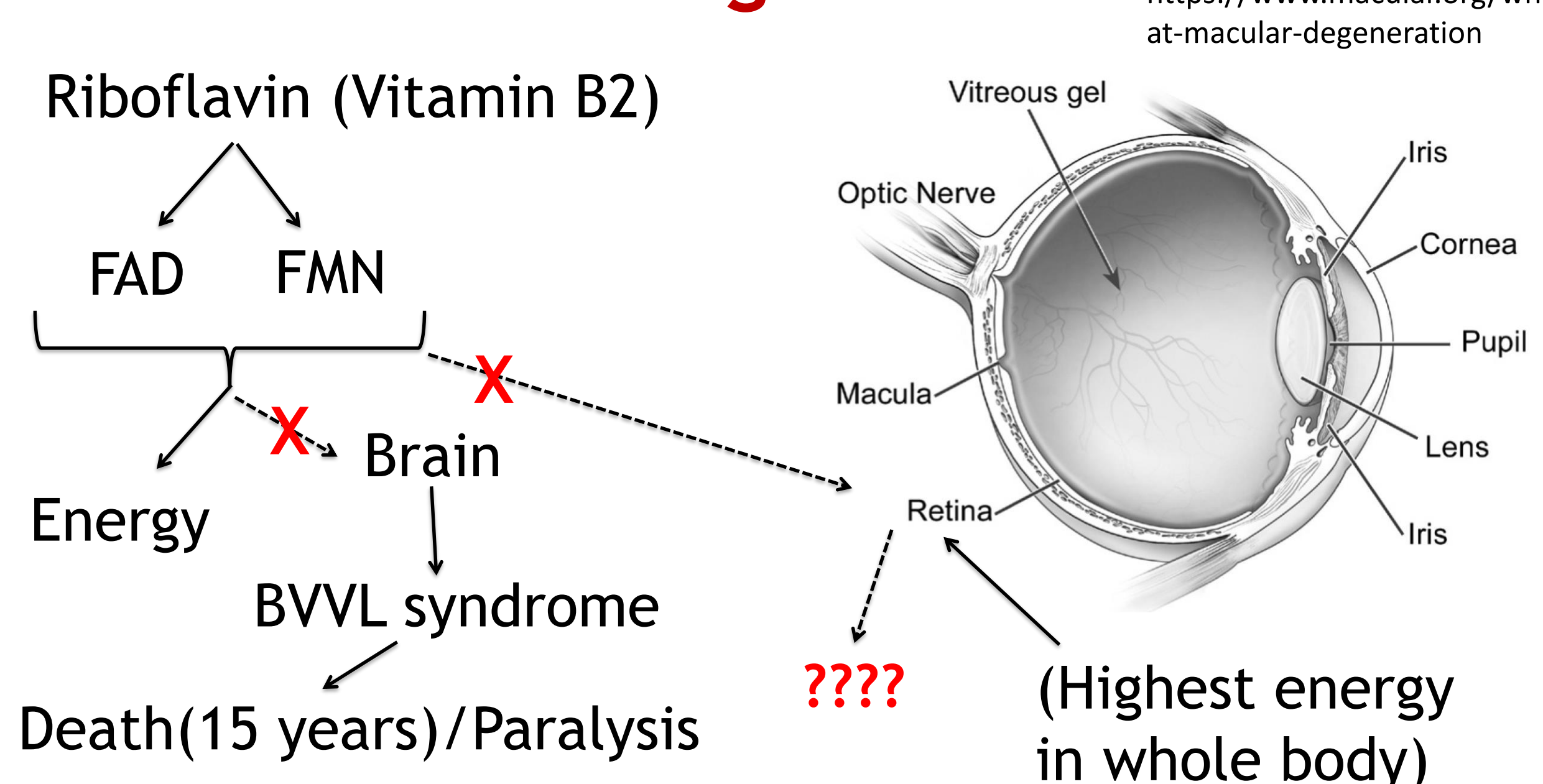


Flavin homeostasis in the mouse retina during aging and diabetes as a marker for retina health

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Background



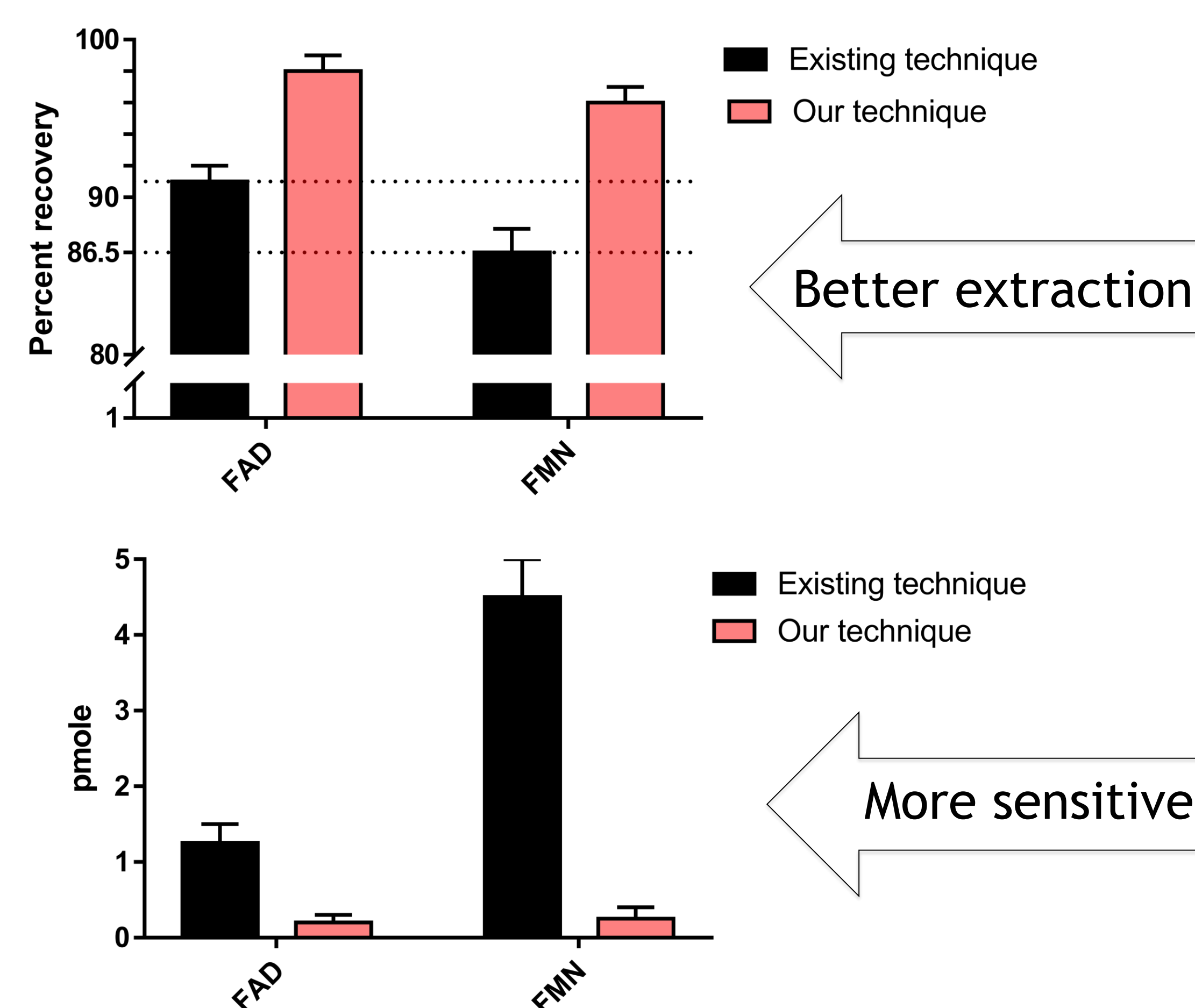
Research Problem

Lack of knowledge due to **absence of sensitive technique** to quantitate FAD, FMN in the mouse retina. As we cannot measure the human retina levels, so have to have measurements for mouse retina such that we know in which retinal diseases we can help with nutritive intervention and at what dosages and we can follow that up with clinical trials on relevant human patients

Proposed solution

Improve upon existing technique to enable simultaneous detection of FAD and FMN from **single** mouse retina with excellent **recovery** during extraction process and good enough signal to noise ratio exhibiting **enhanced sensitivity**

Methods: execution of proposal



Results: validation of proposal

Figure 1: Flavin quantitation of single mouse retina and RPE by optimized micro-extraction and HPLC

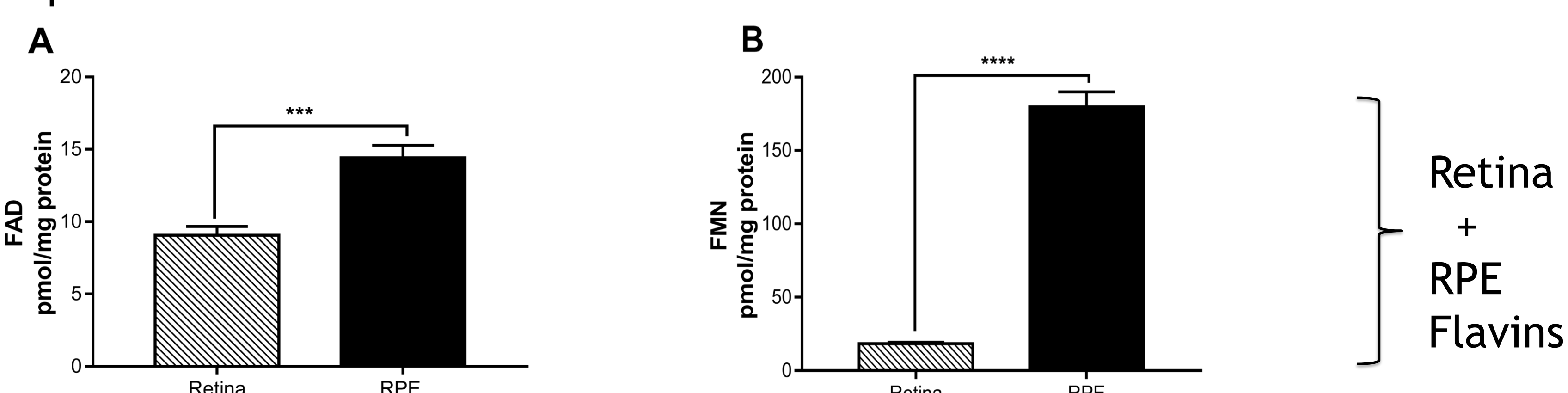


Figure 2: Flavin quantitation of mouse retina at different ages

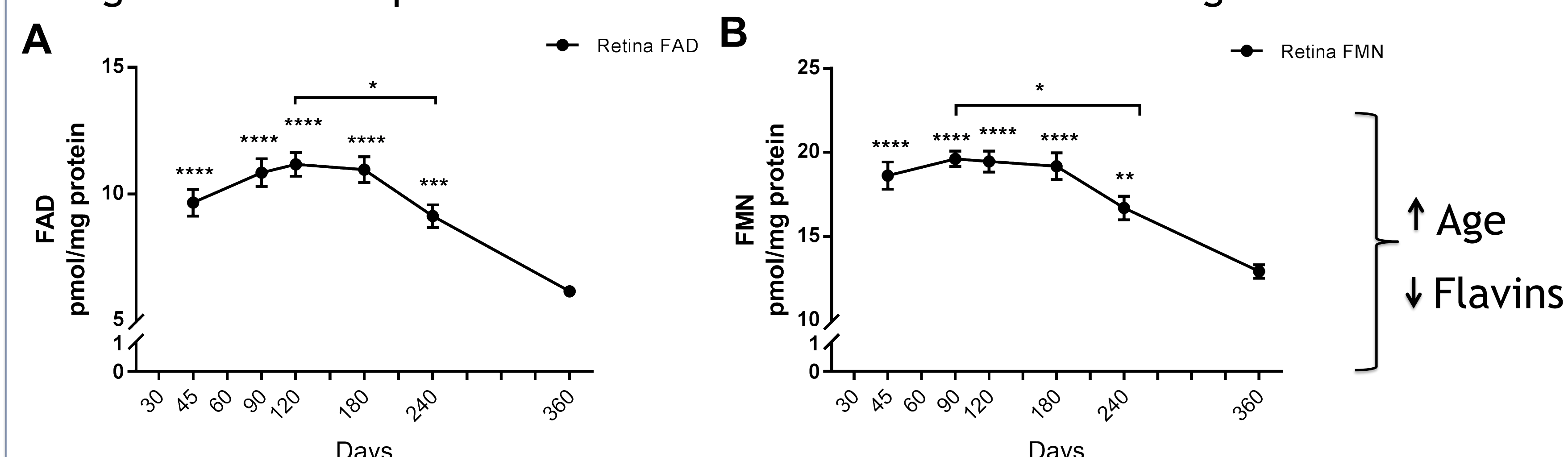
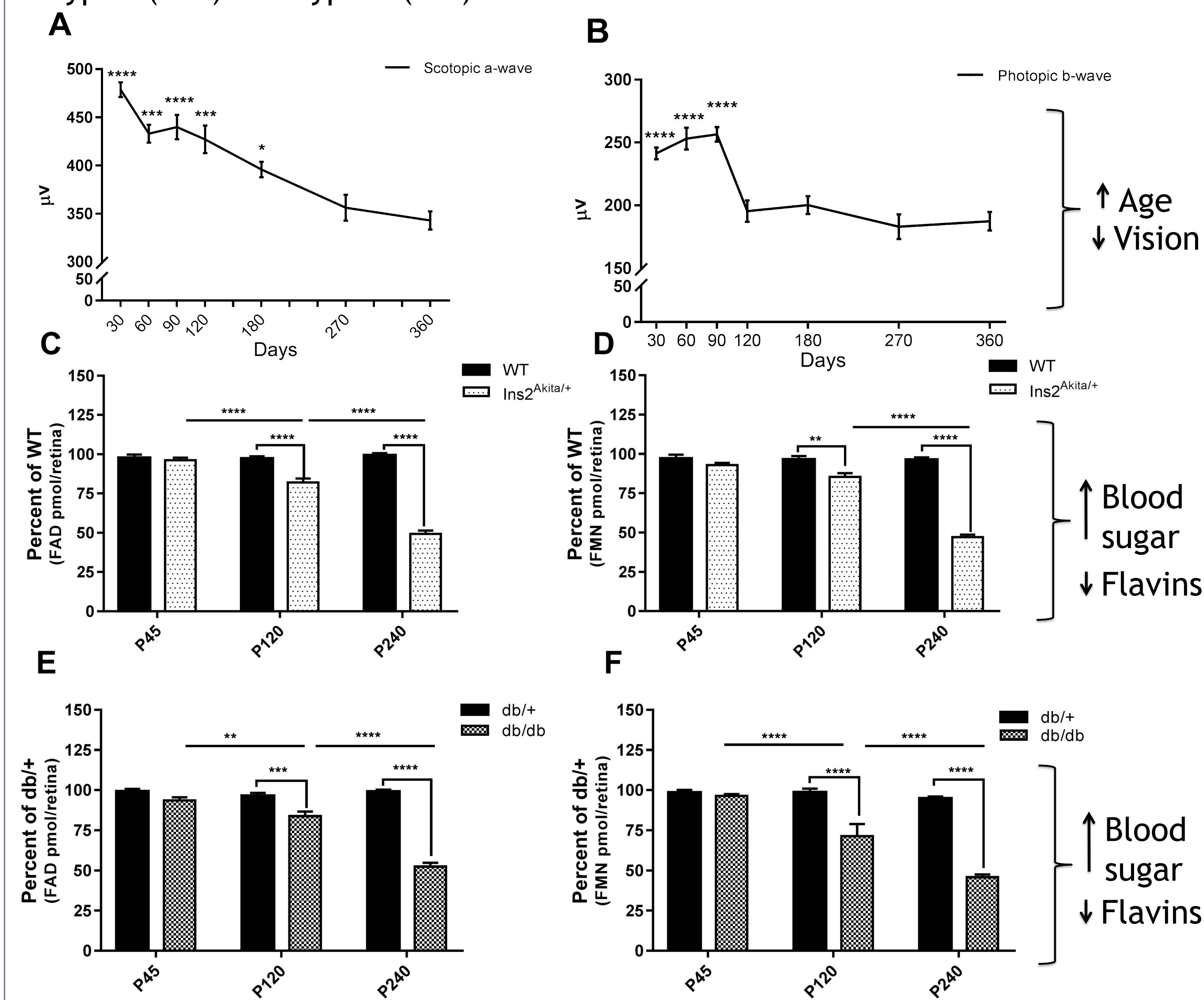


Figure 3: Retinal function (A-B) with age and flavin quantitation of type I (C-D) and type II (E-F) diabetic retina in mouse models

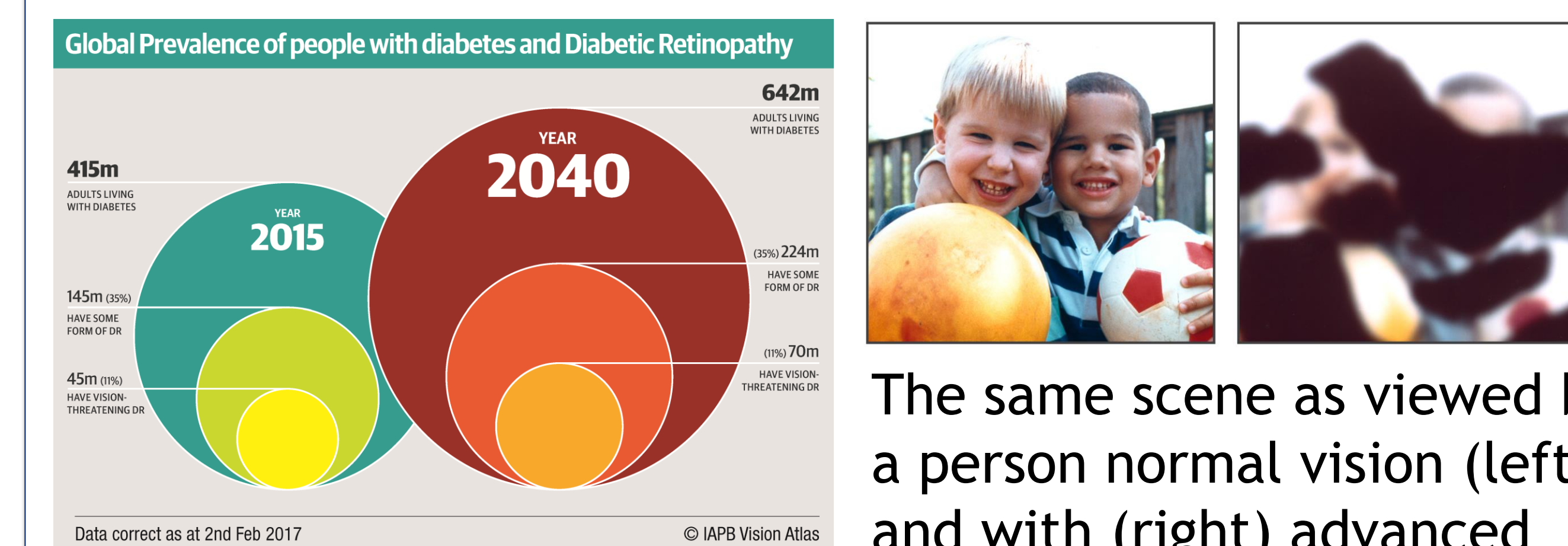


Significance to researchers

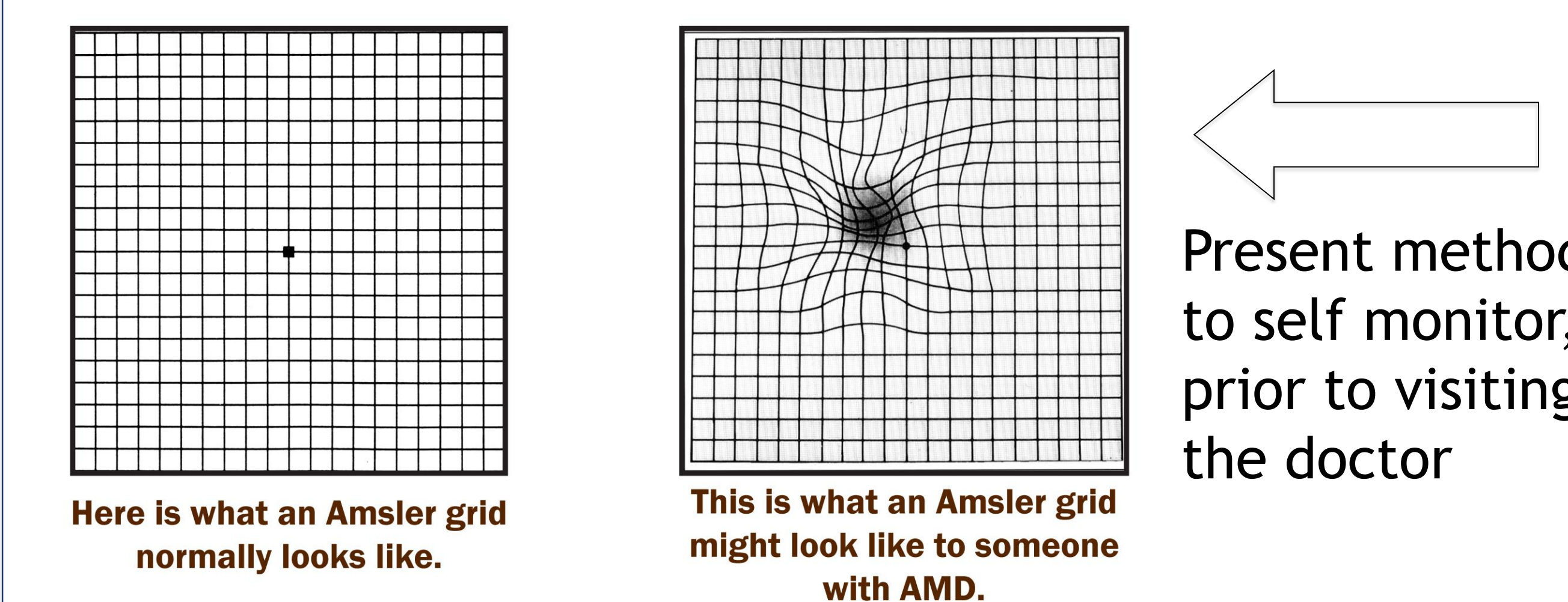
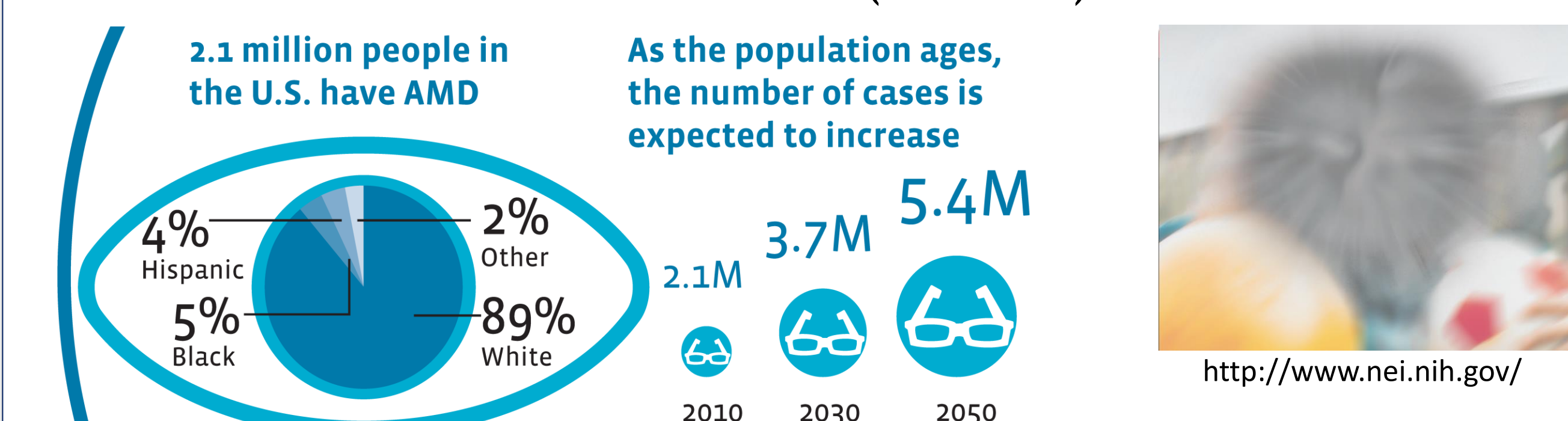
- 1) Optimized sensitive method available now for research models
- 2) Possible link between aging and vision decline identified
- 3) Common factor affecting vision in both Type I and type II diabetes conditions identified
- 4) Highly beneficial to further elucidate the involvement of flavins in vision research.

Significance to general public

Nutritive and therapeutic intervention to restore the retina energy metabolism can lead to delayed onset and progression of blindness because of aging and type I and II diabetes



<http://atlas.iapb.org/vision-trends/diabetic-retinopathy/>



Present method to self monitor, prior to visiting the doctor

References

- Batey, D.W. and C.D. Eckhert, Identification of FAD, FMN, and riboflavin in the retina by microextraction and high-performance liquid chromatography. Anal Biochem, 1990. 188(1): p. 164-7