

Sit-stand endoscopic workstations equipped with a wearable chair



Ippei Matsuzaki, MD, PhD,¹ Takeshi Ebara, PhD,² Mafu Tsunemi, RN,³ Mitsuhiro Fujishiro, MD, PhD⁴



Figure 1. A, The Archelis wearable chair. B, Endoscopist wearing the Archelis (front view). C, Endoscopist wearing the Archelis (back view).

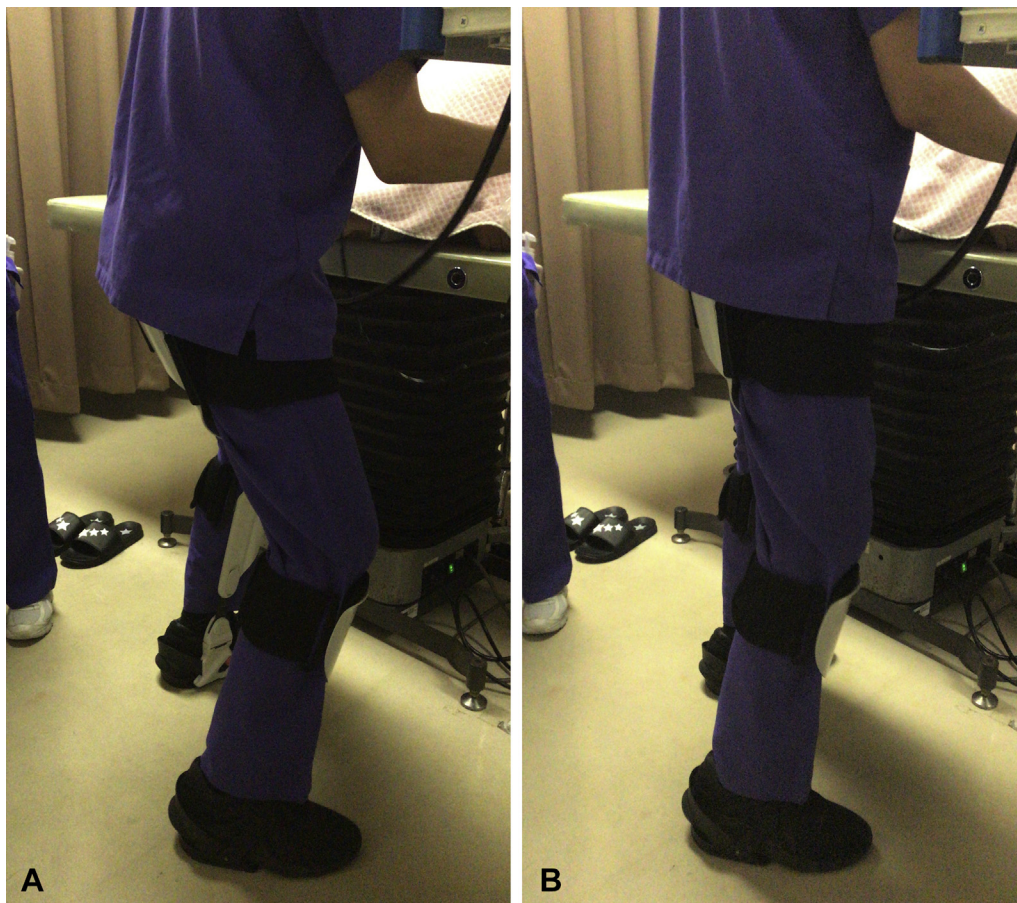


Figure 2. Sit-stand endoscopic workstations with Archelis. **A**, Sitting position during upper-GI endoscopy. **B**, Standing position during upper-GI endoscopy.

Endoscopists spend significant amounts of time standing during endoscopic examinations and procedures. Recently, endoscopy-related musculoskeletal injuries such as thumb, lower-back, hand, and neck pains have been recognized increasingly among endoscopists.^{1,2}

Factors related to the development of severe pain were body position, endoscope positioning, and gripping the endoscope during endoscopic procedures.^{3,4} Prolonged and sustained standing or sitting posture may be related to musculoskeletal injuries. Using ergonomics, we hypothesized that appropriate positioning of the endoscopist would diminish some of these musculoskeletal injuries. Recently, sit-stand workstations were designed to resolve workers' musculoskeletal disorders, alertness, and performance.⁵

In this video ([Video 1](#), available online at www.VideoGIE.org), we demonstrate sit-stand endoscopic workstations with use of a wearable chair (Archelis; NITTO Co, Ltd, Yokohama, Japan) that was developed for use in Japan to prevent laparoscopy-related musculoskeletal injuries ([Fig. 1](#)).

This wearable chair was used during upper-GI endoscopic examination. The endoscopist was able to maneu-

ver the upper-GI endoscope from both sitting and standing positions, and the position change was smooth ([Fig. 2](#)). In addition, we evaluated this chair during lower-GI endoscopic examination. The endoscopist was able to change posture with complete control. This device should be especially useful for longer examinations and procedures.

Finally, we confirmed the use of a foot pedal maneuver during endoscopic submucosal dissection of the colon ([Fig. 3](#)). Precise maneuvering was possible, but the action was awkward compared with the conventional foot pedal maneuver.

The newly developed wearable chair provides sit-stand endoscopic workstations, although prospective studies are needed to compare the reduction of endoscopy-related musculoskeletal injuries using sit, stand, and sit-stand workstations in the future.

DISCLOSURE

All authors disclosed no financial relationships relevant to this publication.



Figure 3. Foot pedal maneuver by endoscopist using the sit-stand endoscopic workstation during endoscopic submucosal dissection.

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Department of Gastroenterology, Yamashita Hospital, Ichinomiya, Japan (1); Department of Occupational and Environmental Health, Nagoya City University Graduate School of Medical Sciences, Nagoya, Japan (2); Department of Nursing, Yamashita Hospital, Ichinomiya, Japan (3); Department of Gastroenterology and Hepatology, Nagoya University Graduate School of Medicine, Nagoya, Japan (4).

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