

# Is There a Mathematical Correlation Between the Posterior Dominant Rhythm and Heart Rate?

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Multiple medical studies have been completed regarding the speculation of if the relationship between vascular flow and the brain have a direct association with the brain's neurologic activity. The researcher created an equation proving that speculated connection. The purpose of this medical study is, to figure out an enhanced method to authenticate diagnoses delivered by neurologists regarding patients electroencephalogram reading completed on the occipital region of the brain; using their posterior dominant rhythm and heart rate. The researcher hypothesized that the plurality of the patient cases would fall within the equation of  $PDR=(HR)/10\pm1$ , and that the cases that did fall within the equation would display an elevated percentage of normal diagnoses. The materials needed for this study include; an EEG acquisition machine, a computer, a printer and writing utensils. In order to conduct this study the researcher had to, collect and analyze 124 patients using the diagnoses, posterior dominant rhythm and heart rate. After that the researcher correlated her findings to the mathematical equation  $PDR=(HR)/10\pm1$ . The results from this study depicted that the majority of the patient cases did not fall within the equations  $PDR=(HR)/10\pm1$  and  $PDR=(HR)/10\pm2$ ; however of the cases that did fall within the equations, over 80% depicted normal diagnoses. Therefore, the researcher concluded that the equations  $PDR=(HR)/10\pm1$  and  $PDR=(HR)/1\pm2$  are suitable for use when diagnosing patients who have had an electroencephalogram conducted.

**Awards Won:**