Smell and taste of chewing gum affect frequency domain EEG source localizations.

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We investigated brain electric field signatures of subjective feelings after chewing regular gum or gum base without flavor. 19-channel eyes-closed EEG from 20 healthy males before and after 5 minutes of chewing the two gum types in random sequence was source modeled in the frequency domain using the FFT-Dipole-Approximation. 3-dimensional brain locations and strengths (Global Field Power, GFP) of the equivalent sources of five frequency bands were computed as changes from pre-chewing baseline. Gum types differed (ANOVA) in pre-post changes of source locations for the alpha-2 band (to anterior and right after regular gum, opposite after gum base) and beta-2 band (to anterior and inferior after regular gum, opposite after gum base), and of GFP for delta-theta, alpha-2 and beta-1 (regular gum: increase. gum base: decrease).

Subjective feeling changed to more positive values after regular gum than gum base (ANOVA).--Thus, chewing gum with and without taste-smell activates different brain neuronal populations.

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