

# Saliency of emotional displays of danger and contagion in faces is enhanced when progesterone is raised<sup>1</sup>

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**Background:** Previous studies suggest raised progesterone is associated with increased avoidance of sources of contagion (e.g. increased aversion to facial cues of illness<sup>2</sup>). Here we tested if women are more sensitive to facial cues to nearby contagion (i.e. disgusted expressions with averted gaze) and nearby physical threat (i.e. fearful expressions with averted gaze) when progesterone level is raised.

**Stimuli:** We made composites with happy, fearful and disgusted expressions with direct and averted gaze.



Happy Direct



Happy Averted



Fearful Direct



Fearful Averted



Disgusted Direct



Disgusted Averted

**Procedure:** Women (N=52; age: M=19.30, SD=1.63 years) were tested 4 times at weekly intervals. On each occasion they provided a saliva sample and viewed pairs of composite faces matched in identity, sex and expression. They were asked which face looked most happy, fearful or disgusted and rated the magnitude of this perceived difference.

**Results:** Responses from each woman's highest and lowest progesterone test sessions were compared using a repeated measures ANOVA [within-subjects factors: progesterone level (high, low), sex of face (male, female), and expression (fear, disgust, happy)]. There was a significant interaction between expression and progesterone level ( $F=3.14$ ,  $p=.048$ ). Paired-samples t-tests showed a significant effect of progesterone level on perceptions of fearful faces ( $t=2.175$ ,  $p=.034$ ) and that the effect of progesterone level on perceptions of disgusted faces approached significance ( $t=1.895$ ,  $p=.064$ ). There was no significant effect of progesterone level on perceptions of happy faces ( $t=1.09$ ,  $p=.278$ ).

**Conclusions:** Women demonstrated a greater tendency to perceive fearful and disgusted facial expressions with averted gaze as more intense than those with direct gaze when their progesterone level was relatively high. By contrast, progesterone level did not have a significant effect on perceptions of happy faces. Collectively our findings suggest women are more sensitive to facial cues signalling nearby contagion and physical threat when raised progesterone prepares the body for pregnancy.

**References:** [1] Conway et al. (2007) *Horm Behav*, 51, 202-6. [2] Jones et al. (2005) *Proc Roy Soc Lond B*, 272, 347-54.

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