

PULMONARY BIOMECHANICS: PART 1 UPPER AIRWAYS

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INTRODUCTION

Upper airways are by definition a multifunctional and multicomponent passage located in between airway opening and the junction between the larynx and the trachea (see Fig. 1). Upper airways include the nasal passages (from the nostrils to posterior termination of nasal septum, the nasopharynx (from end of nasal septum to the tip of the soft palate), the pharynx (from the palate to larynx), and the larynx connected to the trachea. The oral cavity and the oropharynx that is bounded by the base of the tongue, constitutes a parallel pathway to the nasal passage. The retro-basilingual segment is a part of the oropharynx that is common to both nasal and oral passages. The complexity of geometry of upper airways might explain the late apparition of theoretical and experimental studies about airflow in this proximal part of the respiratory tract.

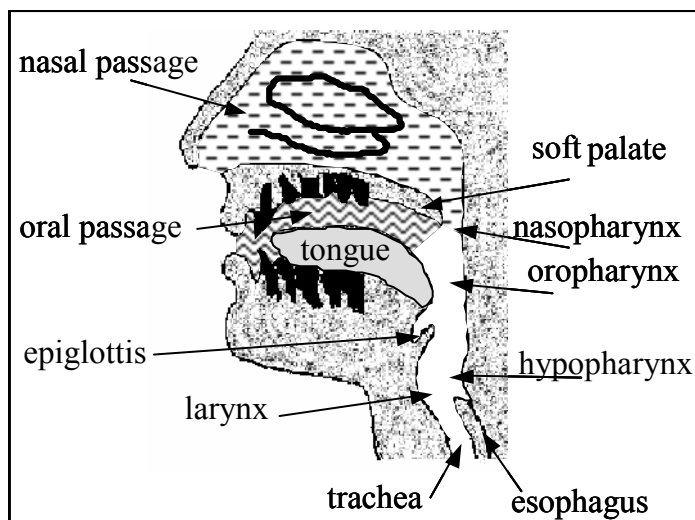


Fig. 1 : Schematic of the multifunctional and multi-component upper airways

In addition to the inherent geometrical complexity upper airways are highly variable geometrically which most likely in relation with the multiplicity of physiological functions ensured by upper airways (Fig. 2). The soft