

척수재활

게시일시 및 장소 : 10 월 19 일(토) 08:30-12:30 Room G(3F)

질의응답 일시 및 장소 : 10 월 19 일(토) 11:00-11:30 Room G(3F)

## **P 3-136**

### **Are Safe Guards at Trampoline Parks Safe Enough?: a Case Report**

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Are Safe Guards at Trampoline Parks Safe Enough?: a Case Report on a Complete Spinal Cord Injury after Diving into a Trampoline Park Foam Pit

#### **Introduction**

Recently, both the number of commercial indoor trampoline parks and the park users are increasing. In this report, we present a complete spinal cord injury sustained at an indoor trampoline park. We hope to alert the risks associated with improper use of trampolines, promote safer utilization, and aid in developing future policies.

#### **Case Report**

A 26-year old male without past medical history visited an indoor trampoline park. The venue had foam pits which are areas dedicated for performing stunts and jumping. The patient dived into one of the foam pits head first (Figure 1). Judging from the video clip of the injury, the assumed injury mechanism was hyperflexion of the patient's neck after his head got embedded in the cushioned foams (Figure 2). The rubbery material that the foams were made of is thought to have had significant friction coefficient which could have caused more flexion of the neck. The nature of the foam cubes is thought to have resulted in a more jarring stop.

#### **Clinical Examination**

He showed normal motor in shoulder flexion, elbow flexion, and wrist extension. MMT in his elbow extensors marked F/F, finger flexors P/P, finger abductors P/P, and motor in his lower extremities were all zero. He had hypoesthesia in pain, temperature, and light touch in dermatomes C7 and below. Position, vibration sensation was absent in his lower extremities. Absent perianal sense, deep anal pressure, and showed zero anal contraction led us to diagnose him with complete spinal cord injury. His initial BBS, MBI, JTHFT, and MMSE were 0, 5, 6/2, 30 respectively. His initial Beck's depression index (BDI) was 3, and the caregiver's BDI marked 15.

### **Studies and Imaging**

Initial C-spine CT revealed bilateral interfacetal dislocation on C6-7 (Figure 3A), and C-spine MRI showed anterior translational injury at C6-7 with severe cord encroachment and complete discoligamentous complex disruption (Figure 3B). He underwent posterior open reduction and pedicle screw fixation on C5-7 and anterior cervical discectomy and fusion on C6-7.

### **Clinical Course**

Interventions included tilt table, passive range of motion exercises, functional electrical stimulation, sitting balance training, upper extremity strengthening exercise, and hand manipulation exercises, and he went through 25 days of intensive rehabilitation therapy. Follow up BBS, MBI, JTHFT, and MMSE at discharge were 1, 7, 6/3, 30 respectively.

### **Discussion**

Ground level trampolines, padded edges and frames, cushioned walls and ground, supervision of park workers make trampoline parks seem a safe environment. Nevertheless, severe injuries including this case persist and raise the question, "Are the safe guards currently used at trampoline parks enough?" We wish to raise attention regarding the risks of trampoline parks which are seemingly safe.



Figure. 1 Patient diving into a pit foam head first at a 40' angle approximately. The dive resulted in a complete spinal cord injury at the C4 level.

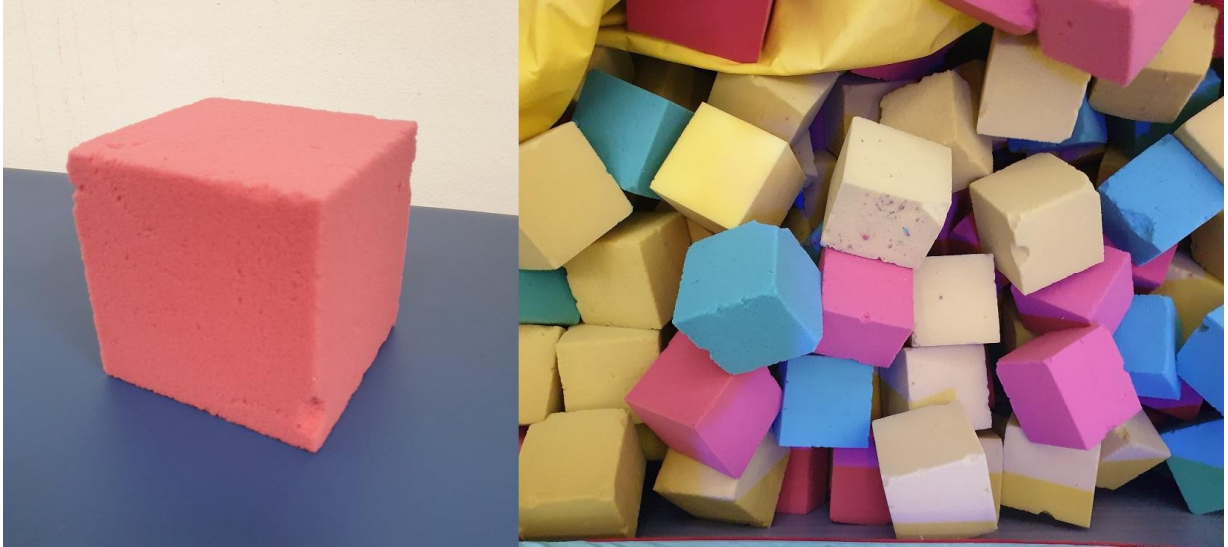


Figure. 2 Foam cube (sized 14.5cm on each side) which filled a 65cm deep pit foam, an area designated for jumping and diving

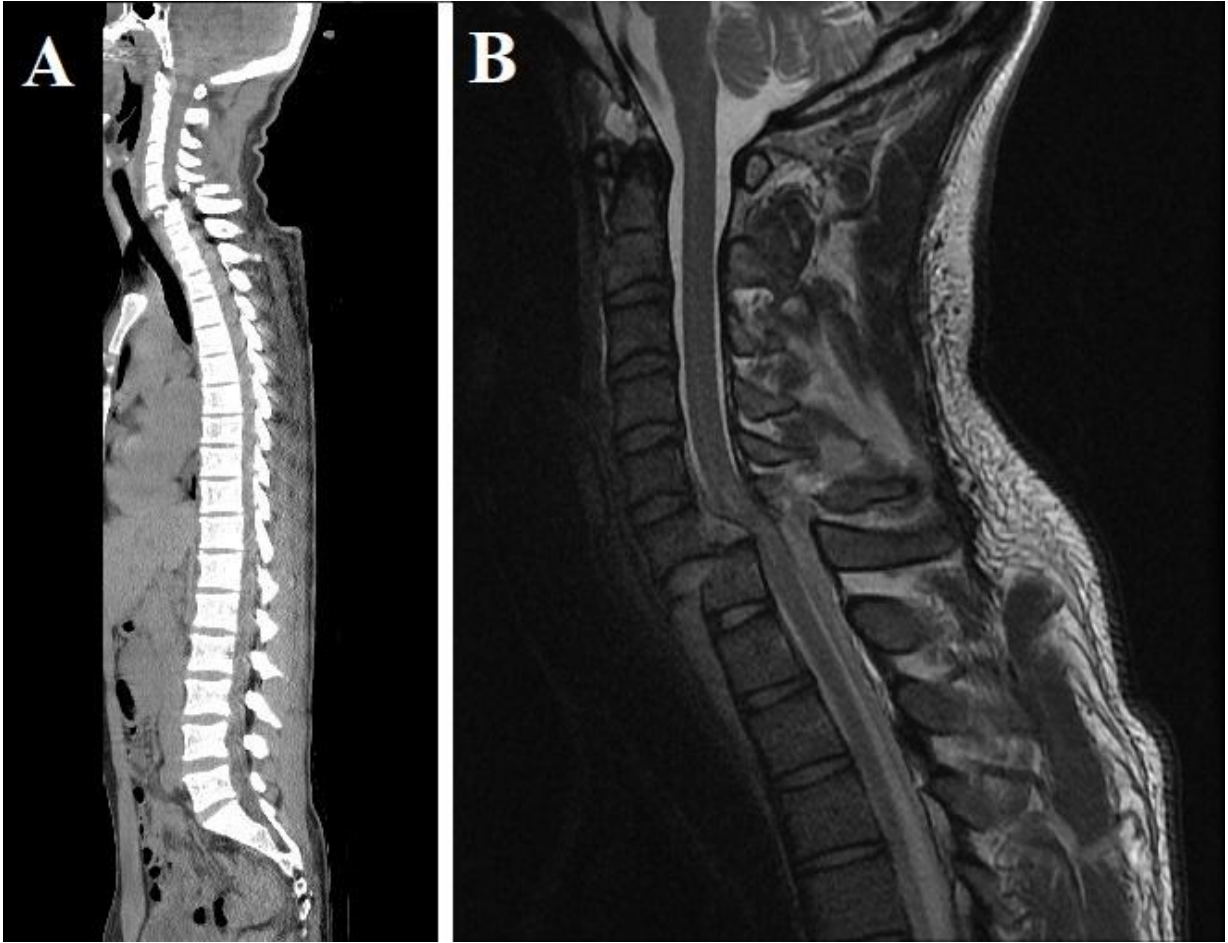


Figure. 3 (A) Initial C-spine CT, (B) Initial C-spine MRI