



## Blobbing injury patterns

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### ARTICLE INFO

#### Keywords:

Air bag  
Blob  
Blobbing  
Fall  
Injury  
Jump

### ABSTRACT

**Introduction:** “Blobbing” is a modern outdoor activity where a participant sits on the end of a partially inflated air bag (“blobber”) and is launched into the water when another participant jumps onto the air bag from a platform on the opposite side (“jumper”). This is the first study to evaluate the injury patterns associated with blobbing.

**Patients and methods:** A retrospective data analysis was conducted based on 86 patients who sustained blobbing injuries between January 2011 and December 2016.

The date of birth, gender, day of injury, diagnosis, body region of trauma, and treatment were recorded for the patients. Treatment was subclassified into conservative or surgical treatment. The position of the participant was recorded as either a jumper or a blobber.

**Results:** One-third of the patients sustained a spine injury, which was the most common body part injured. The most frequent type of injury was cervical spine distortion. All shoulder (n = 9), elbow (n = 3), hand (n = 2), knee (n = 3), and foot (n = 12) injuries occurred in jumpers, whereas all ear (n = 6) and lung (n = 5) injuries occurred in blobbers. Head (n = 5) and spine (n = 33) injuries were distributed in jumpers and blobbers. Sixty-nine patients were treated with conservative treatment. Three ankle fractures and two spine fractures were treated with immediate surgical treatment. Twelve patients were treated with conservative treatment but were referred for potential surgery at their hospital at home.

**Conclusion:** Both jumpers and blobbers were prone to injuries. More severe injuries with the potential for surgical treatment occurred in jumpers, presumably because of bad landings. This analysis of the injury patterns in blobbers might lead to the introduction of protective gear and changes in the behavior of participants in order to reduce the risk of injury.

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### Introduction

In the last decade, outdoor action activities have increased in popularity among the general public. “Blobbing” is a modern outdoor activity where a participant sits on the end of a partially inflated air bag (“blobber”) and is launched into the water when another participant jumps onto the air bag from a platform on the opposite side (“jumper”) [1] (Fig. 1).

The first blobbers were adventurous sailors who jumped onto the gas- and oil-filled rubber bags used as fuel tanks towed by their ships [1–3]. Blobbing increased in popularity after its commercial use in 1985, and championships and blobbing battles are now conducted [1,4].

Several safety rules are followed in blobbing and it is usually mandatory for the participants to wear a helmet and life jacket, but

various injuries may still occur. However, no data have been published regarding the injury patterns. To the best of our knowledge, this is the first study to evaluate the injury patterns associated with blobbing. Our results might potentially lead to improvements in the safety rules and safety gear used in blobbing, thereby reducing the risk of injury.

### Patients and methods

A retrospective data analysis was conducted based on patients who sustained a blobbing injury between January 2011 and December 2016, and who were administered to either one of two local hospitals. Institutional review board approval was granted according to a general waiver for studies based on retrospective data analysis.

An automatic chart search was conducted for the word “blob” or “blobbing.” Patients who did not sustain a blobbing injury were excluded from the analysis.

The date of birth, gender, day of injury, diagnosis, body region of trauma, and treatment were recorded for the patients. The day of

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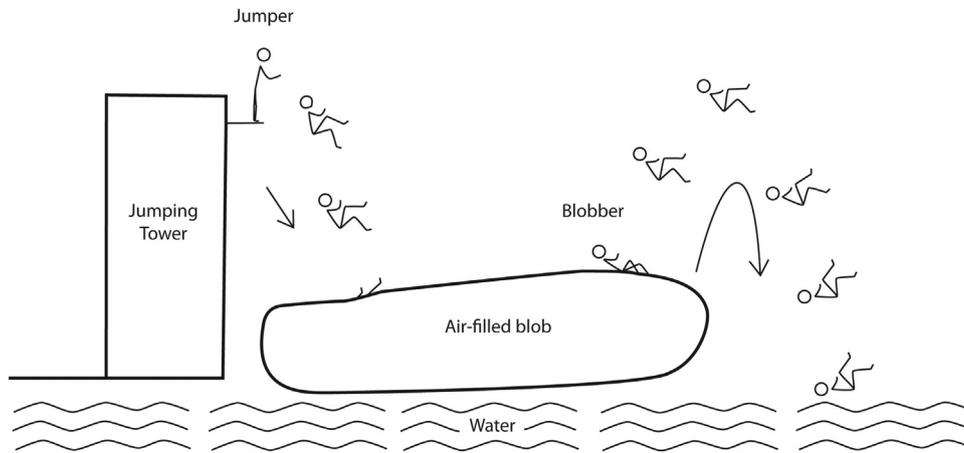


Fig. 1. Blobbing illustration.

injury was subclassified according to the specific month and weekday of injury. The body region was categorized as injuries to the head, face, nose, ears, thorax, lungs, spine, pelvis, knee, foot and ankle, shoulder, elbow, and hand. The treatment was subclassified into conservative or surgical treatment. Moreover, the position of the participant was recorded as a jumper or a blobber based on the previously described definitions.

The data were analyzed using descriptive statistics.

## Results

In total, 86 patients were identified, i.e., 38 female and 48 male, with a mean age of 27.2 years (9.9–54.3 years). All injuries occurred between May and September (May,  $n=6$ ; June,  $n=14$ ; July,  $n=27$ ; August,  $n=29$ ; September,  $n=10$ ). Saturday was the week day when most injuries occurred (Monday,  $n=7$ ; Tuesday,  $n=9$ ; Wednesday,  $n=10$ ; Thursday,  $n=15$ ; Friday,  $n=12$ ; Saturday,  $n=21$ ; Sunday,  $n=12$ ). One-third of the patients sustained a spine injury, which was the most common body part injured. The distribution of the injured body parts is shown in Fig. 2 (jumpers,  $n=47$ ; blobbers,  $n=19$ ; unspecified,  $n=20$ ). The most frequent type of injury was cervical spine distortion. Table 1 shows the injury patterns according to the body regions. All shoulder, elbow, hand, knee, and foot injuries occurred in jumpers due to their direct impact on the air cushion or a collision with another jumper, whereas all ear and lung injuries occurred in blobbers after their direct impact on the water. Head and spine injuries were distributed in jumpers and blobbers. Face, ear, and nose injuries either occurred through the helmet, impact on the water, direct

knee–face impacts, or collisions with another person. Spine injuries occurred after direct impacts on the air cushion or the water. All three knee injuries occurred because a simultaneous jumper jumped on the knee of the injured jumper.

In total, 69 patients were treated with conservative treatment. Three ankle fractures and two spine fractures were treated with immediate surgical treatment, where all occurred in jumpers. Twelve patients were treated with conservative treatment but were referred for potential surgery at their hospital at home (dislocated olecranon fracture,  $n=1$ ; ventral elbow dislocation,  $n=1$ ; clavicle fractures,  $n=1$ ; shoulder dislocations,  $n=5$ ; orbital fractures,  $n=2$ ; spine fracture,  $n=1$ ; ankle fracture,  $n=1$ ).

## Discussion

The present study showed that both jumpers and blobbers were prone to injuries, but their injury patterns differed. There appeared to be two different causes of injuries in the jumper, where the jumper either collided with another jumper or the jumper had a direct skewed impact on the air bag while landing.

Collisions mainly resulted in lesions of the medial collateral knee ligament or face wounds. Knee injuries occurred when two simultaneous jumpers collided. It is likely that one jumper landed on the knee of the other jumper to produce a valgus impact injury. In order to reduce the risk of these injuries, two simultaneous jumpers should be prohibited or there should be sufficient space between them when jumping and landing. This should be explained to the participants.

Shoulder, elbow, hand, foot, and spine injuries were mainly due to direct impacts on the air bag. The world record for the highest jumping height is 24 m [5], but the usual recreational jumping height onto the air bag is 3 m [1]. The height of the jump should not exceed 5 m from the water surface [1,6]. A fall from a large height is known to be associated with a risk of injury. A straight jump onto the foot should be avoided because this will probably result in distortion and fracture of the hallux, foot, or ankle joint, with the potential subsequent need for surgical treatment. Skewed landings should also be avoided because this might cause shoulder dislocation, especially in recurrent dislocators, and rarely clavicle fractures or fractures and dislocations around the elbow joint and hand. In order to potentially reduce the risk of these injuries, jumpers should hold their arms adducted to their body with their hands on the chest. This might potentially prevent a skewed arm position during landing leading to injuries of the upper extremity. Jumpers should also try to avoid landing on their head or neck because this might potentially lead to head contusions, brain

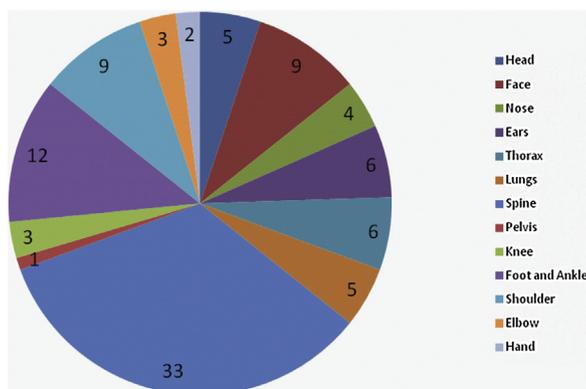


Fig. 2. Distribution of injured body parts by the absolute number of cases.

**Table 1**  
Injury patterns.

Body Part	Number of patients	Injuries
Head	5	cephalea (n = 1), brain concussion (n = 2) head contusions (n = 2)
Face	9	orbital fractures (n = 2), face wounds (n = 7)
Nose	4	nose fractures (n = 2), nose contusions with wounds (n = 2)
Ears	6	tympanic membrane ruptures (n = 3), tympanic membrane contusions (n = 3) with tinnitus (n = 2)
Thorax	6	thorax contusions (n = 5), rib fracture (n = 1) (9th and 10th rib)
Lungs	5	lung contusions with minor hemoptysis (n = 5)
Spine	33	cervical distortions (n = 19), thoracic distortions (n = 9), spine fractures (n = 7) (A-type fractures (n = 4), B-type fracture (n = 1), C-type fracture (n = 1); unspecified (n = 1); CVB 6 (n = 1), TVB 1 (n = 1), TVB 12 (n = 2), LVB 1 (n = 2), LVB 3 (n = 1))
Pelvis	1	pelvis contusion (n = 1)
Knee	3	lesions of the medial collateral ligament (n = 3)
Foot and Ankle	12	ankle fractures (n = 4), ankle distortions (n = 2), Os naviculare and os cuboideum fracture with lateral ligament rupture and an avulsion of the base of the fifth metatarsal bone (n = 1), epiphysiolyosis of the base of the fifth metatarsal bone and cuboideo-metatarsal distortion (n = 1), avulsion of the extensor tendon of the hallux, hallux contusion (n = 1), hallux distortion (n = 1), foot contusion (n = 1)
Shoulder	9	shoulder dislocations (n = 5), clavicle fracture (n = 1), shoulder contusion (n = 1), shoulder distortions (n = 2)
Elbow	3	dislocated olecranon fracture (n = 1), non-dislocated supracondylar fracture (n = 1), ventral elbow dislocation (n = 1)
Hand	2	epiphysiolyosis of the base of the proximal phalanx of the forth digit (n = 1), lesion of the ulnar collar ligament of the first metacarpophalangeal joint (n = 1)

CVB = cervical vertebral body; TVB = thoracic vertebral body; LVB = lumbar vertebral body.

concussions, or more frequently cervical distortions. The high number of spinal injuries with potentially life-threatening complications was unexpected. To avoid this type of severe injury, landing on the air bag with a direct compression force or a concomitant hyperflexion force on the spine should be avoided. Finally, the hips and knees should not be maximally flexed because face wounds and orbital fractures often occurred due to a direct impact on the face by one's own knee. After considering all of the jumper injuries, the safest position appears to be landing on the flat lower back with adducted arms, the hands lying on the chest and no maximal hip and knee flexion. Additional muscle contraction during impact might potentially reduce the risk of injury.

The blobbers had different injury patterns due to their direct impact on the water. The head or ear colliding first with the water could result in a lesion to the tympanic membrane or a nose injury because of the direct impact of the helmet on the nose. Tight helmet fixation might prevent the latter type of injury and ear plugs might reduce the risk of lesions of the tympanic membrane. Ear plugs or other safety devices are not currently mandatory for blobbing but they might be introduced to prevent injuries. However, complete hearing loss did not occur in the patients and no conclusions can be made regarding the severity of their ear injuries. A direct impact on the water with the chest wall or the spine mainly resulted in cervical or thoracic spine distortions or lung contusions, and even rib fractures. Better body control and muscle contraction during impact might potentially prevent a fall on the head or flexed spine, and thus lower the risk of injury. However, this might be difficult to achieve, especially for recreational blobbers. Life jackets with better padding on the spine and chest as well as a possible cervical spine collar might reduce injuries. Lung contusions with hemoptysis are potentially life threatening, but no patients experienced a prolonged rehabilitation or a known severe outcome. The blobber is catapulted several meters up into the air and lands at top speed in the water, so the blobbing height should be limited. Therefore, particular attention should be paid to the body weight of the participants because the blobbing height depends on the difference in weight between the jumper and the blobber. This difference should be less than 30 kg for children and less than 60 kg for adults [6]. The official Guinness world record for the greatest blob height is 22 m [7], but the recreational blobbing height should not exceed a jump from a recreational spring board, especially for inexperienced blobbers.

However, a definite blobbing height that is unlikely to cause injury is unknown.

This study had several limitations. The retrospective design means that some injured patients might have been lost either because they were administered to a different hospital, or the injury was rather mild and the participant was capable of returning home and presented themselves to the outpatient clinic at their home, or they did not even require treatment. The participating hospitals were the main ones in the area in addition to three smaller private clinics, so the loss was presumably very low. Moreover, the patients were only included if their chart history included the word blob or blobbing. Thus, patients might have been missed in cases with poor history documentation. Furthermore, most of the patients were capable of being dismissed after an outpatient consultation; therefore, the actual number of patients that needed surgery remains unknown.

## Conclusion

This study showed that jumpers and blobbers were prone to injuries, but more severe injuries occurred in jumpers with potential surgical treatment, presumably because of bad landings. Identifying the injury patterns caused by blobbing might lead to the introduction of new protective gear and changes in the behavior of participants in order to reduce the risk of injury.

## Conflict of interest

The authors Kaiser Peter, Sailer David, Spicher Anna, Arora Rohit and Zegg Michael declare that they have no conflict of interest.

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