Unmasking the Truth: Factors Impacting the Monitoring of Temporal Temperatures

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In December 2019, a novel strain of coronavirus, (SARS-CoV-2) emerged, resulting in a global pandemic. Temperature monitoring is often conducted before entry into school/work to check for fever, a common symptom of this virus, potentially identifying individuals positive for the virus. The purpose of this experiment was to determine if wearing a mask increases a facial temperature, potentially resulting in an inaccurate temperature being recorded. Additionally, the researcher hoped to determine a more efficient way to collect temperatures of students when the weather could prohibit an accurate temperature from being taken. It was hypothesized that wearing a face mask would increase the temporal temperature reading. Additionally, the researcher wanted to determine which temperature-taking device was most accurate and effective in monitoring temperatures. Temperatures during each part of the experiment were collected from participants using three different temperature monitoring devices: an infrared camera, a touchless thermometer, and a temporal artery roller thermometer. A baseline temperature was recorded for each participant. Participants then walked a designated path outside wearing a provided face mask. When returning from the walk, temporal temperatures were recorded. Finally, all participants returned to the designated classroom and after five minutes, a final baseline temperature was recorded. The experiment was repeated, without participants wearing masks when walking outside. Hypothesis one was rejected as temporal temperatures decreased more when wearing a mask outside (-4.8°C) as compared to not wearing a mask outside (-4.0°C) when compared to the initial baseline temperatures for all three devices.