



Swimming and aquatic activity before and after surgery

People who exercise before and after surgery have better results and reduced complications. For many, swimming and aquatic activity is the best form of exercise. It is controlled and there is little impact on joints. This fact sheet has some suggestions on how you might be able to support swimmers before or after an operation. This whole journey is sometimes called perioperative care.

Introduction

Exercise is excellent for mental and physical health. It is especially important around the time of an operation. Evidence shows that complications from surgery can be reduced by between 30 per cent and 80 per cent if people are able to exercise before an operation.

The best published results have come from studies of exercise before cancer surgery. It is possible that the beneficial effects might be even better in other patients. Fitter patients are more able to have day case surgery, to manage getting out of bed, getting to the toilet and being discharged home. The least active patients have four times the rate of complications. Exercise after surgery reduces the chance of blood clots and other complications and allows people to get back to normal more quickly.

'Perioperative Care' is the time from when an operation is contemplated until full recovery. This time has been called a 'teachable moment' or a time for preparation rather than waiting for post-operative exercises.

What sort of exercise is best before and after surgery?

The UK Chief Medical Officers recommend that all adults should do three types of exercise:

- **Fitness:** at least 150 minutes of moderate intensity or 75 minutes of vigorous intensity activity (such as swimming) a week.
- **Strength:** perform activity that builds strength on at least two days a week.
- **Balance:** perform activities that improve balance on at least two days a week.

All these are important before and after surgery:

- **Fitness** activity includes anything that gets someone a little out of breath. This improves heart and lung function as well as metabolism, immunity and mental health.
- **Strength** is essential to help a person get on and off the bed, to use walking aids and to get to the toilet after the operation, especially if they lose muscle strength in one area.
- **Balance** is essential, to reduce the risk of falls and allow people to control movements when part of their body is out of action.
- **Deep breathing** exercises also help the lungs to clear infections and take oxygen to the body to help healing.

One fifth of big operations (that require an anaesthetist) are performed as an emergency. Even for these there is the opportunity to work on some exercises in the time beforehand (e.g. arm exercises to help with walking aids) and afterwards.

Swimming and aquatic activity such as aqua aerobics or other water-based exercise can provide all these types of exercise and are often better than alternative activities.

People who take little or no regular exercise experience the biggest improvements when adding in exercise before surgery. Three water-based sessions per week are best while waiting for surgery, but if someone cannot manage this, every session they can do will help.

Why is swimming the best exercise for some people?

Swimming is an excellent form of exercise. Many people do not realise how good it can be because they do not feel themselves getting sweaty in the water. Many people find it difficult to start doing exercise due to factors such as pain, limited mobility and concerns over injury, so for these reasons swimming can be a very positive option.

- Swimming puts little impact on joints. Many people with obesity or leg problems find swimming easier than other activities.
- Swimming is more sociable and empowering than, for example, a static electric bike.
- People with sensory impairments or security issues may find it difficult to do exercise outdoors, such as jogging. People with hearing or visual impairments find the controlled environment of a swimming pool useful.

- There is new evidence that for people with long-term conditions, the benefits of doing exercise far outweigh the risks. Swimming is particularly good for mental health as well as physical health. It can be very empowering to form a plan and achieve excellent results.
- The water pressure decreases swelling, helps circulation, works the heart and lungs and flushes out the kidneys.

It is best to make any exercise a habit, so it is important to plan ahead and address queries and practicalities in advance.

The “fitness” component of exercise is sometimes the most difficult to achieve and requires activities like swimming, brisk walking, cycling, jogging or similar activities that get someone’s heart rate up. It may be important to add in other exercises to build and improve strength and balance. This could be as simple as doing “sit-to-stand” exercises in a chair, balancing on the spot and walking up and down stairs with good posture. Once someone is comfortable in the pool, they can also add some of these activities into their water workout.

What other aquatic activity options are there?

In addition to swimming, there are many aquatic exercise and activity options that are not swimming focused. Importantly, many pool activities like aqua aerobics or even aqua walking (walking lengths in a pool) can be completed in the shallow end of the pool.

Below are some activities you could offer at your local pool or that people could complete in the pool:

Aqua Aerobics: group classes of exercise and movements in the pool, often to music, with an instructor leading the class.

Aqua Walking: walking around the pool with the water resistance requiring more effort to walk than on land.

Water Wellbeing: Aquatic Activity for Health qualified instructors providing 1-2-1 or small group water based activities tailored for people living with health conditions.

Good Boost: personalised aquatic rehabilitation programmes provided on waterproof tablet computers, with options for group sessions led by a facilitator or individual. Home exercise options also available.

Aquatic Physiotherapy: some post-operative rehabilitation support may include aquatic physiotherapy and supervised exercises in a warm hydrotherapy pool with specialist physiotherapist advice.

What issues are important to consider after surgery?

- The wound must have settled before swimming. This is likely to be at least three weeks after surgery, but individuals should check this with a healthcare professional. They may still be advised to apply a water proof dressing.
- People may be fatigued or anaemic after surgery. If this is the case they can stay in the shallower end of the pool and walk in water if they are not ready to swim.
- Some may find it difficult to get in or out of the pool, therefore facility staff should consider options to support people such as use of a wheelchair, pool hoist or lift system.
- People may need to bring walking sticks or crutches to the poolside, so may need somewhere to store them. It is suggested that two are better than one as only using one stick

for instance may increase the risk of slips, trips and falls.

- There may be other practicalities which members of staff at a facility may be able to help with if asked.

Considerations after specific types of surgery:

- **Cardiac surgery:** often has a post-operative rehabilitation routine. Swimmers may wish to ask their rehabilitation team how they can add in swimming or other aquatic activities to this.
- **Orthopaedic (joint) surgery:** there may be restrictions on hip or knee movement. People should be told before they leave the hospital if this is the case.
- **Amputation:** people may wish to stay in a depth that allows them to stand comfortably at first as it may take them a while to adjust their balance in the water.
- **Stoma surgery:** if someone has a stoma, they should use a new bag before they go in the water and ensure that the seal is good.
- **Eardrum surgery:** people should ask their health professional when they can start swimming and if they should wear a sealed headband or swimcap.

- **Brain surgery:** using the nose for access: People should ask a health professional when they can start swimming and any precautions they might need to take such as use of a nose clip.
- **Breast surgery:** may result in temporary limitation of shoulder movement, especially after radiotherapy. Individuals should check how they will get in and out of the pool, particularly if they are used to pulling themselves out of the pool by steps.
- **Foot problems:** people may benefit from waterproof rubber soled pool shoes to help on poolside and in the pool for aquatic exercise.

How should swimming pool staff provide support?

All leisure facility staff should be aware of the importance of supporting people who have a health problem to swim and exercise safely. Policies should be clear on taking key items to the edge of the pool and where they may be kept, for example: walking aids or eye glasses. Staff should be alert and aware of individuals who may struggle and be on hand to respond to requests for help, when booking in, on arrival to a facility, or on poolside, for example, assistance with getting into or out of the pool using a pool hoist, lift system or wheelchair.

What do healthcare professionals need to know?

Some of the evidence about doing exercise and the positive impact of swimming is very new, but there is information for health professionals, including evidence and short training information on the Moving Medicine website movingmedicine.ac.uk.

Tips to offer people before surgery

- Swim England's poolfinder website may help people to search for the right pool for their needs: swimming.org/poolfinder/.
- Trying to find a pool that is on a bus or cycle route, or near childcare or a friend is best so they can go with someone else for support or meet up afterwards.
- Find out about different session times and costs.
- Find out what coins the lockers take.
- Include mini-rewards to celebrate progress.
- Encourage them to ask staff at the facility what sessions are available and best for them (e.g. if they will be walking in the pool or doing lengths.)

Safety considerations:

- Swimming should be avoided with a chest or viral infection.
- Essential items must be kept on poolside, for example: walking stick, crutches, spectacles and reliever medication, such as an Asthma inhaler or GTN (angina) spray.
- Check that practical support is available – e.g. use of a hoist or chair if needed.

In the pool:

- It is important to do some fitness type exercise in the pool such as swimming lengths or walking in water.
- Exercises to challenge balance should be included, such as standing in the shallow end and balancing on alternate legs, with support where needed.
- Strengthening exercises should also be performed, such as push and glides from the poolside repeatedly.
- Deep breathing exercises can be helpful with the head above and the ribcage below water – this will help to improve breathing function faster as the muscles in the ribcage work against the pressure of the water.
- The ability to bring a carer or friend should be encouraged – at least for the first session if not for longer.

Tips to consider after surgery

- People should not swim while they have stitches in or if the wound is still open. They should check with their nurse or other healthcare professional if they are not sure.
- Keeping a bag packed and ready for the next visit to the pool, will help avoid those inconveniences, like forgetting a water bottle, coin for the locker, or a towel.
- It is advisable to travel to or from the pool facility or changing area in clothes and shoes that are easy to take on and off.
- It is recommended that everyone should shower before going into the pool. This is particularly important if people have been unable to step into their shower at home. Disabled changing or showering facilities may be easier in some cases.
- Taking care getting into and out of the pool is important and some may wish to use a hoist or wheelchair where available.
- Individuals should not expect to be able to swim at their normal or pre-operation intensity levels for the first few sessions.
- Starting off small and building up swimming levels gradually is always good advice.
- It is advisable to go to the toilet prior to getting in the pool. People may retain fluid after an operation which might shift to their bladder due to the pressure of the water on their body and on circulation, therefore producing more urine. It is also worth visiting the toilet before leaving the facility.

Specific tips

Mother and baby swimming

- Check session times and plan well ahead.
- If someone has had a caesarean section and the wound has healed, or they have had an instrumental delivery, they should be fine to be in the pool after two weeks.
- After vaginal delivery with no complications and after child birth bleeding stops, if they feel comfortable they should be able to start light swimming or aquatic activity.
- If in any doubt they should speak to their health visitor or other healthcare professional.
- Some organised sessions may specify that baby should have had their first vaccinations (at four weeks) before they come to mother and baby swimming.

- Group sessions can be very helpful for mental as well as physical health.

Open water swimming:

- Be aware that the outdoor environment is less controlled than a swimming pool. After the operation, swimmers may not be as strong as they were beforehand, so should take care to adjust gradually and build back up to pre-surgery levels.
- There can be infection problems with untreated water, so ensure that wounds are well healed.

Swimming abroad:

- Do: advise them to check how they will get in and out of any pools in advance.
- Consider: that local pool hygiene standards may be variable.

Diving:

- People who have had surgery on the eardrum may be unable to dive.
- Diving will require an individual approach with input from a healthcare professional.

Additional advice

Further pre and post surgery information:

Evidence on reduction in complications from surgery through exercise: cpoc.org.uk/cpoc-publishes-major-evidence-review-impact-perioperative-care

Evidence that the benefits of doing exercise far outweigh the risks: movingmedicine.ac.uk/riskconsensus/

Centre for Perioperative Care information for patients: cpoc.org.uk/patients

Moving Medicine consultation guides on perioperative care for professionals: movingmedicine.ac.uk/consultation-guides/condition/adult/periop-in-development/

Moving Medicine patient information on perioperative care: movingmedicine.ac.uk/consultation-guides/patient-info-finder/?p=adult&c=perioperative-care

Good Boost aquatic and home exercise application: goodboost.ai/