

Women's voices remain steady throughout the month

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In recent years several studies have suggested that women's voices change at different times over the menstrual cycle, with the tone rising as ovulation approaches. Now a study conducted by researchers at the West Texas A&M University in which women's voices were subjected to computerized acoustical analysis contradicts those findings. After assessing 175 samples provided by 35 study participants at various points throughout the menstrual cycles, the researchers say that changes in hormonal status have no significant impact on eight distinct voice parameters.

Neal S. Latman, PhD, associate professor of biology, will discuss the team's research in a poster session titled "Acoustic measures of female [voice](#) during the menstrual cycle" at Experimental Biology 2011 meeting (EB 2011), being held April 9-13, 2011 at the Walter E. Washington Convention Center in Washington, DC.

Steady As She Goes

In the month leading up to the study, the women kept diaries to track their menstrual cycles. The women then recorded voice samples at four points over their next two cycles: the menstrual phase, when estrogen and progesterone are low; the follicular phase, when estrogen rises but progesterone remains low; the ovulatory phase, when estrogen is high and progesterone is low; and the luteal phase, when both estrogen and progesterone are high.

The women recorded the same question for each sample, "Yesterday did the kindergarten children watch television after breakfast?" The wording may seem strange, but it was chosen with care, says Larry Barnes, SLP.D, CC-SLP, head of the department of communications disorders and fellow researcher in the study. "It's voice rich and provides a variety of characteristics," he says, noting that voice analysis software would only recognize samples of "connected speech" such as full sentences.

At study's end, the researchers ran the voice samples through acoustical analysis software to measure eight voice parameters, such as degree of voice breaks, number of voice breaks, fundamental frequency and shimmer (which describes varying degrees of loudness). Computer analysis revealed no statistically significant differences in the voice parameters between the different hormonal phases of the [menstrual cycle](#) for each woman. There were also no statistically significant differences in voice characteristics for each woman from cycle to cycle, or between women who were using hormonal contraceptives and those who were not.

These findings contradict those of earlier studies that have drawn media attention. According to Dr. Latman, the current study stands out because the computer analysis provided in-depth, quantitative data. "Previous studies were subjective [in their assessments] or measured only 3 or 4 parameters," he says. "Or they analyzed single vowel tones, but people don't speak in single vowels. They speak in sentences."

Dr. Latman notes that the eight parameters his team analyzed are not the only ones that can be measured, and that the study is a foundation for further research. "Basically, we eliminated eight parameters so other researchers can study the others."

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