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Dose effect and stability of postoperative cyclodeviation after adjustable Harada-Ito surgery

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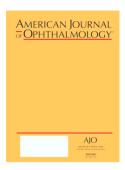
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#### **ABSTRACT**

**Purpose:** To report the dose-response relationship of adjustable Harada-Ito surgery, and postoperative stability of cyclodeviation.

**Design:** Retrospective cohort study

**Methods:** 20 patients underwent a unilateral adjustable Harada-Ito advancement of the anterior fibers of the superior oblique tendon, with or without resection. The surgical dose was calculated as resection plus advancement plus adjustment. Cyclodeviation was measured using double Maddox rods at pre- and postoperative time points. We assessed dose effect by calculating change in cyclodeviation from preoperatively to post-adjustment and evaluated the dose-response relationship by Spearman rank methods. Postoperative stability of cyclodeviation was assessed by comparing post-adjustment measurements with 1 day and the 6-week window, and also the 1- and 5-year windows, when available.

**Results:** Change in cyclodeviation from preoperatively to post-adjustment ranged from 7° to 20° of incyclo effect. There was a dose effect of 1.3° per mm ( $r_s$ =0.52 P=.019). Postoperative incyclodeviation unwound a mean of 3.6°± 2.5° between post-adjustment and day 1. Overall change between post-adjustment and the 6-week window was 6.5°± 2.9° in an excyclo direction. Unwinding continued with a mean change of 0.2°± 2.6° between the 6-week and 1-year windows, and of 0.4° ± 2.1° between 1-year and 5-years windows.

**Conclusions:** Adjustable Harada-Ito advancement of the anterior fibers of the superior oblique has a dose response of 1.3° per mm but its effect regresses over time. Based on our data, an immediate postoperative target incyclodeviation of 7° is reasonable.

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