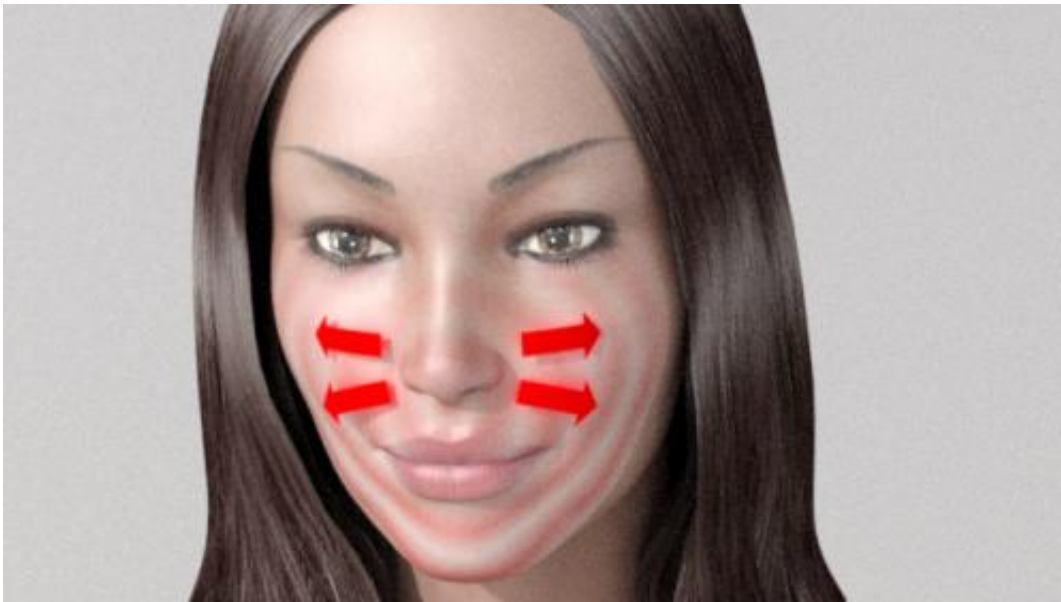


Pulsatile blood flow unmasks new migraine features

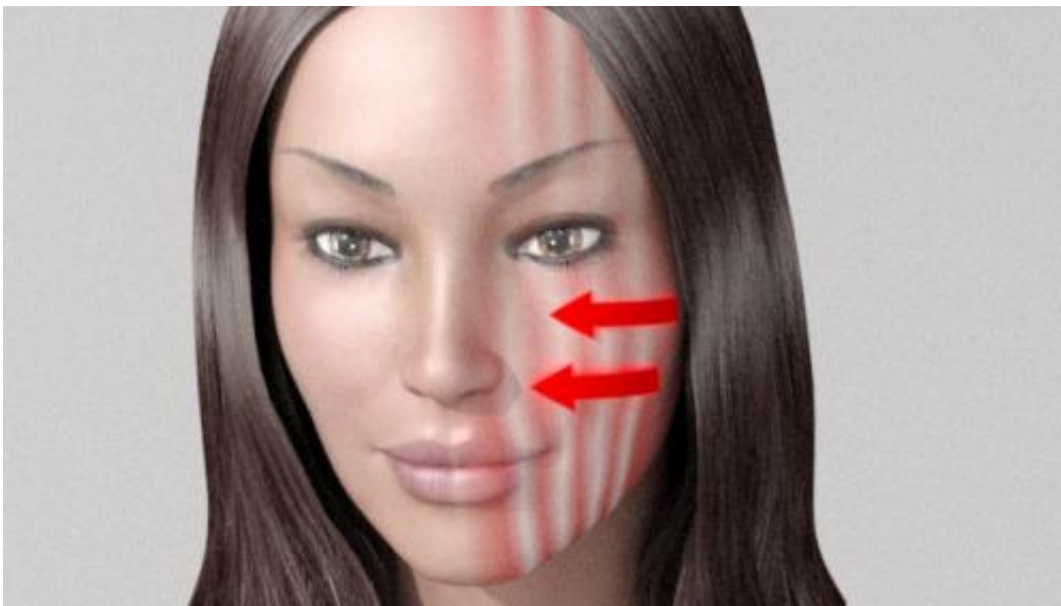
December 5 2013



This is a healthy person. Credit: UEF

With every heartbeat, the blood is sent to all our peripheral tissues, generating changes in pulsatile perfusion. Using these pulsatile changes as a source of information, researchers at the University of Eastern Finland have developed a new method of 2D mapping of microcirculation, called BPI (Blood Pulsation Imaging). The aim is to use the pulsatile vascular changes detected with BPI for diagnostic purposes.

The research consortium comprising physicists, physiologists and neurobiologists was coordinated by Professor Rashid Giniatullin at A. I. Virtanen Institute. In two recent articles published in *PLOS ONE* they described new vascular phenomena detected with the BPI technique. One of these studies found that there are so-called 'hot spots' with high amplitude of pulsatile changes which reflect high variability of microcirculation detected by this technique (Kamshilin et al., 2013).



This is a person suffering from a migraine. Credit: UEF

The other study showed that there are transverse [blood](#) pulsation waves in the faces of migraine patients, whereas in healthy people such waves are symmetrical as shown in the figure below (Zaproudina et al., 2013). The latter finding was received with excitement by specialists, as was evidenced from the feedback of the recent lecture of R. Giniatullin at Scandinavian Pain Conference in Helsinki.

More information: Kamshilin AA, Teplov V, Nippolainen E,

Miridonov S, Giniatullin R. (2013) Variability of microcirculation detected by blood pulsation imaging. *PLOS ONE*. 2013;8(2):e57117.
[DOI: 10.1371/journal.pone.0057117](https://doi.org/10.1371/journal.pone.0057117)

Zaproudina N, Teplov V, Nippolainen E, Lipponen J, Kamshilin A, Närhi M, Karjalainen P and Giniatullin R. (2013) Asynchronicity of Facial Blood Perfusion in Migraine. *PLOS ONE*, 2013:8(12):e80189.
[DOI: 10.1371/journal.pone.0080189](https://doi.org/10.1371/journal.pone.0080189)

Shatillo A, Koroleva K, Giniatullina R, Naumenko N, Slastnikova AA, Aliev RR, Bart G, Atalay M, Gu C, Khazipov R, Davletov B, Grohn O, Giniatullin R. (2013) Cortical spreading depression induces oxidative stress in the trigeminal nociceptive system. *Neuroscience*, 253C:341-349.
[DOI: 10.1016/j.neuroscience.2013.09.002](https://doi.org/10.1016/j.neuroscience.2013.09.002)

Provided by University of Eastern Finland

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