



## 96a Special Populations: Cancer



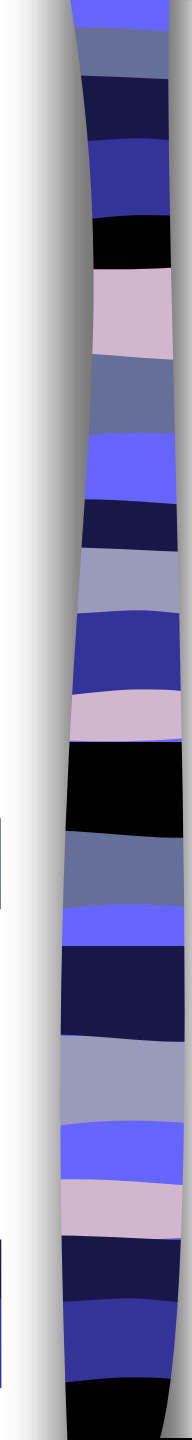
# 96a Special Populations: Cancer

## Class Outline

5 minutes Attendance and Breath of Arrival

55 minutes Lecture: Cancer

60 minutes Total Class Time



# 96a Special Populations: Cancer

## Class Reminders

- **Assessments:**

- 96b Deep Massage Touch Assessment  
Packet A:81-82; 89-90

- **Preparation for upcoming classes:**

- 96b Deep Massage: Touch Assessment
- 97a Myofascial and Fascia Techniques (Part II)
- 97b Myofascial and Fascia Techniques: Demo and Practice



# Classroom Rules

**Punctuality** - everybody's time is precious

- Be ready to learn at the start of class; we'll have you out of here on time
- Tardiness: arriving late, returning late after breaks, leaving during class, leaving early

**The following are not allowed:**

- Bare feet
- Side talking
- Lying down
- Inappropriate clothing
- Food or drink except water
- Phones that are visible in the classroom, bathrooms, or internship

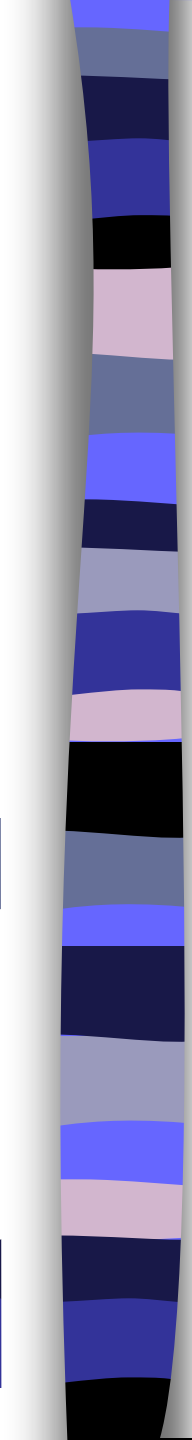
*You will receive one verbal warning, then you'll have to leave the room.*



# 96a Special Populations: Cancer

K- 39-58

Principles of Cancer  
How can massage help?



*“Skilled massage therapy is safe for people with cancer and will not spread the disease. Specific massage adjustments are based on clinical presentations of cancer, not the presence of a cancer diagnosis.”*

*--Tracy Walton*



# Cancer

A collection of 175+ diseases with one thing in common: normal body cells mutate slightly and begin to replicate uncontrollably.

First described by Hippocrates (460-370 BC) who named it for a tumor's resemblance to a crab.

Galen (130-200 AD), a Roman physician, used the word *oncos* (Greek for swelling) to describe tumors. Although the crab analogy of Hippocrates is still used to describe malignant tumors, Galen's term is now used as a part of the name for cancer specialists — oncologists.



# General types of Cancer

- **Carcinoma**- Most common type. Begins in epithelial cells (solid tumors), that cover the inside and outside surface of the body. Adenocarcinomas form in epithelial cells that produce fluids or mucus. Most cancers of the breast, colon, and prostate are adenocarcinomas.
- **Sarcoma**- Begins in muscle, fat, blood vessels, lymph vessels or connective tissue (solid tumors). Osteosarcoma is the most common cancer of bone.
- **Leukemia**- Begins in blood-forming tissue/bone marrow, esp. white blood cells ("liquid" or "blood cancer"). The low level of normal blood cells can make it harder for the body to get oxygen to its tissues, control bleeding, or fight infections.
- **Lymphoma**- Begins in lymphocytes (T cells or B cells), glands, nodes, and organs of the lymphatic system. There are disease-fighting white blood cells that are part of the immune system. There are 2 main types: Hodgkin lymphoma and Non-Hodgkin lymphoma.





# General types of Cancer

- **Multiple Myeloma-** Begins in plasma cells (another type of immune cell) from bone marrow. The abnormal plasma cells build up in the bone marrow and form tumors in bones all through the body.
- **Melanoma-** Begins in the cells that become melanocytes, which are specialized cells that make melanin. Most melanomas form on the skin, but they can also form in other pigmented tissue, such as the eye.
- **Brain and Spinal Cord Tumors-** Different types. These tumors are named based on the type of cell in which they formed and where the tumor first formed in the CNS. For example, an astrocytic tumor begins in astrocytes (brain cells), which help keep nerve cells healthy. Brain tumors can be benign (not cancer) or malignant (cancer).
- **Mixed-** Begins in more than one type of tissue
- **Other Types-**
  - Germ cell tumors
  - Neuroendocrine tumors
  - Carcinoid tumors



# Cancers discussed Elsewhere in Pathology by Ruth Werner

- Skin Cancer (Chapter 2)
- Osteosarcoma (Chapter 3)
- Leukemia and Myeloma (Chapter 5)
- Lymphoma (Chapter 6)
- Lung and Laryngeal cancer (Chapter 7)
- Esophageal, stomach, colorectal, liver, and pancreatic cancer (Chapter 8)
- Thyroid cancer (Chapter 9)
- Kidney and Bladder cancer (Chapter 10)
- Cervical, uterine, breast, ovarian, prostate, and testicular cancer (Chapter 11)



# Risks of Cancer and Massage?

- No risk of spreading cancer with massage—it's already present in the body
- Do no harm
- Guidelines for massage are determined by the circumstances presented in each case, not by the fact that cancer exists



# Cancer Statistics Bleak yet Hopeful

- 40% of all people in the U.S. will develop some sort of cancer during their life.
- In 2021, it is estimated that there will be 1.8 million new cancer diagnoses.
- 570,000 people die every year of cancer—the 2<sup>nd</sup> leading cause of death (1<sup>st</sup> is heart disease).
- As of January 2019, it is estimated that there are 16.9 million cancer survivors in the United States. This represents approximately 5% of the population.



# Most common cancers

- Skin cancers
- Lung cancer
- Breast & Ovarian cancer
- Prostate cancer
- Cancer of the colon, rectum, and pancreas
- Outside the U.S., lung cancer (smoking) and liver and cervical cancers (Hepatitis B and C, and HPV, respectively)



# Metastasis- Cancer Spreads

- It's still unclear how a healthy cell changes to a malignant one
- DNA of a cell mutates
- The current (very simplified) version of metastasis has 6 stages:
  - Oncogene Activation
  - Local Invasion
  - Proliferation
  - Angiogenesis
  - Migration- Cell Shedding
  - Colonization



# Oncogene Activation

An oncogene is a gene that initiates malignant characteristics within a cell. When activated, an oncogene begins the changes that cause a cell to become malignant.

Oncogenes are usually inhibited by the activity of tumor suppressor genes. A lack of the suppressor genes may be a significant factor in cancer risk.

Triggers for oncogene activation are thought to be:

- Toxic environmental exposures
- Diet
- Genetic predisposition
- Combination of the above



# Local Invasion

- As a tumor grows, it must convince the local extracellular matrix to make room for it without stimulating an inflammatory response.
- Special enzymes secreted by cancer cells are at the center of this process. The enzymes dissolve the surrounding connective tissue, and the process does not trigger the usual inflammatory response.
- This is why cancer is often silent in the early stages.





# Proliferation

- Mutated cells reproduce without control, often piling up into masses called tumors.
- These tumors secrete enzymes that allow them to survive a normal immune system attack.



# Angiogenesis

- Angiogenesis is the growth of blood vessels that supply the tumor.
- Any growth of more than 1 or 2 cubic centimeters requires a dedicated blood supply; chemical messengers from the tumor command the body to build new capillaries.
- The more blood vessels a tumor has, the more likely it is to have metastasized.



# Migration- Cell Shedding

- Cancer cells break off of the primary tumor and travel to new areas.
- The circulatory or lymphatic systems can be used as a transfer medium, but cancer cells can also spread through direct contact with other organs in the peritoneal fluid.



# Colonization- Cell Planting

- When the cancer cells land in their new location, the process begins again with proliferation.
- The first tumor that grows is the primary tumor; other tumors that grow from the metastasis of the primary tumor are called secondary tumors.
- For example, a tumor that is in the bladder that metastasized from the ovary is not bladder cancer; it is considered to be secondary ovarian cancer in the bladder.



# Causes of Cancer: Internal Factors

- Apoptosis is cell death; however, cancer cells seem to refuse to die
- Inherited characteristics (a genetic predisposition; Angelina Jolie)
- Hormonal activity (some hormones seem to stimulate malignant cell division)
- Immune system problems (reduced ability of the body to recognize and fight off cancer cells)



# Causes of Cancer: External Factors

- Alcohol
- Compounds (from amino acids) are created when meat is grilled on high heat
- Substances found in dyes, inks, and paints
- Radiation from the sun, Radon gas
- Excessive x-rays, Gamma rays
- Asbestos, Formaldahyde
- Benzene, Arsenic, Benzidine
- Cadmium, Nickel compounds, Uranium, Beryllium, Thorium
- Vinyl chloride, Crystalline silica (respirable size)
- Aflatoxins (fungi from crops like corn, peanuts, cottonseed, and tree nuts)
- Coal tar and Coal-Tar Pitch, Coke-Oven emissions
- Secondhand Tobacco Smoke, Soot, Wood Dust
- And more



# Causes of Cancer: Viruses

- HTLV-1—resembles HIV, a retrovirus that is spread through intimate fluids (lymphocytic leukemia, non-Hodgkin lymphoma)
- HPV—human papillomavirus (warts, cancer of the cervix, anus, penis, vagina, vulva, mouth, and throat). Vaccine is available
- HHV-8—human herpesvirus 8 (Kaposi sarcoma, a type of skin cancer associated with repressed immune system)
- HIV—indirectly associated with cancer due to suppressed immune system that would otherwise protect from HPV and HHV-8
- EBV—Epstein-Barr Virus, another herpesvirus (nasopharyngeal cancer, stomach cancer, etc.)
- HBV and HCV—Hepatitis B & C viruses (liver cancer)



# Causes of Cancer: Bacteria and Animal Parasites

## Bacteria

- *Helicobacter pylori* (stomach cancer)
- *Borrelia burgdorferi* (Spirochete for Lyme disease)
- *Campylobacter jejuni*
  - Both of the last two have been associated with digestive tract lymphomas

## Animal parasites

- Liver flukes—(cancer of the bile ducts)
  - spread through consumption of raw or undercooked fish
- *Schistoma haematobium* (bladder cancer)
  - Spread through contaminated water; not found much in the U.S.





# Causes of Cancer

Combining factors increases risk of developing cancers

- Example: heavy smoking and alcohol consumption is potent for developing cancers of the mouth or upper GI tract
- It can take years for a cancer to form between the time of exposure and the time of diagnosis; this makes it hard to pin down the exact causes of cancer



# Signs and Symptoms of Cancer

- A change in bowel or bladder habits—blood in the stool or urine
- A sore that does not heal, or comes and goes in the same place
- Change in a wart or mole
- Uterine bleeding between periods, or post menopause
- A lump or thickening in the breast or elsewhere
- A prostate exam that shows enlargement
- Indigestion or swallowing difficulty
- Persistent cough or hoarseness, coughing up blood
- Unexplained weight loss
- Fatigue, anemia
- Unexplained fever



# Cancer Screening

## 2 Goals

- To find cancer cells while treatment is most likely to succeed
- Increase survival rate

## Screening Tests

- Mammograms
- Prostate Exams
- Colonoscopy/Endoscopy
- Cervical Cancer Screening
- Other tests depending on risk factors



# Risks of Screening Tests

Not all screening protocols accomplish these goals equally well — risks are:

- Exposure to radiation
- Perforation of hollow organs
- False-negative results
- False-positive results
- Over diagnosis, which can lead to anxiety and unnecessary interventions (surgery)



# Biopsy

A tissue sample taken after screening to analyze for the presence of malignant cells

- Often done for skin lesions

If the analysis is positive for malignant cells, further examinations of the patient follow to determine how far the cancer has developed.



# Staging

Labeling a cancer to indicate how far it has progressed

- Based on how cancer grows and how readily certain types of cancer metastasize
- For more information, go to [www.cancer.gov](http://www.cancer.gov) and search for “cancer staging”



# Cancer Treatment

Depends on:

- The stage of the cancer
- The age, general health and wishes of the patient
- What kind of cancer is present

Different modes of attack may be used to treat the cancer if different types of tumors are present



# Types of Therapy for Treatment

- Treatments used before treatment begins
  - Radiation to shrink tumors before surgery
- Treatments used following the main treatment (surgery, chemo, radiation) to increase the chance for complete success
  - Tamoxifen (oral chemotherapy for breast cancer survivors)
- Palliative therapy is given to a patient who is not likely to survive the disease
  - Surgery to reduce tumor size might be conducted, not to cure the cancer but to relieve pain





# Main Treatments for Cancer

- Surgery to remove tumors and affected lymph nodes (especially sentinel nodes)
- Radiofrequency thermal ablation (microwave the tumors)
- Chemotherapy (cytotoxic drugs target fast growing cells)
- Autologous bone marrow transplant
- Radiation therapy
- Hormone therapy



# Main Treatments for Cancer

- Hypothermia (cryotherapy—used for skin cancers in the early stage or for cancer of the cervix)
- Hyperthermia (raising body temperature, makes chemotherapy work better)
- Biologic (targeted) therapy (strengthens the immune system to fight off the cancer)
- Stem cell implantation (currently used for leukemia patients)



# Prevention

- Stay away from tobacco
- Avoid known carcinogens
- Be safe in the sun
- Changes in diet and lifestyle- eat healthy and get active
- Use alcohol moderately
- Practice safe sex
- Vaccinate against cancer-causing pathogens
- Use early cancer screening methods



# Massage for Cancer

- WILL NOT spread cancer—but it would be inappropriate to rub on a tumor or mobilize joints in the vicinity of a tumor.
- 5 common symptoms patients experience while undergoing treatment for cancer
  - Pain
  - Anxiety
  - Nausea
  - Fatigue
  - Depression

*Massage helps with ALL these symptoms!*



# Massage for Cancer

- Massage also helps with other problems during and after cancer treatment, such as
  - Constipation
  - Altered body image
  - Poor sleep
  - Dry Skin
- **Most important, however, is that massage provides a basic human need: nurturing, caring, and informed touch when many patients feel isolated and dehumanized**



# Massage Risks for Clients with Cancer

Complications of cancer & various cancer treatments have serious implications on the choice to bodywork modalities you do.

- Tumor sites
  - Massage should not disrupt a tumor site close to the surface of the body
- Bone involvement
  - Cancer that has metastasized to the bone can make the bones brittle; risk of fracture
- Vital organ involvement
  - Cancer in organs can compromise function of that organ; evaluate risk carefully with medical team
- Deep vein thrombosis
  - Red flag for massage; danger of moving a clot



# Massage Risks for Cancer Treatment

- Surgery
  - Infection
  - Constipation
  - Implanted medical devices (ports, catheters, drains, ostomies)
  - Possible lymphedema
- Radiation
  - Thin, reddened skin at radiation site
  - Implanted radiation pellets
  - Irritated GI tract (nausea, vomiting, diarrhea)
  - Bone marrow suppression
  - Fatigue



# Massage Risks for Cancer Treatment

- Chemotherapy
  - Administered orally or via IV drips (ports, arm)
  - Suppress bone marrow activity (anemia, risk of infection, clotting problems)
  - GI irritation, mouth sores, hand-foot syndrome, hair loss, neuropathy, constipation, skin rashes, mood changes, dry skin
  - Wearing gloves is indicated for treatments
  - Some chemotherapy drugs can be expressed through the patient's skin
  - Cuts down the risk of infection because chemotherapy patients are often so immune-compromised





# Massage Risks for Cancer Treatment

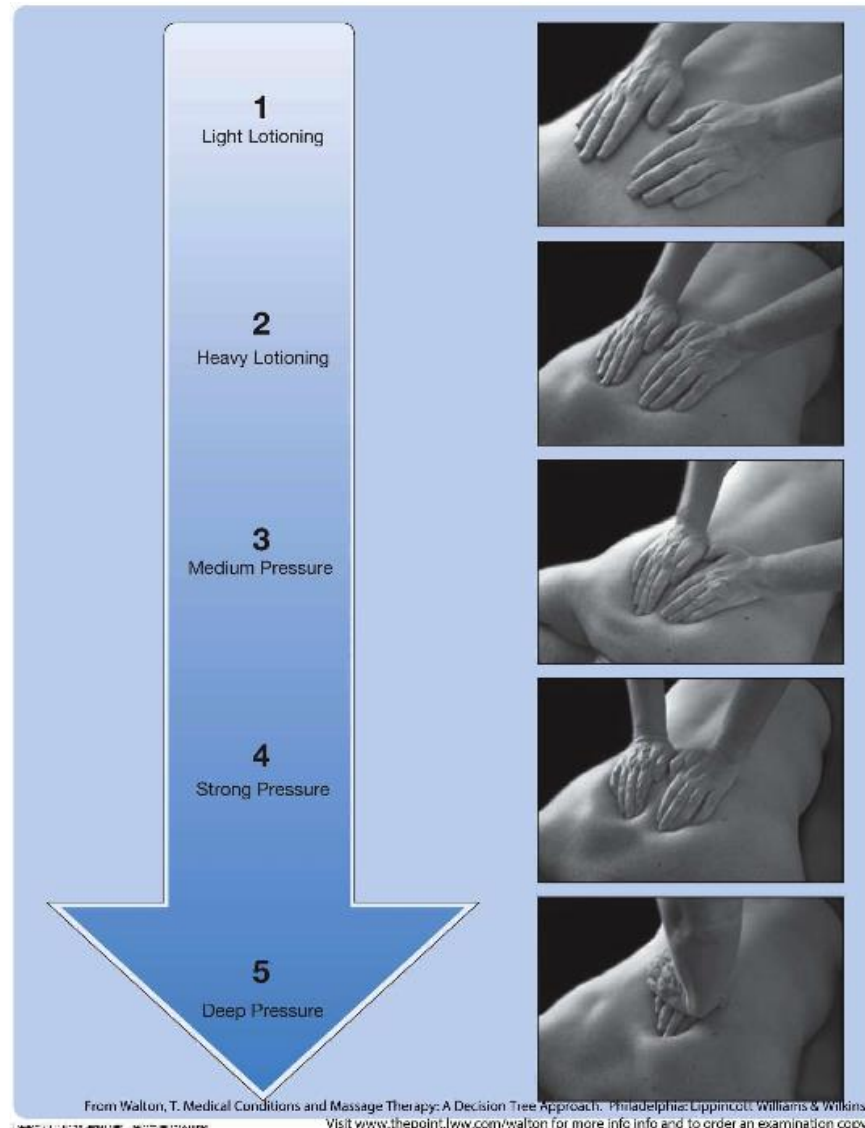
- Other therapies
  - Hormone treatments may increase blood clots
  - Biologic therapies increase fatigue and flu-like symptoms
  - Cryotherapy can leave irritated places on the skin

In all cases it is imperative to communicate with the health care team to provide the best bodywork with minimal risk.



# Massage Benefits for Cancer Patients

- Improves sleep
- Increases appetite
- Relieves constipation
- Improves mood
- Reduces anxiety
- Decreases depression
- Alleviates pain
- Improves quality of life



<http://www.tracywalton.com/medical-conditions-and-massage-therapy/Walton%20Pressure%20Scale%20Descriptions%20Table%202-1%20Medical%20Conditions%20and%20Massage%20Therapy.pdf>



# The Massage Therapy Pressure Scale

- Level 1– **Light Lotioning** (as if applying lotion). For clients who are *fragile*.
- Note: Slow speed is required to monitor this pressure. Use full hand contact, even though pressure is light. Hand contact should be full and contoured—relax the whole palm, fingers, and fingertips onto the skin's surface. “Resist the impulse to pull back.”
- **Strokes:** Light effleurage, holding, light touch
- **Tissue displacement:** Either no skin movement or movement of skin only.
- **Therapist body use:** Use just arms and hands. No leaning body mechanics required.



# The Massage Therapy Pressure Scale

- **Level 2—Heavy Lotioning** (as if rubbing in lotion). For clients who are *ill or elderly*.
- Note: this is less careful than light lotioning. Do not need slow speed to monitor this pressure. Similar to applying sun block or lotion on a child.
- **Strokes:** Effleurage, light friction, gentle trembling, vibration, holding, touch
- **Tissue displacement:** Some movement of the superficial muscles and adipose tissue.
- **Therapist body use:** Little hand strength is needed, just for contouring. Use arms and hands. No leaning body mechanics required.



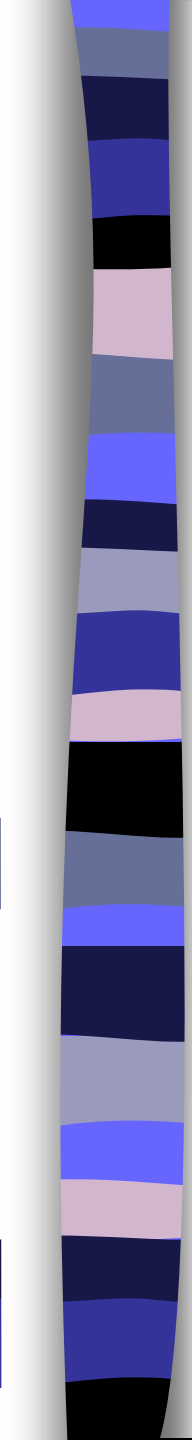
# Training Available

- Tracy Walton and Associates- Oncology Massage Training at TLC
  - 4 full days
  - **Register Early at TLC**
  - <http://www.tracywalton.com>
- MD Anderson Oncology Massage training
  - Usually 3 full days at MD Anderson in Houston
  - Lectures from doctors and LMTs, a panel discussion with cancer patients currently in treatment, hands on experience
  - <http://www.mdanderson.org/education>
- Other Hands-on Training
  - Available in various courses all over the country
  - Required for S4OM (Society for Oncology Massage) membership. Tracy Walton, Gail MacDonald, others teach this type of course
- Infusion Room Training
  - Greet the Day (California based) offers a specific protocol in massage techniques for patients while they are receiving chemotherapy
  - <https://greettheday.org/education/>



# Volunteer

- A great way to practice is to volunteer your massage services right here in Austin
- Oncology Massage Alliance (OMA) provides free massages in the infusion rooms at Texas Oncology
- Basic training provided
- <http://www.oncologymassagealliance.org/>



*"By touching a body, we touch every event it has experienced. For a few brief moments we hold all of a client's stories in our hands. We witness someone's experience of their own flesh, through some of the most powerful means possible: the contact of our hands, the acceptance of the body without judgment, and the occasional listening ear.*

*"With these gestures we reach across the isolation of the human experience and hold another person's legend. In massage therapy, we show up and ask, in so many ways, what it is like to be another human being. In doing so, we build a bridge that may heal us both."*

*--Tracy Walton, "The Health History of a Human Being,"  
Massage Therapy Journal, Winter 1999.*





## 96a Special Populations: Cancer, Hospice and End of Life