

## Direct Ophthalmoscopy: A Forgotten Art

This article was published in the following Scient Open Access Journal:

Interdisciplinary Journal of Nursing and Critical Care

Received December 08, 2017; Accepted December 15, 2017; Published December 21, 2017

**Thiago Gonçalves dos Santos Martins<sup>1,2\*</sup>**  
**and Ana Luiza Fontes de Azevedo Costa<sup>1,2</sup>**

<sup>1</sup>Ophthalmologist - Federal University of Sao Paulo (UNIFESP), Brazil

<sup>2</sup>Ophthalmologist - University of de São Paulo (USP), Brazil

The history of the direct ophthalmoscopy examination begins with Prevost, the first to deduce that the glow observed in animal eyes was actually reflected light, rather than the belief that light originated from inside the eyes. This observation was crucial for scholars to understand that it was necessary to emit light through the pupil so that the inside of the eyes could be seen through reflected light. In 1851 Hermann Von Helmholtz (1821-1894), a German mathematician, physician and physicist developed the direct ophthalmoscope. The initial light source was a simple candle. The electric light source was invented in 1885 by Willian Denneto. Over time, many refinements were made for the instrument to become what we know today [1].

The basic principle of the direct ophthalmoscope consists of rays that reflect on a patient's retina and focus on the observer's eyes. The device has a light source and lenses to correct possible ametropias of the patient or the examiner. The discovery of direct ophthalmoscopy was one of the great revolutions of medicine, as it made it possible to observe the interior of the human body, its blood vessels, the optic nerve, and enabled many previously unknown diseases to be described. The sensitivity and specificity of this examination depends on the skill and technique of the examiner.

In recent studies, students and doctors (that were not ophthalmologists) were interviewed and showed little confidence in the direct ophthalmoscopy examination [2,3]. In order to improve the teaching of this important exam, we developed human eye models constructed by the students using acrylic spheres and cardboard with the help of the educator. The cost of the model is around one dollar. The act of constructing the model is an important moment in the learning process because students have the opportunity to understand in practice the physics principles of the exam. The model enables the creation of different levels of difficulties with pupils of different sizes. Training with models also makes it possible to repeat the exam as many times as it is necessary, improving knowledge retention. We believe that the investment in training medical students and general physicians with this method will improve the correct diagnosis and referral of patients with ophthalmological problems. (3) Timely referral is essential to prevent blindness, which in addition to individual effects, still generates large costs to the health system and the labor system.

### References

1. Keeler CR. The Ophthalmoscope in the Lifetime of Hermann von Helmholtz. *Arch Ophthalmol.* 2002;120(2):194-201.
2. Gupta RR, Lam WC. Medical students' self-confidence in performing direct ophthalmoscopy in clinical training. *Can J Ophthalmol.* 2006;41(2):169-174.
3. Martins TG, Costa ALF, Helene O, Martins RV, Helene AF, Schor P. Training of direct ophthalmoscopy using models. *Clin Teach.* 2017;14(6):423-426.

**Citation:** Thiago Gonçalves dos Santos Martins, Ana Luiza Fontes de Azevedo Costa (2017). *Direct Ophthalmoscopy: A Forgotten Art*

\*Corresponding author: Thiago Gonçalves dos Santos Martins, Botucatu st, 821 Vila Clementino, Sao Paulo, Brazil, Postal code: 04023-062, Tel: +552125712248, Email: [thiagogsmartins@yahoo.com.br](mailto:thiagogsmartins@yahoo.com.br)

**Copyright:** © 2017 Thiago Gonçalves dos Santos Martins, et al. This is an open-access article distributed under the terms of the Creative Commons Attribution License, which permits unrestricted use, distribution, and reproduction in any medium, provided the original author and source are credited.