

subacute type, requiring two or more months to manifest itself. Under otherwise excellent surroundings it developed among infants in an asylum, where the babies are weighed daily and measured fortnightly. Its effect on growth could thus be carefully followed. In this connection, three periods may be distinguished: one of about three months when orange juice was given, a second of about four months when the infants did not obtain fruit juice, and a third extending over about a half year, where they once more obtained orange juice.

It was found that in almost every instance a gradual failure to gain in weight accompanied the absence of orange juice from the diet, and that this failure was corrected when the juice of the orange, or the orange peel (even though boiled) was again given (Chart 1). In most cases increase in length was likewise retarded by the scorbutic condition and this stunting was corrected by means of the fruit juices; a notable instance may be seen in Chart 2.

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### **The action of the depressor nerve on the pupil.**

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Stimulation of the depressor nerve in white rabbits, narcotized by the subcutaneous injection of 5-10 milligrams of morphine sulphate per kilo, usually causes a definite diminution of the pupil. This contraction in typical cases is composed of two stages: a sharp, prompt, short, initial contraction followed by a slower gradual one. Often only the initial contraction is observed, at other times only the slower gradual contraction.

The initial contraction, when present, is obtained as soon as the nerve is stimulated, before the blood pressure begins to fall. The slower contraction occurs while the blood pressure is falling, and the iris blanches at the same time.

Stronger stimuli are necessary to cause this contraction of the

pupil than suffice to bring on the characteristic drop of blood-pressure. A strong fall of bloodpressure due to a moderate depressor stimulation does not cause any alteration of the pupil.

Stimulation of one depressor may cause a contraction of the pupil on the opposite side.

This pupillary effect cannot be obtained with the same certainty as the fall in bloodpressure. After several successful trials, the pupil usually fails to respond for a while.

The two depressors vary in their pupillary effect; one may yield excellent pupillary contractions, the other one none at all.

The stimuli used were rarely longer than three to five seconds; the strength 100-150 mm. coil distance (Petzold coil).

Section of the sympathetic nerve, or extirpation of the superior cervical ganglion, the depressor of the same side being stimulated several days later, exerts no appreciable effect on the result. The reflex therefore seems to act on the third nerve chiefly, if not entirely.

In addition to this pupillary effect, depressor stimulation at times causes a short wink or a more or less prolonged retraction of the bulbus.

It must be added that a strong winking (closure of the lids being prevented by a speculum) usually causes a very short sharp contraction of the pupil, the Piltz-Westphal phenomenon. This contraction is, however, much more rapid than what has been described as the initial contraction on depressor stimulation; moreover, the initial contraction is frequently obtained without any sign of winking.

In rabbits anesthetized by ether or which have been allowed to recover from the ether, the depressor pupil effect was not obtained. An increase of reflex irritability is apparently necessary in order to obtain the depressor pupillary contraction.