

## **Comparison of Inter Hemispheric Transfer Time (IHTT) Among Left-Handed and Right-Handed Subjects Using Visually Evoked Potentials**

### **ABSTRACT**

**Background:** Handedness is a peculiar characteristic of human beings and some higher primates and refers to the side that is preferentially used for complex and intricate activities. Inter hemispheric transfer time (IHTT) is the speed with which information is transferred between the two hemispheres. Previous research has shown that left-handers display an increased level of inter-hemispheric interaction. Visually Evoked Potential (VEP) has been used in this study to analyse the IHTT in left and right handers. **Aims and objectives:** To Compare the IHTT among left-handers and right-handers groups and to find if there exists any directional asymmetry. **Methodology:** After outliers and anomalous results were removed, the total sample size was 106, out of which 52 were left-handers (mean age  $24 \pm 7.6$ , 34 males and 18 females) and 54 were right-handers (mean age  $21 \pm 4.9$  years, 30 males and 24 females). The visual acuity of all subjects was normal or appropriately corrected. After obtaining informed consent assessment of handedness and recording of hemi-field VEP was done. IHTT was then calculated from the data obtained. **Result:** In the present study, left-handers showed faster inter-hemispheric transfer ( $M=8.16\text{ms}$ ) when compared to right handers ( $M=9.39\text{ms}$ ). Directional asymmetry was present in both left-handers and right-handers, with right-to-left transfer being faster than left-to-right. This asymmetry was significant in right-handers ( $p<0.05$ ) while it failed to approach significance in left handers. There was no significant correlation between IHTT and degree of handedness. Crossed conditions displayed a longer latency than uncrossed conditions in both left- and right-handers ( $p<0.05$ ). **Conclusion:** The influence of handedness, stimulated field and site of electrode placement on the peak latencies of evoked potentials was studied. In conclusion, the current findings demonstrate a substantial impact of handedness on neural mechanisms involved in transmitting visual inputs across the hemispheres.

**Keywords:** Handedness, Cerebral Dominance, Inter-hemispheric Transfer, Corpus Callosum,