

# Palpation by blind examiners: A novel approach for glaucoma screening

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**Abstract:** Although there are several risk factors for glaucoma, elevated intraocular pressure (IOP) remains the major risk factor. Palpation is one of the oldest, simplest, and least expensive methods for approximate IOP assessment. Researchers believe that blind individuals may possess a more acutely developed sense of touch, which has already proved to be beneficial in clinical breast examination to detect early breast cancer. Based on successful findings of a project that used blind and visually impaired individuals as breast examiners, we hypothesize that blind individuals may also serve as successful examiners for estimation of IOP using tactile palpation.

**Keywords:** tactile palpation, visual impairment, blindness, intraocular pressure

Glaucoma is an important cause of irreversible blindness.<sup>1</sup> By 2010, 60 million people will have open angle or angle closure glaucoma, and the disease will be the second leading cause of blindness worldwide.<sup>2</sup> The main risk factor for glaucoma is elevated intraocular pressure (IOP), which is also the only currently treatable risk factor.<sup>3</sup> Several methods of IOP measurement are available but, in the absence of instruments, estimation can be performed by palpation.<sup>4</sup> Although palpation is not highly accurate, it can differentiate between very high and very low pressure, and may have a role in screening for marked elevations of IOP,<sup>5</sup> or in cases when external tonometry is not possible, for instance, in the presence of corneal scarring or after penetrating keratoplasty.<sup>6</sup> For the examination, the patient is asked to close the eyes with a downward gaze. The examiner uses the index finger of both hands, alternating gentle pressure to the superior part of the eyes, to determine the force necessary to indent the eye wall. It has been showed that if palpation is applied after determining pressure by another accurate tonometry technique, the examiner may be capable of estimating IOP to an accuracy of 2–3 mmHg.<sup>7</sup> Digital palpation may be a feasible technique in patients who are unwilling or unable to undergo other methods of IOP measurement. This simple technique is also important for screening purposes when the patient does not have access to a specialized eye care center, especially in rural areas or in underdeveloped countries.

Previous studies have shown that, in comparison with the sighted, blind and visually impaired individuals exhibit enhanced nonvisual perceptual abilities.<sup>8</sup> Researchers recently designed an interesting project called “Discovering Hands<sup>®</sup>” to establish a new occupation for blind women who were trained to become tactile medical examiners, using their sensitive touch to detect breast lumps. The program has been acclaimed as a success by both patients and medical practitioners in Germany. We

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hypothesize that blind individuals can be trained as tactile medical examiners for measuring IOP and in follow-up of patients with glaucoma.

Furthermore, studies of the social relationships, networks, and support of visual impaired individuals show that these people usually have fewer social contacts and smaller social networks than those without visual impairment. Visually impaired adolescents have also been found to be more lonely and isolated from society than normally sighted people.<sup>10</sup> Our suggestion that the visually impaired be engaged as medical examiners may therefore also broaden their social contacts, and improve their social rehabilitation and self-esteem. This hypothesis now warrants formal study in the setting of screening for glaucoma.

## Disclosure

The authors report no conflicts of interest in this work.

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