Eyesi® Direct Ophthalmoscope

High-End Virtual Reality Simulator for Training of Retinal Examinations
Efficient Training of Diagnostic Skills
Virtual Reality Simulator for Direct Ophthalmoscopy

An Innovative Training System for Retinal Examinations
The Eyesi® Direct Ophthalmoscope uses virtual reality to deliver an innovative new way of teaching the diagnostic skill of direct ophthalmoscopy. Eyesi® Direct is handled exactly the same way as its real counterpart. By looking through the direct ophthalmoscope, students can examine virtual patients of varying age and ethnicity.

Compact Simulator Set-Up
The simulator consists of four main components. The ophthalmoscope handpiece with a built-in screen looks and feels like a real ophthalmoscope. The model head represents the patient. The touch screen displays the user interface with patient information and a live view of the examination, and the simulator PC runs the simulator software.

Standardized Curriculum for Medical Education
The case database of Eyesi® Direct contains a selection of clinically relevant retinal pathologies. With a didactically structured curriculum the simulator offers medical schools and students a standardized method for self-guided training.

From left to right: A selection of the retinas shown in Eyesi® Direct: hypertensive retinopathy, papilledema, AMD, central retinal artery occlusion, diabetic retinopathy, healthy retina.
Realistic Retinal Examinations
Achieving Diagnostic Proficiency in a Lifelike Environment

Teaching Direct Ophthalmoscopy is a Challenge
Direct ophthalmoscopy is an important part of every routine eye examination. Educators all over the world face the same challenges when helping students master this essential diagnostic skill: how to present pathological retinas to their students and provide a comparable experience, and how to assess student performance objectively.

Eyesi® Direct can Help Master this Challenge
The Eyesi® Direct Ophthalmoscope simulator offers students the opportunity to perform examinations independently and 24/7, regardless of the availability of patients or fellow students. Systematic exposure to important pathologies ensures the same clinical experience for every student. After the examination, the students’ performance is evaluated objectively.

Diagnostic Training for all Medical Students
With Eyesi® Direct, medical schools can offer a standardized training method to each medical student learning primary care, as well as residents in neurology, internal medicine, family medicine, and emergency medicine. Eyesi® Direct is a paradigm shift in training, providing an effective learning experience to students.

Improved Learning through a Lifelike Experience
Normally, students learn about retinal pathologies by reading or attending lectures. With Eyesi® Direct, students can go through the whole physical examination process. The retinal examination takes place in an immersive environment where patients blink, move their eyes, and react to light.

Systematic Skill Acquisition and Independent Learning
Eyesi® Direct uses a case-based approach to teach diagnostic skills. Introductory cases training basic motor skills are followed by cases where patients of varying gender, age, and ethnicity present with common pathologies. As a result, students are better prepared and feel more confident when examining their first patient.

Objective Evaluation
The simulator’s capacity to provide immediate feedback on students’ actions allows for an objective assessment and systematic improvement of skills. Evaluated parameters include, for example, the examined retina percentage, light exposure, and found pathological signs.
Out of the Box Training Curriculum

Eyesi® Direct comes with a structured curriculum developed in cooperation with ophthalmologists. The curriculum consists of four courses that contain several cases each. Students advance through the curriculum independently by completing the cases of a course. Educators can lock or unlock courses as required.

Courses A and B: Basic Ophthalmoscope Handling

The first two courses teach how to use a direct ophthalmoscope and how to document findings. In course A, students have to examine the retina systematically to find abstract objects. In course B, students have to document the shape, size, and location of objects found on a fundus scheme.

Courses C and D: Anatomy and Pathologies

The third and fourth courses feature a selection of healthy and pathological retinas, based on real patient retinas. Course C teaches anatomical features and pathological signs and provides students with medical background information on every sign found. In course D, signs have to be detected and specified correctly.

Guidance and Medical Content for Students

When a student detects a pathological sign, it is highlighted on the retina and a brief description of the sign is shown on the touch screen. The student can tap the text to view additional medical information. All detected findings are stored in the student’s personal findings library.

Eyesi® Direct Compared with other Training Methods

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VRmNet – The New Web-Based Training Portal
VRmNet is a new web-based training portal from VRmagic. Through the networking feature of VRmagic’s simulators, all user and training data can be stored on a central server and securely accessed via any PC or mobile device 24/7. Students log in into VRmNet to access an online orientation course, their training history, and medical content. Educators can use VRmNet to comfortably set up users, manage courses, and monitor their students’ training progress.

Comfortable Administration
Educators can manage their classes easily. Creating and distributing user accounts for students can be done online within a few minutes. As soon as students have received their user accounts via an automatic email, they can start training. Additionally, automatic reports and notifications on important milestones keep educators informed on their students’ progress.

Monitoring of Training Data
VRmNet makes access to training data both simple and powerful. Educators get an overview of their classes’ training history and can monitor their students’ individual progress.

Continuous Training through Data Synchronization
By networking all simulators of an institution through the VRmnet platform, training data is synchronized between devices. Students can continue their training on any connected simulator at any time.

Online Orientation and Medical Content for Students
To prepare students for their first training session, VRmNet provides an online orientation with short videos on simulator handling and courseware features for self-guided training. Students also have access to their training history and medical content from any browser.

Automatic Software Updates
The simulator software undergoes continuous enhancement. To ensure that users always benefit from the latest developments, the simulators connected to VRmNet are kept up to date with automatic software updates.

#1 Automatic User Creation
You can create user accounts with only a few clicks. All you need to do is upload a list with names.

#2 Automatic Email
An automatic email with an individual user account and a link to the VRmNet website is sent to each student.

#3 Online Orientation
Students log in to the VRmNet website and complete an online orientation to activate their user accounts for simulator access.

#4 Independent Practice
Students start training independently and receive immediate, objective feedback on their performance.

#5 Monitoring and Notifications
You can monitor your students’ training progress online. Configurable notifications and reports keep you informed on important milestones.

#6 Certificate and Assessment
Students automatically receive a certificate after completion, and can view an objective assessment of their skills.

VRmNet in a Nutshell
Teaching Large Classes Efficiently
Web-Based User Administration and Online Training History
Right: Introductory cases teach ophthalmoscope handling using abstract objects that have to be found and marked on a fundus scheme.

Left: Students can view an evaluation of each examination performed, for example the examined retinal area.

Reasons for Eyesi® Direct
The Most Sophisticated Simulator for Direct Ophthalmoscopy

1. Highly Realistic Training
The Eyesi® Direct Ophthalmoscope simulator uses virtual reality to offer a highly immersive and realistic experience. Students will learn to identify pathological findings reliably on lifelike retinas using correct ophthalmoscopy techniques – without risk to patients and independent of patient flow.

2. Unlimited Independent Practice
Diagnostic skills can only be gained through intense practice. At the same time, teaching time is an ongoing cost for medical schools. The use of high fidelity simulation allows medical students to practice independently until they feel confident using the ophthalmoscope.

3. Built-In Training Curriculum
The curriculum contains the most common retinal pathologies every medical student must be able to recognize. After learning to handle the direct ophthalmoscope, students are exposed to pathologies in different stages. This fosters a solid foundation of diagnostic skills, which is difficult to achieve when training on healthy fellow students.

4. Objective Assessment
Eyesi® Direct provides objective and immediate feedback after each virtual exam, so that students can systematically improve their skills. This way, educators can keep track of training progress and assess students’ skill levels as they advance through the curriculum.

5. Online Teaching Solution with VRmNet
The online features of VRmNet help you to keep track of your students’ skills. Manage user accounts with the web-based user administration, get students up to speed quickly using the online orientation, and have their training progress always at your fingertips via a user-friendly web interface.

Test-Drive Eyesi® Direct
Come and try out the Eyesi® Direct Ophthalmoscope live at the next conference. Visit www.vrmagic.com for an overview of the upcoming events, or contact us by email or phone.