



Review of Mermaid Tail and Fin Products

Royal Life Saving Society WA

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Royal Life Saving

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Saving Lives+ 

BACKGROUND

Data from the World Health Organisation (WHO) released in 2014 revealed drownings claim the lives of 372,000 people worldwide ever year.¹ Among children and young people, unintentional drownings were noted to be one of the top 10 leading causes of death.¹ In Australia specifically, drowning is the leading cause of unintentional injury death among Australian children aged 1–3 years, further associated with mental and physical disabilities among this age group following non-fatal drowning events.^{1,2} The susceptibility of the 0-14 age group to drownings is a result of numerous factors including poor swimming skills and coordination, aquatic inexperience, absent supervision and a lack of barriers preventing exposure to water.^{1,3} However, the Royal Life Saving Society believes that all drownings are preventable.

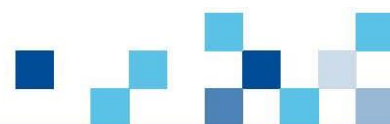
Early exposure to aquatic environments is paramount to ensuring the development of sound swimming skills in young children and the use of pool toys can facilitate this. While enabling greater enjoyment in the water and by nature, designed for fun, improper use can lead to injury and death. Examples of pool toys facing scrutiny in the aquatic world are Monofins and Mermaid tails. Designed to provide the wearer with the sense that they are ‘swimming like a mermaid,’ products only facilitate the dolphin kick motion. The mermaid-style swimsuits enclose the legs of the wearer from the hips down, with the feet placed in a monofin. A monofin-only type option without the leg cover is also available on the market.

Monofins are also used among adults for fitness and competitive swimming, allowing both economy and efficiency through the water,⁴ while also used as a method of propulsion during free diving.⁵ However research has indicated the repetitive and strenuous movements necessitated by monofins can result in strains and stress fractures in children, specifically in the back and ankle regions.⁶ No mention of potential drowning risks has been noted in the literature for either the monofins or Mermaid tails.

Concerns as to the safety of the product heightened after a YouTube video showed a young girl struggling to swim to the surface of her home pool while wearing a Mermaid Tail. She was pulled to the surface by her mother who was fortunately standing within arm’s reach.⁷ Since then, Australian consumers have been warned about purchasing the toys for their children^{8,9} and public pools, including the Victorian YMCA that oversees 50 aquatic facilities, have banned the products from being used by patrons.¹⁰ Global attempts to reduce their use have also been documented including in the United States¹¹ and New Zealand.¹²

As an advocate for national drowning prevention, the Australian Royal Life Saving Society (RLSA) does not endorse the use of Mermaid Tails and Fins, but has developed a list of recommendations by which to guide their use.¹³ These include using only in the presence of active parental supervision and by experienced and competent swimmers, ensuring the product can be removed in the event of difficulty and only swimming short distances. Ultimately, RLSA reiterates that Mermaid Tails and Fins are considered to be pool toys and thus require the same level of parental supervision recommended to devices of a similar nature.

With such a strong global response to their appearance on the market and confusion as to safety, there is a strong need to quantify the influence Mermaid Tails and Fins may have on the swimming ability of children to provide evidence based recommendations to Australian consumers.



AIMS AND OBJECTIVES

Study aims and objectives

With no quantified evidence as to the limitations posed by Mermaid Tails and Fins on swimming ability, this study aimed to compare the swimming skills of children with and without wearing the product to determine if they may constitute a drowning risk. The listed objectives have been developed to guide the research process and achieve the stated aims;

- Assess the difference in the skills of children swimming with and without the product.
- Determine the views of children in regards to wearing the product while in the water.
- Explore parental perceptions of the products, both positive and negative.
- Measure the level of risk associated with wearing Mermaid Tails and Fins.
- Evaluate the ease as to which Mermaid Tails and Fins can be removed in the case of an aquatic emergency.

Results from this research will provide evidence-based recommendations to be delivered by the Royal Life Saving Society of WA (RLSSWA) and the Australian Competition and Consumer Commission (ACCC).

RESEARCH QUESTIONS

The following research questions were addressed in order to achieve the stated aims of the project and address existing research gaps;

1. Are the swimming abilities of children wearing Mermaid Tails and Fins different to their abilities when not using the product?
2. How do Swim instructors perceive the swimming abilities of children wearing Mermaid Tails and Fins?
3. To what extent are children aware of any differences in their swimming abilities while wearing Mermaid Tails and Fins?
4. What proportion of parents would allow their children to use Mermaid Tails and Fins, and what safety methods would they enforce?

METHODS

Research method

A mixed-methods design including both quantitative and qualitative data was employed to answer the proposed research questions and achieve the stated aim.

The primary study method compared swimming abilities with and without wearing Mermaid Tails and Fins. Children were compared against the skills required as part of the RLSSWA endorsed Swim and Survive program. Swim and Survive provides a baseline at which a student can be measure according to their own specific abilities. The assessment was then repeated as the child wears the Mermaid Tails and Fins (where physically possible) and differences in abilities were investigated.

Quantitative assessment of differences in swimming abilities was corroborated by short interviews with each participating child, their parent/guardian and the swim instructor undertaking the research. With specific reference to participating children, we wanted to identify whether they were aware of their differences in swimming abilities, or whether the fun and novel nature of the Mermaid Tails and Fins masks this perception. Questions were asked of parents to discern their willingness to allow their child to use the product under less controlled situations, whether they noted a difference in ability while viewing the assessment, and if they believe the products pose any risks for Australian children. We also asked swimming instructors how they perceived the Mermaid Tails and Fins to



impede abilities of participants, which skills specifically the products limited and whether they personally believe they constitute a drowning risk.

Sample description and selection

Study population

In Australia, Mermaid Tails and Fins are primarily marketed to children aged between 2 - 12 years of age and resultantly, children of these ages comprised the study population.

Study sample

The study sample included children (both male and female) aged between 2 - 12 years of age currently residing in Western Australia.

Participants were recruited using a voluntary method of sampling. Information regarding the research, inviting people to participate was distributed through RLSSWA membership databases, social media sites including Facebook and website, as well as through the swimming and water safety programs at Balga Leisure park. Whilst individuals were self-selected to take part in the study, they were initially screened against eligibility requirements prior to inclusion;

- The participating child must be either currently or previously enrolled in a RLSSWA endorsed Swim and Survive program
- Both child and parent must be fluent in English
- The participating child must be aged between 2 - 12 years of age

All participants completed a participant information sheet and their parents signed consent a form. Participant forms can be seen in Appendix 1.

Sample size

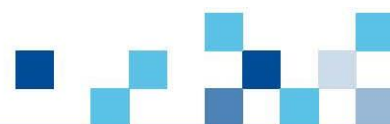
Overall, 25 children, 16 parents and 9 swimming instructors participated in the research, outlined in Table 1.

Table 1: Participant Demographics

CHILD PARTICIPANT DETAILS		
AGE GROUP (years)	GENDER	
	MALE	FEMALE
2-4	1	4
5-7	3	6
7-9	3	2
10-12	1	5
TOTAL	8	17
PARENT PARTICIPANT DETAILS		
38-46	3	13
SWIMMING INSTRUCTOR PARTICIPANTS		
18-30	5	4

Data collection

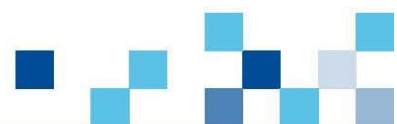
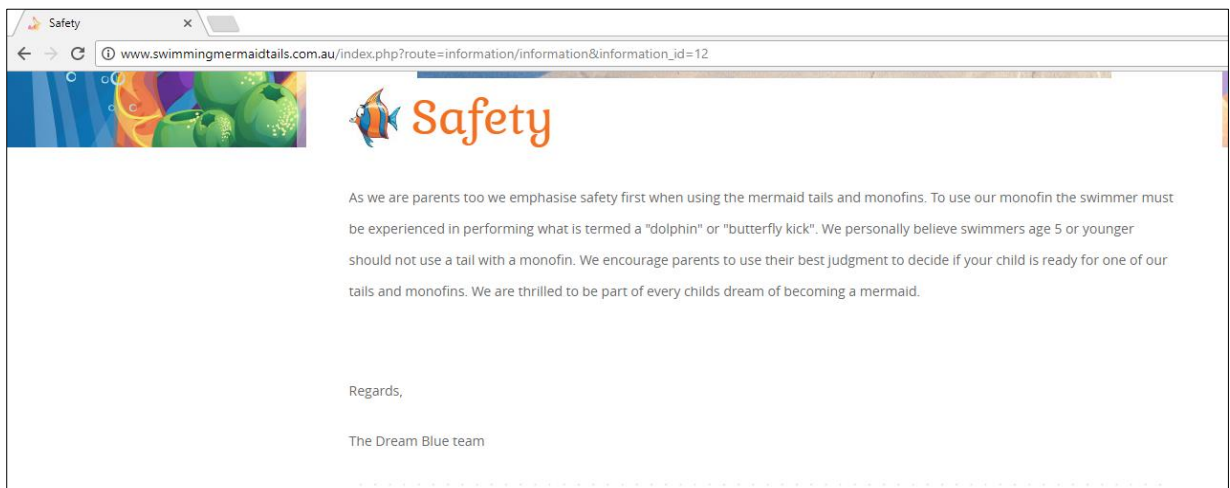
Swimming abilities of children were assessed with and without wearing Mermaid Tails and Fins. Participants were assessed against a validated Swim and Survive checklist tool based upon the noted level of the individual participant. As each participant was enrolled in this program at time of study, they were measured against the skills required in their most recently passed stage (i.e. if the



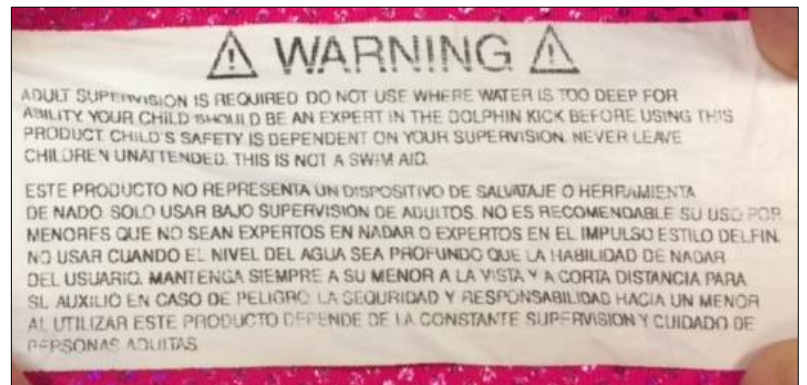
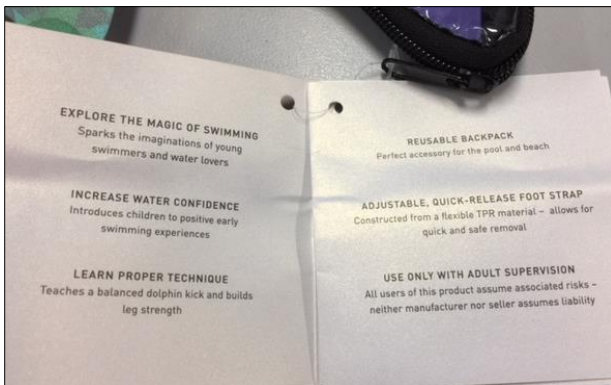
participant is currently enrolled in Stage 5, they were assessed against Stage 4). This ensured that the child was capable of completing all skills necessary for that level prior to wearing the Mermaid Tails and Fins, validated by the pre-test. An example assessment sheet can be seen in Appendix 2.

Four Mermaid Tails and Fins products were tested;

- Dream Blue Mermaid Tails (AUD \$100 RPP)



- The2Tails Monofin and Tail (AUD \$100 RPP)



WELCOME TO OUR MERMAID WORLD

The2Tails recommends taking The Mermaid Swim Test before using your mermaid tail:

- ▽ Float on your back for 25 seconds - this is a good way for mermaids to rest if they get tired while swimming!
- ▽ Swim the entire length of the pool without help (25 meters).
- ▽ Tread water for 2 minutes without using your legs (arms only).
- ▽ Practice your dolphin kick in the pool before putting on your tail - once you've mastered the dolphin kick, you are safe to swim in your tail!
- ▽ Remember never swim in your tail without an adult present.

We love Mermaids here at The2Tails and want to make sure that you stay safe while using our tails.

The2Tails knows how much little mermaids love to swim for an audience, so always keep an adult around when splashing around in your tail.

For Parents of Mermaids:
Never leave children unattended while they're using a mermaid tail.

YOUR CHILD'S SAFETY DEPENDS ON YOUR WATCHFUL EYES.

As an adult or guardian, you are responsible for the safety of your mermaid, your child and yourself. This Mermaid Tail is a costume, not a swim aid. Enjoy!

The2Tails family welcomes you into our mermaid community and is honored to make your mermaid dreams come true!

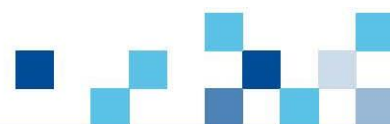


- The2Tails Walking Mermaid Tail (AUD \$45.00 RRP)



*there was no safety information included on packaging or product. See above for safety information available on the product website

- Finis Mermaid Fin (AUD \$31.99 RRP)



Each child competed the swimming and water safety skills without the mermaid tails and fins and then while wearing the products. Children were asked at three points during their assessment whether they wanted to continue; prior to the pre-test, prior to post-test and mid-way during post-test. If a child indicated that they wanted to withdraw, they were removed immediately from the pool. No child involved in the research requested to be removed from the water.

During the data collection, there were two qualified instructors in the water at all times with no more than two participants being concurrently assessed. Instructors remained within arm's reach of participants as they completed their assessments. A third instructor watched from the side of the pool and remained ready to intervene if required. The assessments were also conducted within the range of supervising lifeguards.

Children were shown how to remove the Mermaid Tails and Fins in the event of distress and also be shown how to signal for help.

Following the assessment of the children in the pool, we conducted a short survey with each participant (Appendix 3). Participants were asked if they enjoyed using the product, if they found it easier or harder to swim, if they would like to use it again and which of the four Mermaid Tails and Fins challenged their swimming ability the most. Parents were also asked a number of questions primarily to verify their willingness to allow their children to use the product outside of a controlled environment, and if they would put in place methods to ensure safety (Appendix 4). Once all children had been assessed, swim instructors completed a short survey to determine their professional opinion of the Mermaid Tails and Fins with specific reference to them as a potential drowning risk. These questions can be seen in Appendix 5.

Data analysis

Quantitative data collected through swim assessments was entered into a password protected excel spreadsheet and coded to remove identifying demographic information. Coded data was then cleaned and analysed in SPSS. Data was only reported at the group level.

Data collected via surveys completed by parents, children and swim instructors were entered into a password protected excel spreadsheet and coded using thematic analysis to identify key trends.

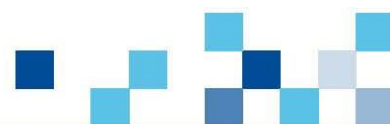
RESULTS

Swimming and water safety skills

Overall, there was a decrease in swimming ability recorded while using the mermaid tail products in 68.0% (N=17) cases with an average decrease of 60.0%. Due to issues with the mermaid fins not fitting causing them to slip off and children being uncomfortable wearing the fins, data for swimming ability was recorded for 68.0% of children. Of these, there was a decrease in swimming ability recorded while using the mermaid fin product in 70.6% (n=12) of cases with an average decrease of 71.9%. See Table 2.

Table 2: Swim Assessment Scores

Age (years)	Gender	Swim Stage	Without Tail/Fin (%)	With Tail (%)	With Fin (%)
3	Male	2 – Water Discovery	100.0	60.0	40.0
4	Female	1 – Beginner	100.0	100.0	N/A
4	Female	1 – Beginner	100.0	0.0	42.9
4	Female	Infant Aquatics - 6	100.0	83.3	83.3
4	Female	1 - Beginner	100.0	0.0	N/A

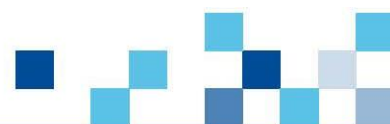
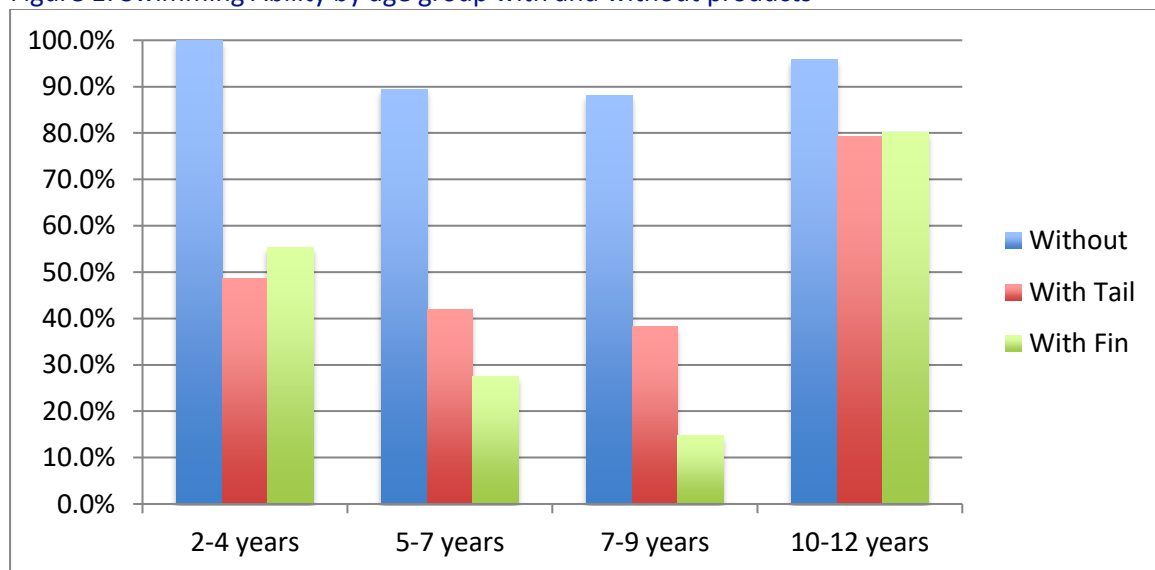


5	Male	3 - Preliminary	100.0	33.3	N/A
5	Female	2 – Water Discovery	100.0	N/A	N/A
6	Female	5 – Water Sense	66.7	66.7	N/A
6	Female	4 – Water Awareness	75.0	50.0	N/A
6	Female	3 – Preliminary	83.3	0.0	0.0
6	Male	2 – Water Discovery	100.0	60.0	0.0
7	Male	4 – Water Awareness	100.0	62.5	87.5
7	Female	4 – Water Awareness	100.0	62.5	50.0
7	Female	3 – Preliminary	80.0	0.0	0.0
8	Female	4 – Water Awareness	100.0	0.0	N/A
8	Male	3 – Water Sense	40.0	40.0	40.0
8	Male	2 – Water Discovery	100.0	60.0	0.0
9	Male	6 – Junior	100.0	25.0	0.0
9	Female	7 - Intermediate	100.0	33.3	33.3
10	Female	5 – Water Sense	100.0	100.0	100.0
10	Male	8 – Water Wise	100.0	50.0	0.0
10	Female	8 – Water Wise	100.0	100.0	100.0
12	Female	7 – Intermediate	100.0	100.0	100.0
12	Female	6 – Junior	75.0	25.0	N/A
13	Female	Stage 15	100.0	100.0	100.0

Decreases in swimming ability were recorded across all age groups for both the mermaid tail and fin products during the swim assessments. However, the effect of mermaid tail and fin products on swimming ability varied by age with younger age groups more likely to experience greater decreases than older age groups.

Overall the children’s swimming ability was affected less by wearing the mermaid tails compared to the mermaid fins. The highest levels of swimming ability were recorded amongst the oldest age group of children aged 10-12 years for both the mermaid tail and mermaid fin products. The greatest reduction in skill ability while wearing the mermaid tails was recorded amongst children aged 2-4 years, while the greatest reduction while wearing the mermaid fins was recorded amongst the 7-9 years age group, shown in Figure 1.

Figure 1: Swimming Ability by age group with and without products



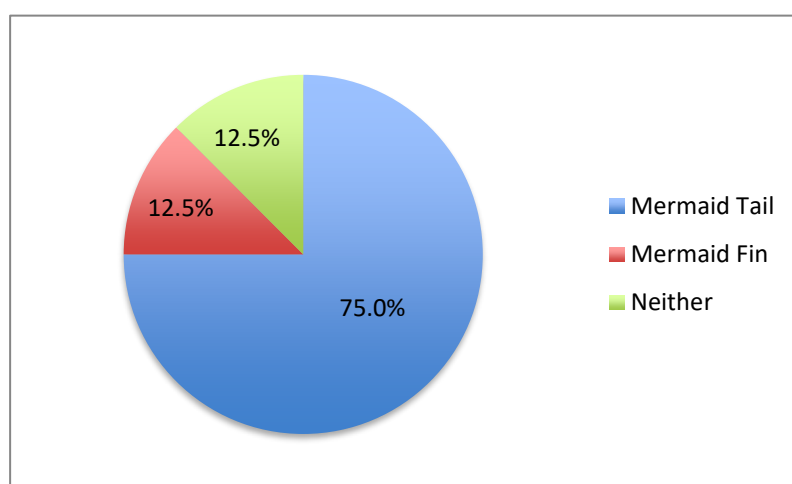
Child participant surveys

The majority of children (76.0%; n=19) who participated in the research were excited to swim with the mermaid tails. Girls were more likely to be excited to use the products (100.0%; n=17) than boys (25.0%; n=2).

After completing the swimming assessments the children were asked how it felt swimming with the mermaid tail and fin products. The majority of children (60.0%; n=15) described using the products as being hard, difficult or that it felt strange. The remaining 40.0% (n=10) described using the products as easy and fun. Older children were most likely to report positive feelings about using the mermaid tail and fin products than younger children.

Overall, children preferred using the mermaid tail products over the mermaid fins as they were easier to swim with (32.0%; n=8), they fitted better and were more comfortable (28.0%; n=7), they liked the look of them and looked like a mermaid (28.0%; n=7) and that it was more fun (12.0%; n=3). Girls were more likely to say that they liked the look of the mermaid tails and boys were more likely to prefer the mermaid tails fit better and made it easier to swim, see Figure 2.

Figure 2 – Product preference

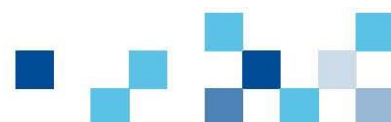


The majority of children found both the mermaid tail and fin products difficult to swim in, however they were more likely to find the mermaid fin products hard to swim in compared with the mermaid tails. Younger children were more likely to report both products to be difficult to swim in compared to the older children, represented in Table 3.

Table 3 – Difficulty swimming while using products

Product	Product difficult to swim in?					
	Yes		No		Unsure	
	Number	%	Number	%	Number	%
Mermaid Fin	20	80.0	5	20.0	0	0.0
Mermaid Tail	14	56.0	11	44.0	0	0.0

Overall 54.2% (n=14) of children thought that their swimming ability was worse while wearing the mermaid tail and fin products, 37.5% (n=9) felt it was the same and only 8.3% (n=2) felt that their swimming ability was better while wearing the products. Older children and those in higher swimming stages were more likely to report that their swimming ability was the same or better while wearing the products, see figure 3.



Despite children reporting a reduced swimming ability while wearing the mermaid tail and fin products, the majority (54.2%; n=13) said that they would like to wear them again as shown in Figure 4.

Figure 3 – Perceived swimming ability wearing products

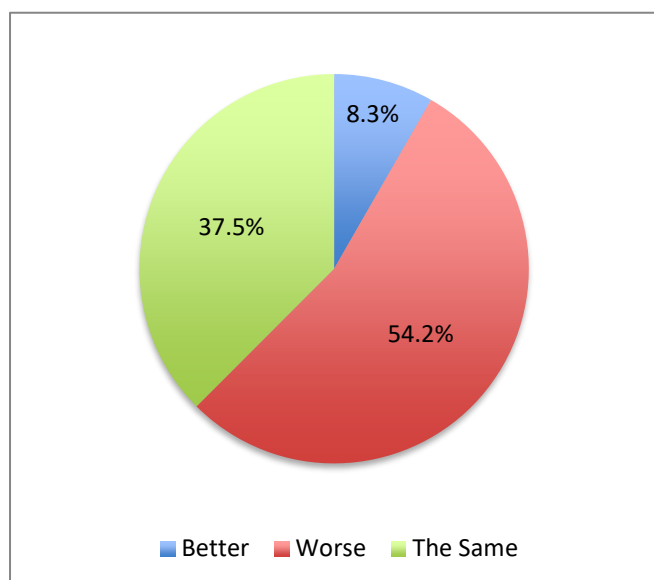
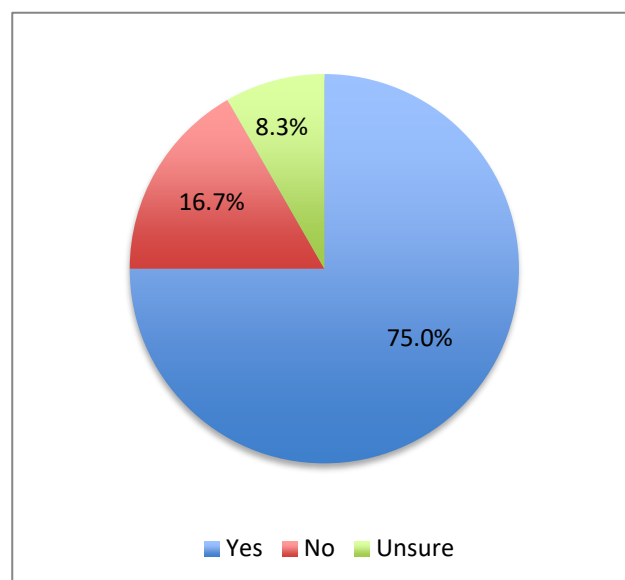


Figure 4 – Intention to wear products again



Parent surveys

Overall, 16 parents completed the survey following their child's swimming assessments. The majority of parents had heard of the mermaid tail and fin products prior to the data collection (93.7%; n=15) and had either seen them advertised on television, the Internet and on social media, heard about them from friends or had seen them in the shops. Of those who had heard of them prior to the research, 40.0% (n=6) mentioned that they had seen warnings about the safety of these products either from friends or from news stories online and through social media.

The majority of parents (93.7%; n=15) observed a difference in their child's swimming ability while wearing the mermaid tail and fin products. The most commonly reported differences observed included that they restricted the child's movement which made it more difficult for them to swim, they caused the child to tire quickly, and made it difficult for them to float and keep their head above the water.

'I noticed my child's head was lower in the water and she couldn't swim far without trying to stand up. She needed much more assistance from the instructor while wearing them.'

Tammara – Mother of participant

'They appeared to restrict my son's movement and it made it more difficult for him to swim.'

Nicole – Mother of participant

There were a number of parents who mentioned that their child initially found it difficult, after a bit of practice they were able to swim well wearing the mermaid tail and fin products. Others were surprised at how well their children swam while wearing the mermaid tail and fin products. These were all parents who had children aged over 10 years.



'At first she was having problems coordinating her legs but once she got the hang of it she was good. Although she was surprised by the extra work for her upper body and really had to think about getting in and out [of the pool].'
 Marion – Mother of participant

Despite observing difference in their child's swimming ability, 62.5% (n=10) reported that they would allow their children to use the product again, with some stating only with direct adult supervision. Parents with children in the younger age groups were less likely to report that they would allow their child to use the products again. Parents did report a number of safety restrictions they would put in place for use of the products. The most commonly reported were that they would be used only under close adult supervision, in a swimming pool (not the ocean) in shallow water and only for a short period of time to reduce fatigue and tiredness.

The majority of parents (81.2%; n=13) said that they didn't feel that there was enough safety information regarding the use of mermaid tail and fin products for parents. Common suggestions for how the safety information could be promoted to parents were through advertising and warnings on product packaging, online and through education at schools. Advice should be provided on safety of products based on age and swimming ability. A full list of strategies is included in Table 4.

Table 4 – Strategies to promote safety information

Advertising and warnings on products (and enclosed with products)
Education at product point of sale
Online (particularly Facebook and websites)
Schools
Television advertising
Provide age limits for use
Provide advice on use based on swimming ability

Swimming Instructor surveys

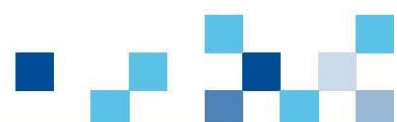
All of the swimming instructors involved with the research reported differences in the children's swimming ability while wearing the mermaid tail and fin products during the swimming assessment. Differences observed during the swimming assessments are listed in Table 5.

Table 5 – Difference in swimming ability while wearing mermaid tail and fin products

Children lacked confidence while wearing the mermaid tail and fin products
Restricted movement
Difficulty floating and kicking on their back
Slower and poorer swimming technique
Children became tired more quickly when using the products
Poor balance and difficulty standing in water
Difficulty floating due to weight of mermaid tail and fin products

The main differences between wearing the mermaid tail and fin products and not that were reported by swimming instructors were reduced swimming skill and ability to float.

'The vast majority were less proficient. A lot of the children struggles with both products and their technique was much worse while wearing them.'
 Ben – Swimming Instructor



'Children struggled with the correct technique for most of the strokes, especially the younger ones. They also struggled to keep their legs and hips afloat.'

Trent – Swimming Instructor

'I noticed that they couldn't swim as well for all strokes and they weren't able to stay afloat as easily.'

Taylah – Swimming Instructor

The majority (55.6%; n=5) of swimming instructors reported that the mermaid tail products affected the child's swimming ability the most and also hindered their swimming ability the most, shown in Figure 5 and 6.

None of the swimming instructors believed that the mermaid tail and fin products had any benefits in encouraging children to become more familiar with the water.

Figure 5 – Products affecting swimming ability the most

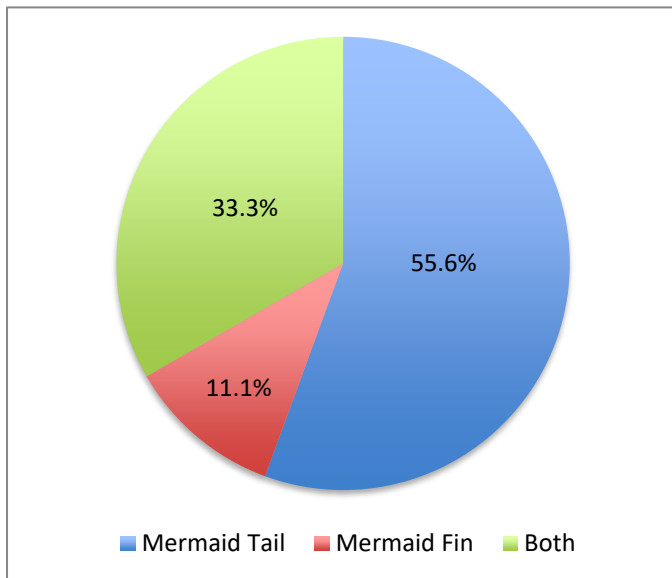
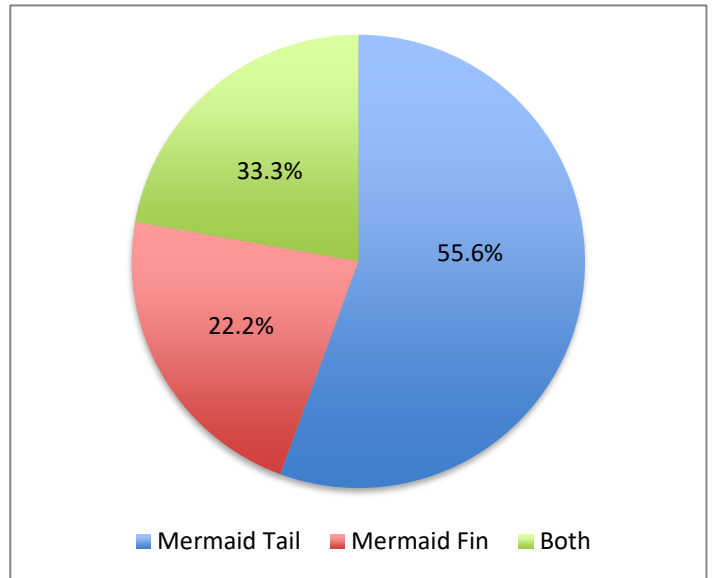


Figure 6 – Products hindering swimming ability the most



Swimming instructors also provided their opinions on whether these products were safe for children within the various age groups. Overall, swimming instructors believed that the mermaid tails and fins were unsafe for children aged 2-4 years (100.0%; n=9) and 5-7 years (77.8%; n=7). Given their small size the mermaid tail and fin products were observed to weigh them down making it difficult to float and stand up easily. It was also noted that they were generally unsafe due to their limited swimming ability.

They felt that the mermaid tail and fin products level of safety increased with the child's age and swimming ability. For children aged 7-12 years the products were viewed to be safe, however it depended on their swimming ability. The better the swimming ability the safer the use of these products appeared to be.

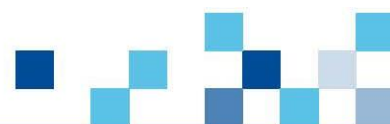
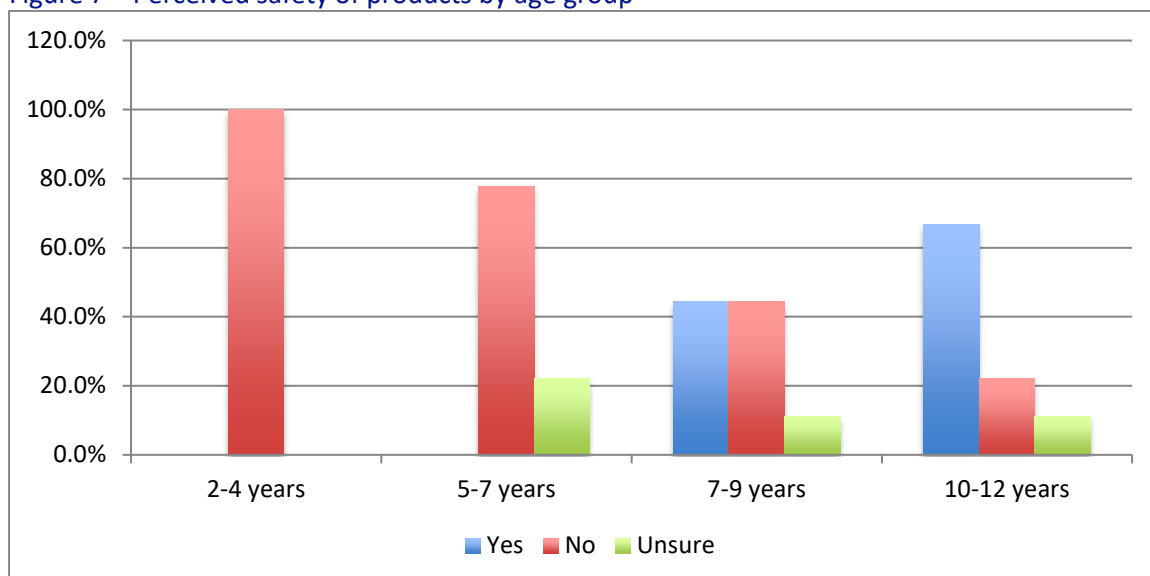


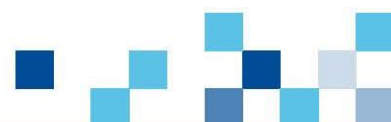
Figure 7 – Perceived safety of products by age group



All of the swimming instructors felt that there was a lack of safety information available around the use of mermaid tails and fins. They suggested a number of ways that safety information could be promoted including advertising through industry websites and product suppliers, through public swimming pools and swim schools, warnings on products, and through community groups and schools. The suggested that messages should focus on the importance of close supervision while wearing the products and that the safety considerations vary with a child's age and swimming ability.

Recommendations

- Mermaid tail products are appropriate for children aged 7 years and over or for children at Swim and Survive stage 6 (can swim 50m freestyle, float on front and back, scull on back and tread water) as a minimum. Children should be directly supervised by a responsible adult at all times while wearing the product
- Children under the age of 7 years should wear mermaid tail products where the feet are free (not enclosed) to assist with movement in the water
- Mermaid fin products are not appropriate for children under the age of 10 years due to their limited strength and fit issues with the products causing them to regularly slip off. Children should be supervised by a responsible adult at all times while wearing the product
- Mermaid tail and fin products should only be used in controlled environments such as home swimming pools and not at locations where the environment and presence of other swimmers can impact on their safety such as the beach, rivers or public swimming pools
- Aquatic centres should develop policies regarding the use of these products and implement within their centre. Staff employed at these venues should be provided with information regarding the products and safety implications associated with their use so that they can educate parents visiting their pool
- Safety messages should focus on the dangers associated with wearing these products and highlight that children's swimming ability is significantly reduced while wearing these



products – these products make it difficult for children to float, staying afloat, restricts movement and increases tiredness and importance of close supervision

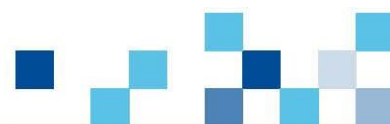
- Safety messaging and warnings should be placed in prominent locations on all mermaid tail and fin product packaging to provide consumers with information regarding safety, supervision requirements, and considerations for use (including appropriate age and swimming ability). Products should also include detailed safety information within the product packaging
- Additional education regarding product safety should be targeted at parents at point of sale, through community groups including mother’s groups, playgroups and community health centres and promoted through primary schools and aquatic centres

Conclusion

Mermaid tail and fin products significantly reduce children’s swimming ability and caution should be taken by parents when allowing children to use these products. Minimum age and actual swimming ability requirements (not those perceived by the child and/or parent) for use should be promoted to improve safety, however, use of the products should only be in controlled aquatic environments such as home swimming pools and with close adult supervision. Further education is required to inform consumers of these products (in particular parents with young children) of the dangers associated with product use. Organisations and peak bodies need to work closer with product manufacturers, distributors and the broader community to provide clearer information and warnings regarding safety and appropriate usage of these products.

References

1. World Health Organisation. Global report on drowning: preventing a leading killer [Internet]. Geneva, Switzerland: World Health Organization, Department for management of NCDs, Disability, Violence and Injury Prevention, 2014
2. Royal Life Saving Society - Australia. National Drowning Report 2017 [Internet]. Sydney Australia: Royal Life Saving Society, 2017.
3. Brenner RA, Committee on Injury V, Prevention P. Prevention of drowning in infants, children, and adolescents. *Pediatrics* [Internet]. 2003 [cited 2017 June 12]; 112(2):[440-5 pp.]. Available from: <https://goo.gl/ht72yx>.
4. Zamparo P, Pendergast DR, Termin A, Minetti AE. Economy and efficiency of swimming at the surface with fins of different size and stiffness. *Eur J Appl Physiol* [Internet]. 2006 [cited 2017 June 12]; 96(4):[459-70 pp.]. Available from: <https://goo.gl/CJYls0>.
5. Lindholm P. Loss of motor control and/or loss of consciousness during breath-hold competitions. *Int J Sports Med* [Internet]. 2007 [cited 2017 June 12]; 28(04):[295-9 pp.]. Available from: <https://goo.gl/52fyef>.
6. Karantanas AH. Common Injuries in Water Sports. 2011 [cited 2017 June 12]. In: *Sports Injuries in Children and Adolescents* [Internet]. Berlin, Germany: Springer Berlin Heidelberg, [cited 2017 June 12]; [289-317]. Available from: <https://goo.gl/iC32t6>.



7. Breastfeeding Mama Talk. Girl in mermaid fins saved by Mom [Internet]. California, United States: YouTube; 2015 [2017 June 12]. Available from: <https://goo.gl/sjLr6B>.
8. Mackander M. Mermaid tails, hoverboards listed 'unsafe' for Christmas presents [Internet]. Sydney, Australia: ABC News; 2015 [2017 August 10]. Available from: <https://goo.gl/38AKKW>.
9. Browne K. Give fins the flick when it comes to safety [Internet]. Marrickville, Australia: CHOICE Consumer Advocacy; 2015 [2017 August 10]. Available from: <https://goo.gl/3yQaa0>.
10. Lagerberg C. YMCA bans mermaid tail toy at Victorian pools amid drowning fears [Internet]. Melbourne, Australia: Herald Sun; 2016 [2017 August 10]. Available from: <https://goo.gl/xGh2Sx>.
11. Stratford S. Many cities banning mermaid swim accessories for safety reasons [Internet]. Cleveland, USA: Fox 8 News; 2016 [2017 August 10]. Available from: <https://goo.gl/evmQng>.
12. Roy E. Mermaid-tail swimsuits banned by New Zealand city of Auckland over safety risk Dunedin, New Zealand: The Guardian; 2016 [2017 August 10]. Available from: <https://goo.gl/mF3UbW>
13. Royal Life Saving Society - Australia. Fact sheet; Mermaid tails & monofins [Internet]. Sydney Australia: Royal Life Saving Society, 2015.
14. Abrams LS. Sampling 'Hard to Reach' Populations in Qualitative Research. Qualitative Social Work. 2010;9(4):536-50.
15. Braun V, Clarke V. Using thematic analysis in psychology. Qualitative Research in Psychology. 2006;3(2):77-101.
16. QSR International. NVivo 10 for Windows 2015 [21st September 2015]. Available from: http://www.qsrinternational.com/products_nvivo.aspx.



APPENDIX 1 – PARENT INFORMATION SHEET

Participant Information Form

Children’s Details

Name _____

Age _____ years

Gender

Male	
Female	

Swim and Survive Stage (last completed) _____

Emergency Contact Details

Name _____

Address _____

Phone Number _____

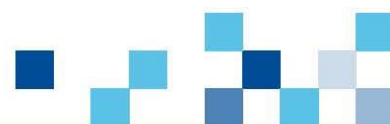
Relationship to child _____

Preferred Time (please rank with 1 most suitable to 3 least suitable)

Saturday 28 October 2017

1:30 – 2.30pm	
2:45 – 3:45pm	
4:00 – 5:00pm	

We will do our best to schedule you in for your preferred time, however due to matching children of similar abilities for the purposes of the research; we may not be able to.



Parent consent form for Mermaid Tails and Fins Product Review Research

I _____ (your name) as the parent/guardian of _____ (child's name) provide my consent for their participation in the Mermaid Tails and Fins product review research project.

Please read the information sheet on the Mermaid Tails and Fins product review research project before you confirm your participation. If you are happy for your child to participate, please complete the declaration below.

Declaration to participate

If you agree to the following statements, please sign below.

- I have read the information sheet about the Mermaid Tails and Fins product review research project
- I understand the purpose of this research project and how the data will be collected
- I understand that my child will be required to perform a series of swimming and water safety skills both without and with mermaid tails/fins in a supervised environment
- I understand that the information collected during this research will be used to better inform safety messaging around the use of mermaid tails and fins by young children
- I understand that I am able to withdraw my child from the research project at any point

Name: _____

Signature: _____

Date: _____

Who can I talk to about this project?

If you have any questions or want to know more about the research project, you can contact Jodie Thomson on the details below.

Jodie Thomson
Specialist Aquatic Risk Advisor
P: (08) 9383 8300
E: jthomson@royallifesavingwa.com.au



Information Sheet – Mermaid Tails and Fins Product Review Research Project

This research will look to assess the impact that popular Mermaid Tail and Fin products have on the swimming abilities of children aged 2-12 years. Given the risk in popularity of these products, it is important that they are safe for use and that appropriate safety advice is provided at point of sale. The research aims to compare swimming skills of children with and without wearing the mermaid tail and fin products and determine whether they constitute a drowning risk. The following research questions will be addressed as part of the project:

5. Are the swimming abilities of children wearing Mermaid Tails and Fins different to their abilities when not using the product?
6. How are the swimming abilities of children wearing Mermaid Tails and Fins perceived by Swim instructors?
7. To what extent are children aware of any differences in their swimming abilities while wearing Mermaid Tails and Fins?
8. What proportion of parents would allow their children to use Mermaid Tails and Fins, and what safety methods would they enforce?

How will this research be done?

Skill testing with children

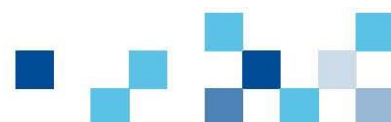
Children's swimming skills will be measured against skills required to pass their most recently passed Swim and Survive stage while wearing the mermaid tails and fins and without to determine any differences in swimming ability. For safety reasons:

- children will only wear products suitable for their age,
- there will be two qualified swimming instructors in the water at all times and will remain within arm's reach of participants while they complete their assessment
- an additional instructor will watch from the side of the pool
- no more than two children will be in each assessment group at any one time
- children will be provided information on how to remove the mermaid tails and fins and also how to signal for help

Following the swimming skill assessment, the children will conduct a short 5 minute interview to determine whether they enjoyed using the products, if they found it easier or harder to swim with them and if they would like to use the products again.

Interviews with parents

While children are completing the swimming assessment, parents will be asked to complete a short interview (max. 5 minutes) to discuss their attitudes towards the mermaid tail and fin products, perception of risk and safety associated with their use and availability of safety information for consumers.



Interviews with swimming instructors

Following the skill assessment, swimming instructors will be asked to complete a short interview to discuss what they observed during the skill assessments in regards to differences in ability while wearing the mermaid fin and tail products and safety considerations for use of these products by young children.

What will the Royal Life Saving Society do with the information collected as part of this research project?

The information and data collected during this research project will be stored in a secure password protected database and all identifiable information removed. It will be compiled into a research report that will be shared with the Australian Competition and Consumer Commission (ACCC) who commissioned this project and will be used to provide evidence-based recommendations regarding safety considerations associated with the use of mermaid tail and fin products.

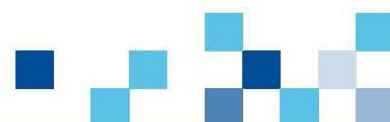
Do I have to take part in the research project?

No, it is your choice whether you and your child/ren take part in the research project or not. You are able to withdraw from the research project at any point in time. Children will be asked at three points during their assessment as to whether they wish to continue.

Who can I talk to about the research project?

If you have any questions or want to know more about the research project, you can contact Jodie Thomson on the details below.

Jodie Thomson
Specialist Aquatic Risk Advisor
P: (08) 9383 8300
E: jthomson@royallifesavingwa.com.au



APPENDIX 2 – SAMPLE DATA COLLECTION FORM (SWIM ASSESSMENT)

STAGE 1 - BEGINNER							
Participant Name:							
	1	2	3	4	5	6	7
	Safely enter the water. Safe exit	Exhale in water - face in	Open eyes underwater - identify an object	Submerge - waist deep water (minimum)	Glide forward and recover - waist deep (minimum)	Float or glide backwards and recover. Floatation aid acceptable	Water Safety Sequence Confident entry into and exit from the water. Float for 10-15 seconds, with a floatation aid
Without							
With Mermaid Tail							
With Mermaid Fin							
ADDITIONAL COMMENTS:							

APPENDIX 3 – CHILD SURVEY

Child Interview Questions

NAME:	
GENDER:	
AGE:	

Q1 - What is the best thing about your swimming lessons?

--

Q2 - What is the worst thing about your swimming lessons?

--

Q3a - Do you like swimming?

YES	
NO	
Unsure	

Q3b - Why or why not?

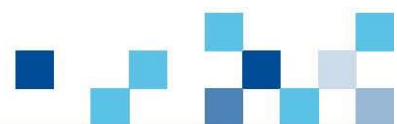
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Q4 - Were you excited to swim with the mermaid tails?

YES	
NO	
Unsure	

Q5 - What was it like swimming with them?

--



Q6a - Which one did you like the best?

Mermaid Tail	
Mermaid Fin	
Neither	

Q6b - Why did you like this one the best?

--

Q7 - Were any of them hard to swim in?

	Mermaid Tail	Mermaid Fin
YES		
NO		
Unsure		

Q8 - Do you think that you can swim better, worse or the same when wearing the mermaid tails?

Better	
Worse	
The same	

Q9 - Would you like to wear them again?

YES	
NO	
Unsure	

End of survey.



APPENDIX 4 – PARENT SURVEY

Parent Interview Questions

NAME:	
GENDER:	
AGE:	
CHILD'S AGE:	
POSTCODE:	

Q1a - Before today, had you heard of mermaid tail and fin products?

YES	
NO	

Q1b - If so, where did you hear about them and what had you heard about them?

--

Q2a - During your child's swimming assessment, did you observe any differences in their swimming ability while wearing the mermaid tails and fins?

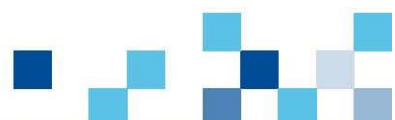
YES	
NO	

Q2b - If yes, what differences did you observe?

--

Q3a - Would you allow your children to use this product?

YES	
NO	



Q3b - If yes, what safety restrictions (if any) would you put any safety restrictions in place?

--

Q4a - Do you think that there is enough safety information available around the use of mermaid tails and fins for parents?

YES	
NO	

Q4b - If no, how do you think the safety information could be promoted to parents?

--

End of survey.



APPENDIX 5 – SWIM INSTRUCTOR SURVEY

Swimming Instructor Interview Questions

NAME:	
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Q1a - During the swimming assessments, did you observe any differences in their swimming ability while wearing the mermaid tails and fins?

YES	
NO	

Q1b - If yes, what differences did you observe?

--

Q2 - Which of the products used in the swimming assessment today do you think affected the child's swimming ability the most?

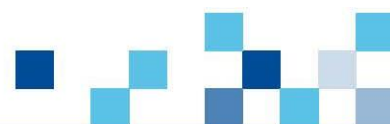
Mermaid Tail	
Mermaid Fin	
Neither	

Q3 - Which of the products used in the swimming assessment today do you think hindered the swimming ability the most?

Mermaid Tail	
Mermaid Fin	
Neither	

Q4 - Do you believe that these products have any benefits in encouraging children to become more familiar with the water?

YES	
NO	
Unsure	



Q5a - In your opinion, are these products safe for children aged 2-12 years?

	2-4 years	5-7 years	7-9 years	9-12 years
YES				
NO				
Unsure				

Q5b - Why or why not?

Q6a - Do you think that there is enough safety information available around the use of mermaid tails and fins?

YES	
NO	
Unsure	

Q6b - If no, how do you think the safety information could be promoted?

End of survey.

