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Static and dynamic pupillary features in graves' ophthalmopathy,

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## **Clinical Relevance**

Pupillary characteristics may be affected in patients with Graves' ophthalmopathy (GO). However, small changes cannot be observed with clinical examination. Ophthalmologists and optometrists should be aware that dynamic pupillometry may have an important place in the quantitative assessment of pupillary characteristics in this patient population.

## **Background**

The aim of this study was to compare the static and dynamic pupillary responses of hyperthyroid and euthyroid GO patients and healthy control subjects.

## **Methods**

The study enrolled 20 hyperthyroid patients with GO (Group 1), 20 euthyroid patients with GO (Group 2) and 40 control subjects with normal thyroid function tests and no known illness (Group 3). Following detailed ophthalmological examination, static and dynamic pupillometry measurements were performed. Dynamic pupillometry measurements including resting diameter, amplitude of pupil contraction, latency of pupil contraction, duration of pupil contraction, latency of pupil dilation, duration of pupil dilation, and velocity of pupil dilation were undertaken. Static pupillometry measurements including scotopic, mesopic, low-photopic, and high-photopic pupil diameters (PD) were undertaken. Data from the right eyes of the participants were used for statistical analysis.

## **Results**

Regarding the dynamic pupillary measurements, the latency of pupil contraction value was significantly higher ( $p = 0.007$ ), and the velocity of

pupil dilatation was significantly lower ( $p = 0.004$ ) in Groups 1 and 2 compared to the Group 3. In static pupillary measurements, there were statistically significant differences between the GO group (Group 1 and 2) and Group 3 with regard to scotopic ( $p = 0.002$ ), mesopic ( $p = 0.002$ ), and low-photopic PD ( $p = 0.001$ ).

## **Conclusion**

Scotopic, mesopic and low photopic PD, latency of pupil contraction and velocity of pupil dilatation values were significantly different in both hyperthyroid and euthyroid GO patients when compared to healthy control subjects.