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**Title:** Anesthesia induced changes of respiratory mechanics in rats measured by impulse oscillometry

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**Body:** Aim: Because anesthesia is often required in respiratory research of rodent species, whose influence on respiratory mechanics should be investigated utilising the non invasive Impulse Oscillometry (IOS) test. Material and methods: Ketamine/medetomidine combination (study a), followed by urethane two weeks later (study b), were applied for anesthesia of ten female rats. IOS measurements were taken before and 30 minutes after drug application in each study. Results: Breathing frequency and tidal volume decreased significantly due to anesthetics in both studies. Results of spectral resistance (R) and reactance (X), all in kPa L<sup>-1</sup> s, as well as level of significance are presented in table 1.

Table 1: Medians (lower; upper quartiles) of R and X before and after medication of ketamine/dedetomidine (study a) and urethane (study b), signed rank test, \* p < 0.05; \*\* p < 0.01

Parameters	Study a		Study b	
	before	after	before	after
R5	5.6 (2.6; 6.3)	6.6 (6.1; 7.0)*	6.1 (5.7; 6.4)	6.3 (6.1; 6.8)
R10	7.2 (6.1; 7.7)	5.8 (5.4; 6.0)**	6.9 (6.7; 7.0)	6.2 (6.0; 6.5)*
R15	5.3 (5.1; 6.3)	4.7 (4.4; 5.0)*	5.3 (5.2; 5.6)	4.9 (4.7; 5.0)**
X10	-2.9 (-3.1 ; -2.5)	-3.0 (-3.7; -2.6)	-3.7 (-3.9; -3.5)	-4.0 (-4.6; -3.7)
X15	-4.1 (-4.7; -3.4)	-3.4 (-3.7; -3.0)*	-5.0 (-5.3; -4.9)	-4.1 (-4.4; -3.9)*
X20	-5.4 (-5.7; -3.8)	-3.6 (-5.0; -3.1)**	-5.2 (-5.4; -5.1)	-4.1 (-4.0; -3.8)*

**Conclusion:** Anesthesia in rats leads to changes of their breathing pattern and various impedance parameters as well. These investigations are only possible using a non-invasive and non-cooperative technique like the IOS. The authors appreciate the financial support of the German Federal Ministry of

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