

# Cancer and Massage Therapy Home Study Course

10 CE Hours  
Text and Online Study Guide

Presented by the:  
*Center for Massage Therapy Continuing Education*

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It is the responsibility of the practitioner to determine the appropriateness of the principles presented in terms within the scope of practice. This information is in no way meant to diagnose or treat medical conditions.

## **Instructions for the Cancer and Massage Therapy home study course**

Thank you for investing in the Cancer and Massage Therapy home study course, a 10 CE hour course designed to further your knowledge on the subject of cancer and how it relates to the practice of massage therapy.

This guide will contain all of the instructions you will need to complete this course. This is a 10 CE hour course, so that means it should take you approximately 10 hours to read the text, complete the examination and course evaluation.

PLEASE READ THE FOLLOWING DIRECTIONS FOR COMPLETION OF THIS COURSE.

### **The following are steps to follow in completing this course:**

- 1. Read the instructions and review the text and exam.**
- 2. Access the online examination in your account at [www.massagetherapyceu.com](http://www.massagetherapyceu.com).**
- 3. Complete your examination and print your certificate. The exam is open book and there is no time limit for completion.**

You must pass the exam with a 70% or better to pass this home study course. You are allowed to access and take the exam up to 3 times if needed. There is no time limit when taking the exam. Feel free to review the text while taking the exam. There are no trick questions on the exam. All of the answers are clearly found in the text. The exam is also included at the end of the text for review before taking the exam.

It is advised to answer the exam questions in the study guide before testing online. That way, when you are testing you do not have go back and forth through the online exam.

Good luck as you complete this course. If you have any questions please feel free to contact us at 866-784-5940, 712-490-8245 or [info@massagetherapyceu.com](mailto:info@massagetherapyceu.com). Most state boards require that you keep your “proof of completion” certificates for at least four years in case of audit. Thank you for taking our Cancer and Massage Therapy home study course.

# **Cancer and Massage Therapy Text**

## **Introduction**

Cancer is the second leading cause of death in the United States and is a major public health problem. More than 1.5 million people are diagnosed with it each year. With statistics like this, it is inevitable professional massage therapists will have clients with the diagnosis of cancer at some point in their practice.

Volumes of texts have been written on cancer and hundreds of websites cover the topic. To help wade through all the information out there, the Cancer and Massage Therapy course summarizes the current information and shows how it applies to massage therapy practice.

## **What is covered in the Cancer and Massage Therapy Course?**

Important topics like the following are covered in this Cancer and Massage Therapy text:

- Cancer Basics
- Cancer Prevalence and Incidence
- Cancer Statistics
- Economic Effects of Cancer
- Risk Factors for Cancer
- Cancer Causes and Cancer Myths
- Prevention of Cancer
- Screening and Early Detection
- Signs and Symptoms of Cancer
- Cancer Diagnosis
- Staging of Cancer
- Cancer Treatments
- Prognosis for People with Cancer

Specific to the topic of massage therapy, this course explores:

- Massage Therapy and Cancer
- Benefits of Massage Therapy in Cancer
- Contraindications for Massage Therapy in Cancer
- Massage Techniques for Working with Cancer Clients
- Basic Guidelines for Massage Therapists working with Cancer Clients
- Resources for More Training in Cancer and Massage Therapy

## **Cancer Basics – What is cancer?**

Cancer is a proliferation of cells whose unique trait is loss of normal controls. This trait results in unregulated growth, lack of cell differentiation, local tissue invasion, and metastasis. Cancer or malignancy can develop in any tissue of the body of any organ at any stage.

Cancer is also a general term for a group of more than 100 diseases. Cancer is where cells in a part of the body grow out of control. Even though there are many forms of cancer, they all begin because of this abnormal uncontrolled cell growth. Untreated and undiagnosed, cancer causes serious illness and even death.

The body is made of hundreds of millions of cells and normally they grow, divide, and die in an orderly fashion. Early in life, normal cells divide faster to allow for growth. Later in life, most cells divide only to replace malfunctioning cells like those that are dying, worn out, or injured.

Cancer cell growth differs from healthy cell growth. Cancer cells don't die, but instead continue to grow and form new abnormal cells. Additionally, these unhealthy cancer cells invade surrounding tissues. Normal cells don't do either of these things. These two things, unregulated cell growth and local tissue invasion/metastasis, make a cancer cell what it is.

## **Why does this happen?**

One reason cells become cancerous is because of DNA damage or genetic mutations. Normally, when DNA is damaged, the cell repairs the damage or the cell dies. In a cancer cell, the DNA damage is not repaired and the cell does not die. It goes on making copies of this genetic mutation.

DNA damage can occur for several reasons. It can be passed genetically. Most mutations occur when a mistake is made in normal cell reproduction. Other DNA damage can be caused by something in the environment like cigarette smoke. Often, no clear cause for the DNA damage or genetic mutations can be found.

In some cancers, these DNA damaged cancer cells grow to form a tumor. Other cancers rarely form tumors like leukemia for instance. These cancers involve blood and bone marrow cells circulating through tissues where they grow.

Mutations in genes are partially responsible for the reproduction of cancerous cells. These mutations alter the quantity or behavior of growth regulating gene proteins and cell division proteins. There are two major categories of mutated genes:

- Oncogenes
- Tumor suppressor genes

### *Oncogenes*

Oncogenes are abnormal forms of genes that normally regulate cell growth. For example, the Ras protein, produced from the ras gene, signals cell division. In most cells, the ras gene is inactive. In cancerous cells, the ras gene is active and signals cells to divide even when they shouldn't. The ras gene is abnormal in about 25 % of human cancers.

### *Tumor suppressor genes*

Tumor suppressor genes normally prevent the development of cancers by making proteins that suppress tumor growth. For example, the retinoblastoma (RB) gene makes the protein pRB. The protein pRB regulates the cell's reproduction cycle by stopping DNA replication. When there is a mutation in the RB gene, the protein is not produced, the cell is not signaled to stop replication, and affected cells divide continuously to form a tumor. The RB gene is abnormal in about 30 – 40% of human cancers.

## **What is metastasis?**

As cancer cells travel to other parts of the body, they grow and form new tumors that replace healthy normal tissue. This is called metastasis and it is how cancer spreads. It occurs when malignant cells get into the blood or lymph systems. Metastasis is a complex process involving interactions of immune system cells and cancer cells. It involves the genetic makeup of the cancer itself, other blood factors, and "target" tissues.

Despite this metastasis of malignant cells, cancer is always named for the place where it originated. For example, prostate cancer that has spread to the bladder is still called prostate cancer, not bladder cancer. Likewise, breast cancer which has spread to the bone is called metastatic breast cancer, not bone cancer.

Metastasis and other cancerous cell behaviors vary greatly among the different types of cancer. Different types of cancer grow at different speeds and respond to different kinds of treatment. A person's cancer treatment must be aimed at their particular type of cancer.

Not all tumors are cancerous. Tumors can be benign or malignant. Benign tumors are not cancerous, don't metastasize, can be removed, and usually don't grow back. Benign tumors can cause problems since they can grow and press into healthy organs and tissues, but they are almost never life threatening.

The difference between benign and malignant tumors is that benign tumors can't invade and metastasize. Malignant tumors are cancerous, invade nearby tissues, and metastasize. Other cancers don't form solid tumors at all. Some tumors are liquid. For example, leukemia is a cancer of the bone marrow and the blood with liquid tumors.

### **What are the main categories of cancer?**

Cancer types are divided into broader categories. The main categories include:

- Carcinoma
- Sarcoma
- Leukemia
- Lymphoma and myeloma
- Central nervous system cancers

Carcinoma is a type of cancer that starts in the skin or tissues that line or cover internal organs. Sarcoma is cancer that begins in bone, cartilage, fat, muscle, blood vessels, or other connective or supportive tissues. Leukemia includes cancers which begin in blood forming tissues like bone marrow. Lymphoma and myeloma includes cancers that start in the immune system cells. Central nervous system cancers begin in the brain and spinal cord tissues.

### **Cancer Prevalence and Incidence**

Cancer prevalence is the total number of people living with cancer at any given point in time. It includes those individuals with a new diagnosis as well as those with an old diagnosis. Cancer prevalence does not measure how common a certain kind of cancer is. This is called cancer incidence.

Cancer incidence is a measure of how common a certain kind of cancer is. It reflects the number of people who are newly diagnosed with cancer in a one year period. Cancer incidence and how long people survive with the disease affects cancer prevalence.

An example of how this works would be lung cancer. Lung cancer is the second most common cancer in both men and women, but lung cancer prevalence is not as high as that of other cancers. Individuals with lung cancer tend not to live as long after diagnosis with the disease.

The number of people who live beyond a cancer diagnosis reached 15.5 million in 2016. This number is expected to rise to almost 19 million people by the year 2024. In the table below, you will see the estimated number of new cancer cases for 2017. These figures are updated annually and you can check <https://cancerstatisticscenter.cancer.org/#/> and <https://www.cancer.gov/about-cancer/understanding/statistics> for the most up to date information on cancer statistics.

### Estimated Number of New Cancer Cases in 2017

	<b>Total</b>	<b>Males</b>	<b>Females</b>
<b>All Invasive Cancer Sites</b>	1,688,780	836,150	852,630
Breast	255,180	2,470	252,710
Lung & Bronchus	222,500	116,990	105,510
Prostate	161,360	161,360	N/A
Colon & Rectum	135,430	71,420	64,010
Melanoma of the Skin	87,110	52,170	34,940
Urinary Bladder	79,030	60,490	18,540
Non-Hodgkin Lymphoma	72,240	40,080	32,160
Kidney & Renal Pelvis	63,990	40,610	23,380
Leukemias	62,130	36,290	25,840
Uterine Corpus	61,380	N/A	61,380
Thyroid	56,870	14,400	42,470
Pancreas	53,670	27,970	25,700
Oral Cavity & Pharynx	49,670	35,720	13,950
Liver & Bile Duct	40,710	29,200	11,510
Multiple Myeloma	30,280	17,490	12,790
Stomach	28,000	17,750	10,250
Brain & Nervous System	23,800	13,450	10,350
Ovary	22,440	N/A	22,440
Esophagus	16,940	13,360	3,580
Larynx	13,360	10,570	2,790
Cervix	12,820	N/A	12,820
Childhood Cancers (age 0-19 years)	10,270	N/A	N/A
Testis	8,850	8,850	N/A
Hodgkin Lymphoma	8,260	4,650	3,610

Table adapted from American Cancer Society at <http://www.cancer.org/>

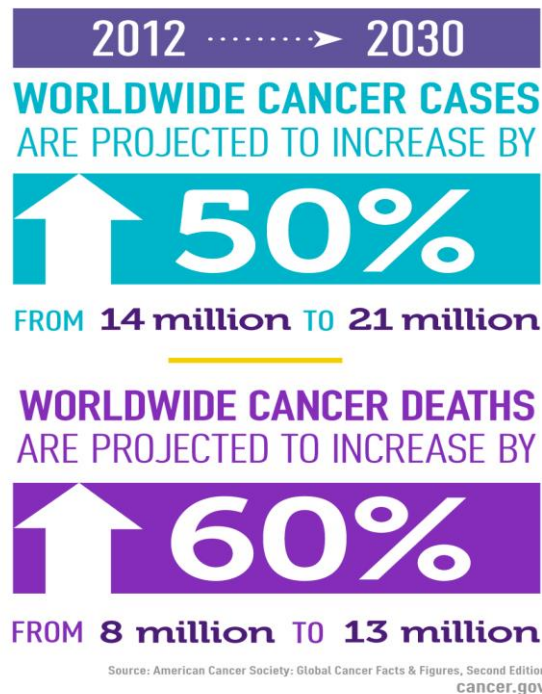
### The Most Common Cancers

A list of the most common cancer type includes cancers that are diagnosed most frequently in the US. They are breast cancer, lung cancer, prostate cancer, colorectal cancer, melanoma, bladder cancer, Non-Hodgkin Lymphoma, kidney cancer, leukemias, endometrial cancer, thyroid cancer, and finally pancreatic cancer.

### General Cancer Statistics

Cancer death or mortality is generally higher in men than in women. Mortality is highest in African American men and lowest in Asian/Pacific Islander women. A little less than 40% of men and women will be diagnosed with cancer during their lifetimes. A little more than 65% of those diagnosed with cancer survive longer than 5 years or more. Because of these numbers, patients with cancer are bound to be clients of professional massage therapists.

Cancer is the second leading cause of death worldwide. Cancer deaths are projected to increase by 50% in the year 2030, increasing from 14 million deaths annually to 21 million deaths annually. The number of new cancer cases globally is expected to rise to 22 million in the next two decades. Worldwide cancer related deaths are projected to increase from 8 million to 13 million. This is a jump of almost 60%.



## Economic Effects of Cancer

The financial costs of cancer are staggering for both individuals with the disease and for society as a whole. In the US, national cancer care expenditures steadily increase each year. The National Cancer Institute estimates that national expenditures for cancer care in the United States could reach \$156 billion by 2024.

Expenditures associated with cancer care are reported by phases of care. Phases of care divide care into clinically relevant periods. The three most common are:

- The initial phase which is the period right after diagnosis
- The monitoring phase or continuing phase which is the period between the initial phase and the last year of life
- The last year of life

Generally, for all cancers, costs are highest in the initial phase and the last year of life phases. Costs are lowest in the monitoring phase of care.

One huge cost of cancer is treatment. Lack of health insurance and barriers to health care prevent many from having good basic health care. It has been found that people with no health insurance and those with Medicaid insurance are more likely to be diagnosed with advanced cancers. These factors lead to high medical costs, higher cancer death rates, and poor outcomes.

As mentioned, direct medical costs are only one part of the financial burden of cancer. Indirect costs include losses in economic productivity and time resulting from cancer illness and death. Lost productivity due to death is highest for female breast cancers, lung cancer, and colon/rectum cancers. Given the projected growth and age of the US population, these costs will increase if cancer death rates are constant.



Cancer costs billions of dollars and affects loved family and friends. The financial costs of cancer care are a burden to those diagnosed with cancer, their families, and society. Making cancer care more accessible is critical in the fight to eliminate suffering and death due to cancer.

In the future, costs may increase faster than overall medical expenditures. As the population ages, numbers of those treated for cancer will increase faster than the overall population. Cancer prevalence will increase in comparison to other diseases. As new more expensive treatments and advanced technology are used in the standard of cancer care, costs increase.

## **Risk Factors for Cancer**

The lifetime risk of developing or dying from cancer is a common measure of how widespread cancer is. It refers to the chance someone has from birth to death or over the course of their life of being diagnosed with or dying from cancer.

The lifetime risk of developing cancer is about 1 out of every 2 persons. The lifetime risk of dying from cancer is about 1 out of every 4 persons. Put another way, 1 out of every 2 persons will get cancer in their lifetime and 1 out of 4 will die from it.

Research does not explain why one person develops cancer and another doesn't. But research has shown certain risk factors increase the chances of a person developing cancer. The most common risk factors for cancer are:

- Tobacco
- Sunlight exposure
- Ionizing radiation
- Viruses and bacteria
- Chemicals and other substances
- Hormones
- Alcohol
- Family history of cancer
- Growing old
- Poor diet
- Being overweight
- Lack of physical activity

As with risk factors for almost any disease, some risk factors can be avoided, such as tobacco and alcohol, while others, such as family history and growing older, can't. Massage therapists can educate their clients about healthy living and the risk factors for cancer.

The professional therapist can also help their clients protect themselves by having them stay away from known risk factors whenever possible. Of course, if a massage therapist suspects their client to be at risk for cancer, encourage them to discuss this with their doctor. Have them schedule a checkup and ask about reducing their risks.

It is helpful to remember that several risk factors may act together to cause cancer. When thinking about the risk of getting cancer, keep these things in mind:

- Cancer is not caused by an injury, bump, or bruise
- Cancer is not contagious
- Not everything causes cancer
- Having one or more of the risk factors doesn't mean cancer will occur

- Some individuals are more sensitive than others to known risk factors
- Most people who have risk factors never develop cancer

By examining the each risk factor in detail, massage therapists are empowered to educate their clients. Each risk factor is described below more thoroughly.

### *Tobacco*

It is estimated that more than 480,000 Americans die annually from cancer related to tobacco use. This is unfortunate given that tobacco use can be avoided. This is a risk factor which can be prevented unlike the risk factor of old age. The risk of cancer is increased by using tobacco products and regularly being around tobacco smoke whether that smoke is environmental or secondhand.

People who smoke are more apt to develop cancer of the lung, larynx, throat, mouth, esophagus, bladder, kidney, stomach, pancreas, or cervix than people who don't smoke. Smokers are also prone to develop acute myeloid leukemia which is a cancer that starts in blood cells. Individuals who use chewing tobacco or snuff, also called smokeless tobacco, are at increased risk for mouth cancer.

Quitting is vital for anyone who uses tobacco, even those who have used it for many years. This is because cancer risk is lower for those who quit than for those who continue to use tobacco. Additionally, individuals with a previous cancer history may reduce their chance of getting another cancer by quitting. Generally, cancer risk is lowest among those who have never used tobacco.

For professional massage therapist, encouraging their clients to stop tobacco use is important. Massage therapists can refer their clients to any of the following resources for help to stop using tobacco:

- A primary care doctor or dentist who may prescribe nicotine replacement therapy
- A primary care doctor or dentist who may refer person to local programs or trained professionals who help people stop using tobacco
- <http://www.smokefree.gov/> which is a federal government website with an online guide to stopping smoking and a list of other resources
- <http://www.cancer.gov/> which is the National Cancer Institutes website with staff who can talk to clients about ways to quit and groups that help smokers quit at the Smoking Quit Line 877-44U- QUIT

### *Sunlight Exposure*

Sunlight can be good for a person as it stimulates vitamin D production in the body. However, too much sunlight, on the other hand, is harmful because of the ultraviolet (UV) radiation. UV radiation can come from the sun, sunlamps, and tanning booths. This radiation causes premature aging of the skin and skin damage. These things lead to skin cancer.

Most physicians encourage their patients to limit sun exposure and avoid other sources of UV radiation. Massage therapists could do the same for their clients. Additionally, here are some specific recommendations massage therapists can give their clients:

- Avoid the sun from mid-morning (10 a.m.) to late afternoon (4 p.m.) when possible
- Protect skin from UV radiation reflected by sand, water, snow, ice
- UV radiation penetrates clothing, windshields, and windows
- Wear long sleeves, long pants, hats with wide brims, and sunglasses with UV absorbent lenses
- Use a sunscreen with sun protection factor (SPF) of 15 or higher as it may help prevent skin cancer
- Be aware that sunscreen doesn't replace avoiding sun and wearing clothing to protect the skin
- Avoid sunlamps and tanning booths

### *Ionizing Radiation*

Ionizing radiation comes from rays that enter the Earth's atmosphere from outer space, radon gas, radioactive fallout, x-rays, and other sources. This kind of radiation causes cell and DNA damage leading to cancer.

Radon is a radioactive gas which can't be seen, smelled, or tasted. Radon gas forms in rocks and soil. Mine workers are most likely to be exposed to the gas. Radon can be found in homes in some areas of the US. Those exposed to radon gas are at increased risk for lung cancer.

Radioactive fallout comes from nuclear power plant accidents, production testing, and the use of nuclear weapons. Those exposed to this toxic fallout have an increased risk for all kinds of cancers including leukemia, thyroid cancer, breast cancer, lung cancer, and stomach cancer.

Ironically, X-rays and other medical procedures are a source of ionizing radiation. Low dose x-rays are taken to see inside the body to diagnosis medical problems. Cancer risk from x-rays is extremely small. Radiation therapy, which is the use of high dose radiation from radioactive substances or large machines, is used to treat many cancers. Cancer risk from radiation therapy is higher. In both cases, the benefits usually outweigh the risk.

Specific advice massage therapists can pass to their clients is as follows:

- Talk to a doctor when concerned about cancer risk due to radiation
- Homes can easily and inexpensively be tested for high levels of radon gas as hardware stores sell the test kits
- Talk with doctors and dentists for the need for every x-ray taken
- Ask for shields to protect body parts that aren't in the x-ray
- Those patients with cancer should talk with their doctors about how radiation therapy increases the risk of a second cancer later on

### *Viruses and Bacteria*

Research has shown that infection with certain viruses and bacteria may increase the risk of a person developing cancer. The following is a list of some of the offenders and what kind of cancer they put someone at risk for:

#### Viruses

- *Cytomegalovirus (CMV)* – linked to Kaposi's sarcoma
- *Epstein-Barr Virus (EBV)* – linked to Burkitt's lymphoma, immunoblastic lymphoma, and nasopharyngeal carcinoma
- *Hepatitis B and Hepatitis C Viruses (HBV and HCV)* – linked to hepatocellular (liver) cancer
- *Human Herpes Virus 8 (HHV8)* – risk factor for Kaposi's sarcoma
- *Human Immunodeficiency Virus (HIV)* – linked to AIDS and those with AIDS are predisposed to lymphomas and Kaposi's sarcoma
- *Human Papillomavirus (HPV)* – HPV is the main cause of cervical cancer and is a risk factor for other types of cancer
- *Human T-cell Leukemia/Lymphoma Virus (HTLV-1)* – linked to T-cell lymphomas and leukemia

#### Bacteria

- *Helicobacter Pylori (H. pylori)* – a bacterium that causes stomach ulcers, stomach cancer, and lymphoma in the stomach lining

Professional massage therapists can offer the following educational information to help their clients avoid these viral and bacterial infections:

- Avoid unprotected sex as hepatitis B, hepatitis C, HIV, and HPV infection can be passed by unprotected sex
- Avoid sharing needles as hepatitis B, hepatitis C, and HIV infection can be passed by sharing needles with those infected
- Get the hepatitis B vaccine especially if you are a healthcare worker who comes into contact with other people's blood
- Get tested if you suspect hepatitis or HIV infection
- If you have stomach problems, see a doctor as H. pylori infection can be detected and treated

### Chemicals and Other Substances

Research has shown that exposure to chemicals and substances like asbestos, benzene, benzidine, nickel, vinyl chloride, and others cause cancer. Construction workers, painters, those in the chemical industry, and any other kind of workers exposed to the chemicals and substances mentioned above have an increased risk for cancer.

Massage therapists with clients in these professions or other professions with exposure to cancer causing chemicals and substances can recommend the following advice:

- Workers with many years of exposure are at a higher risk than those with few years of exposure
- At work, follow safety tips and instructions to avoid and reduce contact with harmful substances
- At home, follow instructions on safe handling and be careful when working with pesticides, engine oil, paints, solvents, and other chemicals

Anything that causes cancer is called a carcinogen. There are lifestyle, occupational, and drug carcinogens. Here is a table of common cancer causing chemical carcinogens:

**Common Carcinogens**

<b>Carcinogen</b>	<b>Type of Cancer</b>
<b>Lifestyle Carcinogens</b>	
Alcohol	Oropharyngeal, esophageal, liver
Tobacco	Head and neck, lung, esophageal, bladder
Betel nuts	Oropharyngeal
<b>Occupational Carcinogens</b>	
Soot, mineral oil	Skin
Arsenic	Lung, skin
Asbestos	Lung, mesothelioma
Hair dyes, aromatic amines	Bladder
Benzene	Leukemia
Nickel	Lung, nasal sinus
Formaldehyde	Nasal, nasopharyngeal
Vinyl chloride	Hepatic angiosarcoma
Painting materials, chromates, nonarsenic pesticides	Lung
Man-made mineral fibers, diesel exhaust	Lung
<b>Drug Carcinogens</b>	
Alkylating agents	Leukemia
Diethylstilbestrol	Liver cell adenoma, vaginal in exposed female fetuses
Oxymetholone	Liver
Thorotrast	Angiosarcoma

Table adapted from *The Merck manual, 17<sup>th</sup> Edition*

### *Hormones*

In the medical field, hormones are often prescribed by physicians to control symptoms that may occur in menopause. Estrogen and estrogen progestin combination products are often used to manage hot flashes, vaginal dryness, and thinning bones.

Research shows this type of menopausal hormone therapy has serious side effects including an increased risk of breast cancer, heart attack, and blood clots. Massage therapists can advise menopausal clients to discuss the risks and benefits of hormone replacement therapy with their doctors.

Another form of estrogen, diethylstilbestrol (DES), was given to pregnant women in the US from 1940 to 1971. Those who took DES may have a higher risk of developing breast cancer and their daughters have a greater risk of developing cervical cancer. Effects on their sons are presently being researched. Massage therapists can ask clients about previous DES use and encourage them to speak with their doctor to schedule regular screening checkups.

### *Family History of Cancer*

Generally, it is uncommon for cancer to run in family. As mentioned, most cancers develop due to DNA damage and gene mutation. A person's lifestyle or environment usually causes these changes. Yet, certain types of cancer occur more often in some families than in the rest of the population.

Some gene mutations that increase a person's risk of cancer are passed from parent to offspring. These mutations are present at the child's birth in all cell of the body. Examples of these types of cancer include melanoma, cancer of the breast, colon, ovary, and prostate.

Multiple cases of the same type of cancer in a family may be attributed to inherited gene mutations. These mutations increase a person's chance of developing cancers. Remember that just because a person may have inherited a specific gene mutation, it does not mean they will develop the disease. It means they are at an increased risk for the disease. Also, remember that in these cases environmental factors may also be involved.

Overall, multiple cases of cancer in a family are random or a matter of chance. Massage therapists with clients who have a family history of cancer may offer the following suggestions:

- If certain a certain type of cancer runs in your family, talk with your doctor
- Ask your doctor for ways to reduce your cancer risk
- Ask your doctor about early detection cancer tests and exams
- Ask your physician about genetic testing which tests for the presence of inherited gene mutations that increase the chance of developing cancer

### *Growing Old*

This is the most important risk factor for cancer. Unfortunately, aging is not something a person can prevent or stop completely. Eating well, exercising, and generally staying healthy are all things a person can do to reverse or slow down the effects of aging.

Cancer usually occurs in people over age 65. Even though this is true, it is important to remember that people of all ages can get cancer. Infants, children, adolescence, young adults, and middle age adults are affected too.

### *Alcohol*

Research shows the risk of cancer increases with the amount of alcohol a person drinks. For instance, having 2 or more drinks daily for many years increases the chance of developing cancers of the mouth, throat, larynx, esophagus, breast, and liver. The risk is even higher for an alcohol consumer who uses tobacco.

The best advice is for people who drink to do so in moderation. For women, drinking in moderation means no more than 1 drink per day. For men, this means 2 or less drinks per day.

#### *Poor Diet, Being Overweight, Lack of Physical Activity*

Poor diet is linked to some types of cancer even though the exact reasons are not clear yet. Research shows diets high in fat have an increased risk for cancers of the colon, uterus, and prostate. Research also demonstrates being overweight and lack of physical activity to be risk factors for cancers of the esophagus, breast, kidney, colon, and uterus.

Eating a healthy diet, maintaining a healthy body mass index (BMI), and daily moderate physical activity may reduce a person's risk for cancer. Exercise controls weight and reduces body fat, so being active is important. In addition to recommending a healthy lifestyle, here are some specific recommendations professional massage therapists may want to pass on to their clients:

- Choose food that help you stay at a healthy weight
- Eat 5-9 servings of fruits and vegetables daily as they are high in vitamins and minerals
- Eat a diet low in fat; limit high fat foods like butter, whole milk, red meat, and fried foods
- Limit red meats like beef and lamb
- Limit processed meats like bacon, lunch meat, and hot dogs
- Eat a diet high in fiber to promote a healthy colon
- Choose whole grains over refined grains and sugars
- Exercise 5 or more days per week for at least 30 minutes (example - brisk walking)

### **Cancer Causes and Cancer Myths**

The bottom line in cancer causation is that the exact cause in most cancer cases is unknown. The exact process of how cancer occurs is generally different for each type of cancer. Researchers are studying this problem with the hope of learning more on how cancers form and grow.

Researchers do know some things about cancer causation. For instance, some cancers are caused by things people do like smoking or being in the sun without protection. Other cancers are caused by things people are exposed to. Still other cancers have a genetic link with about 1 out of every 20 cases of cancer being caused by inherited genes.

Cancer has many possible causes and it is a complex group of disease. Many of the causes are the same or similar to the risk factors already discussed. Here is a condensed list of the risk factors and known causes of cancer for summary:

- *Genetic Factors* – hormones, family history of cancer, growing old
- *Infections* – viruses, bacteria
- *Lifestyle Factors* – tobacco use, sunlight exposure, alcohol use, poor diet, being overweight/obese, physical inactivity
- *Environmental Exposure* – ionizing radiation, different chemicals, other substances

There are a few myths about what causes cancer. One myth is that injuries cause cancer. The truth is that falls, bruises, broken bones, or other injuries have not been shown to cause cancer. Occasionally, a patient may visit their physician for and something they think is an injury and cancer is found. In these situations, the cancer was already there and not caused by the injury. In other situations, the patient may remember an old injury where the cancer was found, yet this doesn't indicate causation. In rare instances, burn scars can be a skin cancer site years after the burn heals.

Another cancer causation myth is that cancer is caused by stress. Researchers have extensively looked for a link between stress, personality, and cancer. It is true many factors come into play when examining cancer and stress. Stress is known to affect the immune system. But to date, no scientific evidence has been found to prove cancer is caused by stress.

A final cancer myth is that cancer is contagious. Cancer isn't like the flu or a cold passed from person to person. A healthy person can't catch cancer from someone who has it. Contact like touching or being around someone with cancer is not a cause of cancer.

The truth is that cancer patients need their friends and family in close contact during the difficult disease process. There is no evidence that close contact such as sex, kissing, touching, breathing the same air, and sharing meals spreads cancer. People with cancer need to be around loved ones.

Cancer can be emotionally isolating. There is no need for cancer to be physically isolating as well. Don't be afraid to visit those with cancer or work with clients who have cancer in your massage practice. They need your professional services.

Research shows there is no way cancer is contagious. If cancer were contagious, there would be cancer epidemics and it would spread like the flu, measles, or polio. There would be high rates of cancer in families and friends of cancer patients and healthcare workers who take care of cancer patients. Of course, this is not the case.

Occasionally, cancer is seen more often in certain families. This does not mean that family members are spreading cancer to each other. This is due to the fact that family members share genes, unhealthy lifestyles like diet and smoking, and they may all be exposed to the same carcinogen.

Typically, cancer cells of one person don't survive in the body of another healthy person. The healthy person's immune system destroys the cancer cells since it recognizes them as foreign. The few exceptions to this rule involve organ transplants from cancer patients. In these cases the cancer was able to infect the healthy person because of the immune suppressing medications the person was on for the transplant surgery. Detailed screening of organs and organ donors normally prevents this from happening.

Even in pregnancy, the baby is rarely affected if the mother has cancer. A few cancers can spread from the mother to the placenta, but most cancers can't harm the fetus. Exceptions to this include a few rare cases of malignant melanoma which was found to have crossed the placenta and affect the fetus.

The bottom line is that cancer is not contagious. Viruses and bacteria are contagious and can be passed between people. Close contact like sex, kissing, touching, breathing the same air, and sharing meals is a way that viruses and bacteria can be passed.

Viruses and bacteria are more threatening to a person with cancer than a healthy person. People with cancer have weakened immune systems and they aren't able to fight off viral and bacterial infections as easily as healthy individuals.

As mentioned in the risk factors section, there are viruses and bacteria linked to certain types of cancer. This perhaps leads people to mistakenly think that cancer is contagious because some forms of cancer are more commonly found in individuals infected with these viruses and bacteria. For review, these are discussed again a bit more thoroughly below.

#### *Viruses*

- Specific types of HPV are linked to cancers of the cervix, vulva, vagina, penis, and anus. More recent research shows HPV may be linked to cancers of the head, mouth, throat, and neck.

- EBV is linked to Hodgkin's lymphoma and Burkitt's lymphoma. Additionally, EBV is connected with nasopharyngeal cancer and stomach lymphoma.
- HBV and HCV are chronic liver infections. Chronic liver infections dramatically increase the risk for liver cancer or hepatocellular carcinoma.
- HHV8 is also called Kaposi sarcoma herpes virus or KSHV. This is connected with Kaposi's sarcoma. Most of those infected with HHV8 don't develop this sarcoma unless they also have HIV, the AIDS causing virus.
- HTLV1 is linked with non-Hodgkin's lymphoma (NHL) and lymphocytic leukemia.

These viruses may be passed by close contact, usually through sex and the blood. But it is important to remember that viral infections alone don't usually lead to cancer. The presence of other risk factors, a weak immune system, other infections, and other health problems contribute to a cancer developing more readily.

### *Bacteria*

*H. pylori* is linked to stomach cancers. Chronic infection with *H. pylori* damages the inner layer of the stomach. This damage increases the risk of stomach cancer.

### *Parasites*

Parasites are rarely found in the US or developed countries and not talked about much, but they are linked to certain cancers. These parasitic worms can invade the human body raising the person's risk for cancers of the bladder, bile ducts, and possibly others.

Overall, most cancers are not caused or affected viral, bacterial, or parasitic infections. As mentioned, cancer starts because of genetic mutations or DNA damage. These changes can be inherited or developed during life. Reasons for some of the mutations are often unknown while others are clearly due to effects of environmental things like cigarettes or the sun and others are due to the effects of viral infections causing chronic inflammation and a weakened immune system.

## **Prevention of Cancer**

Cancer develops over a number of years and is caused by a variety of different factors. As mentioned, some of these factors can be controlled while others cannot. Choosing a healthy lifestyle and limiting environmental exposures helps prevent cancer.

Smoking and drinking alcohol cause some people to get cancer. These cancers may be prevented by not using tobacco or alcohol. Smoking accounts for about 30% of all cancer deaths and damages nearly every organ in the human body. Staying away from tobacco, second hand smoke, cigarettes, cigars, pipes, and oral/smokeless tobacco products is one strong cancer prevention measure. For those who do use tobacco, quitting is their strongest cancer prevention option as former smokers have less risk of cancer than those who continue to smoke.

Prevention of cancer also involves avoiding risk factors and causes. Recommendations for risk factor avoidance have been listed in the risk factors section and above. These suggestions along with the avoidance of known carcinogens may help a person prevent cancer.

In addition to all that has been discussed above, a broader look at the area of prevention of cancer is needed. There are three big issues to explore further and make changes in those areas:



- Behavioral Factors
- Environmental Factors
- Policy and Regulatory Factors

### *Behavioral Factors*

Research indicates that as many as 50 – 75% of cancer deaths in the US are caused by behavioral factors like excess sun exposure, physical inactivity, poor diet, and tobacco use.

Excess sun exposure is a known carcinogen. The number of new cases of melanoma, a type of skin cancer, has dramatically increased between 1975 and the present. It is estimated that in 2017 there will be 87,110 new cases of melanoma diagnosed.

Physical inactivity and poor diet have been linked as a causal factor in many diseases, not just cancer. Being overweight/obese, which in most cases is caused by a combination of poor diet and physical inactivity, accounts for 25-30% of cancers in the US.

Tobacco use causes about 30% of cancer deaths in the US. Some experts feel that avoiding tobacco use is the most important thing a person can do to reduce the cancer burden in the US.

### *Environmental Factors*

As previously mentioned, chemicals, toxins, industry factors, biological agents, second hand smoke, and others can cause cancer. They must be avoided for prevention to work. Three of these environmental factors to focus on include:

- Pesticides
- Dioxins
- Second Hand Smoke

#### *Pesticides*

Pesticides are chemicals used to eliminate/control unwanted insects, fungi, plants, animals, or microorganisms in order to protect food crops and other plants. Several pesticides are known carcinogens. Chlordane and dichlorodiphenyltrichloroethane (DDT) are two such chemicals.

People at high risk for exposure to these include farmers, crop dusters, pesticide applicators, home gardeners, and manufacturers of these products. High rates of brain, lip, stomach, lung, and prostate cancers have been found in these populations. Additionally, high rates of blood and lymphatic cancers and melanoma and other skin cancers have been found too. The general population is probably exposed to low doses of pesticides from food bought at the supermarket or from contaminated ground or surface water.

#### *Dioxins*

Dioxins are chemical produced as by-products of chemical processes and incomplete combustion. There are at least 100 different kinds of dioxins. The most toxic and dangerous dioxin carcinogen is tetrachlorodibenzo-p-dioxin (TCDD). Probably the most commonly known dioxin carcinogen is polychlorinated biphenyls (PCBs).

Sources of dioxins include paper/pulp bleaching, melt smelting/refining processes, and the burning of municipal, toxic, hospital, and other wastes. Dioxins are also found in insecticides, herbicides, cigarette smoke, and wood preservatives.

Exposure occurs via the diet, specifically from ingestion of fats in meat, dairy products, and fish. Another route of exposure is inhalation from gases released into the air by medical, municipal, and other hazardous waste facilities.

Those highest at risk for dioxin exposure include workers who work in these factories and plants. The general population is also at risk for exposure of inhaling or ingesting dioxins.

### *Second Hand Smoke*

Second hand smoke (SHS) is also known as environmental tobacco smoke and is a mixture of the side stream smoke released by the smoldering cigarette and the mainstream smoke exhaled by the smoker. It continues to be a leading environmental problem. SHS is a complex mixture of thousands of chemicals. Some of the chemicals found in SHS are nicotine, ammonia, carbon monoxide, cyanide, and formaldehyde. Approximately 250 of the chemicals in SHS are known carcinogens or known to be toxic.

Studies prove that SHS causes death and disease in adults and children who don't smoke. Research also shows that SHS causes coronary heart disease and lung cancer. Infants exposed to SHS are at an increased risk for sudden infant death syndrome (SIDS). Children exposed to SHS have a higher risk for acute respiratory infections, ear infections, severe asthma, and slow lung growth.

Fortunately, nonsmokers' exposure to SHS has declined in recent years. Unfortunately, high levels of SHS still exist. Groups at highest risk for exposure to SHS include non-Hispanic Blacks, males, those with lower incomes, and those with lower levels of education. Another group at risk for SHS exposure includes those without a high school diploma.

As far as workplace SHS exposure is concerned, those groups at high exposure risk include males, 18-24 year olds, those with lower levels of education, and those with lower income levels. Those who work in blue collar worksites, casinos, and certain hospitality settings are very likely to be exposed to high levels of SHS on the job.

### *Policy and Regulatory Factors*

It is clear that tobacco advertising and marketing increases the use of tobacco in the US. Cigarettes are one of the most heavily advertised products in the US. In 2014, it is estimated that tobacco companies spent over \$9 billion dollars to market cigarettes and smokeless tobacco.

In 2009, the Food and Drug Administration (FDA) recently signed into law the Family Smoking Prevention and Tobacco Control Act. This allows states and communities to restrict the place, manner, and time of tobacco advertising, marketing, and promotions.

The tobacco industry targets specific groups of people. These groups include the youth, young adults, and specific racial and ethnic groups. Many tobacco advertisements play on the psychological needs of adolescents. The advertising creates a perception that smoking will satisfy the needs of popularity, positive self-image, and peer acceptance.

Evidence from studies shows that exposure to cigarette advertising influences adolescents to start smoking and continue regular smoking. Evidence also shows that even brief exposure to cigarette ads influences adolescents' attitudes about smokers and smoking. It shapes their intentions to smoke.

## **Screening and Early Detection**

The purpose of screening and early detection of cancer is to decrease mortality/increase patient's survivability, reduce financial costs of treatment, and allow the use of less radical treatments.

In addition to avoiding risk factors and causes of cancer and focusing on prevention issues, massage therapists can urge their clients to do regular cancer screening. The use of screening tests for early cancer detection gives

patients a chance for early treatments, fewer side effects from treatments, and a higher likelihood that they will survive the cancer.

Treatment works best when cancer is detected early. Early cancer detection means it is likely to be small and less likely to have metastasized. This usually leads to a better chance for cure. For example, early detection of melanoma where the tumor hasn't grown deeply into the skin leads to a 100% survival rate 5 years later. Once melanoma has metastasized, the 5 year survival rate drops below 20%.

The following table is a list of which screening tests should be used when and for which cancers. Research has shown that these procedures and tests increase early detection and decrease the chances of dying from cancer. The only exception to this is the prostate specific antigen (PSA) test which has not been shown to reduce deaths from cancer.

**Screening Tests/Procedures for Cancer Detection**

<b>Cancer Type</b>	<b>Test/Procedure</b>	<b>Frequency</b>
Breast	Breast self-examination	Every month after age 18
	Breast physical examination	Every 3 years between 18-40, then annually
	Mammography	Baseline exam between 35-40, every 1-2 years between 40-49, then yearly after 50
Cervical	Papanicolaou (Pap) test	Annually between 18-65
	Pelvic examination	Every 1-3 years between 18-40, then annually
Uterine, ovarian	Pelvic examination	Every 1-3 years between 18-40, then annually
Lung	Chest x-ray	Not routinely recommended
	Sputum cytology	Not routinely recommended
Prostate	Rectal examination	Annually after age 50, 45 if high risk group
	Prostate specific antigen (PSA) blood test	Annually after age 50, 45 if high risk group
Rectal, colon	Stool examination for occult blood	Annually after age 50
	Rectal examination	Annually after age 40
	Endoscopy – sigmoidoscopy, colonoscopy	Every 3-5 years after age 50

Table adapted from *The Merck manual, 17<sup>th</sup> Edition*

## Signs and Symptoms of Cancer

As mentioned, cancer is a group of diseases. Because of this, cancer can cause almost any sign or symptom. The signs and symptoms of cancer vary greatly depending on the kind of cancer it is, where it is located, the size, and how it affects the organs and tissues. If a cancer has metastasized, signs and symptoms appear in different parts of the body.

When cancer grows, nearby organs, nerves, and blood vessel are affected. This can cause some of the signs and symptoms of cancer. Sometimes cancer occurs in a place where it does not cause symptoms and it isn't detected until it is too large. An example of this is pancreatic cancer.

Cancer may cause the immune system to react and produce the symptom of fever. Cancer cells use up the body's energy supply and may cause the symptom of fatigue or extreme tiredness. Cancer may also release substances in the body that change the way energy is made from food and this can lead to weight loss.

Cancer can release substances into the blood which cause symptoms not usually linked to cancer. For example, pancreatic cancer can release clotting factors which may cause blood clots in leg veins. Lung cancers can raise blood calcium levels. High blood calcium levels affect muscles and nerves, possibly causing symptoms of weakness and dizziness.

For many different reasons, symptoms get missed. Sometimes people ignore their symptoms or they don't know their symptoms mean there is a problem. Other times they are scared and afraid to see medical care. Sometimes symptoms like fatigue can be caused by something else or it seems unimportant, so it is ignored. No signs or symptoms should be overlooked, particularly if it is chronic and gets worse.

To help educate people, the professional massage therapist should be familiar with the general signs and symptoms of cancer. By knowing these, they can tactfully encourage their clients to seek medical attention early. It is important to remember that having any of the following signs and symptoms doesn't mean you have cancer. Other illnesses cause these general signs and symptoms. It is always important to check with your doctor for a correct medical diagnosis.

## **General Signs and Symptoms**

The following is a list of general signs and symptoms of cancer:

- Fatigue
- Fever
- Pain
- Skin Changes
- Unexplained Weight Loss

### *Fatigue*

Fatigue is extreme tiredness. It does not improve with rest. Fatigue may occur early in the disease process like in leukemia. Fatigue may occur later in the illness as the cancer grows. Some cancers like colon or stomach cancer cause blood loss and fatigue may result from this loss.

### *Fever*

Fevers are common in cancer, but usually they occur after the cancer has metastasized. In this case it is considered a late sign. In cancers like leukemia or lymphoma, fever can be an early sign. Almost all cancer patients experience a fever at some point, particularly if the cancer or its treatment affects the immune system.

### *Pain*

Pain can be an early symptom like in bone or testicular cancers. Persistent or non-treatable headaches may be a symptom of a brain tumor. Back pain can be a late symptom of colon, rectum, or ovarian cancer. In these cases, back pain probably means the cancer has metastasized.

### *Skin Changes*

The skin is greatly affected in cancer and the reason for these skin changes vary greatly. The most common skin changes of cancer include:

- Erythema – reddened skin
- Excessive hair growth
- Hyperpigmentation – darker skin
- Jaundice – yellow skin/eyes
- Pruritis – itching

### *Unexplained Weight Loss*

Losing weight without a reason is called unexplained weight loss. An unexplained weight loss of 10 pounds or more may be a sign of cancer. This is common in esophagus, lung, stomach, and pancreatic cancers. Remember overall that cancer patients usually lose weight at some point in the disease process.

In addition to advising clients about the general signs and symptoms of cancer, the professional massage therapist should be familiar with specific signs and symptoms of certain cancers. Again, by knowing these, they can tactfully encourage their clients to seek early medical care.

As in the case of general cancer signs and symptoms, it is important to remember that having any of the following specific signs and symptoms doesn't mean you have cancer. Other illnesses cause these specific signs and symptoms. It is always important to check with your doctor for a correct medical diagnosis.

## **Specific Signs and Symptoms of Certain Cancers**

The following is a list of specific signs and symptoms of certain cancers:

- Changes in bladder or bowel function
- Indigestion or swallowing problems
- Nagging cough or hoarseness
- Recent changes in a mole/wart or any new skin change
- Sores that don't heal
- Thickening/lump in breast or other body part
- Unusual bleeding or discharge
- White patches in mouth or white spots on tongue

### *Changes in bladder or bowel function*

Blood in the urine, pain on urination, and an increase/decrease in urination can be possible signs of bladder or prostate cancer. Diarrhea, chronic constipation, and a change in stool size may be indicating possible colon cancer. Massage therapists can encourage clients to get checked for changes. So you don't alarm them, remind them that these symptoms don't always mean cancer.

### *Indigestion or swallowing problems*

Indigestion or trouble swallowing can point to esophagus, stomach, or throat cancer. Fortunately, these symptoms are usually caused by something other than cancer.

### *Nagging cough or hoarseness*

Chronic nagging cough can be a sign of lung cancer. Hoarseness can be a sign of larynx or thyroid cancer. When working with your massage clients, let them know that any major change in how their body works is important to report to their physician. Just because there is a change, it doesn't mean it is something serious like cancer, yet it's always important to be examined to rule out all possibilities.

### *Recent change in a mole/wart or any new skin change*

Freckles, warts, or moles with change in shape, size, loss of sharp border, or shape should immediately be reported to a physician. A skin change may be a melanoma and if detected early, melanoma is easily treated. Other skin changes like jaundice or hyperpigmentation must be reported as well. Again, the massage therapist is taking the preventative approach, not an alarmist approach with their clients.

### *Sores that don't heal*

Some skin cancers bleed and look like a sore that won't heal. Chronic sores in mouth could point to oral cancers. If this happens in a client who smokes, chews tobacco, or drink alcohol regularly, this is an immediate referral to their doctor. Chronic lesions or sores on the penis or vagina may be signs of an infection or early cancer, so encourage them to have these checked as well.

### *Thickening/lump in the breast or other body parts*

Many types of cancer may be palpated through the skin. These types include breast cancer, testicular cancer, lymph node cancers, and other soft tissues of the body. Thickening and lumps alert a person to a possible early or late cancer. Check with a physician especially if it is a new finding or has changed in size.

### *Unusual bleeding or discharge*

Bloody sputum or phlegm is a possible sign of lung cancer. Bloody stool, which can look dark brown or black in color, can be a sign of colon or rectal cancer. Abnormal vaginal bleeding may be caused by cervical or endometrial cancers. Bloody urine can point to a bladder or kidney cancer. Bloody nipple discharge could be a symptom of breast cancer.

### *White patches in mouth or white spots on tongue*

White patches inside the mouth or white spots on the tongue can be leukoplakia. This is a pre-cancerous condition caused by frequent irritation. Leukoplakia is often caused by tobacco use like smoking or chewing. Those individuals who use chewing tobacco or smoke pipes are at high risk for this condition. Left untreated, leukoplakia becomes oral cancer. Chronic mouth or tongue changes must away be reported to a physician or dentist.

## **Cancer Diagnosis**

Cancer is diagnosed by a physician. The doctor does a complete history and physical examination of the person. Physicians must be aware of risk factors and during the history intake specifically ask about family history of cancer, environmental exposures to carcinogens, and prior illnesses linked to cancer. During the physical examination, particular attention is paid to the skin, lymph nodes, lungs, breasts, abdomen, and the vaginal, testicular, prostate, and rectal exams.

Doctors will also complete a review of systems. This is important and includes questions on symptoms of fatigue, weight loss, fevers or night sweats, cough, persistent pain, changes in bladder or bowel habits, bloody sputum (hemoptysis), vomiting blood (hematemesis), and bloody stools (hematochezia).

The rate of newly diagnosed cancer cases or incidence is one way to measure progress against the disease. Clearly, lower cancer incidence rates are better. Another way to measure progress against cancer is the stage at which a cancer is diagnosed.

## **Staging of Cancers**

Staging is the determination of the extent of the cancer. The stage of a cancer shows how far it has progressed and spread within the body. Obviously, early stage cancer diagnosis gives a person a better chance for a complete cure. The current downward trends in late stage cancer diagnosis are a sign that cancer screening and early detection measures are working. When more cancers are detected in early stages, fewer cancers should be detected in late stages.

Cancers are diagnosed at different stages of their development. Stage of cancer diagnosis may be explained by terms such as localized, distant, or regional. It can also be explained by numbers such as I, II, III, or IV. The more localized the cancer or the lower the number, the better chance for being cured.

Once a diagnosis is made, staging helps to determine treatment course and the patient's prognosis. Clinical staging uses information from the history, physical examination, review of systems, and other noninvasive studies. Other studies include serum chemistries and enzymes, imaging studies like CT scans and MRIs, ultrasounds, liver-spleen scans, and bone scans.

Pathologic staging requires a tissue specimen. Methods of acquiring a tissue specimen can include mediastinoscopy, bone marrow biopsy, axillary lymph node removal, and laparotomy. Mediastinoscopy is a surgical procedure to examine the inside of the upper chest between and in front of the lungs (mediastinum). A laparotomy is a surgical procedure involving an incision through the abdominal wall to gain access into the abdominal cavity.

## **Conventional Cancer Treatments**

There are three main or most common types of cancer treatment include:

- Surgery
- Chemotherapy
- Radiation

A person with cancer may have any or all three of these treatments. A more detailed explanation of each is covered below.

### *Surgery*

Surgery is the removal of the cancer cells or tumor by cutting it out. Surgical oncology is the branch surgery which deals with the surgical management of cancer. Surgery is often the first treatment option if the cancerous tumor can be removed from the body. Sometimes only part of the cancer can be removed. Radiation and chemotherapy may be recommended before or after surgery to help shrink the cancer.

Thanks to technology, less invasive ways of removing malignant tumors are being used and studied. Examples of this include cryosurgery which is the use of liquid nitrogen to kill abnormal cells and lasers to cut out or vaporize tumors instead of using a scalpel.

### *Chemotherapy*

Chemotherapy, often called chemo, is the use of antineoplastic drugs or chemicals to treat cancer. Usually, chemotherapy acts by killing rapidly dividing cancer cells. The drugs are typically given intravenously or taken by mouth. The drugs travel through the body in the bloodstream to reach the cancer cells that have metastasized from the tumor.

The use of chemotherapy after surgery to destroy remaining cancer cells in the body is called adjuvant therapy. Chemotherapy drugs can be used one at a time (single drug therapy) or multiple drugs can be used together (combination therapy).

### *Radiation*

Radiation is treatment with high energy rays such as x-rays to kill or shrink cancer cells. Radiation therapy, also called radiotherapy, is a highly targeted, highly effective way to destroy cancer cells that are left behind after surgery. Radiation is delivered with great precision to destroy malignant tumors while limiting damage to nearby tissues and organs. Remember that in addition to curing cancer, radiation is known to cause it.

There are two basic kinds of radiation used in cancer treatment. External radiation comes from the outside of the body. Internal or implant radiation comes from a radioactive source placed directly in the tumor inside the body.

## **Side Effects of Chemotherapy and Radiation**

Cancer treatments vary based on the type and stage of cancer, patient age, medical history, and overall general health of the patient. Because each person's body is different, it is hard to predict what side effects a person will have even if two people get the same treatments. Some effects are mild while others are severe.

Some people manage cancer treatment well while others have a difficult time with it. Unfortunately, all people with cancer have to deal with the stress of the illness in addition to the unpleasant side effects of the conventional medical treatments.

### *Chemotherapy Side Effects*

Common short term and usually treatable side effects of chemo include:

- Hair loss
- Loss of appetite
- Mouth sores
- Nausea and vomiting

Long term and harder to treat side effects happen because chemo can damage blood producing cells in the bone marrow. This may lead to low red blood cells, low blood platelets, and low white blood cells.

Anemia or low red blood cell counts cause:

- Fatigue
- Pale skin
- Shortness of breath
- Other symptoms

Low blood platelet counts cause:

- Bleeding after minor cuts or injuries
- Bruising after minor cuts or injuries

Low white blood cells cause:

- Increased risk of infection

Fortunately, most side effects of chemo go away after treatment ends. For instance, hair lost during chemo always grows back. Wigs, scarves, hats, and other accessories can be worn to cover, warm, and protect the head. The massage therapist and the cancer care team can work with the patient to manage the side effects of chemo treatment.

### *Radiation Side Effects*

In general, the stronger the dose of radiation or larger the radiation field, the more side effects of radiation will be felt. Radiation treatments typically don't cause pain. The most common side effects include:

- Fatigue
- Skin irritation and changes
- Nausea, vomiting, and diarrhea
- Increase urgency and frequency of urination
- Lymphedema

Fatigue or extreme tiredness that does not improve with rest is common when radiation treatments go on for several weeks. Patients often report daily trips to the hospital for radiation treatments make the fatigue worse.



## **Other Types of Cancer Treatments**

There are many other different types of cancer treatments. A few of them include:

- Hormone therapy
- Immunotherapy
- Targeted therapy

### *Hormone therapy*

Hormone therapy is sometimes used to treat certain kinds of prostate and breast cancers. Research studies how hormones influence cancer tumor growth and behavior. This guides the development of new cancer drugs. For example, some breast cancers require estrogen to grow. The way that breast cancers are treated has been changed by drugs like Tamoxifen which binds to estrogen receptors in the breast preventing estrogen production and aromatase inhibitors which block the synthesis of estrogen.

### *Immunotherapy*

Immunotherapy is treatment designed to boost the cancer patient's own immune system to help fight the cancer. It is also known as biological response modifier (BRM) therapy, biologic therapy, and biotherapy. Biologic agents that mimic the natural signals the body uses to control cell growth have been developed. This is due to the understanding of the biology of cancer cells.

Immune system factors or biologic agents like interferons, interleukins, and cytokines can now be made in the lab. These are given to the patient to stimulate the natural immune response. Immunotherapy is effective for several cancers.

### *Targeted therapy*

Targeted cancer therapies are drugs or other substances that block the growth and spread of cancer. They do this by interfering with specific molecules involved in tumor growth and progression.

## **Are Cancer Treatments Worse Than Cancer Itself?**

Cancer and cancer treatments are a difficult journey for anyone. It is easy to question the commitment to surgery, radiation, and chemotherapy when the side effects are bad. Patients get discouraged by the uncertainty of treatment and question the value. It is important to remember cancer treatments improve every year. Better ways of working with patients to control treatment side effects are learned every day.

The belief that cancer treatments are worse than the cancer itself can be dangerous. If a person believes this, they might not feel it is important to follow life saving treatment recommendations. It is important to remember side effects leave after the treatment is over. And the treatment can save a life.

Sources of this belief are easy to empathize with. Those diagnosed with cancer often never had any symptoms or pain before treatment. Their problems may have been small. In the early stages of some cancers, symptoms can be nonexistent or minor. Once treatment is started, these patient start to feel sick. The side effects from surgery, radiation, and chemotherapy can be distressing.

Cancer treatments are particularly tough for someone in poor health. They may not be able to stand treatment. Sometimes because of another medical condition or age, patient may decide against cancer treatment even when they know this will cause death. It is a personal choice for each person to make.

Those who wish to refuse cancer treatments should have informed consent about treatment versus non-treatment before making a final decision. This is because with the onset of serious symptoms in late stage cancer, curative treatments may not be an available option for the person.

Cancer kills by invading vital organs in the body like intestines, lungs, liver, kidneys, and the brain. It interferes with body functions necessary for life. Untreated cancers usually cause death. Cancer treatment, in contrast, is usually short and can save lives or prolong them. Side effects of cancer treatments can always be dealt with. One great way to deal with side effects is with Complementary and alternative medicine treatments.

## **Complementary and Alternative Treatments**

Complementary and alternative medicine (CAM) is a wide group of medical and healthcare systems, practices, and products not usually considered part of mainstream medicine. Consumers use terms like natural, holistic or Eastern medicine to refer to CAM, but experts use five categories to describe it. Some general types of cancer treatments in these five categories of CAM are covered here and include:

- **Biologically Based Practices** – uses things found in nature, including dietary supplements and herbal products
  - Foods
  - Herbs
  - Special Diets
  - Vitamins
- **Energy Medicine** – belief that body has energy fields to be used for healing
  - Reiki – balancing energy by placing hands on or near the patient or from a distance
  - Tai Chi – gentle slow system of movements with a focus on concentration and the breath
  - Therapeutic touch – moving hands over energy fields of the body
- **Manipulative and Body Based Practices** – systems working with one or more body parts
  - Chiropractic care – manipulation of the joints and skeletal system
  - Massage therapy – manipulation of body tissues with hands and tools
  - Reflexology – stimulation of pressure points in the hands and feet to affect other body parts
- **Mind-Body Medicine** – based on a belief that the mind affects your body
  - Biofeedback – patient learn how to affect body functions normally out of awareness such as heart rate using simple machines
  - Creative outlets – like dance, music, art
  - Hypnosis – relaxed and focused state of attention in which a patient concentrates on certain feelings, ideas, or suggestions to aid in healing
  - Imagery – visualizing scene, pictures, or experiences to help the body heal
  - Meditation – focused breathing, repetition of words/phrases/mantras to quiet the mind
  - Yoga – system of poses and stretches with special attention given to the breath
- **Whole Medical Systems** – independent healing systems that treat illness
  - Ayurvedic medicine – system from India emphasizing balance between body, mind, and spirit
  - Chinese medicine and acupuncture – system from China emphasizing a balance of yin and yang; acupuncture stimulates specific points with needles to treat illness
  - Homeopathy – using small doses of a substance to trigger the body to heal itself
  - Naturopathic medicine – using the healing power of nature and the body’s vital force to treat disease and illness

## **Prognosis for People with Cancer**

Many people are benefiting from the early detection of cancer. Medical advances are improving the quality of life and length of survival giving cancer survivors the chance to live full and productive lives at work and home. Fortunately with advances in medicine the outlook or prognosis for people with cancer has improved.

Just three decades ago in the 70's, about 1 out of 2 people with cancer survived at least 5 years. Most people who had cancer didn't live very long. Cancer was not talked about publicly and people rarely admitted to being a cancer survivor.

This isn't the case anymore. Now, more than 2 out of 3 survive at least 5 years. Every year, more and more people, especially children, survive cancer. Today, celebrities and national leaders openly speak of their experiences with cancer. Advances in cancer diagnosis and treatment have helped to make this possible.

Survival rates vary among the different types of cancers. Some cancers grow slowly and respond well to treatment. Others grow fast and spread making them harder to treat. When thinking about a person's prognosis with cancer, it is important to remember this.

It is estimated that there are more than 15.5 million cancer survivors in the US. Approximately 1.7 million of these people are long term survivors who had been diagnosed at least 20 years earlier. With more people surviving cancer, attention has shifted to focus on the quality of life and long term outcomes for people with cancer.

Research is looking at the problems cancer survivors face. These problems or challenges include getting health insurance, discrimination by employers, permanent side effects of treatment, possibility of second cancers caused by treatment, the need for long term follow up medical care, relationship changes resulting from life threatening illness, and learning to live with the possibility of cancer coming back.

Coping with cancer is a complex challenge with many facets. Cancer patients have to manage the physical and emotional effects. Physical effects can include but are not limited to:

- Anemia and bleeding problems
- Confusion and memory problems
- Constipation and diarrhea
- Fatigue
- Fever and infections
- Hair loss
- Lymphedema
- Nausea and vomiting
- Nutrition and eating problems
- Pain
- Sexuality and fertility issues
- Skin changes

Emotional effects to manage include but are not limited to:

- Adjusting to cancer diagnosis and treatment
- Anxiety
- Confusion and memory problems
- Depression
- End of life issues
- Spiritual issues

## **Massage Therapy and Cancer**

A growing number of healthcare professionals recognize massage as an effective non-invasive treatment to combine with conventional medical care. The American Cancer Society recommends massage therapy for

patients with cancer to improve quality of life and to bring them comfort. Massage therapy is a powerful healing modality with many benefits for people with cancer.

The professional massage therapist offers cancer patients skilled touch and caring at an isolating time of their lives. Massage therapists can additionally offer educational and preventative information about cancer to their healthy clients.

Some healthcare professionals recommend massage as a complementary therapy in cancer treatment. Fortunately, hospitals and cancer centers offer massage to patients with cancer. The National Cancer Institute found almost half of their cancer centers offered massage as an adjunctive therapy to cancer treatment. The massage treatments in these cases are modified and generally shorter than traditional sessions.

In any disease, the massage therapist uses different massage techniques for different clinical situations. There is no “one size fits all” approach. The same is true when working with clients with cancer.

In cancer, the illness has many different clinical presentations. The massage therapist must employ basic massage principles, knowledge of how cancer affects the body, and good clinical judgment. Here is a brief list of some possible clinical presentations:

- Patient with a new or an initial diagnosis
- Patient in the monitoring phase or middle of cancer treatment
- Patient in the last year of life phase
- Patients with different types of cancer
- Patients with different stages of cancer
- Immediate cancer survivors
- Long term cancer survivors

### **Benefits of Massage Therapy in Cancer**

Massage therapy research demonstrates its many benefits for people with a wide range of illnesses and diseases. The following is a general list of potential and reported benefits for those who receive massage therapy treatments:

- Helps relax muscles
- Increases mobility
- Reduces muscle tension and tightness
- Relieves pain and stiffness
- Rehabilitates injured muscles
- Decrease need for pain medications/analgesics
- Improves muscle strength
- Improves flexibility
- Improves blood circulation
- Improves blood pressure
- Increases energy
- Decreases fatigue
- Reduces stress
- Decreases anxiety
- Reduces depression
- Reduces pain of headaches
- Reduces pain of backaches

- Increases endorphin production
- Flushes lactic acid out of muscles
- Promotes recovery from fatigue produced by excessive exercise
- Breaks up scar tissue
- Loosens mucus in lungs
- Promotes sinus drainage
- Helps arthritis
- Helps colds
- Helps constipation
- Improves coordination
- Improves stamina
- Improves sleep patterns
- Corrects posture imbalances
- Supports overall health and well being
- Promotes feelings of relaxation
- Increases mental, emotional, and spiritual awareness
- Empowers people
- Helps people feel cared for and whole
- Reduces isolation

This list is not exhaustive and complete, yet it clearly outlines some of the healing benefits of massage. Almost anyone, including those with cancer, could be helped by these general benefits.

Moving from this general list, let's be specific about how massage therapy may help those with cancer. The five most common symptoms people with cancer complain of are:

- Pain
- Nausea and vomiting
- Fatigue
- Anxiety and stress
- Depression

One of the biggest benefits of massage for patients with cancer is symptom relief. Studies using massage for patients with cancer suggests it helps decrease symptoms like pain, fatigue, anxiety, stress, and depression. Considering the symptoms those with cancer report, these potential benefits hold great promise. Another important benefit of massage therapy for people with cancer is the management of side effects of cancer treatment.

Most individuals with cancer report feeling better after massage therapies. This means substantial relief for these people. While evidence from research does support the use of massage for symptom relief, additional studies are needed to measure the long term physical and psychological benefits.

For those professional massage therapists who wish to stay informed about the research being done in the massage therapy field, the following resources can be used:

- US National Library of Medicine, National Institutes of Health  
Website: <http://www.nlm.nih.gov/>
- PubMed  
Website: <http://www.ncbi.nlm.nih.gov/pubmed>

- Medline Plus  
Website: <http://www.nlm.nih.gov/medlineplus/>
- PubMed Central  
Website: <http://www.ncbi.nlm.nih.gov/pmc/>

Remember, while massage therapy techniques are promising for symptom management and improving quality of life of patients with cancer, it doesn't slow or reverse the growth and spread of cancer. While the American Cancer Society recommends massage therapy for people with cancer, it does not recommend it to specifically treat cancer. Relying on massage therapy treatments alone and delaying or avoiding conventional medical care for cancer has serious health consequences.

### **Is Massage Therapy Absolutely Contraindicated in Cancer?**

No, there is no absolute contraindication for massage therapy in cancer. The old conventional belief was all massage therapy is contraindicated for individuals with cancer. Taught in massage schools and recorded in the literature, this myth passed from massage therapist to therapist orally.

Fortunately, this old belief is not true. Massage therapy is safe and can be used with patients who have cancer with some specific guidelines and contraindications in place.

The underlying fear behind this myth is that massage promotes metastasis by increasing lymph and blood circulation. Cancer metastasis is damaging and deadly to a person with cancer. Concerns about doing anything that promotes cancer metastasis are completely valid. However, massage therapy has not been proven to increase cancer metastasis.

### **Challenges to the Absolute Massage Therapy Contraindication**

According to Tracy Walton, MS, LMT, an expert in massage therapy for cancer patients, there are three main challenges to the flawed belief that massage is contraindicated with cancer patients. These challenges include:

- Too general or vague
- Not specific to site, pressure, or joint movement
- Based on incorrect assumption that massage promotes cancer metastasis by increasing circulation

#### *Too General*

The contraindication for all massage in all cancer patients is too general and vague. It does not take into account the varying clinical presentations of cancer. It doesn't take into account the many different kinds of massage available to a therapist that might be safe and appropriate for people with cancer. Overall, the contraindication is too general regarding client presentation, massage modality, and massage technique.

#### *Not Specific to Site, Pressure, or Joint Movement*

This general contraindication for all massage with cancer clients isn't specific in regard to site, pressure, or joint movement. Clinically speaking, a specific contraindication for massage in regards to site, pressure, and joint movement is more helpful and useful. These specifics are given throughout the rest of this course.

#### *Assumption Massage Promotes Cancer Metastasis by Increasing Circulation*

The contraindication for all massage in people with cancer rests on a faulty assumption – massage promotes cancer metastasis by increasing circulation of lymph and blood. Research evidence is inconclusive that massage dramatically increases the general circulation of lymph and blood.

Even if massage does significantly boost lymph and blood circulation, this would not result in faster cancer metastasis. Why? Because cancer metastasis is a complex process involving immune system cells, cancer cells, “target” tissues, blood factors, and genetics of the cancer. Increasing lymph and blood circulation alone would not cause cancer to metastasis.

If increased lymph and blood circulation promoted metastasis, cancer patients would have to avoid exercise, rigorous movements, and deep breathing. Exercise, rigorous movements, and deep breathing are known to increase lymph and blood circulation. Yet doctors don’t encourage people with cancer to be sedentary and breathe shallowly. Physicians encourage exercise and deep breathing. Exercise, movement, breathing, and circulation are all part of healing.

## **Are There Any Contraindications for Massage Therapy in Cancer?**

Yes, there are contraindications for massage therapy in cancer treatment the professional massage therapist must be aware of. The two main groups of contraindications include those arising from the cancer itself and the disease process and those arising from the cancer treatments. Below is a detailed look at both of these types of contraindications.

### **Contraindications for Massage Therapy Arising from Cancer Itself & the Disease Process**

There are five common types of massage therapy contraindications that arise from the cancer disease process. These include:

- Tumor site(s)
- Bone involvement
- Cancer pain
- Major organ involvement
- Deep vein thrombosis (DVT)

#### *Tumor Site(s)*

Massage therapy techniques must be modified over known tumor sites, suspected tumor sites, past tumor sites, and surgical scars. Massage or any other modality is contraindicated directly over the primary tumor site. If there are secondary metastatic tumor sites, they are contraindicated for massage pressure too.

Specific examples of this include massage or abdominal therapies with pressure being contraindicated in colon or abdominal cancers. Pressure and joint movement are contraindicated in bone cancers at the site/region of cancer. In cases of leukemia, a blood cancer which circulates throughout the bloodstream, there is no specific site massage contraindication to pressure or movement.

Overall, avoid direct massage pressure on a tumor site, moving the tissues surrounding the tumor, and joint manipulation at sites of tumors.

#### *Bone Involvement*

Primary or metastatic bone involvement is one of the professional massage therapist’s biggest concerns. Cancer destroys bone structure. This leaves the bone in a fragile state and vulnerable to pathologic fractures. These fractures can occur with very little force. With bone involvement of any kind, the massage therapist should carefully consider bone stability before applying pressure on or near them.

Bone pain is a symptom of bone metastasis. Massage therapists are not licensed to diagnosis bone metastasis. Therefore, when client presents with pain, check with the physician and verify it is not pain from bone metastasis.

Since bone metastasis weakens bones, affected areas are at risk for fracture from excess pressure or movement. Extremely gentle pressure with no joint movement is recommended for massage therapists working with these patients. Careful and cautious positioning is also recommended to avoid problems.

### *Cancer Pain*

Cancer pain is caused by the cancer itself or the cancer treatment. Ask client about their pain and its cause. Provide relief when possible. Whatever the cause, people often find pain relief from massage therapy.

Make sure the client is being treated for the pain. If not, refer them to a physician for care. If a client with cancer or a client with previous cancer history complains of new pain, the massage therapist should do the following:

- Refer client to their physician for diagnosis and treatment
- Avoid massage pressure or joint movement at any site where bone involvement is a concern
- Avoid massage pressure or joint movement at any site where tumor presence is a concern
- Ask the client's doctor for guidelines for massage pressure and joint movement

If the client reports any sharp pain, weakness, tingling, or numbness with or without pain, send them immediately to their physician. Neurological symptoms like this could signal something pressing on the nerves or spinal cord. This can be a medical emergency.

### *Major Organ Involvement*

The major or critically vital organs affected by the spread of advanced cancers include the brain, heart, lungs, liver, and kidneys. These vital organs are also affected if they are the primary tumor site of cancer. Generally, if the major organs are involved, the professional massage therapist adjusts the massage to minimally challenge the client's body. It is advisable to use gentle massage elements.

### *Deep Vein Thrombosis (DVT)*

DVT is the formation of a blood clot or thrombus within a deep vein. Typically the lower extremities are involved in DVT, but the arms or pelvis can be involved. DVT generally occurs in one extremity or unilaterally, but it can occur bilaterally. Symptoms of DVT include:

- Extremity painful
- Extremity swollen
- Extremity red
- Warm to touch
- Superficial veins engorged
- Tenderness on palpation
- Skin discoloration, perhaps bluish purple or dusky
- Rope like feeling in extremity

The most serious complication of a DVT is called a pulmonary embolism. This is where the clot dislodges (embolism) and travels to the lungs (pulmonary). Pulmonary embolisms cause shortness of breath, chest pain, tachycardia, and cough and are a medical emergency. DVT is also a medical emergency.

A massage therapist must know how to recognize DVTs because any pressure or movement could dislodge the clot and lead to an embolism. Cancer patients are at a high risk for DVT and so are many other groups. Risk factors for DVT include:

- Recent surgery or hospitalization



- Advanced age
- Obesity
- Pregnancy
- Infection
- Immobilization
- Oral contraceptives
- Tobacco use
- Trauma
- Cardiac problems
- History of DVT or pulmonary embolism

When the massage therapist suspects their client to have a DVT because they show signs and symptoms of one, do not provide any massage therapy care. This is a medical emergency so the best course of action is to immediately refer them to the emergency room or their doctor.

When the massage therapist is concerned because their client falls into several of the high risk categories for DVT, diagnosis of the condition should be left to the physician. Strongly urge the client to be evaluated for DVT by their doctor. Referral is the best course of action in these cases.

### **Contraindications for Massage Therapy Arising from Cancer Treatments**

As discussed in the treatment section, the three most common types of cancer treatments are surgery, chemotherapy, and radiation. Each type of cancer treatment brings its own set of contraindications for massage therapy.

#### Surgical Contraindications for Massage

It is common for cancer patients to have surgery to treat their disease. After surgery, there are several common complications that can happen. Massage therapists must be aware of them and what to do about them. Some common post surgical issues for cancer patients are:

- DVT risk
- Infection
- Constipation
- Lymphedema
- Medical device issues

#### *DVT Risk*

The risk for DVT is higher in the immediate days following surgery. A cancer patient's risk for DVT increases after surgery for two main reasons. First, clotting factors increase in the blood in response to inflammation in the body which usually occurs at the surgical site. They also increase as the body works to heal the incision site. Secondly, immobility after surgery or bed rest reduces blood flow and increase the risk of DVT formation.

To prevent this, doctors and nurses encourage postsurgical cancer patients to walk as soon as they can. They also use pneumatic devices. A pneumatic device applies pressure to the extremities to pump blood when the skeletal muscles aren't doing so.

In the weeks following surgery, massage therapists should avoid massage pressure and joint movement while the risk for DVT is high. Wait for the client's physician to state the risk for DVT has decreased.

If a patient does develop a DVT, they will most likely be treated with anticoagulants or blood thinners. These medications can cause bruising and spontaneous bleeding. If your cancer client has been treated with blood

thinners for DVT or any other reason, deep massage or vigorous movements are contraindicated. These massage techniques may cause small bleeds or bruising.

### *Infection*

The surgical patient's risk for infection is always higher immediately after surgery. Infection can occur at the surgical site. They may develop another infection of some kind like a respiratory infection. Signs and symptoms of this may include:

- Redness at incision site
- Pain at incision site
- Swelling at incision site
- Heat at incision site
- Drainage from incision site
- Fever and chills
- Fatigue

If the massage therapist notices these signs in a client, refer them to their physician for diagnosis. If the post surgical cancer client does develop an infection, deep massage and Swedish stroking/kneading are contraindicated. Gentle massage pressure, gentle holding, energy therapies like Reiki, or other less stimulating therapies must be used instead.

### *Constipation*

Constipation is a common post surgical complaint in cancer patients. It is caused by immobility, narcotic use, and anesthesia from the surgery. If the abdominal area is the site of cancer or is the surgical site, massage techniques and therapies would be contraindicated. If your client develops constipation, here are some massage techniques to use:

- Abdominal massage with gentle pressure in the direction of peristalsis
- Gentle acupressure
- Gentle reflexive techniques
- Soft abdominal holding

### *Lymphedema*

Lymphedema is also called lymphatic obstruction. It is characterized by local fluid retention and swelling. When it is caused by injury to the lymphatic system, it is called secondary lymphedema.

Lymphedema in the cancer patient is usually caused by surgical lymph node removal/dissection, radiation therapy, and scarring from the surgery or radiation. Secondary lymphedema is most common after removal of the axillary lymph nodes in breast cancer surgeries.

If a cancer client develops lymphedema, massage therapists must avoid stroking, kneading, and deep pressure in the areas of it. Pressure and friction are contraindicated in lymphedema. Clients with lymphedema are treated with manual lymph drainage techniques only.

Manual lymph drainage is drastically different from conventional Swedish massage therapy strokes. Manual lymph drainage consists of extremely light techniques performed by skilled therapists.

### *Medical Device Issues*

Medical devices can include any of the following:

- Vascular access ports

- Ostomies
- Surgical drains
- Urinary catheters

The standard of massage therapy care dictates these medical devices and others should be left alone. Do not disturb them with massage, movement, positioning, or even draping. If you have a cancer client with a medical device, research and review their particular device ahead of your session. Educate yourself and the client about the device.

### Chemotherapy Contraindications for Massage

Generally, during chemotherapy the strength of massage techniques used varies according to the client's condition. Some days of chemo are better than others and scheduling around these times is important. The intent of massage therapy at this time is not to detoxify or move fluids.

Deep and vigorous massage techniques in Swedish massage should be avoided during chemotherapy as the body deals with the toxic drugs. Avoid medium and deep kneading. Avoid stroking moves intended to promote venous return as in the case of circulatory massage techniques.

To review, the side effects of chemotherapy include:

- Hair loss
- Loss of appetite
- Mouth sores
- Nausea and vomiting
- Low red blood cell counts
- Low blood platelets
- Low white blood cell counts

Let's take a closer look at potential issues for massage therapists to be aware of that may arise with each.

#### *Hair Loss*

The scalp may become irritated during a period of hair loss. The therapist must check with the client before using pressure on the scalp. The client may prefer to keep wigs or scarves on during their massage treatment. If so, honor this and don't use massage oils near them.

#### *Loss of Appetite*

For massage therapists, there are typically no contraindications or issues to be concerned about with loss of appetite.

#### *Mouth Sores*

The mouth sores from chemotherapy can be very painful and sore. They may feel like canker sores. Massage therapists must avoid using massage pressure on the jaws, the cheeks, and the chin. Face cradles may press into these mouth sores so offer clients a position adjustment for comfort.

#### *Nausea and Vomiting*

When a client is nauseated, the massage therapist should use predictable, slow movements, and even speeds that gently ease into the tissue. Pressure must be gentle and rocking or jostling may not be tolerated by the cancer client. Using aromatherapy, the professional massage therapist may want to add ginger or peppermint to the treatment as they both aid in digestion and nausea.

Have a wastebasket nearby in case the client vomits. Use universal precautions when handling the body fluids. Be aware that vomiting can cause dehydration and a dehydrated client does not tolerate massage well. Modify the treatments to the client in these cases.

#### *Low Red Blood Cell Counts*

Low red blood cell counts may cause fatigue, pale skin, shortness of breath, or other symptoms. Be mindful of this and adjust massage techniques accordingly.

#### *Low Blood Platelets*

Low blood platelets can lead to excess bleeding or easy bruising. Massage pressure needs to be modified depending on how low the platelet count is. Gentle strokes and movements are recommended. Deep and vigorous massage is contraindicated.

#### *Low White Blood Cell Counts*

Low white blood cell counts lead to increased risk of infection. Massage should always be gentle with these clients. The white blood cells of particular interest are the neutrophils. Low levels of neutrophils are also known as neutropenia. If you have a client with neutropenia, educate yourself about neutropenic precautions. They are more stringent than the universal precautions massage therapists usually use.

#### Radiation Contraindications for Massage

To review, the most common side effects of radiation therapy include:

- Fatigue
- Skin irritation and changes
- Nausea, vomiting, and diarrhea
- Increase urgency and frequency of urination
- Lymphedema

#### *Fatigue*

Generally, during radiation the strength of massage techniques used varies according to the client's condition. Some days of radiation treatment are better than others and scheduling around these times is important. The intent of massage therapy at this time is not to detoxify or move fluids. If the client is fatigued, slow, even, gentle massage techniques are in order. Modify treatments as needed.

#### *Skin Irritation and Changes*

Individuals receiving radiation treatments may find even light touch to be uncomfortable. This is because the treatment area can become sensitive, irritated, and inflamed.

Massage pressure and friction are contraindicated over any area of skin that is irritated or inflamed from the radiation treatments. The skin may appear with a rash, red, darkened, dry, peeling, itchy, or hardened. Hydrotherapy and thermotherapy are also contraindicated.

Massage therapists know that some people have allergic reactions to lotions or oils during massages. This may be more common among patients in radiation therapy. Also consider that radiation treatment areas are typically marked with blue dots. These dots or marks may fade when rubbing massage oils or lotions over them. Massage therapists should avoid the marks if possible.

#### *Nausea, Vomiting, and Diarrhea*

When a client is nauseated, the massage therapist should use predictable, slow movements, and even speeds that gently ease into the tissue. Pressure must be gentle. Rocking or jostling may not be tolerated. Using aromatherapy, the professional massage therapist may want to add ginger or peppermint to the treatment as they both aid in digestion and nausea.

Have a wastebasket nearby in case the client vomits. Use universal precautions when handling the body fluids like vomit. Vomiting and diarrhea cause dehydration and a dehydrated client does not tolerate massage well. Modify the massage treatments to the client in these cases.

*Increase Urgency and Frequency of Urination*

For cancer clients suffering from the side effects of increase urgency and frequency of urinations, the professional massage therapist might consider doing an in-home massage. A massage setting with easy bathroom access will also work for these clients.

*Lymphedema*

If a cancer client develops lymphedema, massage therapists must avoid stroking, kneading, and deep pressure in the areas of it. Pressure and friction are contraindicated in lymphedema. Clients with lymphedema are treated with manual lymph drainage techniques only.

**Massage Techniques for Working with Cancer Clients**

By now, it is evident there are no specific protocols and techniques to use in massage therapy for people with cancer. The person undergoing cancer treatment must be evaluated each session. The massage treatment is always determined by the client’s condition at the time. Modified treatment protocols are usually indicated.

Throughout the course a few massage techniques have been listed for use with cancer clients. Generally, gentle massage and bodywork can be adapted to meet the needs of people with cancer. To review, the following table lists those massage therapy techniques and contraindications:

**Massage Techniques and Contraindications for Working with Cancer Clients**

<b>Condition</b>	<b>Massage Techniques</b>	<b>Contraindications</b>
Tumor	<ul style="list-style-type: none"> <li>• modified</li> <li>• Swedish techniques</li> <li>• stretching</li> </ul>	<ul style="list-style-type: none"> <li>• massage over primary/secondary tumor site(s)</li> <li>• massaging tissues near tumor site(s)</li> <li>• joint movement at or near tumor site(s)</li> </ul>
Bone Involvement	<ul style="list-style-type: none"> <li>• careful/cautious positioning</li> <li>• extremely gentle pressure</li> <li>• light effleurage and gliding</li> </ul>	<ul style="list-style-type: none"> <li>• joint movement</li> <li>• deep techniques such as friction and compression</li> </ul>
Cancer Pain	<ul style="list-style-type: none"> <li>• obtain physician guidelines for massage/joint movement</li> </ul>	<ul style="list-style-type: none"> <li>• massage/joint movement at bone involvement site(s)</li> <li>• massage/joint movement at tumor site(s)</li> </ul>
Major Organ Involvement	<ul style="list-style-type: none"> <li>• minimally challenge client</li> <li>• gentle massage elements</li> <li>• effleurage and gliding</li> <li>• light petrissage</li> </ul>	<ul style="list-style-type: none"> <li>• massage/joint movement at tumor site(s)</li> </ul>
DVT	<ul style="list-style-type: none"> <li>• none</li> </ul>	<ul style="list-style-type: none"> <li>• immediate referral to physician/emergency room</li> </ul>
DVT Risk	<ul style="list-style-type: none"> <li>• none</li> </ul>	<ul style="list-style-type: none"> <li>• no massage/joint movement</li> <li>• with anticoagulant use, no deep massage or vigorous movements</li> </ul>
Infection	<ul style="list-style-type: none"> <li>• gentle massage pressure</li> <li>• gentle holding</li> <li>• energy therapies like Reiki</li> </ul>	<ul style="list-style-type: none"> <li>• no deep massage or Swedish stroking/kneading</li> <li>• no manual lymphatic drainage</li> </ul>
Constipation	<ul style="list-style-type: none"> <li>• gentle pressure abdominal massage in peristalsis direction</li> <li>• Swedish techniques</li> <li>• gentle acupressure</li> <li>• gentle reflexive techniques</li> </ul>	<ul style="list-style-type: none"> <li>• if abdomen site of cancer or surgical site, no massage techniques or therapies</li> </ul>

	• soft abdominal holding	
Lymphedema	• manual lymph drainage technique • very light effleurage	• stroking, kneading, or deep pressure • pressure and friction
Around Medical Devices	• none	• massage, movement, positioning, or draping
Hair Loss	• use caution with massage pressure if scalp irritated	• massage oils near wigs/scarves
Mouth Sores	• frequent position changes with face cradle	• massage pressure on jaws, cheeks, chin
Nausea and Vomiting	• predictable, slow movements • even speeds • gentle pressure • Swedish techniques • aromatherapy ginger or peppermint	• pressures and speeds that rock the client which can include joint mobilizations, stretches, rocking, and jostling
Low Red Blood Cell Counts	• adjust massage to client symptoms	• no specific contraindications
Low Blood Platelets	• gentle strokes • gentle movements • Swedish techniques	• deep/vigorous massage
Low White Blood Cell Counts	• gentle massage • Swedish techniques	• massage therapist sick with cold, flu, or other infection
Fatigue	• slow, even, gentle massage • light petrissage • vibration techniques • modify treatments as needed	• no specific contraindications
Skin Irritation and Changes	• energy therapies where hand are positioned above client skin like Reiki	• massage pressure or friction • hydrotherapy • thermotherapy • avoid radiation skin markers
Urgency and Frequency of Urination	• in home massage • setting with easy bathroom access	• no specific contraindications

## Basic Guidelines for Massage Therapists Working with Cancer Patients

In summary, here are some basic guidelines for professional massage therapist to use and remember when working with cancer patients in their practice:

- Work in partnership with the client's primary oncology doctor and obtain their medical clearance for massage therapy treatments
- Use special positioning like the side lying position for client comfort if they are unable to lay prone due to surgical wounds, central lines on the chest wall, or radiation burns
- Massage is contraindicated over known/suspected tumor/cancer sites, over medical devices, over surgical wounds, and radiation burns
- Always modify the massage treatment to the client's clinical presentation
- Schedule massages on days where the client has high energy and feels good as massage received on low energy days/times may feel depleting to the client
- Massage, joint movement, pressure, and traction are contraindicated at sites of primary bone cancer or bone metastasis

- Massage is contraindicated after treatment with anticoagulants, in DVT, or when DVT risk is high
- Immediately refer clients to their doctors when you suspect DVT or pulmonary embolism

## Resources for More Training in Cancer and Massage Therapy

Tracy Walton, MS, LMT

Offers several different cancer and massage therapy courses around the country

Website: <http://www.tracywalton.com/>

Gayle MacDonald, MS, LMT

Offers several different cancer and massage therapy courses around the country

Website: <http://oncologymassageeducationassociates.com>

Cheryl Chapman, RN, HNC, NCTMB

Offers several different cancer and massage therapy courses on the East Coast

Website: <http://www.cherylchapman.com/>

Colorado School of Healing Arts

Offers an Oncology Massage Therapy program

Website: <http://www.csha.net/advanced/oncology.html>

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## Cancer and Massage Therapy Exam

1. Cancer is the \_\_\_\_\_ leading cause of death in the United States.
  - A. Second
  - B. Third
  - C. Fourth
  - D. None of the above
2. In cancer, loss of normal controls results in:
  - A. Unregulated growth
  - B. Lack of cell differentiation
  - C. Local tissue invasion
  - D. All of the above
3. Oncogenes are:
  - A. Normal forms of genes that regulate cell growth
  - B. Abnormal forms of genes that regulate cell growth
  - C. Blood cells that have mutated
  - D. Bone marrow that has mutated
4. Tumor suppressor genes are:
  - A. Genes that prevent cancer growth by making proteins to suppress tumor growth
  - B. Genes that enhance cancer growth by making proteins to encourage tumor growth
  - C. Genes that do not code for any cell functions
  - D. None of the above
5. Metastasis is:
  - A. Uncommon in children with cancer
  - B. Uncommon in adults with cancer
  - C. The spread of cancer cells to other parts of the body
  - D. The growth of normal healthy cells
6. Which of the following are categories of cancer?
  - A. Carcinoma
  - B. Sarcoma
  - C. Leukemia
  - D. All of the above
7. Cancer prevalence is :
  - A. The number of people diagnosed last year with cancer
  - B. The number of children living with cancer
  - C. A measure of how common a certain kind of cancer is
  - D. The total number of people living with cancer
8. Cancer incidence is:
  - A. The number of people diagnosed last year with cancer
  - B. The number of children living with cancer
  - C. A measure of how common a certain kind of cancer is
  - D. The total number of people living with cancer



9. In 2017, the total estimated number of new cases of breast cancer was:
- A. 255,180
  - B. 13,000
  - C. 1,592,000
  - D. 25,180
10. In 2017, what was the estimated number of new cancer cases diagnosed?
- A. 1,111,350
  - B. 1,688,780
  - C. 2,479,350
  - D. 688,780
11. Cancer mortality is generally higher in \_\_\_\_\_ men and lower in \_\_\_\_\_ women.
- A. White; Spanish
  - B. African American; Asian/Pacific Islander
  - C. Asian/Pacific Islander; African American
  - D. None of the above
12. Cancer costs are lowest during which clinically relevant period:
- A. The diagnosis
  - B. The initial phase
  - C. The last year of life
  - D. The monitoring phase of care
13. The lifetime risk of developing or dying from cancer is:
- A. The chance of being diagnosed with or dying from cancer over the course of life
  - B. The chance of being diagnosed with or dying from an infection over the course of life
  - C. The chance of being diagnosed with or dying from a stroke over the course of life
  - D. The chance of being diagnosed with or dying from an accident over the course of life
14. About how many people will die from cancer over a lifetime?
- A. 1 out of 2
  - B. 1 out of 3
  - C. 1 out of 4
  - D. 1 out of 5
15. Risk factors for cancer include:
- A. Tobacco use
  - B. Sunlight exposure
  - C. Radiation exposure
  - D. All of the above
16. How many people die from tobacco use annually?
- A. 80,000
  - B. 100,000
  - C. 480,000
  - D. 280,000

17. Excess sunlight exposure can be harmful because of:
- A. UW radiation
  - B. UV radiation
  - C. UU radiation
  - D. UT radiation
18. Radon is a:
- A. Radioactive gas
  - B. Nuclear power plant
  - C. Type of x-rays
  - D. Not a form of ionizing radiation
19. CMV is linked to:
- A. Burkitt's lymphoma
  - B. Cervical cancer
  - C. Kaposi's sarcoma
  - D. Hepatocellular cancer
20. HPV is the main cause of:
- A. Colon/Rectal cancer
  - B. Prostate cancer
  - C. Breast cancer
  - D. Cervical cancer
21. H. pylori is linked to:
- A. Stomach ulcers, stomach cancer, and lymphoma of the stomach
  - B. Colon ulcers, colon cancer, and lymphoma of the colon
  - C. Skin ulcers, skin cancer, and lymphoma of the skin
  - D. None of the above
22. Alcohol can cause what types of cancer?
- A. Head and neck
  - B. Oropharyngeal and liver
  - C. Lung and bladder
  - D. Oropharyngeal and skin
23. Which of the following are occupational carcinogens?
- A. Asbestos
  - B. Formaldehyde
  - C. Vinyl chloride
  - D. All of the above
24. Alkylating agents can cause:
- A. Lung cancer
  - B. Angiosarcoma
  - C. Liver cancer
  - D. Leukemia

25. Cancer commonly occurs in people over what age?
- A. 35
  - B. 45
  - C. 55
  - D. 65
26. Poor diet, being overweight, and lack of physical exercise are all risk factors for:
- A. Leukemia
  - B. Prostate cancer
  - C. Colon cancer
  - D. Breast cancer
27. Cancers have a genetic link in about:
- A. 1 out of every 10 cases
  - B. 1 out of every 20 cases
  - C. 1 out of every 30 cases
  - D. 1 out of every 40 cases
28. Which of the following is a cancer myth?
- A. Lifestyle factors can be a cause of cancer
  - B. Exposure to radiation can be a cause of cancer
  - C. Cancer is contagious and is passed by close personal contact
  - D. Cancer is not contagious and is not passed by close personal contact
29. EBV is linked to:
- A. Kaposi's sarcoma
  - B. Hodgkin's lymphoma and Burkitt's lymphoma
  - C. Non-Hodgkin's lymphoma
  - D. Lymphocytic leukemia
30. HBV and HCV increase the risk for:
- A. Lung cancer
  - B. Skin cancer
  - C. Liver cancer
  - D. Prostate cancer
31. HHV8 is also called:
- A. Epstein Barr Virus or EBV
  - B. Hepatitis B Virus or HBV
  - C. Cytomegalovirus or CMV
  - D. Kaposi sarcoma virus or KSHV
32. Which of the following are rarely found in the US?
- A. Bacterial infections
  - B. Parasitic infections
  - C. Fungal infections
  - D. Viral infections

33. What percentage of cancer deaths are related to lifestyle factors in the US?
- A. 25-50%
  - B. 50-75%
  - C. 60-85%
  - D. 70-95%
34. People at high risk of pesticide exposure include:
- A. Farmers
  - B. Crop dusters
  - C. Pesticide applicators
  - D. All of the above
35. A chemical found in second hand smoke (SHS) is:
- A. Nicotine
  - B. Ammonia
  - C. Carbon monoxide
  - D. All of the above
36. Which of the following groups is at high risk for workplace SHS exposure?
- A. Males
  - B. Females
  - C. 28-34 year olds
  - D. Those with high levels of educations
37. Breast self-examinations should be done every:
- A. Day after age 18
  - B. Week after age 18
  - C. Month after age 18
  - D. Year after age 18
38. Pap screening tests should be done:
- A. Annually between ages 48-95
  - B. Annually between ages 38-85
  - C. Annually between ages 28-75
  - D. Annually between ages 18-65
39. Endoscopy screening for rectal and colon cancers should be done:
- A. Every month after age 50
  - B. Every year after age 50
  - C. Every 2 years after age 50
  - D. Every 3-5 years after age 50
40. All of the following are general signs and symptoms of cancer except:
- A. Bloody noses
  - B. Fatigue
  - C. Fever
  - D. Unexplained weight loss

41. All of the following are skin changes a person with cancer may commonly experience except:
- A. Pruritis
  - B. Jaundice
  - C. Erythema
  - D. Dimpling
42. An unexplained weight loss of \_\_\_\_\_ pounds or more may be a sign of cancer.
- A. 10
  - B. 15
  - C. 20
  - D. 30
43. Which of the following may be a specific sign of larynx or thyroid cancer?
- A. Chronic nagging cough
  - B. Hoarseness
  - C. Sores that don't heal
  - D. Swallowing problems
44. White patches in the mouth or white spots on the tongue can be:
- A. Pre-cancerous leukoplakia
  - B. Pre-cancerous leukocytes
  - C. Neutrophils
  - D. None of the above
45. In cancer diagnosis, what is staging?
- A. The determination of the extent of the diabetes
  - B. The determination of the extent of the cancer
  - C. The determination of the extent of the heart disease
  - D. None of the above
46. The most common types of conventional cancer treatments include which of the following:
- A. Surgery
  - B. Radiation
  - C. Chemotherapy
  - D. All of the above
47. Common short term side effects of chemotherapy include:
- A. Hunger and insomnia
  - B. Burping and bloody noses
  - C. Hair loss and nausea
  - D. Dizziness and diarrhea
48. Anemia or low red blood cell counts can cause:
- A. Fatigue and shortness of breath
  - B. Nausea and vomiting
  - C. Alternating diarrhea and constipation
  - D. Pain and depression

49. The major concern for a low white blood cell count in cancers patients is:
- A. Increased risk for lymphedema
  - B. Increased risk of bleeding and bruising
  - C. Increased risk for shortness of breath
  - D. Increased risk of infections
50. Which of the following is not a side effect of radiation treatments?
- A. Nausea
  - B. Constipation
  - C. Vomiting
  - D. Diarrhea
51. Complementary and alternative medicine can include:
- A. Energy medicine
  - B. Biologically based practices
  - C. Manipulative and body based practices
  - D. All of the above
52. How many cancer survivors are there estimated to be in the US?
- A. More than 15 million
  - B. Less than 10 million
  - C. 9 million
  - D. 8 million
53. Common challenges cancer survivors face include all of the following except:
- A. Getting health insurance
  - B. Permanent treatment side effects
  - C. An improved quality of life
  - D. The need for long term follow up medical care
54. Physical effects of coping with cancer can include:
- A. Fatigue
  - B. Pain
  - C. Nausea and vomiting
  - D. All of the above
55. The National Cancer Institute found almost half of their cancer centers offered what as an adjunctive therapy to cancer treatment?
- A. Naturopathic medicine
  - B. Massage therapy
  - C. Chinese medicine
  - D. Chiropractic care
56. Which of the following is a possible clinical presentation of someone with cancer?
- A. Patient with stage 3 breast cancer
  - B. Patient with thyroid cancer
  - C. Long term cancer survivor
  - D. All of the above are possible clinical presentations

57. Which of the following is not a reported benefit of massage therapy?
- A. Helps people with arthritis
  - B. Helps constipation
  - C. Helps win the lottery
  - D. Helps colds and the flu
58. Which of the following are benefits of massage in cancer?
- A. Relieves pain
  - B. Decreases anxiety
  - C. Decreases fatigue
  - D. All of the above
59. The most common symptoms people with cancer complain of include all of the following except:
- A. Fatigue
  - B. Depression
  - C. Pain
  - D. Headaches
60. What myth is behind the absolute contraindication of massage therapy in cancer?
- A. Massage promotes metastasis by increasing lymph and blood circulation
  - B. Massage promotes pain relief and feelings of well-being
  - C. Massage promotes stress reduction and decreases anxiety
  - D. Massage promotes metastasis by decreasing lymph and blood circulation
61. The contraindication for all massage in all cancer patients is:
- A. Too general and vague
  - B. Documented in the research
  - C. Currently taught in massage schools
  - D. Proven beyond a shadow of a doubt
62. What things are known to increase lymph and blood circulation?
- A. Diets and sleep
  - B. Exercise and deep breathing
  - C. Reading and learning
  - D. Writing and drawing
63. Which of the following is not a contraindication for massage therapy in cancer?
- A. On a tumor site
  - B. Around bone involvement
  - C. Hair loss
  - D. DVT
64. If a client reports a new sharp pain with tingling and numbness, the therapist must:
- A. Refer them to a physician
  - B. Refer them to a different massage therapist
  - C. Refer them to a massage clinic
  - D. Refer them to a nurse

65. Which of the following are considered vital or major organs?
- A. Brain
  - B. Heart
  - C. Lungs
  - D. All of the above
66. All of the following are symptoms of DVT except:
- A. Red, painful extremity
  - B. Cough, asthma, wheezing
  - C. Warm, swollen extremity
  - D. Rope like feeling in extremity
67. Risk factors of DVT include all of the following except:
- A. Healthy BMI
  - B. Obesity
  - C. Immobility
  - D. Oral contraceptives
68. When a massage therapist strongly suspects DVT, what is the most appropriate reaction?
- A. Modify massage treatment to client
  - B. Proceed as normal with massage treatment
  - C. Referral to the client's physician
  - D. None of these
69. If a client has been treated with blood thinners, what is the massage therapists concern?
- A. Bruising with deep or vigorous massage
  - B. Infections with deep or vigorous massage
  - C. Lymphedema with deep or vigorous massage
  - D. Constipation with deep or vigorous massage
70. Signs and symptoms of an infections may include all of the following except:
- A. Fever and chills
  - B. Nausea and vomiting
  - C. Redness and pain at incision site
  - D. Swelling and heat at incision site
71. A possible massage treatment technique for constipation in a cancer patient after surgery is:
- A. Soft abdominal holding
  - B. Traction in legs
  - C. Joint movement in shoulder
  - D. Pressure in the extremities
72. Lymphedema is also called:
- A. Lymphatic dissection
  - B. Lymphatic obstruction
  - C. Lymphatic loss
  - D. Lymphatic drainage



73. Common medical devices cancer patients deal with may include all of the following except:
- A. Vascular access ports
  - B. Ostomies
  - C. Coronary stent
  - D. Surgical drains
74. Which of the following is not a side effect of chemotherapy treatments?
- A. Pregnancy
  - B. Low red blood cell counts
  - C. Low blood platelet counts
  - D. Mouth sores
75. When the client is nauseated, the massage therapist should use:
- A. Predictable movements
  - B. Slow movements
  - C. Even speeds
  - D. All of the above
76. Low blood platelets lead to:
- A. Fatigue and pale skin
  - B. Excess bleeding or easy bruising
  - C. Increased infection risk
  - D. None of the above
77. What is contraindicated over irritated or inflamed skin?
- A. Massage pressure and friction
  - B. Reiki holding hands above skin surface
  - C. A prescribed medication
  - D. None of the above
78. What massage technique is used for bone involvement?
- A. Joint movement
  - B. Deep/vigorous massage
  - C. Careful/cautious positioning
  - D. None of these
79. What massage technique is used for fatigue in cancer clients?
- A. Slow, gentle, even, modified treatments
  - B. Fast, hard, uneven modified treatments
  - C. Rocking, jostling treatments
  - D. Strong Swedish massage
80. The massage therapist suspects the client has a pulmonary embolism. What is the best course of action?
- A. Immediate referral to another massage therapist
  - B. Immediate referral to physician or emergency room
  - C. Immediate referral to a nurse
  - D. Immediate referral to hospice

This completes the Cancer and Massage Therapy exam.