

## Brief report

# A Study on the Shape of Spectacles and Pinhole in the Iranian Pre-History and Post-History Period

Mir Ghaffar Sahihi Oskooei<sup>1</sup>  
Mohammad Ghasemi Broumand, MD<sup>2</sup>  
Haleh Kangari, PhD<sup>3</sup>  
Maryam Heydarpour Meymeh<sup>4</sup>  
Ali Reza Hojabri Nobri<sup>5</sup>  
Seyed Mahmoud Tabatabaei Far, MD<sup>6</sup>

1- Optometrist, Department of Optometry, Faculty of Rehabilitation Science, Shahid Beheshti University of Medical Sciences, Tehran, Iran

2- Professor of Ophthalmology, Faculty of Rehabilitation Science, Shahid Beheshti University of Medical Sciences, Tehran, Iran

3- Optometrist, Faculty member of Rehabilitation Science, Shahid Beheshti University of Medical Sciences, Tehran, Iran

4- Faculty Member of Para Medical Sciences, Shahid Beheshti University of Medical Sciences, Tehran, Iran

5- Archeologist and Faculty Member, Tarbiat Modares University, Tehran, Iran

6- Department of Neurosurgery, Shahid Beheshti University of Medical Sciences, Tehran, Iran

Correspondence to: Mir Ghaffar Sahihi Oskooei; goskooei@yahoo.com

### Abstract

Human has always been trying to become familiar with different parts of the eye. It seems that in the beginning of his efforts; he has become familiar with the functions of the pupil of the eye, using these data, he was able to make the dark room and use the hole to relieve the refractive errors. It can be said that the human in the pre-history and post-history periods had been able to solve his visual problems by using the existing facilities including pinholes.

Keywords: Eye Optical Problems, Silver Pinhole, Pinhole

### Introduction

Greece is mainly considered as the founder of science in the world, however centuries before Greece civilization, in Mesopotamia and in a land, which is now called Iran, many different scientific disciplines including medicine were prevailing.

#### *Employing the pinhole in ophthalmology and optometry*

Pinhole improves eyesight in ametropia. In the patients whose visions are becoming better with pinhole, performing a proper correction usually improves vision.

Few pinholes and spectacles used in the ancient periods are demonstrated below.

#### ***The spectacles (eye glasses) of the fourth and third millenniums BC (Bone-made spectacles):***



**Figure 1.** The first photo taken from the bone-made spectacles by the researcher at the venue of Museum of Ancient Iran



Figure 2. Pinhole

**Design of single hole with a movable bridge (post. view):**



Figure 3. Pinhole



Figure 4. Pinhole spectacle with a folding bridge (Imagined design)

**Design with some pinholes in a horizontal row (post. view):**



Figure 5. Pinholes in a horizontal row (post. view)

**A horizontal split (post. view):**



Figure 6. A horizontal split (post. view)

**Several holes (post. view):**



**Figure 7.** Several holes (post. view)

**Holes of Iris size:**



**Figure 8.** Holes of Iris size (post. view)

**Formation of silver spiral hole metal spectacle (End of third Millennium BC):**



**Figure 9.** The first Iranian silver spiral hole metal spectacle (Eye glass spirals silver Tepe Ghiyan 2200 BC, Collection Herzfeld)

**Iranian multi-hole eye glass (Snow eye glass):**



**Figure 10.** Iranian multi pinhole eye glass (Snow eye glass)

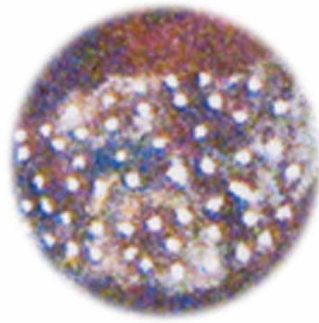


Figure 11. Multi-pinholes (post. view)



Figure 12. Pinhole eye Glasses related to the beginning of the third Millennium AD in comparison with the pinhole eye glass of Sasanid Period



Figure 13. Sasanid pinhole eye glass

**Anti-fog Goggles (Eye glasses) [Tulle]:**



Pinhole



Net

Figure 14. Net and pinhole spectacles (post. view)



Figure 15. Imagined design of anti-fog eye glass (Net)



Picture 16. Face cover [Veil] or mask

### Conclusion

The study of these eye glasses and pinholes shows that from the beginning of history, human has been trying to learn how eye functions and why it is facing optical problems. Gaining knowledge on pinhole and lens, he tried to relieve the eye problems with the help of these two important instruments. Considering the diversity of manufacturing of eye glasses and pinholes in Iran in the course of history, i.e from the 4<sup>th</sup> and 3<sup>rd</sup> millennium BC up to present time, it is possible to find many samples also helped to form the contact lens to improve vision.