positions to be perpendicular to the anatomical axes in both bones while Figure 4 shows the osteotome advancing in alignment with the talar wires.

Figure 3 The same wires are labelled; this lateral view shows wires 2 and 4 perpendicular to the anatomical axis in this view. You can also see wires 1 and 3 are significantly divergent, fitting with the valgus deformity on the AP radiograph.

Figure 4 Osteotome advancing from lateral to medial aligned with wires 3 and 4

DISCUSSION

This technique can confidently provide a well-aligned reduction and to the lead authors' knowledge, it has not been described in published literature.

A space suit modification for the COVID-19 era

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BACKGROUND

Space suits have been adopted widely in orthopaedics to protect both surgeons and patients. Since COVID-19, their use has been described and recommended in aerosol generating procedures (AGPs)¹. However, there are concerns that negative pressure created by the hood fan allows entrainment of aerosolised coronavirus² into the breathing space.

We have modified a commercially available powered air respirator, Jetstream® (JSP Ltd Oxford, England) (Fig 1), to make it compatible with the Stryker® T4 hood (Stryker Corporation®, Kalamazoo, USA). This has the benefit of eliminating the negative pressure effect and introducing a High Efficiency Particulate Air (HEPA) filter that draws in air from the filter at waist level and into the helmet. This is then expelled below neck level and into the gown.

TECHNIQUE

The Stryker T4 surgical hood has two metal discs on the bottom edge of the visor as shown in Figure 2. With solvent free glue, we

Figure 1 A commercially available powered air respirator, Jetstream®

Figure 2 Stryker® T4 surgical hood, metal discs visible on lower edge of the visor

Figure 4 Jetstream® head unit with Stryker T4 surgical hood

Figure 3 Jetstream® head unit, corresponding magnets attached on lower edge of visor

attach two corresponding button magnets to the Jetstream® helmet (Fig 3). This creates a sound interface between the hood and head unit (Fig 4).

DISCUSSION

This modification creates a safe environment for clinicians when AGPs are performed and is not solely for orthopaedic procedures.

DISCLAIMER

To ensure safe use, Jetstream® helmets should be serviced as per manufacturer guidelines.

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References

1. Wills T, Zuelzer W, Tran B. Utilization of an orthopaedic hood as personal protective equipment for intubation of coronavirus patients: A brief technical report. *Geriatr orthop surgrehabil* 2020 Jun 2 [Epub ahead of print.]
2. Derrick J, Gomersall C. Surgical helmets and SARS infection. *Emerg infect dis* 2004; **10**: 277–279.