Turn that frown upside down and to the left: Memory for faces is affected by their gravitational orientation

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Abstract: Recent research suggests the way our body is situated influences how we perceive our environment (Lopez et al., 2009), but it remains unclear whether our body's position influences how we process faces when retinal cues are kept constant (Troje, 2003; Lobmaier & Mast, 2007). In this study, participants completed an old/new face memory task in three different body positions (sitting upright, lying right, and lying left) and four different image orientations (upright, inverted, 90 degrees clockwise, and 90 degrees counterclockwise), allowing us to isolate the effects of retinal versus gravitational face orientation on recognition memory. We found a main effect of retinal face orientation, with higher d' to faces oriented upright versus inverted with respect to participants' retinas. Keeping retinal orientation constant, we also found an effect of gravitational orientation, with higher d' to faces orientated upright with respect to gravity, indicating a role of gravitational orientation in face processing.