A report on the attendance and effectiveness of water exercise among Icelandic elderly
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Abstract

The aim of this cross sectional study was to collect information about elderly people and exercising in water, to find out how many elderly use the swimming facilities and what their experience is. Data was collected in Laugardalslaug, where both visits of elderly people were counted and questionnaires were handed out to randomly chosen elderly people. The results show that elderly people, 67 years and above, are 10% of total visitors in Laugardalslaug. The participants in this pilot study do experience gain in health and mentality when exercising in water. Besides that they feel that water exercises have a good influence on their sleep.
Introduction

The number of elderly people is progressively increasing in the world, which creates the need for strategies to maintain their mental and physical health (Pinto et al, 2015). With increased age, or 60 years and above, hereby referred to as the elderly, decreased muscle mass is observed which reduces strength and joint mobility. That decreases the functionality in daily activities such as rising from a chair, walking and climbing stairs (Ochoa Martínez, Hall López, Paredones Hernández and Martin Dantas, 2015). Decreased function in daily activities leads to decreased quality of life, which leads to increased health care costs and medical care for the elderly (Ochoa Martínez et al, 2015). To decrease the probability of this development it is important to exercise every day (Ochoa Martínez et al, 2015). Exercise is important for both physical and spiritual health for any age, particularly the elderly, and it is positive for daily living. It helps with self-discipline, reduces stress and increases confidence (Warburton, 2006). Daily motion on an activity level with faster than normal heart rate and breathing, can slow down and reduce symptoms of ageing, as well as giving more strength to take on daily tasks and maintain self-reliance (Warburton, 2006).

Iceland is known for its swimming facilities which are common in most residential areas spread around the country and the elderly people of Iceland use the swimming facilities frequently (Reykjavíkurborg, 2016). Inhabitants who are 67 years and older do not have to pay for access to the swimming facilities which is encouraging for this exercise. In 2016, elderly visited the facilities in Reykjavík 179,000 times in total (Reykjavíkurborg, 2016). The population of 67 to 90 years old Icelanders that year was 66,682 people (Hagstofa Íslands, e.d.). Reykjavík alone has seven swimming facilities, where each facility includes both indoor and outdoor pools that are used all year round (Reykjavíkurborg, 2016). The outdoor pools are warm, or 28 degrees Celsius as in Iceland there is good access to hot water (Reykjavíkurborg, 2016). This is beneficial, as in the facility of Laugardalslaug there are water exercise classes all winter in the outdoor pool. Elderly come to the classes every day and benefit from being outdoors as well as exercising (Reykjavíkurborg, 2016).
Aquatic exercise

Swimming and exercise in water can affect daily life of the elderly in a positive way and, in many cases, change their quality of life through increased strength, increased endurance and improved sleep (Ochoa Martínez et al, 2015). Gentle aquatic exercise program gives less abled elderly an opportunity to take part in motion (Heyneman and Premo, 1992). It gives possibility to move and get a full range of motion despite being less able, while receiving all the benefits from the water (Pinto et al, 2015). Water exercises have similar musculoskeletal benefits for elderly as exercises on land (Masumoto, Applequist and Mercer, 2013). Besides that, it also has the same cardiovascular benefits as exercises on land and is gentle on tenderness of bones and stiffness of joints that often afflict the elderly (Heyneman and Premo, 1992).

People of all ages and conditions can benefit from water exercises; the healthy, the overweight, those recovering from injury and people with other health problems (Katsura et al, 2010). Exercises in water strengthen and tone muscles and provide a workout for the heart and lungs (Katsura et al, 2010). Many researchers have shown that exercises in water have a positive influence on daily life of the elderly, as mentioned above (Katsura et al, 2010, Pinto et al, 2015). Research shows that aquatic exercises do not only improve function and quality of daily life, but also help against lower back pain, fibromyalgia and pain linked to arthritis (Heywood et al, 2017). Aquatic exercise is not exclusively one type of exercise, it describes an environment for structured physical activity. Due to the characteristics of water, it is considered safe to exercise in an aquatic environment (Pinto et al, 2015). Every movement is slow and the water gives a certain feeling of lightweightedness (Pinto et al, 2015). Being in the water is a great opportunity for a comprehensive impact on the function of the human body (Borgosz-Guzda, Bartczyszyn-Guzik and Rozek, 2011). It is effective in the aging process to use aquatic exercises to improve physical fitness (Pinto et al, 2015). It may also decrease a risk of developing osteoporosis, cardiovascular diseases, obesity and depression and builds confidence in exercise skills (Pinto o.fl., 2015),(Masumoto o.fl., 2013).
Exercising in water requires much more intensive effort than exercising on land, because the density of water is greater than air. However at the same time the perception of effort in an aquatic environment is lower than the intensity of performed work (Ochoa Martínez et al., 2015). The drag in the water can both create movement assistance and movement resistance when working with muscle strength (Heywood et al., 2017). Water aerobics (WA) are recommended for maintaining cardiovascular fitness. It increases peak oxygen uptake and is highly recommended because of low joint impact and consequent reduction in heart rate (Kanitz et al, 2015). It is also recommended for patients with venous problems, such as venous edema and swelling. As a part of the musculo-vascular pump, it facilitates the outflow of venous blood (Jasiński et al, 2015). The main health effects of WA are improved metabolism, normalization of body composition, strengthened muscles with reduced loads on joints (Jasiński et al, 2015). Additionally WA has a specific influence on fat tissue metabolism, as the generated metabolic heat is dissipated faster in water when temperature is lower (Jasiński et al, 2015).

With a buoyancy device around the waist it is safe to feel total freedom of movement in the water, without fear of deep water or falling in, as buoyancy offloads the weight bearing (Heywood et al, 2017). This gives people with physical limitations a chance to participate (Heyneman and Premo, 1992). Because of the resistance of the water and the soothing and salubrious effect of the warm water, it decreases pain and stiffness and reduces swelling (Heyneman and Premo, 1992). Therefore it is good for elderly with pain, swelling and leg weakness who would have difficulties exercising on land (Heywood et al., 2017). Additionally, water exercises improve the oxygen supply for the heart muscle by improving the hemodynamic condition of the circulatory system(Borgosz-Guzda et al., 2011). For elderly it can be therapeutic to exercise in water, as it helps participants to regain strength, mobility endurance and flexibility. It can promote wellness through the exercise, it is considered safe and the participants experience reduced pain (Masumoto et al., 2013).

The social part is for many elderly the most important part (Moody, Hale and Waters, 2012). It promotes friendship and allows social interaction through association with others (Masumoto et al, 2013).
Mobility and balance

To upkeep a normal physical function in the elderly, it is important to have a good postural control and good balance (Josephson, Josephson and Nitz, 2001). As mentioned above, exercising in water can maintain and improve physical function (Josephson et al, 2001). By exercising in water just once a week for an extended period of time, it is possible to perform significantly better in tests for balance and posture (Josephson et al, 2001). A study lead by Susan Josephson et al (2001), showed that by consistently doing one hour of water exercises per week for twelve months, the elderly did significantly better in tests such as; reaching with the arms, step tests and dorsiflexion in the ankles. It has also showed to improve their quality of life through these improvements, which highlights the potential of water exercise to prevent the effects of ageing on balance (Josephson et al, 2001). Exercising in water also increases the functional reach, that is how far someone can reach with the hands (Simmons and Hansen, 1996). Forward reach appears to correlate with forward limits of stability (Douris et al, 2003). A research by Simmons and Hansen (1996) showed that a water exercise group of elderly people who exercised twice a week for five weeks demonstrated a weekly improvement in their functional reach, as compared to a land group who only showed improvements in the functional reach in the first week (Simmons and Hansen, 1996). A study in New Zealand (Moody et al, 2012) also shows good results for aquatic exercises. It presents twelve weeks of an aquatic exercise program specified for the elderly, where the average age was 78 years. The participants thought the program was uplifting for the spirit, it kept them going and motivated. The elderly also thought it was fun and interesting to take part and it was beneficial as it decreased pain level. All of the participants experienced better balance and reduction in falls, which gave them more confidence to move around. The participants were motivated to attend as they felt safe in the water and could exercise at their own pace (Moody et al, 2012).
Strength

Reduction in muscle mass, strength and muscle power comes with the ageing process and that affects the skeletal musculature which can lead to falls and injuries (Kanitz et al, 2015). Water exercises allow the same advantages that land exercises are known for, but with minimal strain or stress on arthritic joint. It can increase the circulation to the joints and relax the muscles (Douris et al, 2003). It allows dynamic work of all muscle groups with reduced tension on posture stabilizers (Borgosz-Guzda et al, 2011). Elderly that exercise in water on a weekly basis are stronger in lower extremity activities, such as going up and down stairs (Sato, Kaneda, Wakabayashi and Nomura, 2007). Performing water aerobic exercise once a week in shallow water has proved to improve upper and lower body strength. In only 24 weeks a water exercise group made significantly greater improvement in chair stand and arm curl in comparison to a land exercise group (Sevimli, Kozanoglu, Guzel and Doganay, 2015). Resistance training in water, both using body mass and machines, can induce muscle growth, decrease the risk of falling and improve balance function (Katsura o.fl., 2010). In a water environment it is both easy and safe to walk with help of buoyancy, as mentioned above, which can increase the confidence of the elderly individual. It also relieves weight-bearing forces on the skeletal joints during exercises. The water resistance improves muscle-strength in the lower extremities. It improves maximum isometric strength of the quadriceps and knee extensors and increases the strength of plantar flexion and does not damage muscles and joints. Calf muscle strength increases when exercised in water, likely due to the continuous underwater position on toes (Ochoa Martínez et al, 2015). These muscle strengthening effects could have a positive impact on the balance and reflexes of the elderly. As mentioned before, incidents of injury are lower for those who carry their exercises out in water than for those who exercise on land (Katsura et al, 2010). It is especially recommended among people who have limitations with doing exercises on dry land as they get a relief in the water (Ochoa Martínez et al., 2015). Furthermore, exercises in water have been highly recommended for older adults (Kanitz et al, 2015). Deep water running performed with a floatation vest can be very effective. It has both cardio respiratory and neuromuscular benefits, similar to concurrent training (Kanitz et al, 2015). The water reduces and relieves muscular tiredness and increases mobility of the joints.
Water exercises enforce motion of the main respiratory muscles and increases the amplitude and mobility range of the thorax (Borgosz-Guzda et al, 2011). It allows exercise at high intensity with a reduced risk of injury as there is no contact between the feet and the bottom of the pool (Borgosz-Guzda et al, 2011). Because of the drag forces of the water, deep water running involves a large muscle mass working. Deep water running also increases maximal dynamic strength of the knee extensors and dynamic muscular resistance of the knee flexors and extensors (Kanitz et al., 2015).

**Falls**

Falls are ranked the second and third most common reason for elderly injuries in the world (Lim and Yoon, 2014). Falls are a major health problem for elderly and affects the quality of life since falls commonly result in acute injuries such as breaking bones. That makes the elderly dependent in daily life (Lim og Yoon, 2014). That is why more and more researchers are becoming increasingly interested in ways of reducing falls of the elderly (Lim and Yoon, 2014). It has been reported and proven by numerous researchers that continuous exercises can reduce the risk of elderly falling and at the same time improve their health (Lim and Yoon, 2014). By increasing balance, functional mobility and muscle strength it is possible to decrease the number of falls (Ozcan, Donat, Gelecek, Ozdirenc and Karadibak, 2005). Hydrotherapy is often recommended for elderly as an important part of preventing falls and to improve and maintain the functionality regarding balance recovery (Sá and Palmeira, 2015). It is known to promote significant increase in balance and at the same time decrease the fear of falling (Sá and Palmeira, 2015). Falls among older adults are a major concern in many countries (Elbar et al, 2013). One out of three individuals, of 65 years and older, fall at least once a year which results in acute injuries such as breaking the ankle or hip bone (Moody et al, 2012, Elbar et al, 2013). What causes these falls is lower limb weakness, slower gait, decreased mobility and pain (Arnold and Faulkner, 2010). An important protective postural strategy to decrease the risk of falling is to increase the rapidity of the steps and improve the ability to step down quicker. This could improve the reflexes that could be the main factor in if an individual would lose their balance, as without the reflex of putting the foot forward quickly the
individual is more likely to fall. (Elbar et al, 2013). As mentioned above, there is an important strategy available which can improve the ability of the elderly to prevent falls, or the protective postural strategy (Josephson o.fl., 2001). Fear of falling while exercising is known among the elderly and because of that they limit their movements because of fear, which directly leads to reduced movement which then causes loss of postural skills (Josephson o.fl., 2001). Exercising in shallow water helps increase the balance and has the benefit of being an environment of minimal risk, with reduced risk of experiencing fall injuries while exercising (Simmons and Hansen, 1996).

Sleep

Lack of quality sleep is one of the most common problems of daily life of the elderly (Mohammadi and Dadashpoor, 2013). Daily physical exercise is known to improve both quality and efficiency of sleep. A study made in Brazil showed that water exercise promotes an improved sleep. Individuals that practiced water exercises appeared to experience an increased duration of sleep in comparison to the land exercise group and went to bed earlier (Alencar et al, 2006). The elderly in the water exercise group had a longer total sleep time than a compare group who exercised on land. And the shorter period of time the subjects had been performing water exercises, the longer the total sleep time was (Alencar et al, 2006). A research of Dadashpoor et al (2013), of thirty elderly male subjects, also showed that aquatic exercises are effective in improving sleep quality. The aquatic exercise group experienced significant effect on sleep quality after they had participated in aquatic exercises three times a week for six weeks, as compared to the control group who did not exercise in water and observed no significant changes. The aquatic group also experienced a better mental general health after these six weeks, no significant changes were observed before the research (Dadashpoor et al, 2013).
The aim of the study

The aim of this survey study is to investigate 1) how many elderly people exercise in water, 2) their major reasons for visiting swimming facilities, and 3) the subjective health benefits it brings them when visiting the facilities regularly.

There will be data collecting from Laugardalslaug of how many elderly visit each day, in a week and in a month. The contents of the questionnaire is following Number of visits per week.

- Main purpose coming to the pool.
- Wellness when exercising in water.
- If elderly exercise or swim when in the water.
- If fall accident occurred in the last 12 months.
- Quality of sleep.
Method

Design and participants

This is a survey study. It was processed in collaboration with ÍTR, that helped with data collection, and the employees of Laugardalslaug that were of big help when counting and handing out questionnaire. Participants in this study are 50 people, 67 years and older. Among the total participants, female where 27 (54%) of them and 23 (46%) of them were male. People that met the requirements were randomly chosen in Laugardalslaug and asked to fill in a questionnaire. The youngest senior to fill in the questionnaire is 72 years old and the oldest is 91 years old.

Data collection

The implementation started in April. Data collection and counting was carried out in April, in cooperation with Íþróttar og tómstundaráði Reykjavíkur (ÍTR). The researcher was present in Laugardalslaug on 16.- 20. of April to hand out the questionnaires.

All the data collection took place in Laugardalslaug, the largest swimming facility in Reykjavík that is managed by ÍTR. When gathering the data on frequency of the elderly visits to the swimming facility in an average day, the gate system in Laugardalslaug was used to count how many 67 years and older visited the pool from the hour of opening at 6:30/8:00 in the morning to closing time at 22:00 in the evening. The counting occurred on both a working day and on a Saturday and took place on Saturday the 14th of April and on Monday the 16th of April. Information were obtained from Íþróttar og tómstundaráði Reykjavíkur (ÍTR) about total visits for every month the first four mounts of the year, and the same information about visits of people 67 years and older.

A questionnaire was created to ask the elderly in the pool about their experience when coming to the pool. The questionnaire were handed out to the elderly, who had been in the pool and agreed to participate, and filled in at
Laugardalslaug. It was handed out throughout the day from the early morning to late in the evening. As many of the participants had poor eyesight and could not fill out the form themselves, they got help filling out the questionnaire.

**Questionnaire**

Age _____ Gender _____

1. How often during the week do you generally come to the pool? __________

2. At what time of day do you come? __________

3. What are the main reasons for you visiting the pool?
   - Most important ______________________________
   - Second most important __________________________

4. Do you exercise in the pool? ______

5. If yes, what kind of exercises? ______________________________

6. Do you swim in the pool? ________
   - If yes, how far? __________

7. How good is your sleep on the days you visit the pool?
   - Very good ___ rather good ___ moderately good ___ less good ___ not so good

8. How good is your sleep on the days you do not exercise?
   - Very good ___ rather good ___ moderately good ___ less good ___ not so good

9. How do you feel on the days you come to the pool?
   - Very good ___ rather good ___ moderately good ___ less good ___ not so good

10. How do you feel on the days when you do not exercise?
    - Very good ___ rather good ___ moderately good ___ less good ___ not so good

11. Have you experienced a fall in the last 12 months? __________
    - If yes, did you hurt yourself? __________
The questions were created with the help from a supervisor. The questionnaire started by asking about gender and age of the participant, followed by eleven questions about daily swim habits and wellbeing.

The questionnaires were handed out to the elderly, who had been in the pool and agreed to participate, and filled in at Laugardalslaug. It was handed out throughout the day from the early morning to late in the evening. As many of the participants had poor eyesight and could not fill out the form themselves, they got help filling out the questionnaire.

Data analysis

Quantitative research method was used when the results from the questionnaires were analyzed. The results were then exported to Microsoft Excel for Windows 2010, where tables and images were processed. All results were processed by the researcher.
Results

The first dataset to be processed was the frequency of the elderly visits to Laugardalslaug and how many of them visit the pool on a daily, weekly or monthly basis. The counting took place on a weekday and on a Saturday. In one week there are approximately 1896 elderly that come to the swimming facility. That is approximately 268 elderly a day and makes approximately 8040 in a month. For some comparison, the total visitors in Laugardalslaug in April were 79.513 visitors. So the visits from the elderly consist of approximately 10 % of total visits, with some increase seen in April. Total visitors for a week were 20.103 visitors and total visitors for a weekday were 2871 visitors.

![Figure 1. Visits to Laugardalslaug in January - April 2018.](image-url)
In an average weekday there are about 250-300 elderly who visit the pool. Majority of them comes early in the morning. The weekday that the counting took place, most elderly arrived at the pool between 6:30 am and 9:00 am, or 117 elderly (40%). That Monday there were 294 elderly in total who visited the facility. Of the total visit there were 130 female (44%) and 164 male (56%). There was a significant difference in the attendance of the elderly on the weekend in comparison to the weekday, as fewer individuals visited the facility on the Saturday. On the Saturday, 188 elderly came to the facility. Of them were 98 female (52%) and 90 male (48%).

Figure 2. Time of the day when the elderly visited the pool on an average week day.
In a week, 2 participants (4%) visited the pool twice a week, 8 participants (16%) attended three times a week, 7 participants (14%) attended four times a week, 15 participants (30%) attended five times a week, 8 participants (16%) visited the pool six times a week and 11 participants (22%) visited the pool seven times a week or every day.

![Figure 3. How often during the week the participants came to the pool.](image)

Fifty elderly were asked to fill out the questionnaire. Everyone (100%) that filled out the form said that swimming and exercising in water is the main reason for them showing up and they feel like it gives them a better quality of life. The days they come to the pool they feel more alive and they feel as if something is missing on the days they do not come. They feel they have a good physical health when they swim or exercise in water. To find out further how good the elderly feel when swimming or exercising, there were question on a scale of 1-5, where 5 is the best feeling and the 1 was the least. Or in words, very good, rather good, moderately good, less good and not so good. On a scale of 1-5, everyone (100%) said they felt like a 5 on the scale or very good, when they come to the pool. 22 of the participants (44%) said that they felt like 2 on the scale, or less good when they did not come and 28 of the participants (56%) said that they felt like a 3 on the scale, or moderately good when they did not come to the facilities.
Table 1. On a scale of 1-5 how the elderly felt after visiting the swimming facilities and on a same scale how they felt when they did not come to the pool.

<table>
<thead>
<tr>
<th>Wellbeing</th>
<th>Very good</th>
<th>Rather good</th>
<th>Moderately good</th>
<th>Less good</th>
<th>Not so good</th>
</tr>
</thead>
<tbody>
<tr>
<td>when exercising</td>
<td>100% (50)</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>without exercising</td>
<td>0</td>
<td>0</td>
<td>54% (27)</td>
<td>46% (23)</td>
<td>0</td>
</tr>
</tbody>
</table>

One question on the questionnaire addressed the second reason of why the elderly come to the pool. The second biggest purpose for all 50 participants coming to the facility is to meet other people. Many of the elderly come twice a day to meet other people and socialise and have something to aim for through the day. 25 of the participants (50%), take part in the scheduled training in Laugardalslaug two-five times a week, and think that it is a necessary part of their life because they do not just get the motion and fresh air, but also the social part of meeting others and socialising.
To get an idea of how active the elderly truly are, there were four questions asked. The first question asked if the seniors perform exercises in the pool. And if yes, the next question asked what kind of exercises. The third question asked if they swim in the pool and if yes, the fourth question asked how far they swim. 14 of the participants (28%) exclusively swim in the pool. 32 elderly (64%) do both exercise and swim and 4 elderly (8%) exclusively perform exercises in the pool. Half of the group (50%) goes to water group-exercises which are scheduled every morning and then swim a little after that. No one (0%) of the participants did not exercise when in the facility.

Figure 4. The main activities of the elderly when attending.
When asked how far the participants swim, 4 participants do not swim at all. 4 participants (8%) swim 100 meters every time, 5 participants (10%) swim 200 meters, 8 participants (16%) swim 300 meters, 8 participants (16%) swim 400 meters, 10 participants (20%) swim 500 meters, 7 participants (14%) swim 600 meters or more and 5 participants (10%) swim 1000 meters or more.

![Bar chart showing distances swam](image)

*Figure 5. How far the participants swam when in the pool.*

Because of the fact that elderly fall easily and many of them hurt themselves by falling, there was one question on the questionnaire about falls. The question was a yes or no question that asked if the participant had fallen and hurt themselves the last 12 months. No one (0%) from the sampling had fallen and hurt themselves the last 12 months.
All of the participants said they were sleeping well in the time period they go to the swimming facility. To find out the effect of swimming on sleep, two questions were asked. The first one was a yes or a no question about if they did sleep better when they attended the swimming pool. The second question was on the Likert scale, where the quality of sleep was the most at the number five on the scale and the least at the number one on the scale. Or in words: very good, rather good, moderately good, less good and not so good. All 50 participants answered that on the scale of 1-5, the sleep was at 5, or very good, on the days they came to swim. However, on the days they could not visit the pool, 23 participants (46%) said that the sleep was at number 2 on the scale, or less good, and 27 participants (54%) said that the sleep was at number 3 on the scale, or moderately good.

Table 2. On a Likert scale, the quality of sleep when the participants came to the pool, and on a same scale how the quality of sleep was when the participants did not come to the pool.

<table>
<thead>
<tr>
<th>Quality of sleep</th>
<th>Very good</th>
<th>Rather good</th>
<th>Moderately good</th>
<th>Less good</th>
<th>Not so good</th>
</tr>
</thead>
<tbody>
<tr>
<td>when exercising</td>
<td>100% (50)</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>without exercising</td>
<td>0</td>
<td>0</td>
<td>54% (27)</td>
<td>46% (23)</td>
<td>0</td>
</tr>
</tbody>
</table>
Discussion

Observing the numbers of all visitors in Laugardalslaug, it turns out that elderly are on average 10% of the total visits. In April the elderly visited Laugardalslaug 12,100 times and that does 15% of total visits. Elderly are 19% of total inhabitants of Iceland (Hagstofa Íslands, e.d.) The total number for visitors varies from a month to month basis, however the percentage of elderly visitors is comparable through all months. That does not come as a surprise after talking to 50 elderly individuals in Laugardalslaug. They have daily routines and swimming is the main activity of the day.

Main purpose of visiting the pool was the same for all participants, to exercise in the water. All participants have good exercise habits and many of them walk from home to Laugardalslaug and back again, after being in the pool. All of the participants felt very good the periods they exercised regularly, but moderately good or less good the periods they did not. The participants good exercise habits can improve lower muscle strength and make activities of daily life more effortless (Sato et al, 2007). Exercises do not help with physical health alone, but also with mental health (Sato et al, 2007).

All participants exercised at least three times a week, and most of them more than that, or five to seven times a week. More than half of the participants both swim and do exercises when in the pool. Others only exercise or swim. Participants that swim 500 meters or more each time are 44 % of the total. According to a research by Sato et al (2007) it shows more improvement in strength and mobility to exercise in water more than once a week. A few of the participants do come to the pool twice a day. That is mainly to meet friends and enjoy the company of each other. That leads us to the second purpose for coming to the pool. The companionship is an important part of coming to Laugardalslaug and really enjoy to be together.

None of the 50 participants did have a fall experience in the last 12 months. That is impressive when taken into account that breaking bones after falls are the most common accidents of 65 years and older, which almost invariably results in
acute injuries such as ankle, shoulder or hip bone fractures that makes the person helpless and dependent (Elbar et al, 2013, Moody et al, 2012).

In the current survey every participant felt that their sleep was very good on the days of exercising, but moderately good or less good on the days of no exercising. That is consistent with research by Reid et al (2010) showing that if structured physical and social activity levels for older adults are increased it has a positive effect on sleep. This observation could be used to promote exercising in water to the elderly, as it would help improve their sleep when they exercise, since it has been shown to influence sleep quality (Reid et al, 2010).

The gain in health and mentality when exercising in water is enormous according to the participants. All the participants were in good health, felt light on their feet and lighthearted. It was a pure cheer to converse about swimming, exercising and the swim community. And they found it to be an important social factor to sit and enjoy a cup of coffee when out of the water, simply to share the latest gossip and enjoy each other's company outside the pool as well. The approach and mentality of the elderly towards exercising is also vital. If they have a positive approach they will be resilient in exercising and that will keep them self-reliant for a longer time (Warburton, 2006). It would be worth it to promote the benefits of water exercising to more of the elderly and that way get more of them to use the facilities all over the city. Both good facilities and the community is motivating. And when one is there, hopefully the physical benefits start to make it interesting for the individual, as exercise is the best prevention against lifestyle diseases and aging (Benónýsdóttir, Árnadóttir og Halldórsdóttir, 2009).

It is important that elderly people exercise every day as it improves their quality of life (Warburton, 2006). One of the aims of this study was to find out how many seniors use the swimming facility Laugardalslaug regularly and how active the seniors really are. It is indisputable when reading the results that exercising in water has good effect on the participants. It increases ease, and the probability of a good night sleep among other effects.
This study is a pilot study for larger comparative study that is a collaboration between Reykjavík University, Jyvaskila University in Finland and the University of Iceland. The comparative study will start next fall, where more detail will be gathered on the health benefits and effects of the water has on the elderly. It will be interesting to compare elderly people that exercises at least twice a week and those who do not exercise at all, and see the results and the health gain that is believed to come with exercising.
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