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## ANATOMY QUIZ

### Scaphoid view radiograph of the left wrist



Identify the structures labelled A, B, C, D, E, and F in this scaphoid view radiograph of the left wrist.

Submitted by Fiona R Pathiraja and Gemma Price  
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## CASE REPORT

### A 20 year old man with a high pressure steam burn

A 75 kg (165 lb), previously fit and well 20 year old man sustained a high pressure steam burn (~42 bar) while working in an oil refinery. He was attended to at the scene by the air ambulance service. On assessment, his airway appeared clear; he had a respiratory rate of 25 breaths/min, with oxygen saturations of 90% on ambient air. He was tachycardic at a rate of 135 beats/min. His blood pressure could not be taken initially because of the extent of his burns; however, clinical examination showed that he had reduced peripheral perfusion. He was fully conscious, with a Glasgow coma score of 15/15.

The burns affected about 60% of his body surface area. This included full thickness burns to his chest and circumferential burns to his arms. Partial thickness burns affected his head, neck, back, and thighs.

Initial resuscitation was undertaken by the air ambulance team. He was sedated, his airway was secured by intubating the trachea, and he was mechanically ventilated. Intravenous access was difficult, so fluid resuscitation was started through an intraosseous needle. He was airlifted to the regional burns centre for urgent assessment by the burns intensive care and plastic surgical teams.

1. What are the common causes of major burn injuries in adults and how often do they occur?
2. What are the signs of potential airway compromise in patients with major burn injuries?
3. What are the initial steps in managing patients with burns affecting a large surface area?
4. Which complications of major burn injuries are associated with a high mortality?
5. What multidisciplinary team members are involved in the long term rehabilitation of patients with major burn injuries?

Submitted by Robert Charles, Robert Jackson, and James Dodman  
Patient consent obtained.

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## STATISTICAL QUESTION

### Pitfalls of statistical hypothesis testing: multiple testing

The effectiveness of a home based intervention on children's body mass index (BMI) at age 2 years was investigated. A randomised controlled superiority trial was used. The intervention consisted of eight home visits from specially trained community nurses in the first 24 months after birth. The aim of the intervention was to improve the health and wellbeing of parents and children. The intervention was in addition to the usual childhood nursing service from community health service nurses. The control group received the usual childhood nursing service alone. Participants were first time mothers and their infants.

The primary outcome measures were children's anthropometric measures, including BMI, weight, and length, at age 2 years. Secondary outcomes comprised eight measures of dietary behaviour and four measures of physical activity and television watching for the child at age 2

years. These included eating habits (intake of fruit and vegetables, consumption of chips and snacks), having a meal in front of the TV, time spent watching TV, and active play time. Secondary outcomes also included seven measures of dietary behaviour, time spent watching TV, and physical activity for the mother 24 months after giving birth.

It was reported that mean BMI at age 2 years was significantly lower in the intervention group than in the control group ( $P=0.04$ ). At 24 months after birth, dietary behaviours and TV watching were significantly different for children in the intervention group compared with the control group. Children in the intervention group ate more vegetables ( $P=0.03$ ), whereas using food as a reward ( $P=0.03$ ), TV being on during mealtimes ( $P=0.02$ ), eating dinner in front of the TV ( $P=0.01$ ), and watching TV for more than 60 minutes a day ( $P=0.02$ ) were all lower in the

intervention group. There were also significant differences in the mothers' dietary behaviours and physical activity characteristics between the two groups. Mothers in the intervention group ate more vegetables ( $P<0.001$ ), ate less processed meat ( $P=0.03$ ), and exercised more often ( $P=0.04$ ).

#### Which of the following statements, if any, are true?

- a) A type I error would have occurred if no difference between treatment groups in mean BMI at age 2 years had existed in the population
- b) The type I error rate for each statistical hypothesis test was 5%
- c) The type I error rate for the multiple statistical hypothesis tests was 5%

Submitted by Philip Sedgwick  
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