

## Workshop Pecov 12, Gent

### Yodelling - acoustic and physiologic properties

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Yodelling is sustained phonation with nonsensical combinations of vowels and consonants. It is characterized by drastic timbral changes, caused by (a) abrupt changes of laryngeal mechanism (chest vs. falsetto registers); and (b) typical choice of vowels. It is a special kind of vocal performance in traditional music which consists of rapid and repeated changes in pitch. It is assumed that these pitch changes are accompanied by register changes.

The register transitions coincide with relatively large intervallic leaps. The goal of this study was to better understand physiologic and acoustic properties of yodelling.

In particular, the relationship between voice source characteristics and the vocal tract was investigated. Two yodellers (one female, one male), originating from the Austrian regions of Salzburg and Styria, were examined by means of flexible video-endoscopy, electroglottography and recording of acoustic data. Preliminary results suggest that formant tuning plays an important role in yodelling.

It is hypothesized that yodellers intuitively choose certain combinations of fundamental frequency and vowel, in order to facilitate the abrupt changes of laryngeal mechanism that are typical for yodelling.

The work of Matthias Echternach shows that yodelling is associated with changes of the acoustic signal and the electroglottographic contact quotient which probably reflects register shifts and the yodellers perform pitch transitions in yodelling faster than professional singers and untrained voices.

The Authors will perform, present and teach some yodelling examples for the auditorium.

Questiones:

**Which vowel is used by the yodeller, when he use the low pitch?**

1. He use the vowel /u/
2. He use the vowel /a /
3. there is a clear vocal tract shape modification
4. and reduces the lip opening

Answer: 2+3 are right

**What is a leap interval?**

1. a interval of 3 semitones
2. It is a break which occur between D4 (294 Hz) and F4 (349 Hz) in sopranos

3. It occurs only in an living yodler
4. It is a biomechanic property of the vocal fold system

Answer: 2+4 are right