OCT has conquered the spotlight in posterior segment imaging, and is currently generating interest in the anterior segment as well. However, the potential uses of crystalline lens evaluation using this technology remain mainly unexplored. Other than femtosecond laser cataract surgery, few publications are available regarding its utility in other ophthalmology fields. Purpose: to evaluate the current ability of Spectral-Domain OCT to obtain in vivo imaging of crystalline and intraocular lenses, as well as its possible application in pre-surgical evaluation. Methods and results: acquisition and analysis of images using the Heidelberg® Spectralis OCT system and its original software with adaptation of a 30 D lens, in volunteering patients under mydriasis, both in pseudophakia (5 patients) and during pre-operative evaluation for cataract surgery (20 patients). Tomographic pictures of cataracts of variable stages and intraocular lens-related pathology were obtained and compared with the corresponding biomicroscopy images and the LOCS III grading system. A three-dimensional reconstruction of the pupil-lens surface relationship was also obtained. Conclusions: with only minor adjustments, the current Heidelberg Spectralis® OCT system demonstrated both optical and software capability for obtaining and analyzing the human and intraocular lenses. OCT imaging may provide the cataract surgeon with additional information, particularly on posterior subcapsular cataracts and nuclear density. Future use of specific Software and adaptable lenses might solve the technical difficulties and distortions encountered by the authors.