

## Real and Perceived Swimming Ability, Perceptions of Drowning Risk among Japanese University Students

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## Background of this study

Japan has one of the highest rates of drowning in OECD countries (4.8 per 100), with most (88%) occurring in open water. Two thirds (64%) of the victims drowned during swimming, fishing, and recreation-related activities (Community Police Affair Division, Community Safety Bureau Japan 2009).

## Swimming ability and Water Safety

While, swimming ability has been promoted by Japanese Ministry of education as a critical asset with diffusion of public school pool, little is known about the protective value of swimming in relation to drowning prevention and the true extent of the risk of drowning in society (Moran, 2009).



## *“Can You Swim?” Project*

The causes of drowning must dictate what we teach, content, and to a lesser degree, how we teach. (Stallman et al., 2008). Therefore, an international project entitled the *Can You Swim Project?* was conducted among Japanese, New Zealand and Norway university students in order to explore the relationship between swimming competency, estimates of their competency, and their perception of the risk of drowning.

## Method : Subjects

### Sample population

	<i>n</i>	%
Female	48	42.5
Male	65	57.5
Japanese	113	
17-19 years	51	45.1
20-24 years	60	53.1
25-29 years	2	1.8
Total	113	100.0



## Questionnaire & Practical Test

### Questionnaire

- 1) Perception of their ability
- 2) Perception of their ability to perform these in open water
- 3) Perception of risk in five specific scenarios

### Practical tests

- 1) Distance swimming
- 2) 100 m swim on back
- 3) Floating in deep-water
- 4) Dive into 2m depth
- 5) Swim 25 m underwater
- 6) Surface dive to 2m depth
- 7) Contact rescue tow 25 meters

## Data Analysis

- 1) Data from the completed questionnaires were statistically analyzed by using **SPSS** Version 16.0 in Windows.
- 2) Mann-Whitney **U tests** and Spearman RHO correlations were used to compare the swimming abilities and gender differences.

## Result and Discussion



## Distance Swimming

- Most students could swim more than 300m (70%) ,but New Zealanders showed 43%, NOR showed 98.9 (100m time trial to be eligible)
- What is the difference between JPN and NZ?

## Diffusion of public school pool in JPN

- 1) Elementary school : 86.7%
- 2) Junior High school : 73.0%
- 3) High school : 64.5%

from Statistic Bureau, Ministry of Internal Affairs and Communications 2010

### Historical Background in JPN

After Tokyo Olympic held in 1964, Ministry of Education policy has been focused on the construction of public school pool because of the promotion for all the people should be able to swim.

This is why Japanese students can swim 300m~.

## Floating Ability

- Over 15 min
  - JPN =13.5%
  - NZ =71.0%
  - NOR =14.8% for 8 min
- What is the difference between JPN and NZ&NOR?
  - 1) No teaching program for floating at school in JPN.
  - 2) Focus on swimming stroke technic, not on survival skills in JPN.
  - 3) Same as in NOR?

## Dive into deep end of pool

- Answered : Yes
  - JPN =29.0%
  - NZ =69.0%
  - NOR =45.7%

What is the difference among JPN and NZ,NOR?  
The reason Why?



- 1) No deep pool in JPN (Standard : 0.8~1.1&1.4m )
- 2) Focus on horizontal locomotion, not on vertical movement in Japan.

## Under water swim

- Completed 25m
  - JPN =11.0%
  - NZ =38.0%
  - NOR =48.1%

What is the difference among JPN and NZ,NOR?

- 1)No deep pool in JPN (0.8~1.4m)  
No program for the approach not to be drown.
  - 2)Focus on horizontal locomotion, not on vertical in Japan.
- Due to Physical Education Curriculum.

## Gender Differences in Swimming Ability

No significant differences were found in actual swimming-related abilities between male and female students

More females than males did not complete the tests of:

- (1) dive entry into pool (female 23%; male 11%)
- (2) surface dive to 2m (female 33%; male 19%)
- (3) 100m swim on back (female 28%; male 9%)

Same tendency showed for NZ, but different with NOR.

## Real and Perceived Swimming Ability

- no differences were found in self-estimated swimming abilities by gender.
- Spearman rank order correlations were moderately strong between actual and self-estimated swimming ability ( $p = .577$ ) and floating ability ( $p = .640$ ), significant at the 1% (two-tailed).

These suggest that both of male and female students estimated their own swimming abilities with accuracy.

## Perceptions of Risk of Drowning

- More females than males estimated higher risk of drowning for each of the 5 drowning scenarios
- Significant differences in risk of drowning perceptions were found between males and females ( $p = .013$ , significant at the 1% level, 2-tailed)
- The most significant gender difference ( $p = < .001$ , significant at the 1% level, 2-tailed) in risk perceptions related to falling into the river when fully clothed, with only 57% of males compared with 79% of females

## Conclusion

This present study found that

- 1) There is no program for the approach to open water safety(Floating, Dive into deep,underwater swim etc) in Japan.
- 2) It's focus on horizontal locomotion, not on vertical movement because of no deep pool in JPN.
- 3) No significant gender differences in real and perceived swimming abilities.
- 4) Male students tend to underestimate the potential dangers in the risk of drowning compared with female students significantly.
- 5)Physical education curriculum for swimming in Japan should be reconstructed for the water safety culture .

Create a water safety culture  
all around the world !



Cam on.

## CAN YOU SWIM?

2 How would you describe your ability to swim compared to others like you?

### Seven Categories;

- Non-swimmer
- Very weak swimmer
- Weak swimmer
- Average swimmer
- Good swimmer
- Very good swimmer
- Excellent swimmer

## CAN YOU SWIM?

4 Do you think you could swim the distance stated in Question 3 in deep, open water?

### Four Categories;

- Very easily
- Easily
- With difficulty
- With great difficulty

# CAN YOU SWIM?

20 How would you rate the risk to your life in the following situations?

## Five Situations & 4 estimation(Extreme,High,slight,& No Risk)

- Tipped upside down in a canoe 100 meters from the shore of a lake
- Caught in a rip current at a non-patrolled surf beach
- Chased inflatable toy into deep water at a local swimming pool
- Fell into deep water fully clothed while walking along a river bank
- Swept off isolated rocks by a wave while fishing