



1st Annual MSKCC Cancer Rehabilitation Symposium


**Oncology Basics
Outpatient Treatment Interventions and
Considerations for Patients with Breast
Cancer**

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OBJECTIVES

1. Recognize the outpatient rehabilitation implications for breast cancer survivors.
2. Identify key impairments and special considerations that can impact the assessment, treatment and successful outcomes of a person with breast cancer.
3. Select appropriate and effective interventions to treat impairments secondary to breast cancer treatments.



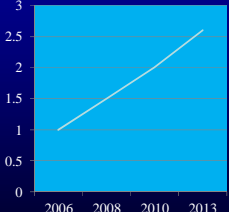
BREAST CANCER




BREAST CANCER

- In the US in 2013 (www.cancer.gov)¹:
 - ~232,000 Women
 - ~2200 Men
- > 2.6 million breast cancer (BC) survivors in the US (www.cancer.org)²

BC Survivors



Year	BC Survivors
2006	1.0
2008	1.5
2010	2.0
2013	2.6



BREAST CANCER TREATMENTS

TREATMENTS

- SURGERY (Primary)
- CHEMOTHERAPY
- RADIATION THERAPY
- HORMONE THERAPY



REHABILITATION IMPLICATIONS

•6 years after diagnosis, > 60% of women BC survivors experience 1 or more adverse treatment effects. (Schmitz, et al. 2012³.)

Diagnosis Treatment Impairments Functional Limitations

REHABILITATION IMPLICATIONS^{4,5}

Early and Late effects of breast cancer treatment


- Upper quadrant dysfunction
- Pain
- Chemo-induced peripheral neuropathy (CIPN)
- Secondary lymphedema
- Lower quadrant dysfunction
- Cancer-related fatigue
- Cardiotoxicity
- Osteopenia/Osteoporosis
- Arthralgias

UPPER QUADRANT DYSFUNCTION⁵

IMPAIRMENTS	FUNCTIONAL LIMITATIONS
<ul style="list-style-type: none">• ↓ ROM• ↓ strength• ↓ skin, fascia, muscular mobility• Denervated muscles• ↓ sensation• ↓ joint mobility• Neural tension• ↓ coordination/fine motor• Postural dysfunction	<ul style="list-style-type: none">• Overhead reach• Retrieve items from floor• Pushing & pulling open doors• Dressing, eating and other ADLs• Using computer• Writing• Carrying groceries, other IADLs• Participation in sports


WHEN TO START REHAB?

- BEFORE**
 - Post-op day 1
 - Prior to radiation
- DURING**
 - Radiation
 - ↓ ROM
 - ↓ Strength
 - Tissue Expanders
 - Chemotherapy
 - CIPN
- AFTER**
 - Upper quadrant dysfunction



OUTPATIENT REHABILITATION^{4,5}

- Scar Tissue
- Capsular Contracture
- Cording
- Radiation Fibrosis
- Scapular Dyskinesis
- Postural Dysfunction
- Neuropathies/Plexopathies
- Chemo-induced peripheral neuropathies (CIPN)




TREATMENTS AND CONSIDERATIONS^{6,7}



SCAR TISSUE


- Result of
 - Surgery
 - Radiation
- Impairments
 - Pain
 - ↓ ROM
 - ↓ Strength
- Loss of UE function
- TREATMENTS
 - Manual Therapy
 - Scar Massage
 - Myofascial Release (MFR)
 - Therapeutic Exercise
 - PROM/AROM UEs
 - Strengthening UEs
 - Modalities
 - Kinesiotape®



SCAR TISSUE TREATMENT

Manual Therapy

- Myofascial release (MFR)
 - Neck
 - Chest
 - Upper back
 - Abdominal
- Scar Tissue Mobilization
 - Mastectomy scars
 - Drain scars
 - ALND scars
 - TRAM and LAT scars
 - Capsular Contracture



SCAR TISSUE TREATMENT




SCAR TISSUE TREATMENT

- Latissimus Dorsi Flap

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SCAR TISSUE TREATMENT

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SCAR TISSUE TREATMENT:
DYCEM®

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MANUAL THERAPY CONSIDERATIONS

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SCAR TISSUE TREATMENT^{9,10}

- Kinesiotape®
 - Elastic tape
 - Can wear up to 5 days
 - RCT (Castro-Sanchez, et al., 2012)⁷
 - ↓ Pain control
 - Facilitate or inhibit muscles
 - ↓ disability
 - ↑ ROM
 - Other uses
 - Scar mobility
 - Edema


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SCAR TISSUE TREATMENT


- Therapeutic exercise
 - Breathing exercises
 - ROM exercises
 - Strengthening
 - **DO NOT STRENGTHEN THE PEC MAJOR FOR RECONSTRUCTION PATIENTS**

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CAPSULAR CONTRACTURE

- Result of
 - Scar tissue adhesions around implant
 - Surgery
 - Radiation
- Cause
 - Pain
 - ↓ ROM
- Baker's Grades⁹
 1. Soft, natural
 2. Firm, normal
 3. Firm, distorted
 4. Hard, distorted, painful
- Treatment
 - Manual Therapy
 - MFR/Scar massage
 - Self massage
 - Therapeutic exercise
 - ROM exercises
 - Breathing exercises
 - Modalities¹⁰
 - Kinesiotape®
 - Closed Capsulotomy
 - Surgery




CAPSULAR CONTRACTURE




CORDING¹¹

- Sclerosed & thrombosed
- Axillary Web Syndrome
- Breast and Trunk Cording
- Breast → Hand
- Can cause:
 - Pain
 - ↓ ROM
 - Edema
- Restrictions or adhesions



CORDING


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CORDING¹²


90% of BC survivors with
cords (Josenhans, E. 2006):

- Full pain free ROM
- Manual Therapy
 - MFR
 - Fixation
 - Hooking
 - Manual Lymph Drainage
 - Nerve Glide techniques

Photo by Laura Sheridan, PT, DPT, CLT


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CORDING

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CORDING^{8,9}

- Therapeutic Exercise
 - PROM/AROM B UEs
 - Strengthening Shoulder girdle
- Modalities
 - Kinesiotape®
- Patient Education
 - HEP
 - Self MFR with Dycem®
 - Nerve glides
 - Therex




RADIATION¹¹

- A beam of high-energy particles
- Destroys or slows down the growth of cancer cells
- Impacts all layers within radiation field



RADIATION FIBROSIS¹¹

- Progressive fibrotic sclerosis:
 - Skin
 - Fascia
 - Ligament
 - Tendon
 - Muscle
 - Nerves
 - Viscera
 - Bone
- Long term musculoskeletal and neuromuscular complications



RADIATION FIBROSIS TREATMENT

- Soft tissue and deep tissue mobilization
 - Pectoralis major and minor
 - Deltoid
 - Serratus anterior
 - Intercostals
 - Obliques
 - Latissimus dorsi
 - Upper trapezius
 - Rotator cuff



RADIATION FIBROSIS TREATMENT

- Joint Mobilizations
 - Glenohumeral
 - Sternoclavicular
 - Acromioclavicular
 - Sternocostal
 - 1st Rib
 - Ribs 2-7th
 - Coracoclavicular
 - Cervical and Thoracic spine




RADIATION FIBROSIS TREATMENT

- Nerve Glides
 - Brachial Plexus
 - Median Nerve
 - Ulnar Nerve
 - Radial Nerve



RADIATION FIBROSIS TREATMENT



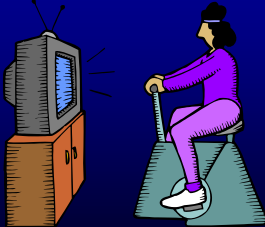
- Therapeutic Exercise
 - Breathing exercises
 - Stretching
 - Strengthening
- Neuromuscular Re-education
 - Postural Re-education
 - PNF



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RADIATION FIBROSIS TREATMENT

- Patient Education
 - Skin Hygiene
 - Life long HEP



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SCAPULAR DYSKINESIS^{5,11,13,14}


- Dysfunctional scapula
 - Movement
 - Position
- Scapulo-humeral rhythm
- Develops secondary to radiation &/or surgery
 - Overactive
 - Upper trapezius
 - Pectoralis major
 - Weak serratus anterior



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SCAPULAR DYSKINESIS TREATMENT


- Manual Therapy
 - MFR
 - Posterior capsule stretching
 - STM to pectoralis minor/major
 - PROM/stretching of shoulder
 - Joint mobilizations



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SCAPULAR DYSKINESIS TREATMENT

- Neuro Re-education
 - Postural alignment
 - PNF
 - Kinesiotape®¹⁰
- Strength training
 - Rotator cuff muscles
 - Theraband®
 - Serratus
 - Scapular retraction/protraction on wall
 - Rhomboids
 - Mid and lower trapezius
 - Prone and side lying exercises



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SCAPULAR DYSKINESIS TREATMENT^{15,16}


- Cools, et al., 2007¹⁵
 1. Side lying external rotation
 2. Side lying forward flexion
 3. Prone horizontal abduction with external rotation
 4. Prone extension




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POSTURAL DYSFUNCTION

BEFORE



AFTER





BRA FIT

- Well fitting supportive bra
 - Proprioceptive cueing for posture
 - Un-weight chest
 - Manage pain
- Refer to a certified fitter
- S/P reconstruction
 - No underwire
 - Thicker straps
 - Measure Circumference
- Prosthetics
 - Light weight



BRA FIT

<http://danescreations.com/mybrasizesecrets.html>



NEUROPATHIES/PLEXOPATHIES¹⁷

- Damage due to radiation treatment
 - Brachial plexus or peripheral
 - Ischemic or fibrotic
- Treatment
 - Manual Therapy
 - Therapeutic Exercise
 - Neuromuscular Re-education
 - Bracing
 - Compensatory techniques
 - Modalities
 - Kinesiotape®¹⁸



CHEMOTHERAPY INDUCED PERIPHERAL NEUROPATHY (CIPN)^{11,19,20}

- Toxic damage to the peripheral nerves
 - Sensory
 - Motor
 - Autonomic
- Burning, numbness, tingling, pain.
- *Paclitaxel (Taxol®), Carboplatin (Paraplatin®), Cisplatin, Vinorelbine (Navelbine®)*



CIPN TREATMENTS²¹

HANDS



- Functional Training
 - Compensatory techniques
- Compression
 - Pain/symptom management
- Desensitization Techniques



CIPN TREATMENTS²¹

FEET

- Compression
 - CIPN pain/symptom management
- Gait training
- Balance training
- Orthotics bracing
- Desensitization Techniques




OTHER CONSIDERATIONS




LYMPHEDEMA^{11,22}

- Disruption of lymphatic system
 - Protein rich fluid in interstitial space
 - Swelling:
 - Arm
 - Breast
 - Shoulder
 - Neck
 - Trunk
 - Legs
- 6-12 months post BC treatment




LYMPHEDEMA²²

- Complete Decongestive Therapy (CDT)
 - Manual Lymph Drainage
 - Compression
 - Bandaging
 - Garments
 - Exercise
 - Self Care and Management




LYMPHEDEMA²²

<p>2 types of BC client</p> <ul style="list-style-type: none"> • Lymphedema <ul style="list-style-type: none"> – Self management – Garments • At risk for lymphedema <ul style="list-style-type: none"> – Education on precautions – Referral to certified therapist 	<p>Precautions</p> <ul style="list-style-type: none"> – Measure/monitor circumference of UE – Avoid ice or heat – Avoid aggressive joint mobilization and STM – Wear garments while exercising
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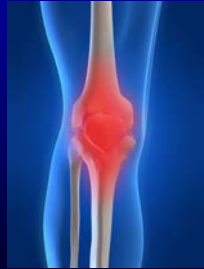
CANCER-RELATED FATIGUE (CRF)²³

- 58%-94% of BC patients experience CRF during treatment (de Jong, et al, 2004).
- Results from cancer, its treatments or other co-morbid conditions
- Treatment strategies
 - Physical activity and exercise
 - Cognitive behavioral therapy
 - Pharmaceuticals



ARTHRALGIAS²⁴

- Joint pain and stiffness
- Winters-stone et al, 2012
 - 50% of BC survivors taking Aromatase inhibitors
 - 10% of women on Tamoxifen
- Treatment Strategies
 - Weight loss
 - Exercise
 - Manual Lymph Drainage
 - NSAIDs



OSTEOPENIA/OSTEOPEROSIS²⁴

- BC survivors below age expected BMD (Chen et al, 2005)²⁵
 - American College of Sports Medicine²⁶
 - Weight bearing exercises, 3-5x/day
 - Resistance exercises, 2-3x/day
 - 30-60 min/day
 - Caution with joint mobilizations
 - Educate in body mechanics





Post-chemotherapy Cognitive Impairment¹⁷

- “CHEMO-BRAIN”
 - Thinking and memory impairments
- TREATMENT
 - Cognitive therapy
 - Reinforce HEP
 - May need increased cueing





CARDIOTOXICITY

- **CARDIO TOXICITY**
 - 33% of BC survivors may experience a cardiotoxic treatment effect (Schmitz et al, 2012)²⁷.
 - Monitor vitals
 - Modifiable risk factors
 - Weight control
 - Smoking Cessation



RED FLAGS/PRECAUTIONS

1. Metastasis
 - Bone, brain, lungs
2. Recurrence
3. Cellulitis
4. Venous thrombosis



QUESTIONS???

