

In about ten per cent. of school children there is more or less obstruction found in the nares and pharynx. When this obstruction is of a permanent character, e.g., too narrow nasal chambers, septal deflections, spurs or morbid growths, hypertrophied turbinates or tonsils, adenoids—an auxiliary respiratory route has to be provided, hence mouth-breathing. Even under normal conditions, the temptation to breathe through the mouth is a very insidious one. Watch a crowd hurrying past on a frosty morning, and notice the number of mouth-breathers. Most of these are quite unconscious of the act, and could stop doing it without inconvenience.

However the habit may have been acquired, the effects are most decidedly prejudicial to health. The earlier in life the practice is established, the more pernicious the consequences. In infancy and childhood, developmental changes take place so rapidly that any force exerting an abnormal influence readily causes deformity. If one nostril of a young animal—kitten or guinea pig—be occluded, well-marked deformities follow. Under normal conditions the jaws are kept in close apposition by the action of the muscles of mastication. This pressure, during the period of development, helps to spread the alveolar processes laterally, giving the jaw a semi-circular form, and thereby providing space for the normal dental alignment of each set of teeth. When the mouth is kept open, as in mouth-breathing, all counter-pressure from the lower jaw is removed, and the following morbid conditions are produced:

(1) The alveolar process of the upper jaw grows downward; (2) the tension of the muscles—which can be readily demonstrated by placing a finger between the upper lip and the jaw, and then opening the mouth—forces the posterior extremities of the upper jaw inward, giving to it an angular, instead of a semi-circular form; (3) this deformity crowds the upper incisor teeth forward, and causes a disfiguring dental alignment. In normal respiration, with the mouth closed, there is a small space between the dorsum of the tongue and the under surface of the palate. The warm air in this space exercises less pressure on the palate than the cold, heavier air in the nares. The negative pressure below the palate, together with the spreading out of the alveolar processes, during the period of development, gives to the palate its normal dome-like shape. In mouth-breathing the tongue falls to the bottom of the oral cavity, thus producing a large space for the reception of air that is colder and denser than that in the nares, and thus causing a positive pressure upwards on the palate. This force, together with the approximation of the extremities of the alveolar process, produces the high-arched palate so common in mouth-breathing. The so-called pigeon or chicken-breast, and