**Orthokeratology for myopic control: One-year results of the ROMIO and TO-SEE studies**

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**PURPOSE**
To investigate if orthokeratology can slow myopic progression in myopic (*ROMIO study: single-masked and randomised) and astigmatic children (**TO-SEE study: single-masked)**

**METHOD**
In the ROMIO study, children of age 6-10 who satisfied the inclusion criteria of the study were randomly assigned to two groups: test group (Menicon Z Night Lens), control group (single vision spectacles). In the TO-SEE study, children 6-12 years old were fitted with Menicon Z Night Toric lenses. Axial length (AL) measurements were made with the IOLMaster at baseline and every six months thereafter for all children by an independent examiner who was masked to the treatment received by the children. For ortho-k children, axial length of most children were also measured at either the Delivery and/or first overnight (1ON) visit as lens delivery period was 1.5-2 months after baseline visit.

**RESULTS**
Thirty-two ortho-k children with 1ON AL measurements in the ROMIO study have completed the 6-month timeline and their baseline (1ON) AL, age and Rx were not significantly different from 32 matched control children (p>0.05). The increase in AL for ROMIO control children was 0.22+/-.10 mm, which was significantly larger than the increase (from 1ON) of 0.10+/-.09mm of ROMIO ortho-k children (t-test, p<0.001). Thirty-five TO-SEE children have also completed the 6-month timeline and the increase in AL (from 1ON) was 0.07+/-.014mm.

At the 12-month timeline, increases in AL were 0.39+/-.16mm (27 Control) and 0.21+/-.14mm (26 Ortho-k) for ROMIO children (t-test, p<0.001) and 0.17+/-.23mm for 28 TO-SEE children.

**CONCLUSIONS**
Myopic and astigmatic children who wore ortho-k lenses showed significantly slower axial length elongation compared to children wearing spectacles after 12
months of lens wear.

(*ROMIO – Retardation Of Myopia In Orthokeratology; **TO-SEE – Toric Orthokeratology – Slowing Eyeball Elongation. Both studies are supported by Collaborative Research Agreements between PolyU and Menicon Co. Ltd., Japan.)