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Comparison of corneal flap thickness between primary and fellow eyes using three microkeratomes[Shemesh, G.](#)^{a b c} , [Leibovitch, I.](#)^b, [Lipshitz, I.](#)^a ^a Ophthalmic Health Center^b Department of Ophthalmology, Tel-Aviv Sourasky Medical Center, Tel-Aviv University, Tel-Aviv, Israel^c Department of Ophthalmology, Tel-Aviv Sourasky Medical Center, 6 Weizman Street, Tel-Aviv 64239, Israel**Abstract**




PURPOSE: To compare corneal flap thickness created in laser in situ keratomileusis (**LASIK**) in primary (right) and fellow (left) eyes (same blade for both eyes) using three microkeratomes.

METHODS: The corneal thickness of 132 eyes (66 patients) was measured preoperatively and intraoperatively after flap creation. Corneal flap thickness was calculated by subtracting stromal bed thickness from total corneal thickness. Three microkeratomes were used: Nidek MK-2000, Bausch and Lomb Surgical Hansatome, and the Chiron Automated Corneal Shaper (ACS). Each patient had both corneas cut by one microkeratome and one blade at the same session **RESULTS:** Mean corneal flap thickness created in primary eyes was $128.30 \pm 12.57 \mu\text{m}$ (range 105 to 147 μm) for the ACS (160- μm plate and 8.5-mm ring) and $122.96 \pm 13.30 \mu\text{m}$ (range 86 to 140 μm) for fellow eyes; Hansatome (160- μm plate and 8.5-mm ring): $141.16 \pm 20.11 \mu\text{m}$ (range 101 to 169 μm) in primary eyes and $120.95 \pm 26.95 \mu\text{m}$ (range 107

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to 151 μm) in fellow eyes; Nidek (130- μm plate and 8.5-mm ring): $127.25 \pm 4.12 \mu\text{m}$ (range 116 to 134 μm) in primary eyes and $127.54 \pm 3.7 \mu\text{m}$ (range 119 to 134 μm) in fellow eyes. The corneal flap in the ACS and Hansatome microkeratomers was always thicker in the primary than the fellow eye, using the same blade for both eyes. No significant difference was found using the Nidek microkeratome. CONCLUSION: Corneal flap thickness tended to be thinner in fellow eyes than in primary eyes for the ACS and Hanstome microkeratomers. The Nidek microkeratome results were closer to specified corneal flap thickness than the ACS and Hanstome microkeratomers.

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