DUNCAN FOUNDATION

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Benefits of Water Journal

DATE: THIS JOURNAL BELONGS TO:

- Why Hydrotherapy? The Benefits Of Water Based Exercise in PPS
- Preparing for your First Class – What to do and What to Bring
- What to Expect from the First Class
- How will the Classes Progress
- The Physics Behind Hydrotherapy
- Monitoring Effects after the Class
- Fatigue Management and a Pacing Approach
- Post Class Reflection Diary

The Benefits of Water Based Exercise

The water provides a reassuring environment which reduces perceived body weight (up to 90% at shoulder depth) and reduces the downward pull of gravity.

The buoyancy of water allows for support and function of limbs that may otherwise require bracing / splinting.

This allows for unaided mobility whereas on land walking aids may be required.

You do not need to be able to swim to reap benefits from water based exercise – flotation devices can be used to ensure your safety and confidence.

It is easier to raise heart rate and breathing rate – this is often difficult for people with LEOP to do on land without risking overexertion / pain.

Limbs that "float" away can be comfortably weighted to ensure they remain in the water.

Physical & Social Benefits

Potential Physical Benefits:

- Increased strength.
- Improved coordination.
- Increased mobility.
- Decreased pain and improved relaxation of muscles.
- Increased range of movement and flexibility.
- Increased circulation.
- Improved sleep.
- Increased metabolic rates.
- Increased respiratory rates and potential for improved chest wall expansion due to the pressure of the surrounding water.

Potential Social Benefits:

- Meeting others that are experiencing similar difficulties and potential opportunity to develop a support network.
- Provides opportunity to learn new coping mechanisms (strategies) and approaches to managing LEOP.
- Can allow for improved self confidence.
- Sense of achievement of fitness goals that are difficult to achieve with land based exercise.

What to Expect?

- The leisure center that you are attending should be easily accessible – you should not feel fatigued from the journey from home to getting in the water.
- The pool itself may have hoist/ramp access – you may need to check if required.
- The changing area should be non-slippery and spacious.
- The depth of the water should be between waist and chest-high – deeper water can cause overheating.
- The pool temperature should be between 86-92°F (30-33.5°C).
- The air temperate of the pool area should also be warm.
- If attending a group ideally you want a teacher: patient ratio that allows for close monitoring and individual modification/progression of exercises.
- Does the person running the classes have a sound knowledge of exercise and LEOP and able to modify exercises accordingly? They may appreciate some additional resources to help guide them via our website: **www.duncanfoundation.org**

What to take?

- Firstly, the obvious – togs and a towel!
- A bottle of water – it is important to have good hydration both before and after the class. Drinking adequate amounts of water before you exercise in the water will ensure the body's natural cooling system is working efficiently and reduce the risk of over straining muscles.
- A walking aid if you use one occasionally – even if you do not require the use of one constantly, you may feel fatigued after the class and this will help you save some energy and maintain your safety.
- If you need helping getting changed, it might be helpful to take somebody with you to help.
- Some people find wearing a rash vest / additional layer beneficial to "trap" the warmth of the water.
- A smile – primarily, the exercise class should be fun!

The First Steps

- Prior to your first session in the water, you may want to meet with the therapist running the class to go through an assessment process to work out your goals, areas of difficulty, past medical history, pain and fatigue levels and an opportunity to ask any questions/ concerns you may have about getting in the water.
- The goal of the first few sessions is to feel comfortable and confident in the water and establish individualised suitable level of exertion – not necessarily to focus on strengthening initially.
- The water should be used as a supportive method to allow for gentle movement with a positive impact.
- You may only start with very short sessions – maybe even only 10 minutes. The length time you participate in the classes will slowly increase as your endurance builds.
- If you miss any sessions, you may be required to reduce your activity level back down and re-build your endurance and intensity.
- It is important to focus on achieving good "body mechanics" whilst exercising in the pool.

There should not be a "no pain, no gain" approach to the exercise class - rather conserve it to preserve it.

My personal hydrotherapy goal is to...

The Physics Behind Hydrotherapy:

Buoyancy is the principal force:

- Movement up to the surface of the water is known as buoyancy **assisted.**
- Movement in a side to side plane is known as buoyancy **supported.**
- Movement down towards the bottom of the pool is known as buoyancy **resisted.**

Turbulence irregular movement of water molecules, typically from your own movement but can be from others. This can be used to increase the resistance / difficulty of a movement through the water.

Resistance can be further increased with the addition of floats, fins, weights to increase the drag through the water.

Muscle groups of grade 3 or below in PPS (cannot move against gravity) should only be worked in buoyancy assisted or buoyancy supported exercises.

Class Guidelines

- The full duration of the class should be no longer than 45 minutes.
- There should be a continued emphasised on pacing throughout the class – usually short bursts of exercise with regular rests is recommended.
- The classes will consist of a combination of range of motion, strengthening and aerobic exercises, stretching / flexibility exercises, water walking and potentially swimming.
- Non affected muscle groups can be worked as per a person not affected by polio; strengthening routines for these muscles can help prevent damage due to overload of these muscles in daily function.
- If working towards target heart rate calculations, be aware that generally heart rates are lower in water due to the compression and temperate of the water.

Monitoring Positive Effects of Hydrotherapy:

- Your therapist may take some outcome measures before you commence a hydrotherapy programme.
- Ideally these should be re-assessed every 3 months to see how you are progressing.
- You should notice improvements in your ability to work harder / stay in the water longer each week that you attend.
- You will hopefully also notice improvements in your overall mobility, strength and health after you have been regularly attending classes.

Potential Negative Effects of Hydrotherapy:

Things that are important to report to your therapist are:

- Any increase in pain (location, type, how long it lasted)
- How it impacted your sleep behaviour
- Your fatigue levels following the class
- Any observed increased in weakness **- Increasing weakness is a sign to modify/decrease/ omit an exercise altogether.**

Fatigue Management Principles

- Being able to manage your fatigue both in and out of the pool will help you to get the best results from your hydrotherapy sessions.
- You know your fatigue better than anyone else, so if at any point you need to rest, then do so.
- If you need to get out of the pool sooner than anticipated, do not hesitate in asking for assistance to do so.
- Try not to schedule other “fatiguing” events in for the same day (e.g. supermarket shop).
- Scheduling in rest for an hour or so either side of the hydrotherapy class is helpful in managing fatigue levels – this is called preventative resting.
- Rest doesn’t necessarily mean sleep – it can also be meditation, deep breathing exercises, listening to music etc.
- It is also important that you self-monitor / reflect how you feel after the classes.
- The rest of this booklet is dedicated to you writing down your goals, thoughts and experiences for your first 6 hydrotherapy sessions.

How did I feel before the class?

How did I feel during the class?

Pain? Enjoyment? Challenged?

How did I feel immediately after the class?

Getting out of the water? When I got home?

How did I feel the next day?

Fatigue /10 **Energised /10** **Pain /10**

Things to remember for my next class:

Anything else to note?

How did I feel before the class?

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Exercise Program Guidelines Part 1.

Standing:

- Arms stretched out at surface out from the side of your body, inward and outward rotations,
- Arms stretched out at surface in front of the body, float up and down,change between arms out straight and elbow bent
- Both arm swing backward and forward past your hips slowly.
- Arms crossing in front of the body in wide circles.
- Breast stroke exercises with the arms.
- Alternating single arm movements in front of the body “draw an lying 8”.

Standing (hold on to the bar if needed):

- Marching high knees – Alternating left and right.
- Small quick movements of the leg out to the side of your body, alternating left and right.
- Step forward—feet together—step backward, alternating right and left leg.
- Body twisting with arms stretched out from your side at surface.
- Jump up and down in the water.
- Jog on the spot.
- Swing the straight leg in front of the body and back in abduction alternating right and left.
- Draw a circle with the foot alternating with the left and right leg.
- Walk sideways, first to the right and then to the left.

Standing (holding a ball in the hands):

- Stretch forward pump the ball up and down, changing different directions.
- Pump the ball with 1 hand from left to right, change hand in front of the body.
- Use big sweeping movements around the body.

Exercise Program Guidelines Part 2.

Walking:

- Walk forward and backward in the water as fast as possible.
- Jog in place with arm movements.
- Walk sideways, first to one side then to the other, as fast as possible.
- Body twist with arm movements. “Tramp water”. Arms stretched above head, sway from side to side.
- Jog in place.
- Vertical jumps.

Warm Down

- Slow arm movements unilaterally and bilaterally.
- Stretch 1 arm upward and the other downward, change.
- Stretch by bending the trunk to the side.
- Walk slowly. Slow arm movements.
- Stretch arms forward and backward on the surface. 12.

Stretching Exercises:

- Stretch back extensors, hip flexors, knee flexors, extensors, and plantar flexors. End with breathing deeply, exhaling through pursed lips.

As mentioned earlier in the booklet, modifications with regards to flotation devices and weights/resistance will be dependent on the individual’s strength of the muscle group being targeted.

Research is often done on benefits gained in performing 3x a week exercise sessions however due to greater recovery time after muscle exercises in post polio subjects with new muscle weakness 2x a week may be an optimal level.

Dynamic Water Exercise in Individuals with Late Poliomyelitis: Willen C, Stibrant K Arch phys Med Rehabil 2001:82:66-72.

About the Duncan Foundation

The Duncan Foundation is a national support service for people living with neuromuscular conditions, and the health professionals who treat and support them. Our goal is to empower people with these conditions to live to their maximum physical potential.

For more information visit: **www.duncanfoundation.org**