

Tourism and water-related injuries

Tourism and Injuries

- Drowning is the second leading cause of injury death to children in Europe.¹
- Nearly 70% of Europeans spend their holidays by the waterside, mostly visiting other European countries, and 25% of these tourists are travelling with children under 18 years of age.²
- Tourists are 10 times more likely to die as the result of an injury than from an infectious disease. Injuries cause 23% of tourist deaths compared to only 2% caused by infectious diseases.³
- Tourists are more likely to be injured than local residents as they are more likely to participate in unusual sports and activities, and are unfamiliar with the environment.^{3,4}
- The accident rate to UK citizens traveling abroad, for example, has doubled in the past 4 years, with falls and water sports being the most common culprits.⁵
- In the coastal region of Portugal, a study revealed that 72% of the children admitted to hospital for a submersion incident in a swimming pool were foreigners.⁶
- In Europe, between 14,000 – 47,000 injuries occur during water sports and boating every year.⁹

Personal Watercraft (PWCs: jet skis, wave runners)

- PWC users are injured 8.5 times more often than those operating other motorized watercraft.⁷
- Studies show that children are often injured when using PWC. In a three year American study, 22% of injured PWC drivers and 38% of injured passengers were less than 15 years of age.⁸
- Most crash victims have less than 20 hours experience operating a PWC,⁹ and studies indicate that nearly 24% of injury events involved users with less than 1 hour experience.¹¹

- PWCs are the only recreational water craft for which blunt trauma is the leading cause of death rather than drowning.¹²

Boats

- Worldwide, more than 355,000 people are injured annually in recreational boating accidents, and more than 40% of the injuries require medical treatment beyond simple first aid.^{11,13}
- Worldwide, recreational boating results in the greatest number of transport fatalities after highway accidents, even exceeding aviation accidents.¹⁴
- In Finland, where overall drowning rates are the highest amongst the EU countries, 30 – 40% of all accidental drownings occur in water traffic accidents.¹⁵
- It is estimated that 85% of boating deaths are preventable if a personal flotation device (PFD) is worn.¹⁶
- In 2004, Approximately 70% of all reported fatalities in the United States occurred on boats where the operator had not received boating safety instruction.¹⁷

Propeller Injuries

- 18% of open motorboat fatalities are caused by propeller injuries.¹⁸
- Statistics show that between 36 – 43% of motorboat propeller injury victims are below 20 years of age.^{8,17,19}
- Approximately 75% of teenage motor propeller strike victims are male.²⁰
- Motor propeller strikes are the leading cause of serious injury to water-skiers, water-skiers and swimmers are the most common victims of motor propeller strikes.¹⁹

For a complete list of facts on drowning please see the Water Wise Facts available at <http://www.childsafetyeurope.org>.



FACTS

With the support
of the European
Commission



EUROPEAN
child
SAFETY ALLIANCE

EuroSafe



Water Sports

- Canoe capsizing fatalities are just as likely to happen in calm water as in rough water, therefore it is important to always wear a personal flotation device.²¹
- Towable inflatables such as water rings and bananas can not be steered by the children riding on them nor by the person steering the boat, therefore it is important to be extremely cautious.²²
- In one survey of windsurf injuries in America and the Dominican Republic, 64% of acute injuries to windsurfers were caused by being struck by the boom itself.²³
- In a German based study, 56% of kitesurfing injuries are caused by the surfer being unable to release the kite from the harness. Practice using release mechanisms is a critical part of training.²⁴
- The two most common causes of sailing fatalities are being struck by the boom and falling overboard.²⁵

Scuba Diving

- Children and youth may not have the emotional or analytical maturity to handle underwater emergencies, and a panicked child is at risk for making fatal mistakes such as ascending too quickly out of fear. Do not expose a child to SCUBA until you are certain he or she is ready.²⁶
- Children under 12 years are more likely to suffer “ear squeeze” because they have more difficulty equalizing ear pressure on descent. Therefore is special attention to ear clearing techniques a critical part of training.²⁶
- The risk of hypothermia for small children begins at 25 degrees Celsius due to their smaller frames. Therefore is it recommended that dives with children be kept short, because their bodies will cool faster as an adults..^{26,27}

- Recreational (head-first) diving and spinal injury
- Recreational diving causes 10% of all swimming pool injuries to children 14 years of age and under.²⁸
- Recreational diving accounts for more than 70% of all spinal cord sports/recreation injuries.²⁸
- In Portugal, 40% of hit and collision injuries are caused by head-first diving into shallow seas, pools, and rivers.²⁹
- A study of teen diving injuries showed that 44% of severe spinal injuries took place on a first visit to a pool, and 28% happened on the first dive into the pool, and that there were no depth markers at 87% of the pools.³⁰

Lifeguards

- Swimming in designated areas with a lifeguard presence greatly improves the outcome of a near drowning.³¹
- The presence of lifeguards deters risky behaviour and prevents dangerous events in the same way police presence deters crime.^{31, 32}
- For every water rescue lifeguards make, it is estimated they take approximately 49 preventative actions.³²

Personal Flotation Devices (PFDs) and water safety

- In a study of all US boating-related fatalities, 86% of victims who died were not wearing a PFD, and the 14% who died despite use of a PFD succumbed as a result of other factors such as hypothermia.¹⁶
- Adolescents and teens are the least likely to wear a personal flotation device while boating, yet they are among the most likely to be injured and drowned.³³
- Belt pack (inflatable) life vests are NOT recommended for children.³⁴



Open Water injuries and drownings

- Whereas babies and toddlers are more likely to drown in a pool or near home, adolescents and teens are more likely to drown in open water, especially when drinking alcohol.³⁵
- A child who has a known animal sting allergy (such as a bee) has a higher risk of marine animal sting allergies as well. Therefore it is recommended to have an Epi-kit available.
- Live coral often contain bacteria which can cause a wound to quickly become infected, especially in a warm tropical environment. Be sure wounds are washed thoroughly.

Pool injuries and drownings

- There are approximately 236,000 injuries in European swimming pools every year. Most of the injuries are to children and teens.³⁶
- In the United Kingdom for example, more children died in pools abroad while on vacation than at home in the United Kingdom, and more than half of those who drowned could in fact swim.⁵
- In Portugal, on average 28 children drown every year. Although Portugal has over 150 kilometres of coastal waters, 83% of the child drownings occur in unprotected swimming pools, both private and hotel.⁷
- Approximately 18% of swimming pool accidents in Europe occur on or around water slides, and 15% by jumping from the pool edge.³⁶
- 24% of water slide injuries are caused by riders colliding with each other.³⁶

References

1. World Health Organization, The Injury Chart-book: A graphical overview of the global burden of injuries. Geneva, 2002.
2. Schmidt, Hans-Werner. How Europeans go on holiday. Statistics in Focus: Industry, Trade and Services. Eurostat, Luxembourg. Theme 4– 15/2002.
3. McInnes R, Williamson, LM, Morrison A. Unintentional injury during foreign travel: a review. *Journal of travel medicine* 9(2002)6 (November-December)p. 297-307.
4. Hargarten SW, Baker TD, Guptill K. Overseas fatalities of United States citizen travelers: an analysis of deaths related to international travel. *Ann of Emergency Medicine* 1991; 20: 622 – 626.
5. Cornall P, Howie S, Mughal A, Sumner V, Dunstan F, Kemp A, Sibert J. Drowning of British children abroad [Child Care Health Dev](#) 2005; 31(5): 611-3.
6. Tapadinhas, F. et al (2006). Children submersion accidents in the East of Algarve. *Child Health Magazine*, Vol. 28 1:19 – 29.
7. White MW; Cheatham ML. The underestimated impact of personal watercraft injuries. *American Surgeon* 1999 September; 65 (9): 865 – 9.
8. Chalmers DJ, Morrison L. Epidemiology of non-submersion injuries in aquatic sporting and recreational activities. *Sports Medicine*: 33 (10): 745 – 770.
9. Van der Sman C, van Marle A, Eckhardt J, van Aken D. Risks of certain sports and recreational activities in the EU: the role of services. Consumer Safety Institute, The Netherlands, 2003; 128 p.
10. Shatz D, Kirton O, McKenney M. Personal watercraft crash injuries: an emerging problem. *Journal of Trauma*. Vol. 44, No. 1, 1998, pgs. 198 – 201.



11. National Transportation Safety Board. Personal watercraft safety. Safety Study NTSB / SS – 98/01. Washington, D.C. 1998.
12. Branche CM, Conn JM, Annest JL. Personal watercraft related injuries. A growing health concern. JAMA 1997; 278: 663 – 665.
13. Child Safety in Recreational Boating. Child and Youth Initiative, National Transportation Safety Board. Available online at: <http://www.nts.gov/publicatn/2000/SR0002.pdf>
14. Conners, Ellen. Opening Remarks of International Summit on Approval of Life and Fire Safety Systems. Miami Beach Florida, February 14, 2005. <http://www.nts.gov/speeches/engleman/eg050214.htm>
15. Lunetta P, Penttila A, Sarna S. Water traffic accidents, drowning and alcohol in Finland, 1969-1995. Int J Epidemiol. 1998 Dec;27 (6):1038-43.
16. Treser C, Trusty M, Yang P. Personal flotation device usage: do educational efforts have an impact? Journal of Public Health Policy 18(1997)3(...) p. 346-356.
17. United States Department of Homeland Security/ US Coast Guard. Boating Statistics – 2004. September 2005.
18. Mendez-Fernandez MA. Motorboat propeller injuries. Annals of Plastic Surgery 1998; 41 (2): 187 – 90.
19. Price CT, Moorfield CW. Motorboat Propeller Injuries. The Journal of the Florida Medical Assoc, June 1987, vol 74, no. 6.
20. Vernick J, Baker SP, Edmunds L, et al. Motorboat propeller injuries. Baltimore (MD); The Johns Hopkins Injury Prevention Center and the Institute for Injury Reduction, 1992.
21. American Canoe Association, Understanding and Preventing Canoe and Kayak Fatalities, National Safe Boating Council, Springfield (VA), 2004.
22. Parmar P, Letts M, Jarvis J. Injuries caused by water-tubing. Journal of Pediatric Orthopedics 1998; 18 (1): 49 – 53.
23. Nathanson AT, Reinert SE. Windsurfing injuries. Wilderness Environment Medicine 1999 Winter; 10 (4): 218 – 225.
24. Nickel C, Zernial D, et al. A Prospective Study of Kitesurfing Injuries. The American Journal of Sports Medicine 32: 921 – 927 (2004).
25. Nathanson, A . Commentary, Travel Medicine, Rhode Island Hospital, http://www.lifespan.org/services/travel/articles/sailing_injuries.htm, accessed online August 2007.
26. Vandenhoven G, Collard F, Schamp E. Children and diving: medical aspects. Eight years sports medical follow-up of the first scuba diving club for children in Belgium. South Pacific Underwater Medical Society Journal. 33: 2; June 2003. pps. 70 – 73.
27. Tsung JW, Chou KJ, Martinez C, et al. An adolescent scuba-diver with 2 episodes of diving-related injuries. Pediatric Emergency Care 2005; 21 (10): 681 – 6.
28. Blanksby BA, Wearne FK, Elliott BC. Safe Depths for Teaching Children to Dive. The Australian Journal of Science and Medicine in Sport. 28 (3): 79 – 85.
29. EHLASS – Portugal 1987 – 1999 (2002). Volume I and II , Consumer Safety.
30. DeVivo MJ, Sekar P. Prevention of spinal cord injuries that occur in swimming pools. Spinal Cord 1997; 35 (8): 509 – 515.
31. Branche CM, Stewart S. Lifeguard effectiveness: a report of the working group. Atlanta, GA: Centers for Disease Control and Prevention, National Center for Injury Prevention and Control, 2001.
32. WHO. Guidelines for safe recreational water environments: volume 1. coastal and freshwaters Geneva : World Health Organization WHO, 2003. - xxxii, 219 p.
33. Quan L, Bennett E, Cummings P, Trusty MN, Treser DC. Are Life Vests Worn? Injury Prevention, September 1998; 4 (3): 203 – 5.
34. Turken, Joni. Belt Pack Inflatables take the plunge. BoatUS Magazine, March 2004; page 6.
35. Fields A. Near-drowning in the Pediatric Population. Progress in Pediatric Medical Care. 1992;8
36. Van der Sman C, van Marle A, Eckhardt J, van Aken D. Risks of certain sports and recreational activities in the EU: the role of services. Consumer Safety Institute, The Netherlands, 2003; 128 p.

(printed December 2007)

The European Child Safety Alliance is a Programme of EuroSafe and is hosted by the Consumer Safety Institute in the Netherlands