

The actors voice: Laughing, Crying and Shouting in the MRI

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Laughing is catching for other humans and promotes a feeling of togetherness within the group. There is a branch of science which deals with gelotology – laughing – from Greek "gélōs" laugh. The act of laughing is accompanied by a forceful exhalation and repeated exhaling thrusts. The individual audible sound pattern when laughing is quite variable and is influenced by processes in the vocal tract, for example the placing of the tongue and the length and form of the resonance cavity. A distinction is made between various laughing types – rhythmic laughing, soft laughing, commentary laughing, and shouting laughing. Each type itself has various characteristics.

Just as laughing, crying is a central form of expression among human beings. The German word for crying "Weinen" derives from the Germanic root "wai" – related to "whine" or "woe", and refers to the smooth transition which can take place between sighing and crying. Crying usually expresses the emotions of sadness, angst or melancholy, but one can also cry for joy or anger. There are many different forms of crying, for example childlike crying, suppressed crying, or dramatic crying.

Another important vocal expression for actors on stage is shouting. When shouting, all three structural elements of the voice organ distinctly intensify their activities.

Nowadays, with the help of modern investigative techniques from high-tech medicine – including dynamic magnetic resonance tomography which can be performed with 24 frames per second (Burdemy at al. 2015) –, it is possible to observe most of the structures of the "voice instrument" inside the body which are involved in sound production. With the methods applied we are able to observe detailed movements of the respiratory system, the larynx and the vocal tract while an actor is performing Laughing, Crying and Shouting.

In a bunch of movies we are able to show the different configurations of the tongue and cavities in the vocal tract – and the voice box as well – during various types of laughing, crying and shouting.

During the presentation those film-clips will be discussed with the audience.

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