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Title: Maximum peak and sustained inspiratory and expiratory pressures in healthy children

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Body: Aim: to evaluate peak maximal respiratory pressures in children and compare them with the calculated values for plateau pressure. Methods: 144 healthy children (81 girls, BMI: 16,24 ± 1,57 Kg/m2, age: 8,7 ± 1,2 years; 63 boys, BMI: 16,61 ± 1,42 Kg/m2, age: 9 ± 1,2 years) were evaluated. After the consent of the responsible, the children underwent an anthropometric evaluation and performed maximal respiratory pressures through a digital manometer. The manometer was coupled to a disposable biological filter. The child chose which respiratory pressure would be performed first. Maximal inspiratory pressure was performed from total pulmonary capacity and maximal expiratory pressure, from residual volume. Data were analyzed through SPSS 17.0. A significant level of $p<0.05$ was attributed. Results: The findings suggest that peak values differ significantly from the sustained values regardless the gender or age evaluated, as shown in table 1.

Table 1: Peak and sustained respiratory pressures in children of the same gender and between groups of boys and girls

	MIPpeak (cmH2O)	MIPsust (cmH2O)	p	MEPpeak (cmH2O)	MEPsust (cmH2O)	p
Girls (n=81)	70,9 ± 20,8	66,0 ± 19,5	0,001*	81,8 ± 19,2	78,1 ± 19,9	0,001*
Boys (n=63)	87,9 ± 21,2	81,6 ± 20,2	0,001*	101,8 ± 22,3	95,6 ± 21,0	0,001*
p	0,001	0,001		0,001	0,001	

MIPpeak: Maximal peak inspiratory pressure; MIPsust: Maximal sustained inspiratory pressure; MEPpeak: Maximal peak expiratory pressure; MEPsust: Maximal sustained expiratory pressure; *: Comparison between peak and sustained inspiratory and expiratory pressures in the same gender children.

Conclusion: The utilization of peak values in the clinical practice may compromise the real measurement of respiratory muscle strength in children.