



## **Title: Prevalence of Keratoconus in an 8–18-Year-Old Population**

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### **Abstract:**

#### Purpose

To determine the prevalence of corneas that are at risk of developing ectasia or that already exhibit signs of this condition, based on baseline data from young patients aged between 8 and 12 years participating in a study on myopia control.

#### Methods

A retrospective study based on data from 99 participants in a myopia control study conducted at the Montreal University Vision Clinic (CERC 19-071-P). Participants were myopic children of Caucasian or Asian origin, aged 8 to 12 years. Corneal measurements were taken using a Pentacam Oculus tomograph (USA) and analysed according to the final D parameter. This analysis classifies corneal topography maps as normal, suspicious or indicative of keratoconus. Corneal biomechanics were measured using a dynamic analyser (Corvis ST, Oculus, USA). These measurements are used to derive indices (CBI, DA ratio, ARTh, SP-A1 and SSI) that categorise the cornea as normal or as presenting with mild, moderate or advanced keratoconus. The frequency of each of these categories was calculated.

#### Results

Analysis of the Pentacam data shows that 9.09% of participants are showing indices of corneal ectasia. According to biomechanical factors, this figure rises to 30.30%, of whom 22.22% are suspected of presenting mild risk of ectasia, 5.05% a moderate risk and 3.03% advanced conditions which can be considered suspicious of ectasia. Among participants identified as suspects, 43% are Latinos in origin.

#### Conclusions

The proportion of corneas at risk of ectasia is high in this sample but echoes previous published data by other authors. Early screening using tomography and corneal biomechanical parameters should be carried out when kids are consulting for contact lens fit/myopia control.