chamber angle configuration demands considering at least three separate characteristics: the locus of the attachment of the iris to the inner wall of the eye (the ciliary body, the angle recess, or the cornea), the curvature of the peripheral iris, and the space between the iris and the cornea as measured with diametry, or anterior chamber depth or estimate of angularity as in the Shaffer system. No one has yet figured out a way to put these three variables together in a meaningful way. Even more seriously misleading, however, is the practice of ignoring one or more of the variables. Consequently, the results of various studies are literally comparing 'apples' and 'oranges' so it is not surprising that there is so much disagreement amongst these. For example, UBM is a beautiful way to evaluate two aspects of configuration, specifically the curvature of the iris, and the 'angularity'. However, because the site of the posterior trabecular meshwork is not well defined in UBM and because the relationship of the posterior trabecular meshwork with the insertion of the iris varies markedly, UBM is not a good method of characterizing the entire nature of the anterior chamber angle, or explaining why patients are likely to develop angle closure. He and colleagues' article points out some of these shortcomings and moves the field ahead. However, what is still missing is a unifying description that recognizes that configuration requires incorporating various variables.

G Spaeth

Glaucoma Services, Wills Eye Hospital/Jefferson Medical College, Philadelphia, PA, USA

Correspondence: G Spaeth,
Tel: +001 215 928 3960;
Fax: +001 215 928 3194.
E-mail: gspaeth@willseye.org

Sir,
Reply to Dr Spaeth

We would like to thank Dr Spaeth for his kind comments and heartily agree with him that iridotrabecular angle is but one of a myriad of anatomical characteristics of the iridotrabecular recess that is likely to determine risk of contact between iris and trabecular meshwork. However, it is one with a proven association between evidence of anterior segment pathology (PAS) and glaucomatous optic neuropathy.[1] Dr Spaeth's classification identifying iridotrabecular angle, iris

profile, as well as the apparent and true level of iris insertion is currently unsurpassed for describing gonioscopic anatomy in cases of angle-closure.[2] However, the advent of UBM and OCT imaging of anterior segment structures has helped reinforce our awareness that the relationship of iris and trabecular meshwork change on a second to second basis.[3] The ultimate challenge will be to assimilate the static features that Spaeth highlights into a comprehensive, dynamic model of the determinants of iridotrabecular contact, which is validated in longitudinal studies of incident angle-closure and glaucomatous optic neuropathy.

References

1　Foster PJ, Nolan WP, Aung T, Machin D, Baasanhu J, Khaw PT *et al.* The definition of an 'occludable' angle: drainage angle width, peripheral anterior synechiae and glaucomatous optic neuropathy in East Asian people. *Br J Ophthalmol* 2004; **88**: 486–490.
2　Spaeth GL. The normal development of the human anterior chamber angle: a new system of descriptive grading. *Trans Ophthalmol Soc UK* 1971; **91**: 709–739.
3　Gazzard G, Foster PJ, Friedman DS, Khaw PT, Seah S. Light to dark physiological variation in irido-trabecular angle width. *Br J Ophthalmol* 2000 (Peer reviewed video report http://bjo.bmjjournals.com/cgi/content/full/88/11/DC1/1).

M He, P Foster, G Johnson and P Khaw

Department of Epidemiology, Institute of Ophthalmology, 11–43 Bath Street, London EC1V 9EL, UK

Correspondence: P Foster,
Tel: +20 7 608 6899 or 6907;
Fax: +20 7 608 4012.
E-mail: p.foster@ucl.ac.uk

Sir,
On eye analyses

The articles by Halberstadt *et al*,[1] Taner *et al*,[2] and Loukovaara *et al*[3] illustrate systemic errors in statistical analysis. They use two-sample *t*-tests or analysis of variance (ANOVA), but ignore their shortcomings. These compare the means of normal populations assuming unknown homogeneous variances. While the Central Limit Theorem justifies normality for inferences on means, unknown variances need not be equal, making these tests unsuitable for general mean comparisons.