Syllable types and acoustic variables of ultrasonic vocalization in pup and adult fat-tailed gerbils (*Pachyuromys duprasi*)

Volodin Ilya1,2, Zaytseva Alexandra1,2, Ilchenko Olga2, Volodina Elena2

1Lomonosov Moscow State University, Russia
2Moscow Zoo, Russia; http://www.bioacoustica.org

volodinsvoc@gmail.com

Ultrasound vocalizations (USVs) of laboratory rodents indicate animal emotional arousal and may serve as models of human disorders.

**Aim:** To develop the classification of the fat-tailed gerbil USV syllables and to compare their acoustics between pups and adults.

**Classification of ultrasonic syllables**

- ![Classification of ultrasonic syllables](image)

- **contour shape**

- **note composition**

- + multi-note

**Comparison of USV syllables between pups and adults**

- **Contour shape percentage**

- **Note composition percentage**

**Variable** | **Pups** | **Adults**
---|---|---
**Duration** | 50.0 ± 31.0 ms | > 22.0 ± 32.7 ms
**f0max** | 52.2 ± 5.7 kHz | < 66.8 ± 13.9 kHz
**f0min** | 41.9 ± 6.7 kHz | < 51.1 ± 9.6 kHz
**fpeak** | 47.9 ± 6.1 kHz | < 60.0 ± 10.5 kHz

Pup USV longer and lower in frequency than adult USV

This was also true for most widespread single-note Flat and single-note Chevron USV taken separately.

**Conclusion**

Ontogenetic pathway of fat-tailed gerbils USV (towards shorter and higher-frequency calls) resembles those of bats but not other rodents.

Support: RSF grant 19-14-00037