EXERCISE CONTRAINDICATIONS / PRECAUTIONS AFTER BREAST SURGERY					
TRAM flap reconstruction	TRAM stands for the transverse rectus abdominis muscle, which is located in the lower abdomen, between the waist and the pubic bone. A TRAM flap uses a part of this muscle, its blood vessels, and some belly fat to rebuild the breast.				
	<ul> <li>After TRAM flap surgery, you can start walking the next day, though it will probably hurt because of the incision in your abdomen.</li> <li>For the first two days, many physical therapists recommend women do calf exercises and deep breathing exercises to help prevent blood clots.</li> <li>You can start arm rehabilitation exercises 3 or 4 days after surgery.</li> <li>Once the drains are removed, you can start stretching your chest, shoulders, and arms. It's also a good idea to walk regularly as you recover.</li> <li>Don't do any abdominal ("abs") exercises until about 6 weeks after surgery or whenever your surgeon says it's OK to start. Start slowly and gently while continuing your stretching exercises and walking or other low-intensity aerobic exercise.</li> <li>Those with a unilateral TRAM Flap may need minor assistance in lowering themselves back onto the floor.</li> <li>Bi-lateral Tram Flap, will not be able to roll backwards or subsequently roll back to an upright position without assistance.</li> </ul>				
Latissimus dorsi flap reconstruction	<ul> <li>The latissimus dorsi is the muscle below the shoulder and behind the armpit. A latissimus dorsi flap uses an oval section of this muscle, skin, and fat to rebuild the breast.</li> <li>Because this type of reconstruction affects the shoulder muscle, you should wait to start any gentle shoulder stretching until about 2 weeks after surgery.</li> <li>Wait until about 3 months after surgery to do any resistance/strength exercises.</li> <li>If you have any shortness of breath, pain, or tightness in your chest, stop exercising immediately. Tell your doctor what happened and work with him or her to develop a plan of movements that are right for you.</li> <li>LAT Flap - may have noticeable weakness and instability in the affected shoulder(s).</li> <li>Retract the shoulders prior to initiating the movement. This will help to contract the rhomboids and other scapular stabilizers.</li> <li>Keep in mind that if you had a LAT Flap that one, or both, of the latissimus muscles are now in their chest wall. Because they are still "attached," they may feel a contraction in their chest when back exercises are performed.</li> </ul>				
DIEP flap reconstruction	<ul> <li>DIEP stands for deep inferior epigastric perforator. In a DIEP flap, fat, skin, and blood vessels, but no muscles, are cut from the wall of the lower belly and moved up to your chest to rebuild your breast.</li> <li>After DIEP flap surgery, you can start walking the next day, though it will probably hurt because of the incision in your abdomen.</li> <li>For the first 2 days, many physical therapists recommend women do calf exercises and deep breathing exercises to help prevent blood clots.</li> <li>You can start arm rehabilitation exercises 3 or 4 days after surgery.</li> <li>Once the drains are removed, you can start stretching your chest, shoulders, and arms. It's also a good idea to walk regularly as you recover.</li> <li>Don't do any abdominal ("abs") exercises until about 6 weeks after surgery or whenever your surgeon says it's OK to start.</li> </ul>				

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	If you have a tissue expander in (a temporary inflatable implant that stretches the skin to make				
Tissue expander	room for the final implant), you can usually start gentle shoulder stretching exercises about 2				
	weeks after surgery once your mastectomy scar has started to heal.				
	Many physical therapists recommend doing these stretches right after a warm shower				
	because the muscles and skin are more flexible.				
	It is rare but possible that the implants will move out of their "pocket" and need				
	surgical correction.				
	No chest exercises when tissue expanders are in place.				
	BreastCancer.org and CETI (Pilates)				
	Both light exercise and aerobic exercise (physical activity that causes the heart and	r			
Lymphedema and	lungs to work harder) help the lymph vessels move lymph out of the affected limb and				
Exercise	decrease swelling.				
	<ul> <li>If you have lymphedema or are at risk, talk with a certified lymphedema theremist before beginning eventies. This includes proceeding the best had humph</li> </ul>				
	therapist before beginning exercise. This includes anyone who has had lymph				
	$\circ$ Patients who have lymphedema or who are at risk for lymphedema				
	should talk with a certified lymphedema therapist before beginning an				
	exercise routine. Adding resistance				
	<ul> <li>(See the Lymphology Association of North America</li> </ul>				
	(https://www.clt-lana.org/) web site for a list of certified				
If you have	lymphedema therapists in the US)				
lymphedema or	<ul> <li>Wear a pressure garment if lymphedema has developed.</li> </ul>				
are at risk. talk	<ul> <li>Patients who have lymphedema should wear a well-fitting pressure</li> </ul>				
with a certified	garment during all exercise that uses the affected limb or body part.				
lumphodomo	<ul> <li>When it is not known for sure if a woman has lymphedema, upper- body oversise without a garment may be more beloful than no eversise</li> </ul>				
iymphedema	at all				
therapist before	<ul> <li>Patients who do not have lymphedema do not need to wear a pressure</li> </ul>				
beginning	garment during exercise.				
exercise.	• Avoid wrapping a band around your hand when using for resistance. This will				
	put you at risk for increased edema by cutting off the circulation. Hold the				
This includes	band or use a band that has handles.				
anyone who has	Breast cancer survivors should begin with light upper-body exercise and				
had lymph	increase it slowly.				
nodes removed	<ul> <li>Some studies with breast cancer survivors show that upper-body</li> <li>eversion is cafe in women who have lymphodoma or who are at risk for</li> </ul>				
noues removed	lymphedema				
	<ul> <li>Weight-lifting that is slowly increased may keep lymphedema from</li> </ul>				
	getting worse.				
Increasing	• Exercise should start at a very low level, increase slowly over time, and				
resistance too	be overseen by the lymphedema therapist.				
quickly can	$\circ$ If exercise is stopped for a week or longer, it should be started again at				
exacerbate	a low level and increased slowly.				
condition	<ul> <li>If symptoms (such as swelling or heaviness in the limb) change or increase for a weak as larger talk with the human advantation.</li> </ul>				
(See lymnhodoma	Increase for a week or longer, talk with the lymphedema therapist.				
(section)	over time is better for the affected limb than stopping the evercise				
section	completely.				
	<ul> <li>More studies are needed to find out if weight-lifting is safe for cancer survivors</li> </ul>				
	with lymphedema in the legs. NIH NCI (12)				

Axillary node dissection	<ul> <li>If you have undergone an axillary node dissection, or radiation/dissection to the nodes in the neck, you may struggle with scar tissue/adhesions in that area.</li> <li>Gently ease into the stretch and only go as far as you can, with mild discomfort, but NO pain</li> <li>Start with a few repetitions and gradually increase as tolerated (no swelling).</li> </ul> <i>CETI (Pilates)</i> Also see Lymphedema
Peripheral	Some cancer treatments cause peripheral neuropathy, a result of damage to the
Neuropathy	peripheral nerves. These nerves carry information from the brain to other parts of the
	body.
	<ul> <li>Feet or lower extremity – caution with standing on uneven surface, such as a Bosu ball</li> </ul>
	or balance pads due to decreased sensation in feet. Increased risk of failing.
	• Hands – caution with holding dumbbens of grasping resistance bands.
	Several structures, including vessels and muscles with their nerve supply, are related to the
Nerves that may be	breast and should be preserved during mastectomy or axillary node dissection.
damaged during	• The lateral pectoral nerve passes medially around the medial pectoralis minor,
surgery	and the medial pectoral nerve passes laterally around the pectoralis minor. These
	nerves can be severed during surgery. This results in numbness, motor atrophy,
	decreased sweat production in armpit and arm.
	• The <b>medial pectoral nerve</b> innervates pectoralis minor and the lateral portion of
	the pectoralis major muscles. Preservation of this nerve is particularly important to
	prevent atrophy of <b>the pectoral muscles</b> if submuscular implant reconstruction is planned.
	• The thoracodorsal nerve is identifiable medial to the thoracodorsal vein. Injury
	may result in a weakening of the latissimus.
	The long thoracic nerve of Bell is located more medially in the axilla. It runs just
	beneath the fascia of the serratus anterior, medial to the thoracodorsal complex.
	Injury to this nerve will result in weakness in the serratus and cause winging of
	the scapula.
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### Neurogenic causes of scapular winging and the physical exam

	Medial winging	Lateral winging	
Injured nerve	Long thoracic	Spinal accessory	Dorsal scapular
Muscle palsy	Serratus anterior	Trapezius	Rhomboids
Physical exam	Arm flexion; push-up motion	Arm abduction; external	Arm extension from full
	against a wall	rotation against resistance	flexion
Position of the scapula	Entire scapula displaced	Superior angle more laterally	Inferior angle more
compared to normal	more medial and superior	displaced	laterally displaced
compared to normal	more mediai and superior	displaced	laterally displaced

NCBI: Scapular winging: anatomical review, diagnosis, and treatments

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