# The video head impulse test


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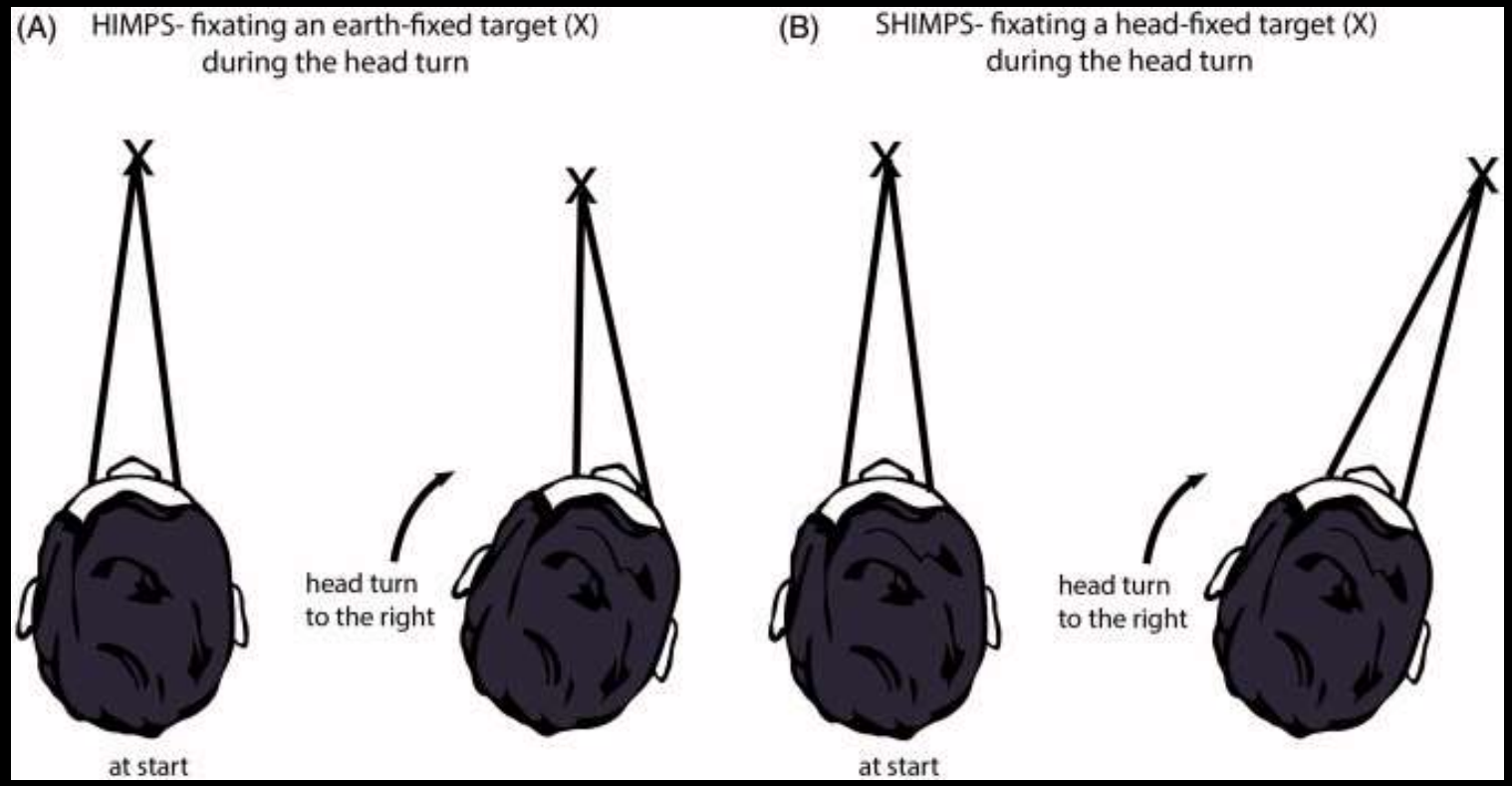
- Detects covert and overt saccades
- Still evolving
- Operator dependant; velocities of thrusts between 150-350 degrees/sec
- Cannot measure velocities in excess of 350 degrees/sec
- Sensitivity and specificity from 60% to 100% (Bartolomew 2014)
- Detects mild - severe vestibular loss
- Type 1 cell mediated fast response independent of central noise

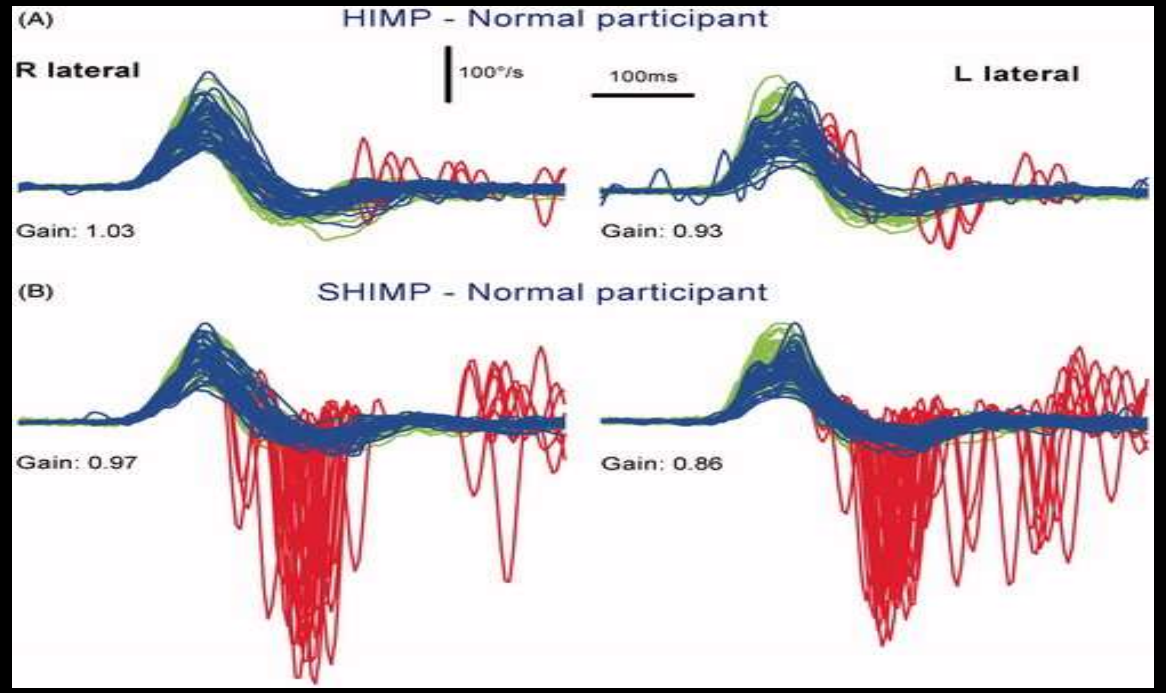
## Variations in video head impulse test

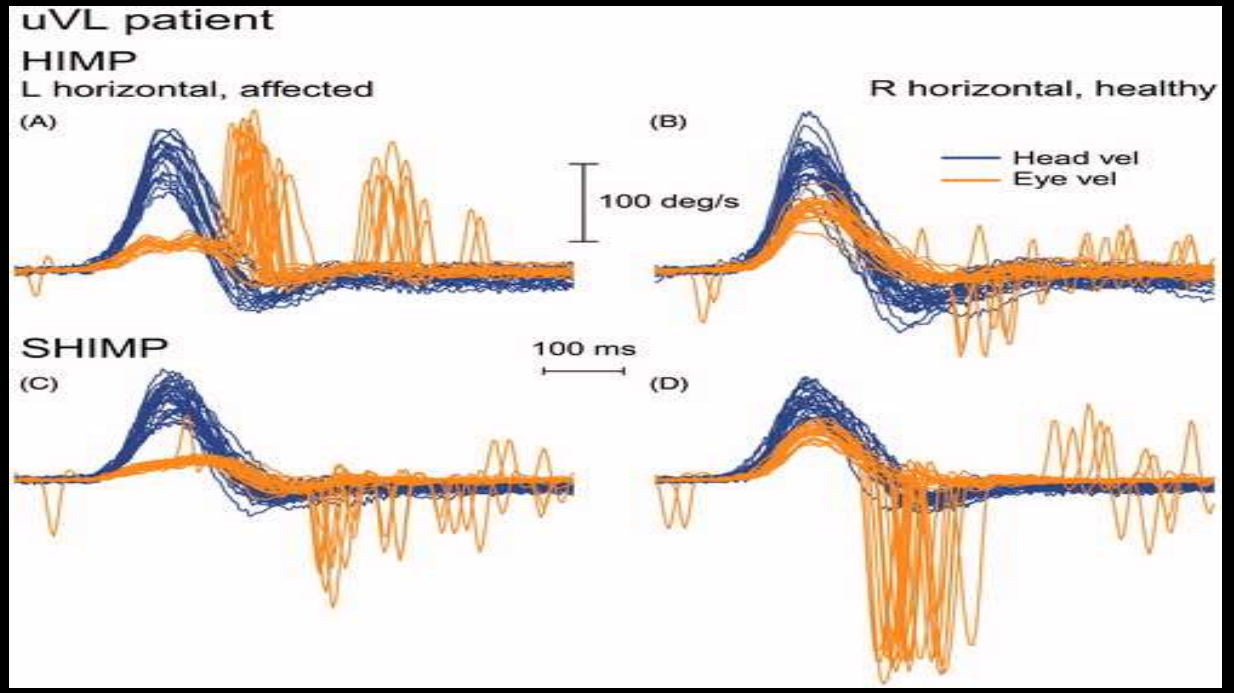
- Normal VOR gain with saccades indicate compensation
- Low VOR gain without saccades could be artefactual or found in central lesions and migraine
- Anterior canal sparing weakness found in ototoxicity and head injuries
- Saccade clustering indicates compensation
- In significant weaknesses there may be diminished VOR gain on the intact side
- Oculomotor palsies might contaminate traces

# The suppression video head impulse test SHIMP (McDougal 2016)



- Head fixed target
- Normal subjects make anti compensatory saccades
- Postulated to Indicate residual vestibular function
- Vestibular hypofunction reduces the velocity of anticompensatory saccades
- Easier to follow instructions
- More operator dependant than the original video head impulse test
- Based on the physiological process of suppression of the VOR
- Coverts not possible as 80ms is needed for suppression in high velocities


(A)
HIMP - Normal participant
R lateral
100°/s
100ms
L lateral
Gain: 1.03
Gain: 0.93
(B)
SHIMP - Normal participant
Gain: 0.97
Gain: 0.86


uVL patient
HIMP
L horizontal, affected
R horizontal, healthy
(A)
(B)
100 deg/s
Head vel
Eye vel
SHIMP
100 ms
(C)
(D)

## My reservations

- Both the SHIMP and the VOR cancellation test are based on the physiology of VOR suppression
- VOR suppression is integrated by the cerebellum and is not s fast as the VOR in head impulse which implies that there is ample time for the centre to modify the response
- The suppression is thus influenced by cognition and cerebral adjustment and in some instances is a voluntary reflex
- This suggests that the SHIMP is not a pure peripheral response and consequently does not indicate an unadulterated vestibular response and thus likely to contaminate any vestibular response during the thrust
- An important clinical correlate is one needs an intact central function which limits its use

- Is it really necessary to know about residual vestibular function? How does it help in management?
- The video head impulse test yields valuable information about compensation which is a central phenomenon; the SHIMP is based on a central mechanism and thus inadequate suppression indicates a lack of compensation or a central compromise which will be impossible to tease out
- Is the VOR gain in the SHIMP is actually the VOR gain of the head impulse and if so then, yields no extra information
- Checks only the horizontal canal and thus very limited information, what is the purpose?

In my opinion, the SHIMP does not add any clinically useful extra information; however it may evolve in the future