate to vigorous intensity is recommended a few times (just a few times...). In reality, despite the various benefits of this intensity exercise, less than half of U.S. adults meet the recommended amount. As physical therapists, we are the exercise experts that can provide the necessary education on the recommended principles of exercise to potentially save lives in regards to cancer risk and prevention. Although there are varying degrees of the strength of the evidenced PA guidelines,



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ranging from robust to strong to moderate to probable depending on the cancer site, it is clear the evidence agrees and supports the role of moderate to vigorous physical activity for the prevention of cancer for a great number of cancers seen today.

**Clinical relevance and applicability:**

In 2014, an estimated 1.5% of all cancers diagnosed in men and 4.4% of all cancers diagnosed in women were linked to physical inactivity. Furthermore, 1.4% of all cancer deaths in men and 3.0% in women were also attributable to a lack of physical activity. There is actual, physical, and biological evidence of physical activity's cancer preventive power. That's right, power. Physical activity has been shown to enhance insulin/glucose metabolism, alter immune system function and affect systemic/local inflammation, sex hormones, genomic instability, and myokines. The power to prevent disease is within us! As rehabilitation professionals it is our altruistic and compassionate duty to enable society to attain their optimal level of functioning in order to enhance the human experience. We can do this through the invaluable education we provide to others and provide our world a form of primary prevention of an all too common disease.

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**Thank you:**

Thank you so much for reading this post and I hope you know as a rehabilitation professional you have such a tremendous impact on the lives you see and the people you touch. Thank you for all that you do!