BACKGROUND: Making accommodation possible for all age groups is a topic of great interest. We applied optical biometry in order to study the physiological mechanisms in detail. Longitudinal relations in the optical axis were measured during accommodation in volunteers of different ages and lens states.

METHODS: A total of 60 subjects (children, adolescents, adults, and pseudophakes) were examined using the IOL Master. We measured anterior chamber depth (ACD), axial length (AL), and changes in these two measurements during accommodation. RESULTS: Near accommodation (NA) in adolescents caused the largest ACD decrease (0.14+/-0.03 mm). ACD decreased in adults during NA but not in pseudophakic patients of comparable age. AL increased during NA in all groups by 0.01+/-0.01 mm.

CONCLUSIONS: ACD decreased with age. Using a physiological stimulus, no change in ACD was measured during NA in pseudophakic patients. The documented increase in AL needs to be evaluated further.