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## **A STUDY SHOWS THAT COLD AIR REDUCES CROUP SYMPTOMS IN CHILDREN**

For the first time, a scientific study shows that exposure to outdoor cold air is beneficial in reducing the severity of croup symptoms in children, particularly when symptoms are moderate. The study, conducted by the Geneva University Hospitals (HUG) and the University of Geneva (UNIGE), thus gives scientific support to a recurrent intuition of both healthcare practitioners and parents. Learn more about the study in the scientific journal [Paediatrics](#).

Watch the [video](#) which summarises the study.

### **Very common reason for consultation**

Croup, also known as acute viral laryngotracheitis or laryngotracheobronchitis, is the most frequent cause of acute obstruction of the upper respiratory tract in children aged from 6 months to 3 years. Although most cases are mild, croup has a substantial impact on healthcare systems, as it is responsible for 3 to 5% of visits to paediatric emergency departments and 72-hour readmissions for children less than two years of age. It is characterised by the sudden appearance of a seal-like barking cough, mostly at night, accompanied by hoarseness and inspiratory stridor (sound or whistling). The recommended treatment of croup is steroids, which are effective 30 minutes after administration.

### **The effect of cold air is confirmed**

The study included 118 children aged between 3 months and 10 years (average age: 32 months) presenting with croup and attending the Paediatric Emergency Department of the HUG. On their arrival, all received the oral single dose standard treatment of dexamethasone. Half the children recruited in the study spent the 30 minutes following their admission inside the department, while the other half waited for the same time outside, exposed to temperatures below 10°C, with blankets. On average, the difference between indoor and outdoor temperature was 20°C, with air humidity levels of 30% inside and 68% outside.

Among the outdoor group, 29 children (49.2%) showed a reduction of their symptoms after 30 minutes according to the Westley Group Score (WCS), while only 14 children (23.7%) who stayed inside showed the same effect. Children presenting with moderate croup were those who showed the most benefit from exposure to fresh air.

As indicated by Laurence Lacroix-Ducardonnoy, deputy clinical director at the Paediatric Emergency department (SAUP) of the HUG, lecturer in the Department of paediatrics, gynaecology and obstetrics in the Faculty of Medicine of the UNIGE and author of the study, “we sought to investigate whether a 30 minute-exposure to outdoor cold air could improve the symptoms of croup before the onset of action of steroids. Regarding the benefits that

were demonstrated, it represents a valuable first recommendation for parents who can then apply this measure at home”.

### Explanatory elements

Animal models have demonstrated that cooling of the upper respiratory tract increased the activity of dilator muscles in the upper respiratory tract, reduced mucosal blood flow by vasoconstriction and lessened resistance of the upper respiratory tract. This suggests that changes in temperature may play a part in the control of the permeability of the upper respiratory tract.

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