

## **Survey of Injuries, Illnesses, Gear Failures and Incidents in the Newport Bermuda Races of 1998, 2000, 2002, 2004, 2006 and 2008**

**How the survey was conducted:** Beginning in 1998 skippers in the Newport Bermuda race turned in a form surveying injuries and illnesses that occurred on their boat during the race. Injuries were categorized by anatomic location and type and were defined mostly in lay terms because the target audience for the survey was future race participants and the sailing community in general. For the same reason illnesses were defined in general terms. Factors causing or contributing to injuries were also noted. In 2006 the survey was expanded to include gear failures and ‘incidents’ such as man overboard, fire, flooding, et cetera. There were no potential penalties regarding the process of the survey or the content of the forms. All information regarding yacht names or owners has been kept confidential and the names of crew were never recorded. Only the Fleet Surgeon of the CCA had access to the forms after they were submitted.

**Scope of the Survey:** There were 1153 entries in six Bermuda Races thus far surveyed with an average of 9 in each crew. Of the 1084 finishing skippers, 1023 or 94% returned the forms. There were 58 injuries and 12 illnesses. Sea sickness among one or more crew was reported by 61 skippers. A small number of injuries came to the attention of the Fleet Surgeon after the race and these were subsequently the subject of verbal amendment to the reports by the skipper.

**Injuries by location and type.** The injuries reported in the six races of the survey are noted in Table 1. They indicate the kind of trauma most likely to challenge an offshore yacht’s medical capability. The extremities, especially the hand, were the most common sites of injury, lacerations and fractures being commonest types of injury. Head and spine injuries occurred in significant numbers, and although none were fatal or immediately serious, such injuries have the potential to be so, as in the case of the rapidly fatal head injury in the 1988 Marion Bermuda Race when a pediatrician at the helm was struck by the mainsheet during an unexpected jibe at night (see article on preventing accidental jibes in Fleet Surgeon’s section at [www.bermudarace.com](http://www.bermudarace.com)).

<b>Table 1. Injuries</b>		
<b>Location</b>	<b>Number</b>	<b>Type of Injury (lay terms)</b>
<b>Fingers</b>	<b>17</b>	<b>11 cut, 2 fracture, 1 bruise, 3 unspecified</b>
<b>Lower extremity</b>	<b>12</b>	<b>2 fractures; 3 cuts; 2 sprain; 2 bruise; 1 burn, scrape, &amp; pulled tendon</b>
<b>Upper Extremity</b>	<b>10</b>	<b>1 cut, galley burn, rope burn, &amp; sprain; 6 unspecified</b>
<b>Head/Face</b>	<b>10</b>	<b>5 cut, 2 bruise, 2 scrape, 1 concussion</b>
<b>Back</b>	<b>5</b>	<b>5 bruise/strain</b>
<b>Neck</b>	<b>1</b>	<b>strain</b>
<b>Shoulder</b>	<b>1</b>	<b>?fracture</b>
<b>Rib</b>	<b>1</b>	<b>fracture</b>
<b>Abdomen</b>	<b>1</b>	<b>Bruise</b>

**Factors Contributing to Injury.** The factors reported by skippers as contributors to injury are indicated in Table 2. As expected, heavy weather was the most frequent, followed by sail changes, gear failure and a group of factors that could be categorized as “crew error”: inexperience offshore, fatigue, inattention and going barefoot. The galley was also noted to be a dangerous place for cuts and burns. Climbing the mast is a dangerous maneuver usually done by professionals wearing a helmet, according to offshore solo competitor and CCA member Rich Wilson.

<b>Contributing Factors</b>	<b>Number of reports</b>
Heavy weather	15
Sail change	3
Gear Failure	3
Cooking	2
Inexperience offshore	1
Inattention	1
Fatigue	1
Barefoot	1
Darkness	1
Sharp edge on running backstay	1
Jibing	1
Climbing Mast	1

**Illnesses during the race.** Seasickness was the commonest illness and correlated with the extent of heavy weather during the race: both professionals and amateurs were affected. Severe sunburn was reported twice. This problem is thought to contribute significantly to the later development of malignant melanoma, a highly fatal cancer with an alarmingly increasing incidence among fishermen and sailors. One instance of choking was relieved by the Heimlich maneuver, indicating the value of CPR training among the crew. Dehydration was an issue twice, once in a diabetic and once as the cause of fainting. Dehydration may also have contributed to the reported headache and the acute migraine attack. Urinary retention was experienced by the elderly father of one skipper and a physician on board relieved it with suprapubic drainage.

<b>Illness</b>	<b>Number of reports</b>
Seasickness	Crew in 61 boats
Sunburn	2
Infection, leg	1
Infection, urinary tract	1
Dehydration - fainted	1
Dehydration - diabetes	1
Choking (Heimlich)	1
Constipation	1
Diarrhea	1
Headache	1
Migraine	1
Urinary Retention	1

**Radio Calls for Medical Assistance.** Eight radio or telephone calls for medical advice were reported. The related medical problems were: back injuries in two instances, head injury, face injury, seasickness, arm infection and urinary tract infection.

**Gear Failure and ‘Incidents’.** Gear failures and ‘incidents’ have been included in the surveys of the last two races because they have an impact on injuries and the management of medical problems. Of note were rigging problems, steering failures and electrical problems. Although only one man overboard incident was reported, the race committee is aware of other such incidents in previous races. .

<b>Gear/Equipment</b>	<b>Number</b>	<b>Types of Incident</b>	<b>Number</b>
Alternator	2	Collision	1
Battery isolator	1	Man Overboard	1
Boom	2	Lightning strike	1
Electrical	5	Fire	1
Generator	2	Flooding	1
Rigging	14		
Sail	5		
Seacock	1		
Watermaker	2		
Steering	6		
Toilet detached from deck	1		

**Conclusions.** This survey indicates that Newport Bermuda Race participants have had to deal with a range of trauma, especially to the extremities, hands, head and spine. Seasickness has been encountered frequently and there has been a variety of other medical conditions. Heavy weather is the single most contributing factor to injuries but other factors have been noted, such as equipment breakdown and lapses in crew performance. Prevention is the best defense against medical failure at sea, given the limited medical capabilities of an offshore yacht. Creating a culture of caution and safety on board, being sure maneuvers are talked out ahead of time and paying attention to personal maintenance, i.e. taking seasickness medicine early, staying rested, warm, dry, hydrated and well fed, should help reduce the risk of injury. Good preparation, crew training, an adequate medical kit and a good communications system (see Fleet Surgeon’s Memorandum for Offshore Passages at [www.bermudarace.com](http://www.bermudarace.com)) should help optimize the management of whatever medical issues are encountered offshore.

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