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Letter to the Editor

Age-related changes of the refractive index of the crystalline lens

Dear Editor,

Moffat, Atchison, and Pope, 2002 use magnetic resonance micro-imaging to assess the age-related changes in refractive index of the human crystalline lens in vitro. Precise comparisons of the isoindical maps of crystalline lenses (as limited by the resolution of the MRI technique) require that the lenses must be oriented so that their geometric centers and all of their geometric axes coincide. The representative sample, provided in Fig. 3, shows two crystalline lenses that are not coincidentally oriented. This sample raises concern about the data collected.

The authors attribute the decline in nuclear refractive index to the formation of insoluble protein aggregates. Insoluble protein aggregates are the etiology of nuclear cataracts (Benedek, 1984). Therefore, according to the authors, the formation of nuclear cataracts should be associated with a reduction in the concentration of soluble crystallines and therefore patients with nuclear cataracts should become hyperopic, but in reality they become myopic (Lim, Mitchell, & Cumming, 1999; Wong, Klein, Kelin, Tomany, & Lee, 2001).

In summary, the methodology of data collection and its analysis employed by the authors call into question the validity of their conclusions.

References

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