We believe it is unrealistic to draw comparisons of their clinical work with our study.

**Fitness improvements:** although our mean fitness improvement in the exercise group did not achieve our predefined clinically significant change (2 ml O$_2$ kg$^{-1}$ min$^{-1}$), we demonstrated individual patient benefit with an NNT of five patients. With any intervention, this would be considered highly beneficial. They achieved greater mean benefits in their patient group but only considering patients with the lowest ATs at baseline, and they make no comment on patient numbers or individual improvements. It is intuitive that the least fit patients would achieve most fitness benefit from training.

**Safety:** during our study, we exercised individuals in a hospital environment to establish the safety aspects of such an intervention. Despite this, we had one serious adverse event. This individual may well have died if his exercise had been undertaken in a commercial gym. This incidence quoted by Honnesh and colleagues of a 1:10 000 risk of exercise is based on cardiology patients mainly undertaking treadmill testing. We do not believe it pertains to gym-based sessions in individuals exercising several times per week. Given our own experience, we would be cautious in relation to previously sedentary high-risk individuals undertaking regular unsupervised exercise.

**CPET testing protocol:** our protocol was designed to exercise patients within safe limits and not to peak VO$_2$. With a primary outcome measure of change in AT, there was no reason to push individuals beyond the limits outlined in our protocol. Despite this, we are well aware of the benefits of more rigorous CPET testing to peak VO$_2$ and this is indeed our routine ‘clinical practice’.

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**Congenital factor VII deficiency**

**Editor—**A 27-yr-old primigravida at 36 weeks of gestation presented to us with a history of bleeding and headache. She was known to have congenital factor VII deficiency (Alexander’s disease). In the obstetric clinic, she was found to have a single live fetus at 34 (2) weeks gestation and raised arterial pressure of 140/96 mm Hg. She was started on methylidopa 500 mg t.d.s. Her past medical history included easy bruising and menorrhagia, and she had received transfusions of blood three times and FFP twice.

Investigation of her coagulation status showed a PT of 32.4 s against a control of 10.9 s and aPTT of 31.0 s (control 28.8 s) with a factor VII assay <1% and other investigations were normal. In view of very low factor VII assay and increased risk of excessive bleeding, an elective Caesarean section was planned.

In view of her low factor VII assay, she was given recombinant factor VIIa 30 µg kg$^{-1}$ body weight, i.v. 30 min before surgery. This resulted in a PT of 13.4 (control 10.3) s and aPTT 32.8 (28.3) s. In theatre, after instituting all routine monitors, anaesthesia was induced with thiopental 250 mg followed by succinylcholine 75 mg i.v., and rapid sequence tracheal intubation with a 7.0 mm oral PVC. The lungs were ventilated with a tidal volume of 600 ml and ventilatory frequency 12 bpm after muscle relaxation with vecuronium 4 mg. Induction to baby delivery time was 8.5 min and a healthy male baby was delivered. Surgery and anaesthesia were uneventful with approximate blood loss of 700 ml which was replaced with crystalloids and 500 ml of colloid. The postoperative period was uneventful. One day after operation, the patient’s coagulation profile was within normal limits.

Inherited factor VII deficiency is classified as type I or II, depending on the absence or presence of factor VII antigen in plasma. About 100 mutations have been identified in the factor VII gene, located on chromosome 13. Isolated prolonged PT is an indicator for factor VII deficiency, as seen in our patient. Of all factors evaluated, clinical history appears to be the best predictor of bleeding risk after haemostatic challenges in inherited FVII deficiencies. Management of patients with factor VII deficiency consists of factor VII replacement therapy either prophylactically or to treat acute bleeding episode. Levels of more than 10% are usually considered haemostatic. Post-partum haemorrhage is noted in patients with levels <10–20% but for most surgical procedures maintaining factor VII levels at about 15–25% provides adequate haemostasis.

Recombinant factor VIIa is a potent thrombin generator, which was developed primarily for patients with congenital or acquired haemophilia and an inhibiting antibody towards factor VIII or IX. Recombinant factor VIIa is structurally similar to the naturally occurring human activated coagulation factor VII. It acts by binding to tissue factor and this complex in turn activates FIX and FX. This FXa–FVa complex on tissue-bearing cell rapidly converts a small amount of prothrombin into thrombin, which in turn activates platelets, FVIII, FV, and FXI. FVIIa and FIXa then lead to large thrombin burst. Its use in postpartum haemorrhage has been described. Thrombosis is a primary adverse effect of concern and where there are high levels of tissue factor expression, thrombogenic potential of rFVIIa is increased.
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External auditory meatus–sternal notch relationship in adults in the sniffing position: a magnetic resonance imaging study

Editor—The ‘sniffing position’ has been the cornerstone of direct laryngoscopy and intubation for more than 70 yr. Optimal positioning of the head and neck in the sniffing position is governed by the ability to flex the lower cervical spine and extend the occipito-atlanto-axial complex. The optimal position for laryngoscopy in morbidly obese patients has been described as the ‘ramped position’. Collins and colleagues stated, ‘It is possible that ramping obese patients produces the same alignment of the axes of intubation that the sniffing position produces in normal weight patients’. The authors did not comment on anatomical changes of the airway apart from the improvement in the laryngoscopy grade. The ramped position in this study was defined as horizontal alignment of the external auditory meatus and the sternal notch. This position does produce excellent results in obese patients, but there remains a need to show why these secondary markers are linked to changes in airway configuration with different head and neck positions. Are these secondary markers applicable to non-obese patients? No head elevation is required for neonates to achieve the sniffing position because of their relatively large heads and smaller antero-posterior chest diameters and non-obese adults usually require one standard pillow because of their large head:chest size ratio. The antero-posterior diameter of many obese patients’ chests is frequently increased due to large fat deposits across their upper back which leads to a lower head position if one pillow is used for laryngoscopy. Is the ramped position for the obese patient with a higher head position in relation to their antero-posterior chest diameter simply part of this continuum?

After local institutional ethics committee approval, informed consent was obtained from 10 adult volunteers ASA grade I–II to participate in a pilot study determining the parts of the airway passage which correspond to the external meatus and sternal notch. Standard preoperative airway assessment was used to determine anaatomic predictors of difficult airway management. Participants with a past history or clinical signs of potential difficult direct laryngoscopy, tracheal intubation (i.e. a modified Mallampati score of 3 or 4, limited mouth opening, thyromental distance <6 cm, limited neck movement, or upper airway disease), or both were excluded.

The unanaesthetized volunteers underwent magnetic resonance imaging (MRI) of the head and neck region. Two head and neck positions were studied: (i) the neutral head position, obtained by lying on a flat surface (MRI stretcher) without head extension or neck flexion (vertical gaze); and (ii) the sniffing position with neck flexion of 35° and face plane extension of 15° measured using a protractor. A Magnetom Avanto 3T MRI scanner (Siemens Trio, Medical Solutions, Erlangen, Germany) with an anterior flex receiver and posterior coil elements was used. The acquisition technique was a spin echo sequence with a repetition time of 750 ms and echo time of 11 ms. T1-weighted images were obtained in the sagittal plane. Positioning on the MRI table and variations in the dimensions of the participants’ head and neck will induce errors into any comparisons. To reduce this, a referencing system using the height of the third cervical vertebrae was used.

MRI sagittal slices were taken starting from the external auditory meatus through the midline plane in each of the volunteers. The middle of the external meatus (as identified by the darkest pixel on the radiographic image within the external meatus image) was marked on the viewing screen for each participant. The consecutive sagittal MRI slices for each individual were examined until the midline slice was found. The anatomical structure under the mark on the screen was then noted. In every case, the external meatus corresponded to the posterior surface of the clivus, solid bone behind the dorsum sellae, and at the anterior most portion of the basilar occipital bone at its junction with the sphenoid bone. This structure is immediately posterior to the nasopharynx. By plotting the relationship of the external meatus, clivus, nasopharynx, glottis, and sternal notch, we found that in the neutral position, the nasopharynx was below the glottis (Fig. 1). This would lead to poor alignment of the oral, pharyngeal, and laryngeal axes during laryngoscopy. In contrast, the sniffing position raised the clivus and therefore the nasopharynx. The nasopharynx was above the glottis in this position (Fig. 2). This would rotate the pharyngeal and laryngeal axes anticlockwise.