



ESSENTIALS OF CANCER EXERCISE®

.....

MedeXN
fitness
INSTITUTE

 **CETI CANADA**
Cancer Exercise Training Institute

RELATIVE CONTRAINDICATIONS CANCER SURGERY

CHAPTER 2

.....
By Andrea Leonard
BA, CES, PES, CPT

2. RELATIVE CONTRAINDICATIONS

Cancer Surgery

Following any cancer surgery there is bound to be pain, scar tissue, and the possibility of adhesions. All of these can contribute to muscle imbalances and range of motion limitations. Therefore, it is imperative that you understand where the incision is, the direction of the incision (horizontal, vertical, diagonal, or laparoscopic), and if there was an amputation. If in fact there was an amputation, was it a muscle that was removed for use as a flap or was it a limb that will require a prosthetic device? All of these will factor into posture, ability to perform activities of daily living, whether or not there is a risk for lymphedema, and biomechanics.

The *general recommendation* is that patients are *at least 6-weeks* post-op prior to beginning an exercise program. It is mandatory that you have a medical clearance from the doctor prior to your first meeting if it involves anything physical (this includes assessment protocol). There are *certain procedures that may require 2-3 months* of healing time before a patient can safely begin an exercise program. Pain, as well as fear, can limit the motivation and ability to perform certain activities. Pushing someone too hard, or too fast, can result in physical injury as well as loss of interest.

Below you will find the most common surgical procedures, listed by cancer type, and their specific contraindications.

CANCER SURGERIES

Prostate Cancer Contraindications

Radical Prostatectomy

- **Retropubic**
 - Client should be able to stand “erect” with good posture prior to beginning any “crunch-type” exercises (this would exacerbate forward flexion).
 - You can begin with core exercises on an exercise ball, BOSU®, foam roller, balance discs, etc.
- **Perineal**
 - Client should avoid Squatting or lunging for at least 12 weeks after surgery

- Client should begin with body weight only and only a few repetitions. Gradually add more repetitions and **slowly** and progressively add more weight

Lymph node dissection

- Because your client will be at risk for lower extremity lymphedema, you must begin with a warm-up and lower extremity lymph drainage exercises
- Start and progress slowly when adding repetitions and resistance. Too much, too fast, can cause lymphedema.
- Recommend that client discuss compression stockings with their doctor
- If they have already been prescribed, they **MUST** wear them to exercise

Lung Cancer Contraindications

Mediastinoscopy

- Where is the incision?
- Address any muscle imbalances that may have arisen with corrective exercises
- Because your client will be at risk for lymphedema, you must begin with a warm-up and upper extremity lymph drainage exercises
- Start and progress slowly when adding repetitions and resistance. Too much, too fast, can cause lymphedema.
- Recommend that client discuss compression garments with their doctor
- If they have already been prescribed, they **MUST** wear them to exercise

All lung surgeries

- Be careful with placement on equipment and avoid anything that causes pain in area.
- Look for relative improvement in cardiorespiratory fitness. Are they more or less breathless with exercise? Is it improving?

Extended resection

- Where was muscle flap taken from?
- Address any muscle imbalances that may have arisen with corrective exercises

Kidney Cancer Contraindications

Partial nephrectomy

- Where is the incision?
- Address any muscle imbalances that may have arisen with corrective exercises.

Radical nephrectomy

- Where is the incision?
- Address any muscle imbalances that may have arisen with corrective exercises
- Expect excessive fatigue in the absence of adrenal gland
- Because your client will be at risk for lower extremity lymphedema, you must begin with a warm-up and lower extremity lymph drainage exercises
- Start and progress slowly when adding repetitions and resistance. Too much, too fast, can cause lymphedema.
- Recommend that client discuss compression garments with their doctor
- If they have already been prescribed, they **MUST** wear them to exercise

Cancer of the Colon or Rectum Contraindications

Colon resection (Colectomy)

- Where is the incision?
- Address any muscle imbalances that may have arisen with corrective exercises
- Because your client will be at risk for lower extremity lymphedema, you must begin with a warm-up and lower extremity lymph drainage exercises
- Start and progress slowly when adding repetitions and resistance. Too much, too fast, can cause lymphedema.
- Recommend that client discuss compression garments with their doctor
- If they have already been prescribed, they **MUST** wear them to exercise

Low anterior resection

- Where is the incision?

- Address any muscle imbalances that may have arisen with corrective exercises
- Because your client will be at risk for lower extremity lymphedema (risk doubles with radiation), you must begin with a warm-up and lower extremity lymph drainage exercises
- Start and progress slowly when adding repetitions and resistance. Too much, too fast, can cause lymphedema.
- Recommend that client discuss compression garments with their doctor
- If they have already been prescribed, they **MUST** wear them to exercise

Abdominal-perineal resection

- Where is the incision?
- Address any muscle imbalances that may have arisen with corrective exercises

Bladder Cancer Contraindications

Radical Cystectomy

- Where is the incision?
- Address any muscle imbalances that may have arisen with corrective exercises
- Because your client will be at risk for lower extremity lymphedema (risk doubles with radiation), you must begin with a warm-up and lower extremity lymph drainage exercises
- Start and progress slowly when adding repetitions and resistance. Too much, too fast, can cause lymphedema.
- Recommend that client discuss compression garments with their doctor
- If they have already been prescribed, they **MUST** wear them to exercise
- If the prostate or ovaries are removed, your female client will experience menopause and your male client will experience menopause-like symptoms. Both will have a tendency to gain weight (body fat) and be at risk for osteoporosis. Weight bearing exercise will be critical; as will a healthy diet.

Urostomy

- Be sensitive to placement on equipment or having them in prone position due to external pouch.
- If they get an infection at their stoma site, it will increase their risk for lymphedema if they have had nodes removed or received radiation.

Pancreatic Cancer Contraindications

Whipple procedure

- Where is the incision?
- Address any muscle imbalances that may have arisen with corrective exercise
- Possibility of developing diabetes or worsening diabetes
- Peripheral neuropathy if they have/get diabetes
- Stomach may be paralyzed for 4-6 weeks after surgery and require feeding tube. May have ongoing issues with weight loss and digestive problems leading to malnourishment.

Distal pancreatectomy

- Where is the incision?
- Address any muscle imbalances that may have arisen with corrective exercises
- Diabetes
- Peripheral neuropathy
- Weight loss
- Immunocompromization if spleen was removed

Total pancreatectomy

- Where is the incision?
- Address any muscle imbalances that may have arisen with corrective exercises
- Diabetes
- Peripheral neuropathy
- Because your client will be at risk for lower extremity lymphedema (risk doubles with radiation), you must begin with a warm-up and lower extremity lymph drainage exercises
- Start and progress slowly when adding repetitions and resistance. Too much, too fast, can cause lymphedema.
- Recommend that client discuss compression garments with their doctor
- If they have already been prescribed, they **MUST** wear them to exercise
- Immunocompromization if spleen was removed
- Osteopenia

Minimally invasive surgery

- Your client will be at risk for lower extremity lymphedema if lymph nodes were removed. If so all lymphedema precautions will apply.

Cervical Cancer Contraindications

Laparoscopic hysterectomy

- Your client will be at risk for lower extremity lymphedema if lymph nodes were removed. If so all lymphedema precautions will apply.
- Your client will be in menopause if ovaries were removed – risk for osteoporosis

Total & radical hysterectomy

- Where is the incision?
- Address any muscle imbalances that may have arisen with corrective exercises
- Because your client will be at risk for lower extremity lymphedema (risk doubles with radiation), you must begin with a warm-up and lower extremity lymph drainage exercises
- Start and progress slowly when adding repetitions and resistance. Too much, too fast, can cause lymphedema.
- Recommend that client discuss compression garments with their doctor
- If they have already been prescribed, they **MUST** wear them to exercise
- Your client will be in menopause if ovaries were removed – risk for osteoporosis

Laparoscopic-assisted radical vaginal hysterectomy

- Because your client will be at risk for lower extremity lymphedema (risk doubles with radiation), you must begin with a warm-up and lower extremity lymph drainage exercises
- Start and progress slowly when adding repetitions and resistance. Too much, too fast, can cause lymphedema.
- Recommend that client discuss compression garments with their doctor
- If they have already been prescribed, they **MUST** wear them to exercise
- Your client will be in menopause if ovaries were removed – risk for osteoporosis

Radical trachelectomy

- Where is the incision?
- Address any muscle imbalances that may have arisen with corrective exercises

- Because your client will be at risk for lower extremity lymphedema (risk doubles with radiation), you must begin with a warm-up and lower extremity lymph drainage exercises
- Start and progress slowly when adding repetitions and resistance. Too much, too fast, can cause lymphedema.
- Recommend that client discuss compression garments with their doctor
- If they have already been prescribed, they **MUST** wear them to exercise

Pelvic exenteration

- Where is the incision?
- Address any muscle imbalances that may have arisen with corrective exercises
- Because your client will be at risk for lower extremity lymphedema (risk doubles with radiation), you must begin with a warm-up and lower extremity lymph drainage exercises
- Start and progress slowly when adding repetitions and resistance. Too much, too fast, can cause lymphedema.
- Recommend that client discuss compression garments with their doctor
- If they have already been prescribed, they **MUST** wear them to exercise
- Your client will be in menopause if ovaries were removed – risk for osteoporosis
- Be sensitive to placement on equipment, or having them in prone position due to external pouch
- If they get an infection at their stoma site, it will increase their risk for lymphedema if they have had nodes removed or received radiation.
- If skin or muscle grafts are used for reconstructive procedures, address any muscle imbalances that may have arisen with corrective exercises

Sentinel lymph node biopsy

- Because your client will be at risk for lower extremity lymphedema (risk doubles with radiation), you must begin with a warm-up and lower extremity lymph drainage exercises
- Start and progress slowly when adding repetitions and resistance. Too much, too fast, can cause lymphedema.
- Recommend that client discuss compression garments with their doctor
- If they have already been prescribed, they **MUST** wear them to exercise

Uterine Cancer Contraindications

Laparoscopic hysterectomy

- Your client will be at risk for lower extremity lymphedema if lymph nodes were removed. If so all lymphedema precautions will apply.
- Your client will be in menopause if ovaries were removed – risk for osteoporosis

Total & radical hysterectomy

- Where is the incision?
- Address any muscle imbalances that may have arisen with corrective exercises
- Because your client will be at risk for lower extremity lymphedema (risk doubles with radiation), you must begin with a warm-up and lower extremity lymph drainage exercises
- Start and progress slowly when adding repetitions and resistance. Too much, too fast, can cause lymphedema.
- Recommend that client discuss compression garments with their doctor
- If they have already been prescribed, they **MUST** wear them to exercise
- Your client will be in menopause if ovaries were removed – risk for osteoporosis

Laparoscopic-assisted radical vaginal hysterectomy

- Because your client will be at risk for lower extremity lymphedema (risk doubles with radiation), you must begin with a warm-up and lower extremity lymph drainage exercises
- Start and progress slowly when adding repetitions and resistance. Too much, too fast, can cause lymphedema.
- Recommend that client discuss compression garments with their doctor
- If they have already been prescribed, they **MUST** wear them to exercise
- Your client will be in menopause if ovaries were removed – risk for osteoporosis

Radical trachelectomy

- Where is the incision?
- Address any muscle imbalances that may have arisen with corrective exercises
- Because your client will be at risk for lower extremity lymphedema (risk doubles with radiation), you must begin with a warm-up and lower extremity lymph drainage exercises

- Start and progress slowly when adding repetitions and resistance. Too much, too fast, can cause lymphedema.
- Recommend that client discuss compression garments with their doctor
- If they have already been prescribed, they **MUST** wear them to exercise

Pelvic exenteration

- Where is the incision?
- Address any muscle imbalances that may have arisen with corrective exercises
- Because your client will be at risk for lower extremity lymphedema (risk doubles with radiation), you must begin with a warm-up and lower extremity lymph drainage exercises
- Start and progress slowly when adding repetitions and resistance. Too much, too fast, can cause lymphedema.
- Recommend that client discuss compression garments with their doctor
- If they have already been prescribed, they **MUST** wear them to exercise
- Your client will be in menopause if ovaries were removed – risk for osteoporosis
- Be sensitive to placement on equipment, or having them in prone position due to external pouch
- If they get an infection at their stoma site, it will increase their risk for lymphedema if they have had nodes removed or received radiation.
- If skin or muscle grafts are used for reconstructive procedures, address any muscle imbalances that may have arisen with corrective exercises

Sentinel lymph node biopsy

- Because your client will be at risk for lower extremity lymphedema (risk doubles with radiation), you must begin with a warm-up and lower extremity lymph drainage exercises
- Start and progress slowly when adding repetitions and resistance. Too much, too fast, can cause lymphedema.
- Recommend that client discuss compression garments with their doctor
- If they have already been prescribed, they **MUST** wear them to exercise

Tumor debulking

- If lymph nodes are removed, follow all lymphedema precautions and recommendations

- If spleen is removed, client will be immunocompromised
- If pancreas is removed, client will have diabetes
- Peripheral neuropathy if they have/get diabetes
- Digestive problems if stomach is removed

Panniculectomy

- Client should be able to stand “erect” with good posture prior to beginning any “crunch-type” exercises (this would exacerbate forward flexion).
- You can begin with core exercises on an exercise ball, BOSU®, foam roller, balance discs, etc.

Ovarian Cancer Contraindications

Laparotomy

- If lymph nodes are removed, follow all lymphedema precautions and recommendations

Tumor debulking

- If lymph nodes are removed, follow all lymphedema precautions and recommendations
- If spleen is removed, client will be immunocompromised
- If pancreas is removed, client will have diabetes
- Peripheral neuropathy if they have/get diabetes
- Digestive problems if stomach is removed

Total hysterectomy

- Where is the incision?
- Address any muscle imbalances that may have arisen with corrective exercises
- Because your client will be at risk for lower extremity lymphedema (risk doubles with radiation), you must begin with a warm-up and lower extremity lymph drainage exercises
- Start and progress slowly when adding repetitions and resistance. Too much, too fast, can cause lymphedema.
- Recommend that client discuss compression garments with their doctor

- If they have already been prescribed, they **MUST** wear them to exercise
- Your client will be in menopause if ovaries were removed – risk for osteoporosis

Bladder Cancer Contraindications

Subtotal and total gastrectomy

- Where is the incision?
- Address any muscle imbalances that may have arisen with corrective exercises
- Because your client will be at risk for lower extremity lymphedema (risk doubles with radiation), you must begin with a warm-up and lower extremity lymph drainage exercises
- Start and progress slowly when adding repetitions and resistance. Too much, too fast, can cause lymphedema.
- Recommend that client discuss compression garments with their doctor
- If they have already been prescribed, they **MUST** wear them to exercise
- If spleen is removed, client will be immunocompromised
- If pancreas is removed, client will have diabetes
- Peripheral neuropathy if they have/get diabetes
- Dumping syndrome - with most or all of the stomach missing, the food spills into the intestine too rapidly. In late dumping syndrome the small intestine is forced to absorb larger amounts of food than normal, driving up the concentration of sugar in the circulation. The pancreas produces excess insulin to regulate the blood glucose level. Clients may feel weak or tired several hours after eating from a drop in blood sugar. They may also have a headache, sweating, anxiety, and/or tremors. Early dumping syndrome can take place several minutes after eating. Blood pressure increases, but blood flow to the intestine decreases, Symptoms include an irregular or rapid heartbeat, dizziness, shortness of breath, flushed skin, vomiting, abdominal cramps, and diarrhea. The smaller the remaining stomach, the worse the symptoms. The symptoms usually subside within 3-12 months, but in some clients the condition may become chronic. Clients can control their symptoms by eating frequent, smaller meals, low in carbohydrates. Fluids should be consumed between meals rather than accompanying them.

Lymph node dissection

- Because your client will be at risk for lower extremity lymphedema (risk doubles with radiation), you must begin with a warm-up and lower extremity lymph drainage exercises
- Start and progress slowly when adding repetitions and resistance. Too much, too fast, can cause lymphedema.
- Recommend that client discuss compression garments with their doctor
- If they have already been prescribed, they **MUST** wear them to exercise

Liver Cancer Contraindications

Partial hepatectomy

- Where is the incision?
- Address any muscle imbalances that may have arisen with corrective exercises
- If part of the diaphragm is removed, client will need to focus on breathing techniques and pacing themselves during exercise.

Total hepatectomy and liver transplant

- Where is the incision?
- Address any muscle imbalances that may have arisen with corrective exercises
- Immunocompromization as a result of immunosuppressive drugs

Clients commonly experience side effects from the drugs used to treat or prevent rejection:

Cortisone-like drugs produce some fluid retention and puffiness of the face, risk of worsening diabetes and osteoporosis, sleep problems, mood changes, acne, dry skin, thinning skin, bruising, slow wound healing, increased sweating, headache, dizziness, nausea, and stomach pain.

Prograf and Cyclosporine (an immunosuppressant) produce some tendency to develop high blood pressure, kidney and liver problems, diabetes, periodontal disease, tremors or shaking, headache or body pain, diarrhea, constipation, vomiting, numbness, and the growth of body hair.

FK-506 (an immunosuppressant) may cause infection, heart and lung damage, headaches, diarrhea, increased tension, nausea, blurred vision, diabetes, itching, liver and kidney dysfunction, loss of appetite, insomnia, confusion, weakness, depression, cramps, neuropathy, seizures, and tremors.

Brain Cancer Contraindications

Craniotomy

- Your client may present with acute or chronic coordination problems. Make sure that they are in a safe environment free of tripping hazards. Avoid exercises that put them at risk for falling. Have them work on balance exercises with you there to spot them, or something stable for them to hold on to. If they have been prescribed a helmet, they **MUST** wear it to exercise.
- Your client may have difficulty speaking and thinking. Be patient. Encourage them to take their time when they communicate with you. Take extra time and care in explaining how to perform exercises. Even if they were Olympic Athletes previously, they may be starting from ground zero.
- If your client has a seizure while exercising:

Protect the person from injury

- Keep him or her from falling if you can or try to guide the person gently to the floor, then call 911.
- Try to move furniture or other objects that might injure the person during the seizure.

- Once you have them safely on the ground, try to position the person on his or her side so that fluid can leak out of the mouth. Be careful not to apply too much pressure to the person's body.
- Do not force anything, including your fingers, into the person's mouth.
- Do not try to hold down the person. This can cause injury, such as a dislocated shoulder.

Testicular Cancer Contraindications

Radical inguinal orchiectomy

- Where is the incision?
- Address any muscle imbalances that may have arisen with corrective exercises

Retroperitoneal lymph node dissection

- Where is the incision?
- Address any muscle imbalances that may have arisen with corrective exercises
- Because your client will be at risk for lower extremity lymphedema (risk doubles with radiation), you must begin with a warm-up and lower extremity lymph drainage exercises
- Start and progress slowly when adding repetitions and resistance. Too much, too fast, can cause lymphedema.
- Recommend that client discuss compression garments with their doctor
- If they have already been prescribed, they **MUST** wear them to exercise
- In the absence of testosterone, your client will have a difficult time building lean muscle mass, may experience breast tenderness or growth, weight gain, and will be at a higher risk for osteoporosis.

Small Intestine Cancer Contraindications

Small bowel resection

- Where is the incision?
- Address any muscle imbalances that may have arisen with corrective exercises
- Because your client will be at risk for lower extremity lymphedema (risk doubles with radiation), you must begin with a warm-up and lower extremity lymph drainage exercises

- Start and progress slowly when adding repetitions and resistance. Too much, too fast, can cause lymphedema.
- Recommend that client discuss compression garments with their doctor
- If they have already been prescribed, they **MUST** wear them to exercise
- In the absence of testosterone, your client will have a difficult time building lean muscle mass, may experience breast tenderness or growth, weight gain, and will be at a higher risk for osteoporosis.

Whipple procedure

- Where is the incision?
- Address any muscle imbalances that may have arisen with corrective exercise
- Possibility of developing diabetes or worsening diabetes
- Peripheral neuropathy if they have/get diabetes
- Stomach may be paralyzed for 4-6 weeks after surgery and require feeding tube. May have ongoing issues with weight loss and digestive problems leading to malnourishment.

Lip & Oral Cavity Cancer Contraindications

Glossectomy, hemiglossectomy, mandibulectomy, and maxillectomy

- Difficulty swallowing and chewing; often limited to liquids.
- Malnourishment

Segmental mandibulectomy

- Was there a bone graft? Where was it taken from?
- Address any muscle imbalances that may have arisen with corrective exercise

Neck Dissection

- Where is the incision?
- Address any muscle imbalances that may have arisen with corrective exercises

- Because your client will be at risk for lymphedema in the face and neck (risk doubles with radiation), you must begin with a warm-up and upper extremity lymph drainage exercises
- Start and progress slowly when adding repetitions and resistance. Too much, too fast, can cause lymphedema.

Radical neck dissection

- Where is the incision?
- Address any muscle imbalances that may have arisen with corrective exercises; shoulder movement is likely to be impaired.
- Reduced strength in neck and head movements
- Because your client will be at risk for lymphedema in the face and neck (risk doubles with radiation), you must begin with a warm-up and upper extremity lymph drainage exercises
- Start and progress slowly when adding repetitions and resistance. Too much, too fast, can cause lymphedema.

Reconstructive surgery

- Was there a bone or muscle graft? Where was it taken from?
- Address any muscle imbalances that may have arisen with corrective exercise

Tracheotomy/tracheostomy

- Avoid activities that run the risk of getting water in airway

Thyroid Cancer Contraindications

Lobectomy, isthmusectomy, and near total thyroidectomy

- If lymph nodes are removed, follow all lymphedema precautions and recommendations

Total thyroidectomy

- If lymph nodes are removed, follow all lymphedema precautions and recommendations
- Client will have an increased risk of osteoporosis
- Client is likely to struggle with weight gain and fatigue

Esophageal Cancer Contraindications

Esophagectomy

- If lymph nodes are removed, follow all lymphedema precautions and recommendations
- If part of the stomach is removed, digestive issues and possible malnourishment

Open esophagectomy

- *Transthoracic esophagectomy* /incision in the chest and abdomen and *transhiatal esophagectomy*/incision in the abdomen and neck
- Address any muscle imbalances that may have arisen with corrective exercises

Mediastinoscopy or thoracoscopy

- If lymph nodes are removed, follow all lymphedema precautions and recommendations

Laryngeal Cancer Contraindications

Partial / supraglottic laryngectomy

- Avoid activities that run the risk of getting water in airway

Total laryngectomy

- Avoid activities that run the risk of getting water in airway

Radical neck dissection

- Where is the incision?
- Address any muscle imbalances that may have arisen with corrective exercises; shoulder movement is likely to be impaired.
- Reduced strength in neck and head movements
- Because your client will be at risk for lymphedema in the face and neck (risk doubles with

Throat Cancer Contraindications

Pharyngectomy

- Because your client will be at risk for lymphedema in the face and neck (risk doubles with radiation), you must begin with a warm-up and upper extremity lymph drainage exercises

Laryngopharyngectomy

- Because your client will be at risk for lymphedema in the face and neck (risk doubles with radiation), you must begin with a warm-up and upper extremity lymph drainage exercises
- See contraindications for reconstructive surgery below

Partial laryngopharyngectomy

- Avoid activities that run the risk of getting water in airway

Radical neck dissection

- Where is the incision?
- Address any muscle imbalances that may have arisen with corrective exercises; shoulder movement is likely to be impaired.
- Reduced strength in neck and head movements
- Because your client will be at risk for lymphedema in the face and neck (risk doubles with radiation), you must begin with a warm-up and upper extremity lymph drainage exercises

Throat reconstructive surgery

- Was there a muscle graft? Where was it taken from?
- Address any muscle imbalances that may have arisen with corrective exercise

Glossectomy, hemiglossectomy, and maxillectomy

- Difficulty swallowing and chewing; often limited to liquids.
- Malnourishment

Lymphoma Contraindications

Incisional or core biopsy, excisional biopsy, and fine needle aspiration

- Because your client will be at risk for lymphedema anywhere lymph nodes are removed (risk doubles with radiation), you must begin with a warm-up and upper/lower extremity lymph drainage exercises

Bone & Soft Tissue Cancer Contraindications

Surgical excision, conservative surgical excision, wide surgical excision, and radical surgical excision

- Where is the incision?
- Address any muscle imbalances that may have arisen with corrective exercises

Limb-sparing surgery

- Because your client will be at risk for lymphedema due to the high doses of radiation, you must begin with a warm-up and upper/lower extremity lymph drainage exercises
- Was there a bone or muscle graft? Where was it taken from?
- Address any muscle imbalances that may have arisen with corrective exercise

Reconstructive surgery

- What type of reconstruction did they undergo? Follow precautions/limitations for previously listed types of reconstruction
- Where is the incision?
- Address any muscle imbalances that may have arisen with corrective exercises

Skin Cancer Contraindications

Sentinel node biopsy

- Because your client will be at risk for lymphedema anywhere lymph nodes are removed (risk doubles with radiation), you must begin with a warm-up and upper/lower extremity lymph drainage exercises

Breast Cancer Contraindications

Lumpectomy

- Because your client will be at risk for lymphedema in the affected arm (side) from radiation, you must begin with a warm-up and upper extremity lymph drainage exercises.

- Because of potential scar tissue/adhesions from radiation and surgery, address any muscle imbalances, and range of motion limitations, that may have arisen with corrective exercises.

Partial/segmental mastectomy (quadrantectomy)

- Because your client will be at risk for lymphedema in the affected arm (side) from radiation, you must begin with a warm-up and upper extremity lymph drainage exercises. Risk increases if lymph nodes have been removed.
- Because of potential scar tissue/adhesions from surgery, address any muscle imbalances, and range of motion limitations, that may have arisen with corrective exercises.

Total/simple mastectomy

- Because of potential scar tissue/adhesions from radiation and surgery, address any muscle imbalances, and range of motion limitations, that may have arisen with corrective exercises.
- If lymph nodes are removed, follow all lymphedema precautions and recommendations and look for “winged scapula” and lymphatic cording. If there is noticeable cording, client needs to see physical therapist. You can coordinate with therapist to give them a home-based stretching routine.

Skin - sparing mastectomy

- Because of potential scar tissue/adhesions from radiation and surgery, address any muscle imbalances, and range of motion limitations, that may have arisen with corrective exercises

Subcutaneous mastectomy

- Because of potential scar tissue/adhesions from radiation and surgery, address any muscle imbalances, and range of motion limitations, that may have arisen with corrective exercises.

Modified radical mastectomy

- Because your client will be at risk for lymphedema in the affected arm (side) from node dissection, you must begin with a warm-up and upper extremity lymph drainage exercises. Look for “winged scapula” and lymphatic cording. If there is noticeable cording, client needs to see physical therapist. You can coordinate with therapist to give them a home-based stretching routine.
- Because of potential scar tissue/adhesions from surgery, address any muscle imbalances, and range of motion limitations, that may have arisen with corrective exercises. There is a greater likelihood of frozen shoulder; if client can't raise arm at least 90 degrees in flexion and abduction, they should be referred to a physical therapist.

Nipple-sparing mastectomy

- Because your client will be at risk for lymphedema in the affected arm (side) from radiation, you must begin with a warm-up and upper extremity lymph drainage exercises.
- Because of potential scar tissue/adhesions from radiation and surgery, address any muscle imbalances, and range of motion limitations, that may have arisen with corrective exercises.
- If lymph nodes are removed risk of lymphedema will increase. Look for “winged scapula” and axillary cording.

Radical mastectomy

- Because your client will be at risk for lymphedema in the affected arm (side) from node dissection, you must begin with a warm-up and upper extremity lymph drainage exercises. Look for “winged scapula” and lymphatic cording. If there is noticeable cording, client needs to see physical therapist. You can coordinate with therapist to give them a home-based stretching routine.
- Because of potential scar tissue/adhesions from surgery, address any muscle imbalances, and range of motion limitations, that may have arisen with corrective exercises. There is a greater likelihood of frozen shoulder; if client can't raise arm at least 90 degrees in flexion and abduction, they should be referred to a physical therapist.
- Inability to perform horizontal abduction

Axillary node dissection (ALND)

- Because your client will be at risk for lymphedema in the affected arm (side) from node dissection, you must begin with a warm-up and upper extremity lymph drainage exercises.
- Look for “winged scapula” and lymphatic cording. If there is noticeable cording, client needs to see physical therapist. You can coordinate with therapist to give them a home-based stretching routine.
- Because of potential scar tissue/adhesions from surgery, address any muscle imbalances, and range of motion limitations, that may have arisen with corrective exercises. There is a greater likelihood of frozen shoulder; if client can't raise arm at least 90 degrees in flexion and abduction, they should be referred to a physical therapist.
- Recurrent infections

Sentinel node biopsy

- Because your client will be at risk for lymphedema in the affected arm (side) from node dissection, you must begin with a warm-up and upper extremity lymph drainage exercises.
- Look for “winged scapula” and lymphatic cording. If there is noticeable cording, client needs to see physical therapist. You can coordinate with therapist to give them a home-based stretching routine.

- Because of potential scar tissue/adhesions from surgery, address any muscle imbalances, and range of motion limitations, that may have arisen with corrective exercises.

Implants / tissue expanders

- Capsular contracture - a condition in which scar tissue around the implant or expander hardens and then contracts. This can cause deformity, pain, and abnormal firmness of the breast.
- Pectoralis major may go into painful spasms - focus on gentle stretching.
- DO NOT perform ANY chest exercises while expanders are in place.
- When beginning range of motion exercises, start with limited range of motion and gradually increase as tolerated. Implants can “pop” out of pocket if normal range of motion is exceeded.
- Rupture – do not apply excessive pressure to chest with machines or placing client in prone position.

Latissimus Dorsi Flap (LAT) Flap

- Capsular contracture - a condition in which scar tissue around the implant or expander hardens and then contracts. This can cause deformity, pain, and abnormal firmness of the breast.
- Pectoralis major may go into painful spasms - focus on gentle stretching.
- When beginning range of motion exercises, start with limited range of motion and gradually increase as tolerated. Implants can “pop” out of pocket if normal range of motion is exceeded.
- Rupture – do not apply excessive pressure to chest with machines or placing client in prone position.
- Because of potential scar tissue/adhesions from surgery, address any muscle imbalances, and range of motion limitations, that may have arisen with corrective exercises.
- The Lat will “fire” anteriorly, just as it did in its’ original posterior location. Focus on scapular stabilization exercises and try and minimize compound back exercises such as a Lat pulldown. The Lat will hypertrophy/atrophy just as it would in its’ posterior location.

Trans Rectus Abdominis Myocutaneous (TRAM) Flap

- Because of potential scar tissue/adhesions from surgery, address any muscle imbalances, and range of motion limitations, that may have arisen with corrective exercises.
- The goal for the first few weeks/months after surgery will be to get the client to be able to stand erect, without forward hip flexion.
 - Although having a unilateral TRAM (one side of the rectus abdominis) will not prohibit client from doing “crunch” type exercises, it is ill advised as it will create more of a muscular imbalance. Focus on core and balance exercises as well as oblique exercises.
 - A client with a bi-lateral TRAM (both sides of rectus abdominis) will not be able to perform forward flexion “crunch” type exercises at all.
- Forward flexion will give way to excessive lordosis, typically after the first few months, as the “tightness” anteriorly gives way to “weakness” and the low back begins to compensate.
- The Rectus will “fire” just as it did in its’ original location. The fat/skin of the flap will also gain/lose weight as it would in its original location.

DIEP and SIEA Flaps

- Because of potential scar tissue/adhesions from surgery, address any muscle imbalances, and range of motion limitations, that may have arisen with corrective exercises.
- The goal for the first few weeks/months after surgery will be to get the client to be able to stand erect, without forward hip flexion.

GAP (Gluteal Artery Perforator) Flap

- Because of potential scar tissue/adhesions from surgery, address any muscle imbalances, and range of motion limitations, that may have arisen with corrective exercises.

TDAP (Thoracodorsal Artery Perforator) Flap

- Because of potential scar tissue/adhesions from surgery, address any muscle imbalances, and range of motion limitations, that may have arisen with corrective exercises.

TUG (Transverse Upper Gracilis) Flap

- Because of potential scar tissue/adhesions from surgery, address any muscle imbalances, and range of motion limitations, that may have arisen with corrective exercises.

Multiple Myeloma Complications

- Multiple myelomas' main effect is on the bones, especially the spine and rib cage. As the cancer cells grow, they stimulate the activities of other cells to eat away at the bone. Skeletal x-rays of clients often display gaping black holes called **lytic lesions**. These holes leave the bones weak and prone to fracture. The first indicators of the disease are often bone pain in the back or ribs, and broken bones. Although multiple myeloma attacks bone, it is not bone cancer because it originates in the plasma cells.
- Because multiple myeloma erodes the bone, calcium is released into the blood and builds up in large amounts causing symptoms of **hypercalcemia**; nausea, fatigue, and thirst. It is important to try and prevent fractures through weight bearing exercise. A cane or walker can be used to provide a wider base of support. Drinking plenty of fluids is also important, since it helps the kidneys to get rid of excess calcium in the blood and prevents problems that occur when calcium collects in the kidneys.
- As malignant plasma cells invade the marrow, white cells, red cells, and platelets are crowded out and can't produce their usual cells. A deficiency in red blood cells brings on symptoms of **anemia**; fatigue, shortness of breath, and lethargy. Too few platelets in the bloodstream are known as **thrombocytopenia** and can lead to excessive bleeding and bruising.
- In multiple myeloma, the myeloma cells crowd out the normal plasma cells, so that the antibodies to fight the infection aren't made. Infections associated with multiple myeloma include **pneumococcal pneumonia, streptococcus, staphylococcus, and shingles (herpes zoster)**. In order to prevent infections, clients should not get any vaccines or inoculations with live materials. They should consume plenty of fluids, as well as a diet high in calories and proteins, and should get plenty of rest.
- In three out of four clients, a substance called **Bence-Jones proteins** are produced by the plasma cells, clogging the narrow tubules of the kidneys and damaging the organs. Clients sometimes have impaired renal function and have to go on kidney dialysis while they're being treated for the cancer. The kidney damage may be permanent, but is often reversible with treatment, sustaining minimal damage.
- **Spinal cord compression is one of the most severe adverse effects of multiple myeloma.** Reports indicate that as many as 20% of clients develop spinal cord compression at some point during the course of their disease. **Symptoms typically include back pain, weakness or paralysis in the legs, and numbness in the lower extremities.** However, depending on the level of involvement, clients may present with upper extremity symptoms. The dysfunction may be reversible, depending on the duration of the cord compression; however, once established, the dysfunction is only rarely fully reversed.

- **Kidney Dialysis** – in *hemodialysis*, a machine called a *dialyzer* carries out the task of filtering blood three times a week. In *peritoneal dialysis*, the function is performed several times a day, but inside the person's body.
- **Plasmapheresis** – clients are connected to a machine similar to a *dialyzer*, filtering out the excess myeloma antibodies. Plasmapheresis thins the blood and eases the workload of the kidneys and heart.



ESSENTIALS
OF CANCER
EXERCISE®

.....

MedeXN
fitness
INSTITUTE

 CETI
Cancer Exercise Training Institute

<http://medexn.com/>

.....
By Andrea Leonard
BA, CES, PES, CPT