

## Mouth-Breathing—Its Injurious Effects.\*

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There is no perverted function attended with so many ill effects, and none persisted in so continuously and with as little concern, as that of mouth-breathing. In proof that man was intended to be a nose-breather we might cite the authority of Divine Writ, when it says, "The Lord breathed into his nostrils the breath of life," which shows that the ancient Jews had a proper conception of the nose as a divinely appointed organ of breathing.

The scientific proof that man was intended to be a nose-breather is deduced not only from the ill-effects resulting from mouth-breathing, but also from the important physiological functions that the nose performs in the animal economy.

The four principal functions performed by the nose are that of smelling; that of filtering or separating from the air we breathe foreign substances; that of imparting moisture to, and that of modifying the temperature of, the respired air.

The sense of smell performs a most important physiological function in protecting us from the poisonous emanations that contaminate the air. Without the sense of smell, the absence of which in our cities might frequently be regarded as desirable, we might unconsciously fail to be warned against unsanitary conditions, such as the escape of illuminating gas in our rooms, coal gas from our furnaces, noxious gases from our sewers, all of which are deadly poisons, as illustrated by the frequent deaths from such causes. Thus when the sense of smell is destroyed by diseased conditions, or the nasal passages are obstructed, we not only lose the protection which this sense gives us, but we are denied the pleasures of delightful odours as well as the savoury flavours of our foods and wines, which contribute much to the happiness of life and thus indirectly to the health of the individual.

The part that the nose performs in straining the air of dust, germs, and other foreign substances is a very important one, for air, containing, as it does, germs in large quantities, is freed from them when it reaches the windpipe, while the front part, the vestibule of the nose, is found swarming with these germs that have been arrested there. The importance of this is further shown by the fact that there is contained in the amount of ordinary air in our densely populated cities inhaled during one hour

from fifteen hundred to fourteen thousand germs, and also by the fact that this air after passing through a normal nose and reaching the lungs is entirely freed from these germs. The office of the nose in filtering the air, and thus excluding dust and other foreign substances from the lungs, is consequently of the greatest importance in the prevention of pulmonary diseases.

The imparting of moisture to the air, when too dry for respiration, is also a very important function of the nose. The irritating effect on the throat and lungs of too dry an atmosphere is generally understood, and for this reason various devices are in use for imparting moisture to the furnace-dried atmosphere of our houses. Persons who breathe through the mouth, however, suffer from irritation of the throat and lungs from this cause in a much greater degree than nose-breathers. This is accounted for by the fact that in a dry atmosphere during each twenty-four hours about five thousand grains of water, or over ten ounces, are by the vascular tissues of a normal nose imparted to the air that passes through it on its way to the respiratory organs below. This supply of water given out by the nose is, however, regulated by the vasomotor or sympathetic nerves so as to meet the requirements in different cases, since the supply is varied according to the different degrees of humidity of the atmosphere, and also according to the readiness with which the nasal supply itself is taken up by the air as it passes through the nose.

Moreover, the temperature of the inspired air is modified, so that by the time it reaches the lungs, no matter how extreme the heat or cold of the atmosphere may be, it is brought to a healthful temperature for inhalation. We can, therefore, very readily understand the ill effects that sooner or later must be caused by mouth-breathing, in consequence of which we fail to obtain the benefit of the physiological functions that the nose performs. With the substitution of oral for the normal nasal respiration the air we breathe has no filter with which to free it from dust and germs, nor is the air modified by having moisture and warmth imparted to it. As a result of mouth-breathing the throat becomes dry and irritable, the larynx irritated, attended with hoarseness and cough; the person is made more susceptible to colds, and a general catarrh of the throat and bronchial tubes and often asthma are caused thereby. Nor does it stop here. The deeper air passages and lungs thus irritated and diseased become an excellent feeding-ground for the consumption germ, and consumption is but the natural and frequent termination of this condition.

Mouth-breathing, therefore, may be regarded as one of the principal predisposing causes of consumption, while nose-breathing is the natural safeguard for its prevention. In children, and in adults, too, various spasmodic affections of the larynx are induced by this long-continued irritation.

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