



# Study of subjective refraction measured with SiviewExam compared with that obtained manually by an expert



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## INTRODUCTION

- The subjective refraction measurement may vary from one examination to another for a variety of physiological reasons and/or those related to the examination conditions.
- **The aim of SiviewExam is to make this measurement both repeatable and reproducible, regardless of the practitioner and their expertise, by fully automating the determination of the best visual prescription using an expert system that aims to make this examination simple, intuitive, and reliable.**
- The value of this study is to demonstrate that the results obtained by an expert in refraction and the measurement obtained by SiviewExam are in clinical agreement.

# OBJECTIVES

## ▶ Primary objective

Show that SiviewExam can be used to obtain a measurement of the spherical equivalent (SE) that is clinically consistent with that obtained by an expert.

## ▶ Secondary objectives

- Sphere measurement
- Cylinder measurement
- Visual acuity measurement
- Evaluation of SiviewExam report
- SE measurement obtained by 2 experts



# METHOD



## ▶ Population

- **107 healthy subjects** with no ocular or systemic condition that could affect vision
- Age: from 19 to 69 yo (mean 35.7 years)
- 46 women / 61 men



## ▶ Method

- Single-centre comparative (Rothschild Foundation) cross-sectional study.
- For each subject, a measurement of the different criteria of refraction exam are done by two examiners:
  - Examiner 1: SiviewExam
  - Examiner 2: an optometrist expert
- Acceptable clinical limit for SE (according to the literature): 0.7D



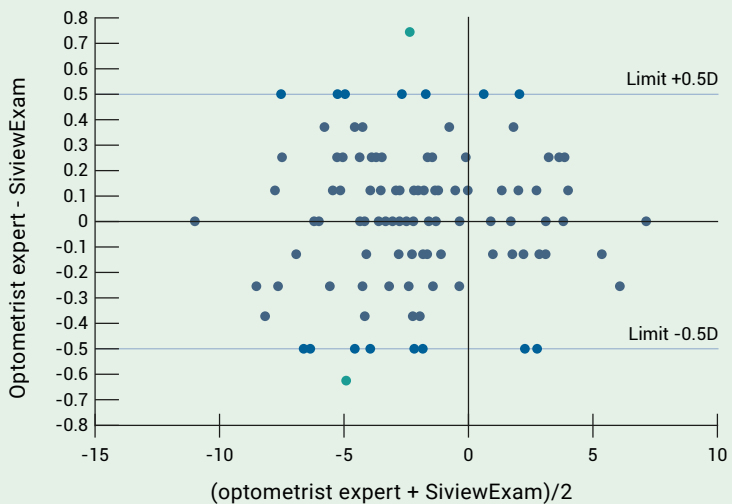
# RESULTS



Criteria	Limit of Agreement (LoA)
SPHERICAL EQUIVALENT (SE)	-0.54 ; 0.56
SPHERE	-0.63 ; 0.57
CYLINDER (CYL)	-0.50 ; 0.66
VA	No significant difference (7/107)
REPORT	100% accuracy
SE between 2 experts	-0.53 ; 0.49

- Measures of agreement between SiviewExam and an optometrist expert for SE, SPHERE, CYL are < limit of 0.7D.
- For 95% of subjects, measurement of the SE by SiviewExam will be between 0.54D less and 0.56D more than measurement using the manual method by an expert.

## Difference (optometrist expert - SiviewExam) versus mean ((optometrist expert + SiviewExam)/2)



- 2/107 (1.9%) of the differences are outside of these limits.
- ▶ No bias between a measurement done by SiviewExam and a measurement by an optometrist expert.

# CONCLUSION

- SiviewExam allows the user to obtain measurements of the spherical equivalent that are not clinically different from those obtained by an optometrist expert.
- Measures of agreement between SiviewExam and an optometrist expert for SE, SPHERE, CYL are < limit of 0.7D.
- The report produced by SiviewExam is accurate according to the optometrist expert in 100% of cases.
- Visual acuity measurements obtained with SiviewExam is very similar to those obtained with an optometrist expert.



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