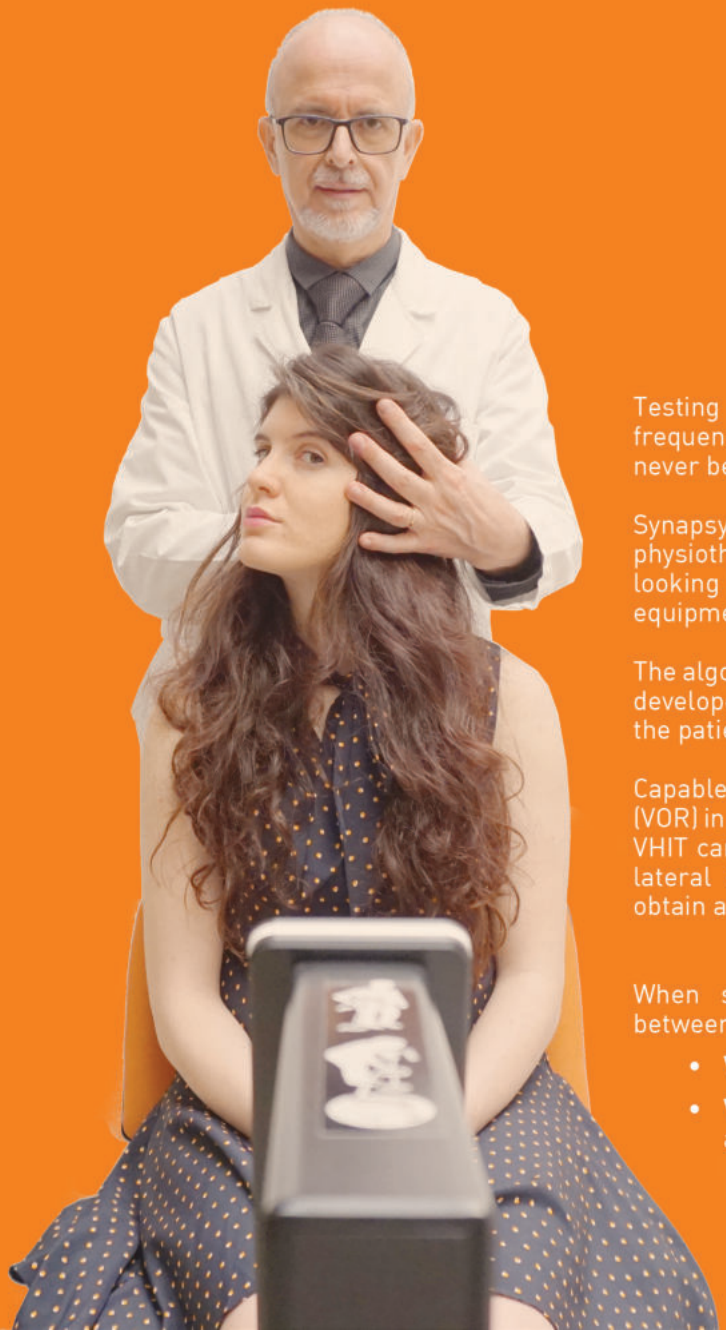
Synapsys VHIT

video head impulse test

inventis
Audiology Equipment

“Synapsys VHIT represents a unique way to perform Video Head Impulse Test (VHIT)”



Testing all the 6 semi-circular canals at high frequency, as well as overt and covert saccades, has never been so **fast** and **simple**.

Synapsys VHIT is the ideal choice for ENT doctors, physiotherapists and balance professionals who are looking for a reliable, accurate and state-of-the-art equipment.

The algorithms used by Synapsys VHIT are specifically developed to simultaneously measure the direction of the patient's gaze and the acceleration of the head.

Capable of measuring the vestibulo-ocular reflex (VOR) in response to quick head movements, Synapsys VHIT can be combined with Synapsys VNG which test lateral canals at low and medium frequencies, to obtain a complete vestibular analysis.

When selecting Synapsys VHIT you can choose between two scalable software versions:

- **VHIT Screening** for testing lateral canals only
- **VHIT Evolution** for a complete six canals analysis

.Innovative
Simple.
.Unique

Designed and developed with the help of the visionary and world-renowned otologist **Dr. Erik Ulmer**, Synapsys VHIT is a unique product in balance testing.

Thanks to a **revolutionary remote camera system**, Synapsys VHIT is the first and only video VHIT that **does not require the use of goggles** or any kind of other device to be placed on patient's head.

This results in a total prevention of mask slippage artifacts, a greater patient comfort and an absolute freedom of movement for the practitioner.

Moreover, thanks to its remote camera, Synapsys VHIT is never in direct contact with patient's skin or body, preventing any need for sanitization/disinfection, or the use of disposables.

No other system offers the opportunity to analyze position graphs (gaze vs. head) and to re-evaluate possible not accepted maneuvers thanks to a **slow-motion playback of the maneuver video**.

Synapsys VHIT is your only solution when it comes to testing **children**. Goggles attached tightly to the head are clearly not tolerated by infants. This remote camera system allows to simply perform Video Head Impulse Test in infants as young as 3 months old.

Synapsys VHIT is designed to be fast and simple to use.
Just **5 maneuvers per canal** are needed to obtain reliable results and this allows to test all the 6 semi-circular canals in less than **5 minutes**.

Thanks to the **display and sound information**, the software is able to guide the doctor and help him/her perform the maneuvers correctly.

Detecting direction of patient's head movements, the camera automatically recognizes the investigated plane (horizontal, vertical RALP or vertical LARP), thus allows the operator to perform the entire examination without ever leaving the patient.

Synapsys VHIT does **not require any calibration** procedure, thanks to the fixed focus of the camera at 90 cm. It is only necessary to position the patient at the right distance in order to obtain sharp images: an easy operation thanks to the motorized camera that allows fine and fast positioning adjustments.

INNOVATIVE JUST LIKE YOUR CLINIC

UNIQUE AS ALL YOUR PATIENTS

SYNAPSYS VHIT
Clinical evidence

Normative Values of semicircular canal Vestibulo-Ocular reflex gain in infants and children

Aim. Assess normative values of semicircular canal VOR gain in infants and children using a Video Head Impulse system with a remote camera

Results. Data show a non-linear and monotonous evolution: VOR gain increases rapidly up to the age of about 6 years old (with variation among canals), then progresses more slowly to reach adult values by the age of 16.

Conclusions. Remote video recordings and adapted protocols permit HIT in children as young as 3 months old in less than 10 min. The remote camera system allowed to determine the evolution curve of the VOR gain over time.

[Wiener-Vacher, Sylvette R., and Sidney I. Wiener. Frontiers in neurology 8 (2017): 434].

A WORD FROM THE EXPERTS

Sylvette Wiener-Vacher

"The VHIT technique has revolutionized the vestibular system assessment by allowing the analysis of VOR gains at high speeds on each of the semicircular canals.

In my pediatric practice (600 children per year), the Synapsys VHIT is an essential tool, absolutely not comparable to the others. Thanks to its remote camera, no devices are needed on the head of the child, giving you complete freedom while performing the exam. This is really important, because you can perform just 2-3 maneuvers and move on to the next plain preventing the child to get annoyed. At the end you can go back and complete the 5 required maneuvers per canal to get a complete result."

ENT doctor - Center for Evaluation of Balance Disorders in Children (EFEE), Robert Debré University Hospital, Paris, FR

Olivier Dumas

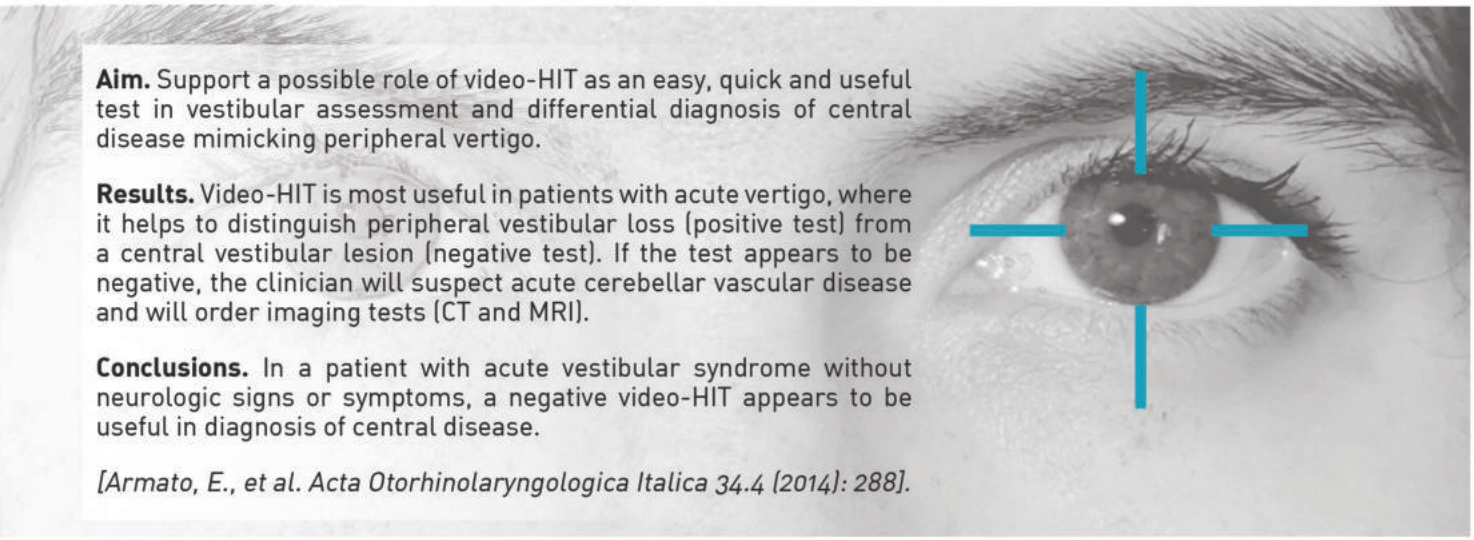
"I have been using Synapsys VHIT for 14 years now in the vestibular rehabilitation field, and this device has become essential to me. The speed and accuracy with which examinations are carried out are surprising, and the fact that there is no need for calibration is a considerable time saving.

The use of a remote camera greatly simplifies the exam practice learning, as I observe it daily during my teaching activities.

Moreover, the Synapsys VHIT allows to perform a precise analysis of early saccadic function, making this device an important rehabilitation tool."

Vestibular Physiotherapist, Lyon, France - Professor in vestibular assessment, Lyon Sud University Hospital, Lyon, FR

Cerebellar haemorrhage mimicking acute peripheral vestibulopathy: the role of the video head impulse test in differential diagnosis



Aim. Support a possible role of video-HIT as an easy, quick and useful test in vestibular assessment and differential diagnosis of central disease mimicking peripheral vertigo.

Results. Video-HIT is most useful in patients with acute vertigo, where it helps to distinguish peripheral vestibular loss (positive test) from a central vestibular lesion (negative test). If the test appears to be negative, the clinician will suspect acute cerebellar vascular disease and will order imaging tests (CT and MRI).

Conclusions. In a patient with acute vestibular syndrome without neurologic signs or symptoms, a negative video-HIT appears to be useful in diagnosis of central disease.

[Armato, E., et al. Acta Otorhinolaryngologica Italica 34.4 (2014): 288].

Enrico Armato

My practice as a VHIT user with remote camera has been going on for several years now, during which I have successfully tested more than a thousand patients.

From the very beginning I have appreciated the ease and speed with which the tests can be performed, the clarity of the results and the several printing options.

My experience is highly positive and has made the Synapsys VHIT an indispensable tool in approaching patients with balance disorders. I consider this device of great interest for all those who want to enter the fascinating field of instrumental vestibular diagnostics.

ENT doctor at ULSS 3 Serenissima Regione Veneto, Venice, IT

Laurent Tardivet

Synapsys VHIT has transformed my daily practice. I integrated it into my initial assessment together with videonystagmoscopy.

It provides in a few minutes all the results necessary to evaluate a nystagmus, to diagnose with precision and reliability a canal deficit and thus to exclude a central pathology.

I particularly appreciate the absence of equipment in contact with my patients, which allows to prevent slippage artifacts and risks of damages, and the possibility of analyzing the slow-motion playback video of each acquisition in a second moment.

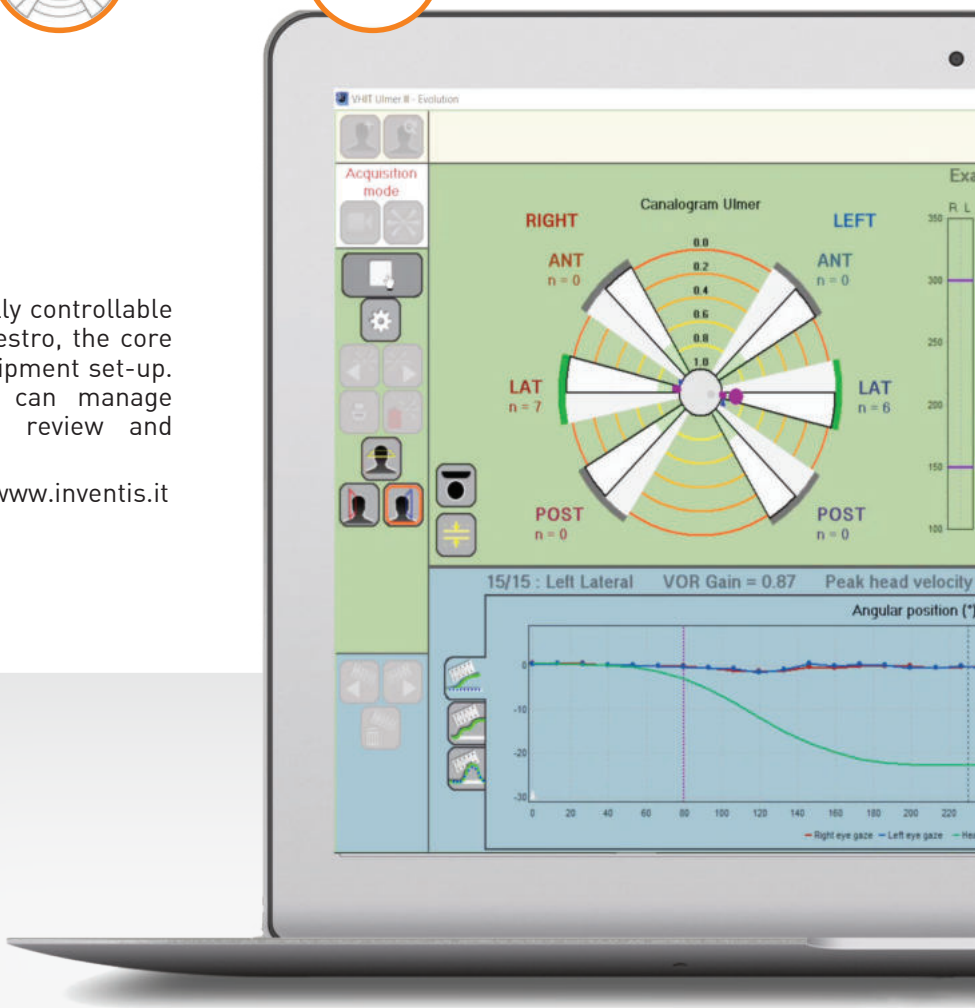
ENT doctor - Pasteur University Hospital, Nice, FR

Key benefits

- It takes **only 5 minutes** to complete a full test!
- **No goggles!** Synapsys VHIT makes use of a remote camera placed in front of the patient.
- **Test children** of all ages!
- **Test independently** all six semi-circular canals
- **Save money** on disposables, Synapsys VHIT doesn't have any!
- Observe **simultaneously** eye and head movements
- Automatic detection of canal under test
- Scalable software accordingly to your needs

Synapsys VHIT is fully controllable by the software Maestro, the core of your Inventis equipment set-up. With Maestro you can manage patient data, run, review and combine exams.

Check out more on www.inventis.it



Synapsys VHIT

Camera	Remote infrared camera
Sampling rate	Up to 100 Hz
Settings	Motorized adjustment: image sharpness, horizontal & vertical alignment of the camera
Available exams	Lateral canals Anterior and posterior canals (only VHIT Evolution)
Available results	Head and eyes movements (position, velocity), Canalogram Ulmer, Results Table, VOR gain value, Saccades description, Video recording (playback of each maneuver)
Adjustments	Inter-pupillary distance, pupil size, acceleration threshold
Protocol examination guide	Visual indicators, synthetic voice message
Detection of movements	Automatic (manual correction available)
Detection & analysis	High-frequency VOR, overt/covert saccades
Graphs	Right / Left gaze, Head movements, Position, Velocity, Gain
Software interface	Maestro (included)
Connection to PC	USB
Definition	752 x 480
Camera chip type	CCD 1/3 "
Weight	6 kg (without cables)

Check the video on YouTube

SYNAPSYS
an inventis company

inventis
Audiology Equipment

SYNAPSYS s.a.s.
2 RUE MARC DONADILLE
13013 MARSEILLE – FRANCE
PHONE: 04 91 11 75 75
FAX: 04 91 11 75 55
synapsys@synapsys.fr
www.synapsys.fr

Follow us on Linkedin
https://www.linkedin.com/company
/synapsysvestibularequiment/

INVENTIS s.r.l.
CORSO STATI UNITI, 1/3
35127 PADOVA – ITALY
PHONE: +39.049.8962 844
FAX: +39.049.8966 343
info@inventis.it
www.inventis.it

Follow us on Linkedin
https://it.linkedin.com/company/inventis-srl