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*Good Vibrations?*

The purpose of this investigation was to determine how temperature change affects the intonation of a classical guitar. I hypothesized that if temperature is decreased, the pitch will go flat, and if temperature increased, the pitch will go sharp. The experiment involved placing the guitar in the base environment, tuning it, and recording the temperature. Then the guitar was placed in the new environment and the temperature was recorded. After three minutes, the tuning was checked and the results recorded. The guitar was returned to the base environment, and the procedure was repeated two more times. This procedure was followed on 12 separate occasions with as much temperature variation as possible between the data sets. Tuning variation was measured in cents (1/100th of a half step), and temperature change was measured in degrees Celsius. The data collected supported the hypothesis. In data sets 1 – 10, the temperature decreased and the pitch became flat. Data set 11 was measured with no temperature change. In data set 12, the temperature was increased from the base environment, and the pitch became sharp. These findings led me to the following conclusion: if temperature is increased, the pitch will become sharp, and if the temperature is decreased, the pitch will become flat. Based on the data, the relationship is approximately linear.