

# Balance Pediatric Evaluations and video Head Impulse Test (v-HIT): Use and Applications



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## Abstract

**Background:** The video Head Impulse Test (v-HIT) is the first vestibular test that allows to evaluate all six semicircular canals. Its invention has proven to be quite beneficial in the past as it relates to children since it reduces some fears they might experience. The goal of this article is to discuss the current literature available on the use and application of v-HIT as it relates to pediatric vestibular/balance assessments.

**Discussion:** The use of v-HIT as a way to assess vestibular and balance function for children has been proven to be accurate and a good, quick method to diagnose deficiency of the affected semicircular canals. Furthermore, it is quick and comfortable for the child which can ease the testing process and establish trust with the patient and family.

**Conclusion:** v-HIT is an effective test for evaluating the semicircular canal function in children as it offers major advantages in comparison to caloric testing and rotary chair. However, there is still need for further research in order to understand its application as a possible treatment tool and verification of intervention in the pediatric population.

**Keywords:** Balance; Children; Clinical Use; Diagnosis; Dizziness; Evaluation; V-Hit; Vestibular Assessment

## Introduction

Video Head Impulse testing (v-HIT) is the first vestibular test that allows clinicians to evaluate the function of all six semicircular canals. It has been noted that this test has advantages in comparison to rotary chair and caloric testing when evaluating the vestibular function in children Hamilton [1], Felipe [2]. The v-HIT is the latest method that allow us to assess the vestibular ocular reflex (VOR), which is a key component when assessing vestibular function. Ross & Collaborators [3] discuss that in comparison to other testing v-HIT is able to track the VOR reflex gain fast and accurately in high frequency head movements. In a sense, v-HIT provides with the analysis of more “real life” scenario analysis of head movements which is vital especially when dealing with children. Another advantage to using v-HIT as a method of testing children is the ability for the testing to be quick and less intimidating an uncomfortable for a child which can provide comfort and establish trust with the patient and the family Felipe [2]. The purpose of this study is to highlight the clinical use of v-HIT when assessing vestibular and balance function in pediatric population and discussing its application and outcomes as known thus far.

## Discussion

While v-HIT is still considered very new to many clinicians, it is important to note that it relieves of use and its ability to assess VOR at a more real time frequency; furthermore, it is also able to

asses all six semicircular canals Hülse [4], Felipe [2]. In the case of using it for testing children, it has been noted that this method is way more tolerable and easier to conduct when in comparison to what is considered the “gold-standard” for adults: the caloric test and rotary chair. However, as Hamilton states [1] testing children is very different than when testing adults and there are factors such as comfort, attention span and tolerance that we as clinicians must consider. In the case of current studies such as Alizadeh and group [5], it has been found that due to the ease of performance, shorter time to conduct and the tolerance of the testing in children v-HIT can be potentially the future gold standard when assessing a child’s balance and vestibular system. Other studies such as Hamilton [1], Ross [3] have also proven that v-HIT is an easy and accurate method for the tiny humans. In the pediatric field it is important to have tools and methods than can assistance to get true accurate results for an accurate diagnosis of a child. On that way, it will would not only be assessing but also facilitating with the treatment of a child’s hearing and balance system.

It is vital to have good reliable equipment that would help establish trust for the patient and the family. In the case of children, as Hamilton [1] states, it is also important to note that not only are we trying to get accurate responses but also, it is important to be able to counsel the family who might be dealing with stress due to them not being aware or able to understand what their child is

going through. By default, a child especially the toddlers, are not the best reporters and therefore it is even more crucial and urgent in order to accurately diagnose a child and provide good quality care Hülse [4]. Finally, it is also important to note that the majority of the studies available exploring v-HIT outcomes and results are conducted in very small sample sizes. In order to further understand clinical use and implications of v-HIT in children there is a need for further research with bigger sample sizes. However, it must note that most of the research available despite the small sample size provides good information and positive feedback regarding the application and accuracy of v-HIT in the pediatric population.

## Conclusion

It can be concluded based on the different studies available that there is no significant difference between the use of VOR, caloric test and the use of v-HIT when evaluating children. Furthermore, many authors and practicing clinicians agree that there are clear advantages to the use and application of v-HIT with the

pediatric population in comparison to other tests available. The v-HIT can provide a more comfortable experience to a child and consequently the parents. Furthermore, this test can also ease the performance by providing shorter time and it being less frightening and uncomfortable for the child.

## References

1. Hamilton SS, Zhou G, Brodsky JR (2015) Video Head Impulse Testing (VHIT) in the Pediatric Population. *International Journal of Pediatric Otorhinolaryngology* 79(8): 1283-1287.
2. Felipe L (2016) Video Head Impulse Test (v HIT): Main Concepts. *J Otolaryngol ENT Res* 4(5): 00112.
3. Ross LM, Helminski JO (2016) Test-Retest and Interrater Reliability of the Video Head Impulse Test in the Pediatric Population. *Otology & Neurotology* 37(5): 558-563.
4. Hülse R, Hörmann K, Servais JJ, Hülse M, Wenzel A (2015) Clinical Experience with Video Head Impulse Test in Children. *International Journal of Pediatric Otorhinolaryngology* 79(8): 1288-1293.
5. Alizadeh S, Rahbar N, Ahadi M, Sameni SJ (2017) Normative Vestibulo-Ocular Reflex Data in 6-12-Year-Old Children Using Video Head-Impulse Test. *Auditory and Vestibular Research* 26(3): 145-150.



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