THE DIAGNOSIS OF NEUROLOGICAL CONDITIONS USING ELECTROVESTIBULOGRAPHY (EVESTG)

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Introduction: Dizziness is a defining condition of many pathologies within DSM4. There are many emotional and behavioural impacts on the balance system. EVestG is a purported test of the balance system that has been applied to the detection of schizophrenia. However, there is a need to show whether the EVestG recordings indeed contain vestibular signals.
Objective: To investigate a clear vestibular response in EVestG recordings by analysing the signals in response to whole body passive tilts.
Methods: EVestG signals were recorded in the ear canals of 5 healthy controls (50-69yrs) and 3 unmedicated Schizophrenics (29-53yrs) in response to whole body tilts. The signals were bandpass filtered (700-4000Hz) to remove muscle interference. The Root Mean Square (RMS) of the filtered signals was measured across 0.5 sec running windows (one sample at a time) and compared between the background and tilting responses.
Results: A typical example of the RMS signal for control subjects is shown in Fig 1. During the movement phase t=20-23 and 40-43 sec wherein the vestibular is active the RMS signal showed a marked increase for all signals of all subjects. The typical Schizophrenic response had the peaks seen at t=20-23 skewed to the left.
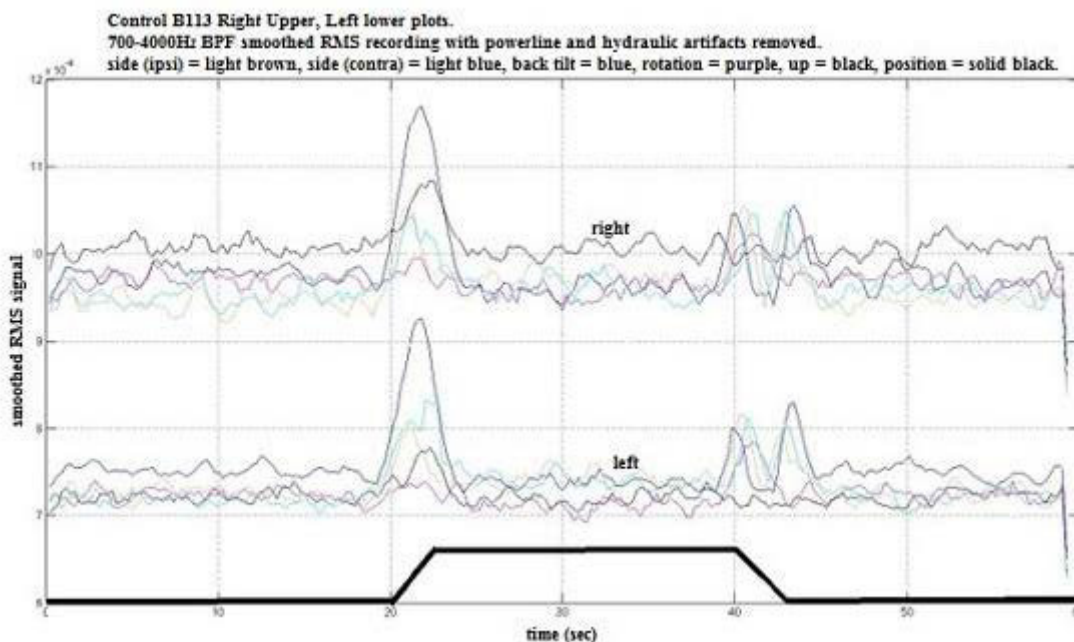
[figure 1]

Conclusions: EVestG signals do show a vestibular component. When validated with larger sample size may be assistive in neurological disorder diagnosis.