

Reflections on Promoting Activity, Participation/Belonging, Playfulness and Sensory Integration through Water Activity

- A Contribution to Water-Based Intervention/Aquatic Therapy

From an Occupational Therapy Perspective

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The uniqueness of the occupational therapist (= OT) profession's perspective is grounded in enabling occupation, in use of occupation, both as a means and as an outcome of treatment. Water-based activities may serve as powerful occupational therapy interventions when they hold meaning and purpose for the person, either as an occupation itself or, when the benefits of the intervention lead to increased ability to participate in an occupation. For example, swimming as training for fitness or as a valued leisure or recreation activity that can be shared with friends and family. Such recreation is fun for the whole family and capitalises on the person's abilities rather than emphasising on her or his disabilities. Water-based intervention provides an opportunity for the mastery of numerous other occupational performance-based goals. Undressing and dressing, going to the toilet, showering, and using public transportation are a few of the many tasks individuals may perform when involved in occupational therapy in water.

In occupational therapy interventions focus is on enabling occupation and on the multiple aspects of performance used (cognitive, physical, psycho-social) while engaging and participating in meaningful and purposeful occupations - especially enabling to feel belonging with peers, and not just on the physical aspects of the person's functioning. ^{i - ii -iii}

In this paper, I will first give an example of how OTs may use water activities in an occupational based manner. The story is about three six-year old girls - Lisa, Tina and Mia.

Thereafter I will comment on how I believe water also has a great impact on sensory integration, and how water based activities may promote sensory integration.^{iv}

The Story about Lisa, Tina & Mia

The three girls have just started school. The girls are closely connected with a mainstream first grade in the local primary school, but are having many lessons outside the class with a teacher, a language therapist and the OT from the local district.

The girls have different kinds of challenges in body function as well as in activity and participation. Lisa fears everything new - if possible, she avoids all new challenges, and thus does not learn very much positive. Tina is fearless - takes the plunge into everything, also the dangerous, but she does not learn from her experiences. Mia has difficulties in controlling her movements - she is super motivated towards trying and experimenting in order to learn everything - including control of her movements.

Once a week their timetable says 'Water Activity', and for two whole hours, the girls are together with both a teacher and the OT. This turns out to be the best experiences of the week to all three girls, and a positive "learning land-scape" or "learning water-scape" to them.

The Children's Preparations

The evening before the swimming-lessons, they must **remember** to pack their swimsuit, towels, hair shampoo, clean underwear and socks in their sport-bags. And **remember** to bring the sport-bags as well as their lunch and drinking bottle, **be ready** in -their coats, when the taxi comes to take them to the swimming pool - together with their teacher - where they will be met by the OT.

Here they must **remember** that coats, shoes and socks have to be kept in the small lobby, before entering the changing room. In the changing room, they undress as fast as possible and place their clothes neatly on the bench. Then **remember** going to the toilet before careful showering. When entering the swimming pool they must **remember** to walk - not run on the wet, slippery floor.

The children readily understand the relevance of these natural activities of daily living (=ADL) in the context of a meaningful and purposeful activity, for which they are required, so *it goes swimmingly!*

In the Water at last!

Lisa is hesitating, Tina can't wait, while Mia sensibly sits down at the edge of the pool. Lisa will have to be convinced by the OT that it is okay, being reminded of how well she managed last time, and reassured "I'll be by your side all the time!". Tina must be reminded by the teacher: "Wait, till I say you can plunge into the water!" Mia waits

patiently until the OT is ready to receive her when jumping. At last, the teacher gets into the pool.

The group starts the session with activities in the vertical position in the shallow end of the pool. The OT assists Lisa so she feels safe, the teacher assists Tina so she will concentrate and stay at the activity, while Mia manages by herself. They all three feel belonging to a group of peers.

Oh, They are just Playing!

The little group always starts by the same welcome-song (to stress that the lesson is starting - and because you sing on exhalation, which is appropriate, when the mouth approaches the water). Then we do some rhythmical jumping to adjust to the water. Lisa may get a wet chin, Tina submerges and she cannot help swallowing a lot of water, while Mia remembers to close her mouth and blows while submerging to the bottom of the pool.

The OT has prepared some activities, which will look as if the children are *just playing!* Each activity has a specific goal, adjusted to meet the three children's specific needs (cognitively, physically and psycho-socially).

Some of the time in the pool, the children play freely and decide for themselves what to do and how to do it. If they need it, they may ask for assistance from the teacher or the OT. The children may also invite the teacher or the OT as playmates in their activities - if we are lucky. It is a high form of praise, if they do!

Variation and New Challenges

After a while, the great hit to Tina and Mia is jumping from the springboard in the deep end of the pool down to the teacher, while to Lisa jumping from the edge of the pool in the shallow end down to the OT is her challenge for the moment.

In December, they rehearse formations in water with a lighted candle on a small foam board, singing a special carol (Santa Lucia-song) while walking across the pool. They invite family to look at their performance.

At Shrovetide, we all jump into the water in fancy dresses, having to undress *in the water*. The activity "undressing in the water" the aim is not to the girls learning 'life-saving-skills', but just another motivating and fun activity. When the clothes are wet, they are more difficult to take off, and the clothes provide extra tactile and proprioceptive stimulation to the girls.

Mia concentrates on controlling her body by treading water and controls respiration when submerging in order to manage the task of undressing, taking off one piece of

clothes after the other in an appropriate and controlled manner, swimming to the edge of the pool, putting the clothes there one by one.

Tina uses lots of random movements in her attempt to controlling her body Starts to take off one piece of clothes, stops, tries another, in a randomly way, swallowing a lot of water, because she does not remember to control her respiration and she forgets to tread water while engaged in the undressing task. She gets tired, and the OT has to help her planning the task, giving cues about the next part of the task, and cues about finishing one task before starting the next. The OT will have to catch pieces of sinking clothes that *Tina* loses, before getting to the edge of the pool with them.

Lisa at first finds it a too difficult and daring task. She clings to the OT, who has to assure her that she will master the task. In order to perform that task, *Lisa* may hold on to the edge of the pool while undressing. The OT encourages *Lisa*, and she gets relaxed and takes off her clothes one by one, assisted mentally and physically by the OT. It is difficult, but she experiences mastery, and thus great satisfaction. So even *Lisa* finds it a fun task!

At Easter-time, we have relay races, transporting wrapped chocolate-eggs in spoons across the pool - here motivation and concentration is no problem, as losing a chocolate-egg means having to dive to the bottom of the pool to get hold of it again.

Unfortunately, the time in the pool seems so short each week. When activities are in 'flow', you lose the perspective of felt time!

We always finish by singing a farewell-song, tidy up the playthings, out to shower, washing hair, relaxing for a while in the sauna, where we evaluate the activities in the pool. Then out, drying hair and bodies. Only the first few times do we have to help the girls drying themselves properly, as they soon experience how troublesome and uncomfortable it is getting clothes on, having a wet body. They rub body lotion to the skin, before putting on the clothes in the right order. After that, remembering to put shampoo, comb, swimsuit, towels and the dirty underwear and socks into their sport-bags again. Then out into the small room, finding socks, shoes and coats, heading for the café to have their well deserved lunch.....

- a lot of meaningful and purposeful activities of daily living in an appropriate and natural context!

Effect on Other Learning Areas

The OT constantly tries to adjust the program to meet the present potentials of each child and not to make all children have to meet the same demands within an activity. This is possible, if the OT understands to adjust both the mental and physical support appropriately to each of the children.

It is exciting to all of us to experience how the children each time learn new skills in the water as well as on land, and how they may transfer their learning to their daily life. So water-based intervention programs provide "a means of widening experience - physically, developmentally, cognitively, and psychologically" - promoting empowerment, self-esteem, the feeling of belonging, and playfulness. This encourages the OT to constant evaluation of each child's actual potentials in the changing room as well as in the water, and to adjust the demands from the activity, so these will be **just right** for each child.

The language therapist finds also, that Lisa and Tina through water activities get more awareness of their mouths, while Mia gets better control of the muscles around the mouth. This means that all of them thus improve their speech.

Moreover, Water activities may also promote reading! Just read the following example! The OT takes many photos in the pool and in the changing room. The teacher and the girls afterwards use the photos in the teaching at school, by making their own reading books. They select photos, and discuss what to write under each of the photos. After that, they learn all the words by heart, and this whole process *goes swimmingly to all of them*.

Then, just imagine what it means to their self-esteem, and their motivation to learn academically, that they are able to read their books aloud to their classmates, who envy them their water activity. They also read their books aloud to others, e.g. to their parents, grandparents, neighbours, and whoever are willing to listen to *their* story.

Some years after, the three girls are mainstream in several subjects in school. They are included in swimming lessons with the other kids from school - without any special support, as they all three have become totally adjusted to water, and they are even with their peers. They also sign up for the local swimming club as well.

This is not just integration, it is true inclusion - and to the children really felt belonging to a group of peers.

Goals in the Water

The same activity may stimulate all three children in different ways, depending on how they perform it, and on the support, they get in solving the tasks. Natural goals could be to stimulate water-familiarisation, mouth-closure, respiration control, body awareness, body control, control of stability and mobility, etc. All basic skills, which are essential to water safety.

In our water-based intervention, important goals also are undressing, dressing, showering, facilitating the children's arousal, attention, concentration, memory, sensory integration, self-esteem, feeling of participation/belonging, and their playfulness.

As an OT to children, intervention may focus on promoting creation of play activities within a context of a playful environment with peers. One definition of play - used by occupational therapy practitioners - is that: play is a transaction between an individual and the environment that is: 1) relatively intrinsically motivated, 2) relatively internally controlled, and 3) free of some of the constraints of objective reality.

The art of occupational therapy is to make the environment and activity tempting, not to manipulate or force children. As an OT, I must try to facilitate children's mastery of the environment, and being able to do that is both a science and an art.

Being able to play with children is not a scientific issue, but an art - one that few adults possess. The adults should not always be the ones to control and design the play. They should try to let them be guided by the children's motivation, control and fantasy.^{vi}

Water Based Activities and Sensory Integration

The originator and first researcher in sensory integration, A. Jean Ayres, occupational therapist and PhD, in 1972 defined sensory integration as "the neurological process that organizes sensation from one's own body and from the environment and makes it possible to use the body effectively within the environment"^{vii}

Sensory integration is a part of every activity. Sensations are an invitation to action. We think and act because sensations from the environment and from our bodies constantly flow to our brains. In our brains, sensations from the different sensory systems meet, and here the sensations are organized and sorted so they can hold meaning. The sensory inputs then go to different parts of the brain. The process of organizing and sorting sensory input, is called sensory integration.

Water activities potentially provide swimmers with a number of benefits related to sensory integration. The provision of enhanced sensations and sensory integration is inherent to water-based intervention. Furthermore, active involvement and the demand for an adaptive behaviour also are part of water-based intervention.

Water provides many different kinds of sensory information. Because movement of the water is felt differently, than how air is felt, the tactile system

receives a great deal of stimulation. In the pool, the water is in constant and varied movement, and this may result in lack of habituation by the tactile receptors.

Water invites moving in a number of positions, including the vertical and horizontal planes. Because of buoyancy or upthrust, rotations of the body also are common. Movements in a number of planes provide enhanced information to the vestibular system. In water, you cannot always compensate for poor processing of vestibular information by using vision, partly because you cannot see your body well and, therefore, cannot use it as a visual reference, partly because you do not have the same reference to landmarks in a pool.

When swimmers move against the felt resistance of water, their proprioceptive system receives input. However, because of buoyancy or upthrust, the proprioceptors receive different stimulation in water than on land, where gravity or downthrust dominates. Therefore, it is difficult to tell exactly the effect of proprioceptive stimulation received in water. However, I believe that the increased tactile input provided by the water may make up for the changes in proprioceptive input.

All swimmers will have to learn basic water safety in order to become 'masters of the element'. Doing sensory integrative intervention in water does not indicate creating new specially designed activities - as sensory integration is a part of every water-based (and land-based) activity. All kinds of activity in water will stimulate the basic sensory systems to various degrees.

The OT will constantly have to analyse what kind of sensory input an activity provides to the swimmer, what intensity of sensory input, how you may increase or decrease the sensory input, so the input for the moment are *just right* to meet the swimmer's actual needs. The "**just right**" is what may make water activities a kind of sensory integrative intervention.

If the OT is skilful, both in theory and practice about sensory integration and hydromechanics, and has the talent for creating motivating - "*just right*" - activities in water, water can be a powerful and highly motivating medium for sensory integrative intervention..^{viii} -ix

Summary

As part of occupational therapy, water-based intervention may - apart from learning in a positive setting to master your body in water - promote empowerment,

children's self-esteem, playfulness, social capacity/belonging and maybe even their academic learning!

Through these specially designed water programs, Lisa, Tina and Mia have experienced that *learning may go swimmingly*, and they may transfer this experience to other learning areas. The OT has assessed their individual potentials, and designed a learning 'water-scape' appropriate to meet their individual potentials.

Stimulating children in believing their potentials and strengths, may promote their desires to participate and be included in social activities with peers - experience belonging - and those, I think, are valuable goals in occupational therapy.

It requires much more than a pool and a swimsuit to do qualified occupational therapy in water. Apart from occupational therapy theories, on enabling occupation, on promoting meaningful activities, playfulness, belonging, participation, assessing a person's movements and assessing activities, you will, in theory as well as in practice, have to experience how water influences a body's abilities for mental adjustment and control of movements, how to do qualitative assessment of a person's capacity in water, and being able to do qualitative analysis of activities performed *in water*, so you constantly may adjust the program to the children's actual learning in many learning areas. Being a playful OT is a gift. In order to getting theoretical and practical knowledge and experience, learning from The Halliwick Concept is crucial!

References

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NB: In 2018, Bundy & Lane will present a 3rd edit. of: “Sensory integration – Theory and Practice” – in which I have a chapter: *Aquatic Therapy*.