

## Sit-stand endoscopic workstations with wobble stools for the endoscopist, assistant, and endoscopy nurses in an endoscopy unit

A high prevalence (37%–89%) of endoscopy-related musculoskeletal disorders (MSD), partly due to sustained standing during endoscopy, has been reported [1, 2]. The endoscopist, assistant, and endoscopy nurses often spend a long time standing during endoscopic examinations and procedures (► **Fig. 1 a**). Opti-

mizing ergonomics may protect the well-being and improve the performance of endoscopy staff [3].

Recently, sit-stand workstations have been designed to resolve workers' MSD [4]. We previously described a sit-stand endoscopy workstation equipped with a wearable and easily fitted, albeit heavy,

chair [5]. A Pirouetto ergonomic wobble stool (Okamura Corp., Tokyo, Japan) is a potential inexpensive and easy alternative method of addressing the issue. The stool allows workers to quickly change from a sitting to a standing position. This video demonstrates the use of the sit-stand endoscopy workstation with



► **Fig. 1** Use of a sit-stand endoscopy workstation. **a** A conventional endoscopy unit, with the endoscopist, assistant, and endoscopy nurse standing during endoscopic examinations and procedures. **b** A sit-stand endoscopy workstation with wobble stools. **c** An endoscopist using the wobble stool in the sitting positions. **d** An assistant preparing a saline injection in the sitting position on the wobble stool. **e** An endoscopy nurse using the wobble stool in the sitting position.



**▶ Video 1** Sit-stand endoscopy workstations using the wobble stool for an endoscopist, assistant, and endoscopy nurse in the endoscopy unit.

wobble stool by an endoscopist, assistant, and endoscopy nurse during endoscopic gastrointestinal therapy in an endoscopy unit (▶ **Fig. 1 b**, ▶ **Video 1**).

The endoscopist was able to maneuver the endoscope while in both sitting and standing positions, and to smoothly and quickly change his posture with complete control (▶ **Fig. 1 c**). The assistant was able to pass on and receive an endoscopic device while in both sitting and standing positions (▶ **Fig. 1 d**). Similarly, while sitting and standing, the endoscopy nurse could care for a patient, write nurse records, and assist in anesthesia management (▶ **Fig. 1 e**). Therefore, the wobble stool allowed the sit-stand endoscopy workstation to be used successfully by all endoscopy staff.

Prospective studies are needed to analyze MSD in staff while in standing and sit-stand positions during endoscopic examinations and procedures. An optimal, ergonomically appropriate height for the monitor also needs to be determined. Finally, the height of the patient bed has to be adjusted to a neutral position for both endoscopy staff and patients.

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### Competing interests

The authors declare that they have no conflicts of interest.

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