

## **INTERMITTENT HYPOXIA IN PEDIATRIC CARE: BENEFITS AND DISADVANTAGES**

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Hypoxia is considered for pediatricians and neonatologists as one of the main factors threatening the life or normal development in children at various postnatal stages. Indeed, episodes of hypoxia stress may contribute to several chronic diseases associated with obstructive sleep apnea syndrome and in turn lead to devastating effects on development and behavior in childhood. However, it is also known that brief, episodic hypoxia triggers systemic adaptive responses that promote better tolerance to subsequent hypoxic stress and protection against other types of non-hypoxic stressors. Hence, the detrimental or beneficial effects of intermittent hypoxia (IH) depend on the pattern and duration of hypoxia-reoxygenation. There are a number of studies using the sessions of well-controlled and moderate IH training in sick children for treating several diseases, particularly various forms of bronchitis or bronchial asthma (BA). For instance, it was shown that two-week IH course resulted in a significant decline in shortness of breath and chest congestion in children with BA. The attacks of asphyxia either disappeared or became less frequent in these BA patients and the mitochondrial enzymes activity of their immune cells increased significantly. Taken together, a comprehensive understanding of such a complex physiological phenomenon as IH would prevent or reduce its harmful consequences, while maximize its potential utility as an effective therapeutic tool in pediatric patients. A proper individualized choice of the hypoxic dosage for each patient would be crucial to achieve these goals.