

## **Instruction sheet for patients after breast cancer surgery and axillary lymph node dissection (ALND) – before and after hospital discharge** (Version B 2021)

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### **Dear Patient,**

A consensus exists between members of the professional staff that, following breast cancer surgery, instructions need to be provided for the immediate and later recuperation periods. We have written these detailed instructions for you. They are based on research we performed over two years (2018-2019) which enabled us to develop instructions to help prevent or reduce the risk for side effects from breast cancer surgery. We hope these instructions will help you during your recuperation period and wish you a speedy recovery.

During your recent surgery, some axillary lymph nodes were removed. The surgery and treatments which will follow contribute substantially to your recovery from breast cancer. However, some women develop immediate or later side effects from the surgery such as pain, shoulder movement restriction and swelling.

It is important to adopt certain behaviors to help your recovery process and reduce your risk for side effects in the future.

The instructions contain recommendations for the immediate period after your surgery (until the surgical wound heals) and for the time following.

### **The instructions are divided into three sections:**

- Section 1: instructions for the recovery period after surgery
- Section 2: instructions for risk reduction for arm lymphedema and other side effects
- Section 3: recommendations for exercises for the recovery period

**All information contained in these guidelines are our recommendation only and your treatment program should be chosen in consultation with your medical practitioner or physical therapist.**

## Section 1: Guidelines for the recovery period after surgery (up till the drain is removed and the surgical wound healed)

### Exercise instructions

In most hospitals physical therapists provide post-surgical instructions as well as instructions for home exercise.

### Breathing exercises

Breathing exercise is important for the first few days in order to prevent complications as a result of the anesthetic.

- **Deep breathing:** every two hours take 5 – 10 deep breaths
- **Coughing and expectoration:** it is important to avoid excess phlegm collecting in your lungs. If necessary, the physical therapist working in the surgical department will give you instruction on how to cough more easily and with less pain.
- **Walking:** helps to ventilate your lungs and ease general mobility. Make sure to walk and sit out of bed often during the day and to avoid lying in bed for long periods. When standing and walking try to relax the arm and shoulder on the operated side and to allow them to move more freely.

### Early mobility to improve range of movement

- In order to return early to full mobility, it is recommended to perform the exercises that the hospital physical therapist shows you on the first day after your surgery. Different exercises are performed at different stages of recovery and it is important to remember to progress gradually from stage to stage.
- The exercises are designed to improve elasticity of the scar tissue in the axilla as well as mobility of the trunk, the chest, shoulder and arm.
- The exercises are graded according to difficulty and you can progress movement range and muscular effort gradually.
- Avoid doing strenuous exercise with the arm on the side of the surgery for three weeks after the surgery (lifting heavy weights, sudden and painful movements).
- Perform the exercises slowly **up to the point of pain only**, 5-10 repetitions for each exercise. The exercises should be performed 1-3 times each day.

## Section 2 - Recommendations to reduce the risk of later side effects

A small number of women may develop side effects at any time after the surgery. These side effects may be localized to the region of the surgery (trunk, shoulder, breast or arm) or they may be more generalized. Examples of local side effects are arm lymphedema (swelling), shoulder movement limitation accompanied by arm and shoulder pain. Examples of general side effects are fatigue, sleep and mood disorders. The following recommendations help to reduce the risk of developing all side effects. For example, the recommendation to exercise reduces risk for arm lymphedema as well as for fatigue, mood and sleep disorders.

### Lymphedema

The lymphatic system, in addition to being part of the immune system, plays an important role in transport of body fluid and proteins. After surgery with axillary lymph node removal fluid drainage may be impaired with resulting arm or breast swelling.

In most cases the drainage function of removed nodes is successfully taken over by neighboring nodes and no problems arise.

Lymphedema (swelling) occurs when fluid collects in the tissues under the upper skin layer. It may appear months or years after the surgery and becomes a chronic condition. Physical therapy helps to reduce lymphedema swelling but does not cure it. Lymphedema prevention is very important.

### General recommendations for risk reduction for arm lymphedema and other side effects.

- Maintain arm hygiene and prevent infections. Any small injury to the skin of your affected arm should be immediately cleaned with an antiseptic.
- Maintain full shoulder and trunk range of movement.
- Return as soon as possible to routine daily activity including using your arm.
- Take part in physical exercise aerobics arm strengthening for both arms.
- Maintain your normal BMI (correct body weight for your height).
- Request a referral for follow-up by a physical therapist certified in lymphedema treatment 2-3 weeks after surgery. Many women are not attentive to new information at the time of their surgery. At a follow-up appointment you can get detailed instructions regarding risk reduction behaviors and answers to other questions.
- Be alert to possible early symptoms such as hand or arm swelling, signs of infection (skin heat, irritation or redness, pain, a flu-like feeling, temperature or chills) or new pain and movement limitation of the shoulder. Early signs of infection need to be seen immediately by a doctor (treating doctor or emergency room). For the other signs and symptoms, you should request a referral to a physical therapist certified in lymphedema treatment.

## Recommendations to reduce risk for developing lymphedema and other side effects

### Skin hygiene and infection prevention

- Prevent direct skin injury such as burns, excess sunburn, cuts, animal scratches, insect stings etc. If a skin injury occurs it is important to wash the area with soap and water and to disinfect with anti-septic agents such as iodine or 70% alcohol.
- Opinions differ regarding blood drawing and needle pricks on the arm of the affected side. Thus, recommendations to avoid these are not justified.
- Remove skin hair with an electric razor.
- Take care to wash your hands with soap after working in the garden or doing housework. Consider using gloves particularly if there is a risk of a skin injury.
- Avoid damage to the base of the nails during manicures.
- Keep your skin moist and soft.

### Prevent maintained circumferential pressure

- Prevent maintained circumferential pressure on the arm of the operated side. This pressure may be caused by tight clothing and jewelry.
- Wear a bra with a supportive cup with no pressure areas on the breast, wide and padded shoulder straps and a long profile to avoid circumferential pressure around the chest.

### Use of compression

Opinions vary regarding bandaging and wearing a compression sleeve or bra to prevent swelling. Wearing a compression sleeve during flights and during vigorous physical arm exercise may be recommended. In all cases the recommendation should come from a certified lymphedema therapist. The garment should be properly fitted, and instruction given regarding correct use.

### Early signs of lymphedema

There are some common early signs of lymphedema:

- Sensation of fullness or heaviness in the breast, hand or arm.
- Tingling, pain or sensitivity in part of the arm.
- Swelling which may disappear.
- Signs may appear from a bra, ring, bracelet, watch, clothing which have become tight. You should check that the cause is not weight gain.
- When pressing on the arm, a dent may appear in the skin.
- The skin may be tight or hardened.
- Numbness or a sensation of pins and needles in the arm.

### Recommendations for physical exercise and return to normal routine

- When the surgical wound has healed you should start an exercise routine. Start with daily activities such as hair brushing, applying make-up, cooking, washing dishes and doing laundry.
- Exercise programs should be individually suited and gradual. If you were doing exercise before the surgery, you should return gradually to the same exercise.
- We recommend including aerobic exercise and resisted arm exercise. Examples of aerobic exercise are walking for fitness, running, swimming and dancing. Choose an activity suitable for you and do it at least three times or more a week for a total of at least 150 minutes.
- Arm muscle strengthening – we recommend consulting with a physical therapist certified in lymphedema treatment and the working under guidance of a certified gym coach. They will help you build a gradually increasing exercise program customized to your needs and ability.
- If hand or arm swelling appears during exercise you will need to exercise with a compression sleeve. Similarly, if breast swelling appears, you may need to exercise with a compression bra. A suitable compression garment can be ordered by a physiotherapist certified in lymphedema treatment.

### Maintain normal body weight

If you have difficulty maintaining your normal body weight you should consult a dietician to guide you in adopting healthy eating styles.

## Section 3 – Recommended exercises for each stage of recovery

### General recommendations

- If a feeling of fatigue or heaviness appears in the arm of the surgical side, rest it on a pillow so the arm is raised slightly above the shoulder and bend and straighten your fingers repeatedly.
- After the surgical wound is healed, pliability of the scar can be improved by gentle massage over the entire area of surgery with emphasis on the scar. During showering/bathing is a good time.
- Should any sign of inflammation appear, such as redness, swelling, discharge from the surgical wound, temperature higher than 38<sup>0</sup> or pain increase which does not improve with regular treatment, you should consult with your doctor or be seen in a hospital emergency room.
- Ask the hospital surgeon to refer you to for lymphedema physical therapy two to three weeks after discharge, for a follow up evaluation even if there are no side effects.

In this section you will find examples of exercises for the different stages of recovery. You and your treating physical therapist may prefer to choose different exercises.

Stage A – Exercises starting the day after the surgery.

	Starting position	Goal	Exercise performance	Exercise illustration
1	<p>Lie on your back with your knees bent and feet slightly apart on the mat. Rest your head on a small pillow. Your hands will be on the lower part of your chest or on the mat as in the picture.</p> <p>Some of the exercises may be done while sitting on a chair with a back support, feet on the floor. And hands resting on your knees.</p>	Improved lung ventilation through deep breathing	Take a deep breath in (through your nose), expand the base of your chest, breath out through your mouth.	
2		Trunk mobilization	Roll one knee to the side then slightly lift the opposite hip. This helps lower the other knee closer to the mat. Lower your hip and bring your knee back to the starting position. Repeat the exercise to the opposite side.	
3		Neck mobilization.	Slowly turn your head from side to side (perform the exercise with your eyes open then closed).	
4		Scapular (shoulder blade) mobilization	Lift your shoulders towards your head and return to starting position. Bring both shoulders forward and return them to the starting position.	
5		Elbow and finger mobilization	Alternately bend and straighten your elbows. Make a fist when you bend your elbows and straighten your finger when straightening your elbows.	
6		Early shoulder mobilization	Clasp your fingers together above your abdomen. Straighten your elbows towards your knees and then lift them towards to ceiling no further than shoulder level. Only work in a pain free range.	

If you have had breast reconstruction surgery, you should consult with your surgeon before performing trunk movements.

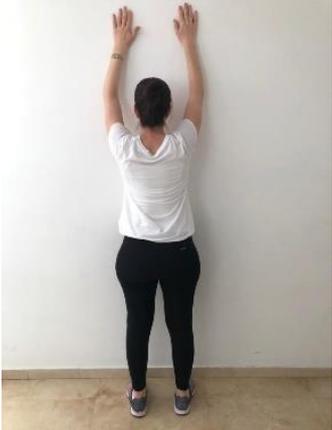
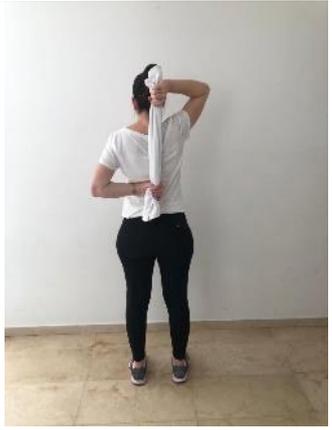
**Stage B – Exercises for the second to the sixth day after surgery**

	Starting position	Goal	Exercise performance	Exercise illustration
Continue doing all the exercises for stage A				
7	Sit on a chair with a back support, feet on the floor. And arms relaxed next to your body.	Shoulder relaxation and neck and shoulder blade tension release	Lift your shoulders towards your ears, hold for a few seconds and release. You can add breathing in while lifting your shoulders and breathing out when you release your shoulders.	
8			Pull your shoulders backwards without lifting them, keep your elbows straight (or slightly bent) and your back upright. Hold for a few seconds and release. Move your shoulders in circles – up, back, down and return to original position.	
9		Elbow straightening and self-assisted shoulder movement	Join your fingers together, elbows straight and lift your arms to the level of your shoulders – do not lift further to avoid interrupting the surgical scar healing.	
10	Sit on a chair with a back support, feet on the floor. Rest your hand on the opposite shoulder, elbows resting on your body.	Shoulder mobilization with neck and trunk movement.	Lift your elbows a little and turn your head and trunk to one side and then to the other side. Do the movement in the pain free range only.	

11	Sit on a chair with a back support, feet on the floor. Rest your hand on the opposite shoulder, elbows resting on your body.	Neck and trunk movement.	Bend your neck and trunk to the side, hold for a few seconds and repeat to the other side.	
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**Stage C – Exercises for the seventh day after surgery and after (when the surgical wound has healed)**

	Starting position	Goal	Exercise performance	Exercise illustration
Continue doing all the exercises from Stages A and B				
12	Lie on your back with your knees bent and feet slightly apart on the mat. Rest your head on a small pillow.	Improve shoulder mobility	Clasp your hands together above your abdomen and lift them above your head. Check the distance between them and the mat. You may rest your hands on a pillow behind your head at the end of the movement range.	
13			Join your hands. Lift your arms up and place your hands behind your head. Open your elbows out to the sides. Note the distance of your elbows to the mat. Bring your elbows forward to meet in front of your face and then open them out to the sides. Repeat this movement a few times. Bring your arms up so the elbows point to the ceiling and then bring them to your abdomen. Release them to the sides of your body.	
14		Improve shoulder and trunk mobility	Roll one knee to the side then slightly lift the opposite hip. This helps lower the other knee closer to the mat. Lower your hip and bring your knee back to the starting position. Repeat the exercise to the opposite side.	

	Starting position	Goal	Exercise performance	Exercise illustration
15	Stand with your feet slightly apart, facing the wall.	Improve shoulder mobility	Using your fingers “climb” up the wall until your elbows are straight. Keep looking at your hands. Bring your feet closer to the wall and try to lift your hands higher on the wall. Remain at the point where you feel the stretch for a few seconds. Then move your feet slowly backwards and let your arm slide slowly down the wall. Repeat this movement but make sure to work in a pain free range.	
16	Stand with a slight space between your feet.	Improve shoulder mobility	Holding a small rolled up towel. Lift your affected arm above your head. The other arm behind your back grasps the lower end of the towel. Pull the towel down and up. Change hands after a few repetitions.	
17	Stand facing the kitchen counter. Rest your forearms on the countertop, with your head between your upper arms	Improve shoulder, trunk and leg range of movement	Take small steps away from the countertop until you reach a comfortable stretch of the shoulders, back and legs. Hold the position for a few seconds and walk forward to the starting position.	

	Starting position	Goal	Exercise performance	Exercise illustration
18	Stand facing the kitchen counter. Rest your forearms on the countertop, with your head between your upper arms	Improve shoulder, trunk and leg range of movement	Place your palms flat on the countertop, walk backwards with small steps until you feel your chest opening and widening and your arms lengthening. Feel how your chest opens when you breath. Walk back to the countertop.	
19	Stand with your back to the countertop, your pelvis touching, each hand holding the countertop on the same side.		Without moving your feet, place one hand over the wrist of the other hand following the movement with your eyes. Stay there for a few seconds. Repeat on the other side. You should feel a pleasant twist in your shoulder girdle and in your trunk.	

When you have regained full and pain free movement, you can gradually reduce the exercise to twice a day, then once a day, then to twice a week. At this stage we recommend joining a beginner's exercise class such as Feldenkrais, Vini yoga, Pilates or Body Mindfulness exercises. In addition, we recommend doing gentle aerobic exercise such as walking outdoors. or on a treadmill. At a later stage, after consulting a physical therapist certified in lymphedema treatment, you should return to your regular fitness activities.

### Section three – recommendations to reduce the risk of later side effects

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- Remove skin hair with an electric razor.
- Take care to wash your hands with soap after working in the garden or doing housework. Consider using gloves particularly if there is a risk of a skin injury.
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- Keep your skin moist and soft.

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- Exercise programs should be individually suited and gradual. If you were doing exercise before the surgery, you should return gradually to the same exercise.
- We recommend that the exercise should include aerobics and strengthening for the arms. Examples of aerobic exercise are walking for fitness, running, swimming and dancing. Choose an activity suitable for you and do it at least three times a week for 50 minutes.
- Arm muscle strengthening – we recommend consulting with a physical therapist certified in lymphedema treatment and the working under guidance of a certified gym coach. They will help you build a gradually increasing exercise program customized to your needs and ability.
- If hand or arm swelling appears during exercise you will need to exercise with a compression sleeve. Similarly, if breast swelling appears, you may need to

exercise with a compression bra. A suitable compression garment can be ordered by a physiotherapist certified in lymphedema treatment.

### Maintain normal body weight

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**We wish you a speedy recovery and good health**

### References:

Jacob T, Bracha J, Peleg R, Epstein A, Yosha I. Risk reduction recommendations for upper quadrant side effects after breast cancer surgery and treatments: A Delphi survey to evaluate consensus among expert physical therapists and alignment with current evidence. *Rehabilitation Oncology*. 2021;39 (4):E106–E118.

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