



Adrenalin in Medicine

1—Its Physiological Action

THE active principle of the medullary portion of the suprarenal gland and other chromaffinic cells, adrenalin, has been used by physicians throughout the civilized world since the day we introduced it, almost twenty years ago. It has attained a position of importance in the medical equipment that was hardly dreamed of in those early days when comparatively little was known concerning its physiological action. Today its effect on most of the tissues is pretty well defined.

Adrenalin affects body tissues in a manner strikingly similar to the effect produced by stimulating the sympathetic nerve system. Thus, if the sympathetic nerves govern the contraction of certain unstriated muscle tissue, adrenalin, too, will contract it. If, on the other hand, the tissue in question is supplied with inhibitory impulses by this nerve system, adrenalin relaxes it.

These actions, however, are exerted neither through the medium of the sympathetic nerves nor directly upon the muscle fibres themselves. The receptive organs for these adrenalin impulses are the points of union of the sympathetic nerves

and the unstriated muscle fibres—the myoneural junctions.

Probably the most important action of adrenalin is stimulation of the muscular coats of the arterioles. At first there is acceleration of the pulse rate, but the rise in blood pressure which results from vaso-constriction soon excites the vagus centre and as a consequence the heart-beat is slowed and strengthened. Besides this indirect vagus action, adrenalin stimulates the heart directly, thus producing more complete evacuation of the chambers. In large doses, however, adrenalin predisposes the heart to fibrillary contractions.

The stimulating action of adrenalin is exerted also on the dilator muscle of the iris (dilates the pupil); the muscular fibres of the uterus and vagina; the retractor muscle of the penis; the pyloric and ileocecal valves; the glycogenolytic function of the liver; the salivary glands and the glands of the mouth and the stomach.

Adrenalin relaxes the muscular walls of the esophagus, stomach and intestines. Also on the muscular coat of the bronchioles adrenalin has a relaxing effect, due probably to vagus stimulation.

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