Hong-Ho Yang BS
Quinton S. Gopen MD
Department of Head and Neck Surgery, David Geffen School of Medicine at UCLA, Los Angeles, California, USA
Isaac Yang MD
Department of Neurosurgery, David Geffen School of Medicine at UCLA, Los Angeles, California, USA

Corresponding Author:
Quinton S. Gopen, MD, Department of Head and Neck Surgery, David Geffen School of Medicine at UCLA, 10833 Le Conte Avenue 62-132 CHS, Los Angeles, CA 90095, USA.

Email: QGopen@mednet.ucla.edu

Author Contributions

Hong-Ho Yang, **Isaac Yang**, and **Quinton S. Gopen**, drafting and revision.

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ORCID iD

Hong-Ho Yang http://orcid.org/0000-0003-2032-3141

Reference

1. Yang HH, Lum M, Kaur T, Yang I, Gopen QS Postoperative pneumolabyrinth following the middle cranial fossa approach for superior semicircular canal dehiscence repair, 2014-2020. *Otolaryngol Head Neck Surg*. 2023;168(3):453-461.

Letter to the Editor

A New Chapter for Computerized Posturography

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Computerized dynamic posturography (CDP) was developed to provide quantitative multisensory assessment of balance performance. In a recent article, Chieffe and colleagues argue that CDP is overused and should be deimplemented.[1] They identified an 83% increase in CDP use between 2012 and 2017, mainly attributable to primary care providers rather than Otolaryngologists.[1] They argue that CDP overuse has stemmed from Medicare billing incentives encouraging fall risk assessment (FRA) as part of routine care when FRA may not be necessary or when alternative tests may be more accurate and less expensive. The authors imply that CDP is not superior to simpler clinical exams for identifying balance disorders and assessing fall risk.

The majority of the CDP instruments in the United States, which were the topic of this analysis, were first-generation units using 30-year-old technology. Recent advances in technology expand the capability of posturography.

Balance deficits are an important public health problem and are associated with an elevated risk of falling as well as depression, anxiety, and cognitive deficits, leading to millions of emergency visits each year and adverse impacts on quality of life. Current treatments do not adequately address the needs of patients.

So, given that older generation CDP technology is poorly suited to diagnosis or FRA, where does that leave current posturography assessment? Computerized posturography has undergone significant advancements in recent years. In addition to its strength for quantitative measurement of treatment response to rehabilitation interventions, modern systems are well suited for therapeutic interventions in the form of vestibular retraining of patients with balance deficits.

In our work, we assessed outcomes after a computerized posturography-based training protocol that uses an immersive display and mobile platform to progressively challenge patients with congruous and incongruous visual and somatosensory stimuli. After twelve sessions of retraining, participants demonstrated improved global balance, better tolerance of unreliable somatosensory and visual stimuli, and increased volitional lean angles in all directions (see **Figure 1**). Participants reported decreased perceived disability and fall risk.[2-4] Treatment effect was demonstrated to last at least 12 months.[5] We are currently analyzing results of a randomized trial of this intervention.

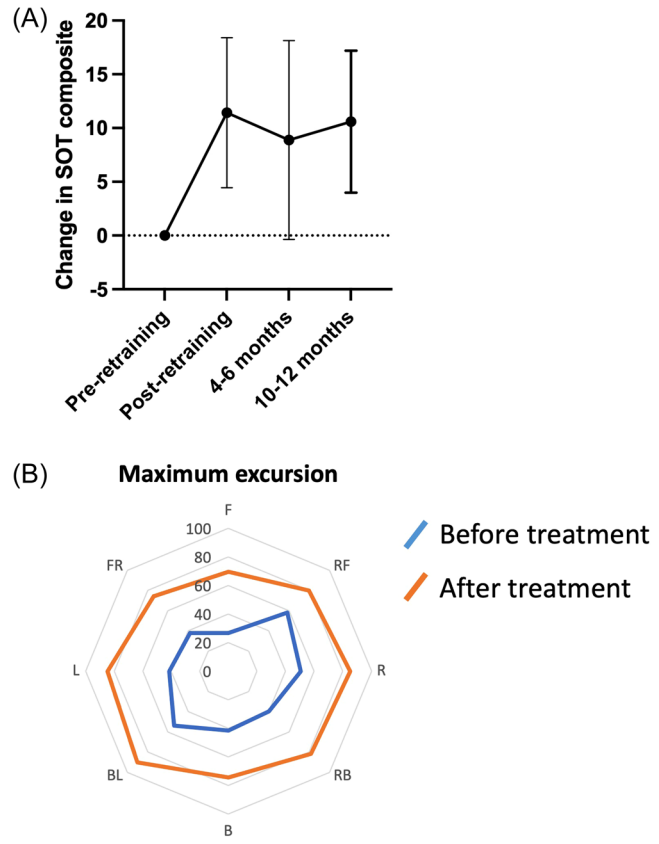

Figure 1. Posturography-based retraining improves balance performance. (A) Mean change in SOT composite score after computerized vestibular retraining therapy (CVRT). (B) Mean maximum excursion during limits of stability test before and after retraining.

This retraining exercise protocol has the benefit of being controlled, repeatable, and can safely replicate situations of daily life in which conflicting stimuli cause difficulty for people with balance disorders.

Our ongoing research shows the potential of advanced computerized posturography as an adjunct to established vestibular rehabilitation approaches for patients with refractory balance disorders.

Eytan A. David MD, FRCSC
Department of Surgery, Otology, Neurotology, Skull Base Surgery, Clinical Instructor, University of British Columbia, Vancouver, Canada

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ORCID iD

Eytan A. David http://orcid.org/0000-0001-5669-1961

References

1. Chieffe DJ, Zuniga SA, Marmor S, et al. Nationwide utilization of computerized dynamic posturography in an era of deimplementation. *Otolaryngol Head Neck Surg*. 2023:1-4. doi:10.1002/ohn.333
2. David EA, Shahnaz N. Fall risk and functional stability before vs after computerized vestibular retraining among adults with unilateral vestibular deficits. *JAMA Otolaryngol Head Neck Surg*. 2022;148:888-889.
3. David EA, Shahnaz N. Patient-reported disability after computerized posturographic vestibular retraining for stable unilateral vestibular deficit. *JAMA Otolaryngol Head Neck Surg*. 2022;148:426-433.
4. David EA, Shahnaz N. Dynamic posturography after computerized vestibular retraining for stable unilateral vestibular deficits. *Acta Oto-Laryngol*. 2023;143:1-6.
5. David EA, Shahnaz N. Durable improvement in participant-reported measures of disability and objective posturography after computerized vestibular retraining. *Neurorehabilitation*. 2023;52:279-287.

Reply

In Response to "A New Chapter for Computerized Posturography"

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We thank Dr. Eytan David for his thoughtful comments and commend his team for their systematic work regarding the use of computerized dynamic posturography (CDP) systems as therapeutic tools for the rehabilitation of individuals with vestibular deficits.[1] We share the conviction that more research and technology development are needed to address the many unmet needs of patients with dizziness and balance disorders.

Our work is intended to underscore patterns of use of CDP for diagnosis and assessment as observed in claims data.[2] Currently, there are two CPT codes specific to CDP: 92548 (CDP Sensory Organization Test) and 92549 (CDP Sensory Organization Test with Motor Control Test and Adaptation Test). Dr. David's