Subject.	*Excess Excretion of Lactic Acid.* Breathing Air.	Breathing 40% Oxygen.
A. W. H.	73 mg.	24 mg.
J. K. L.	324 mg.	198 mg.

We believe the diminution in lactic acid excretion when breathing oxygen-enriched air to be due to lessened lactic acid accumulation in the muscles.

258 (2781)

Effects of cholesterol on smooth muscle of intestine and uterus.

By CLINTON H. THIENES.* (Introduced by P. J. Hanzlik).

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In connection with a study of agents and conditions that may alter the responses of smooth muscle toward autonomic drugs, etc., it has been found that cholesterol definitely increases the activity of excised intestines and uteri of cats and rabbits. The results with flaky emulsions, and filtrates from saturated solutions, of the cholesterol in Tyrode's solution at 37° C. were the same. The exact concentration of the cholesterol in solution was unknown, quantitative estimation yielding only traces of the product, but a rough estimate indicated that muscular stimulation was secured with concentrations probably as low as 1 :5,000,-000. About the only important change conferred on the Tyrode solution by cholesterol was a lowering of surface tension.

The stimulation of intestinal and uterine muscle was essentially the same, being characterized by a prompt increase in the amplitude of contractions without material changes in rate and tonus in the majority of strips (Figure 1). In a small proportion of strips the rate of contraction and tonus were also increased. When the activity of muscles was weak at the start, or reduced by fatigue, it was almost invariably increased upon the direct addition of cholesterol to the bath. Duration of stimulation has been observed for as long as 30 minutes. Since the stimulation per-

sisted after nicotinization and atropinization of intestine, and was obtained with uteri whether inhibited or augmented by epinephrine, and was promptly opposed by papaverine, it was due to increase in contractility of the muscle substance independently of nerve endings and ganglia. Apocodeine (intestine) and ergotoxine (uterus), as a rule, abolished or prevented the action of cholesterol; but after these drugs the muscles were poisoned, as they were not responsive to barium. Cholesterol altered the response of the muscles to epinephrine since it prevented or reduced the inhibiting effects of epinephrine on intestine or uterus, and augmented the stimulant action on uterus (Figure 2). Thus far, the responses to other autonomic poisons have been variable or not demonstrably altered. Whether the stimulation is concerned with surface or other effects has not been ascertained, but soap and camphor which exert analogous surface effects give somewhat similar effects in some directions, though not in others, and

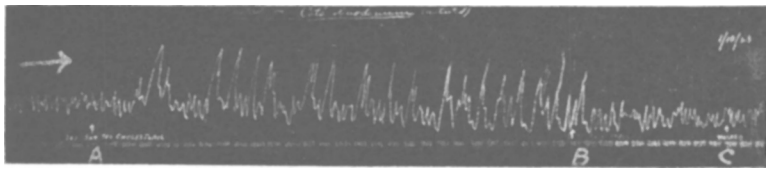

FIG. 1.

Cholesterol on strip of untreated cat's duodenum in 50 cc. Tyrode's Solution at 38° C. At "A", stimulation by 1 cc. of Cholesterol (saturated solution in Tyrode); at "B", partial antagonism by 1 cc. of 0.1 per cent atropine and at "C" washed. Reduced to one-thirtieth.

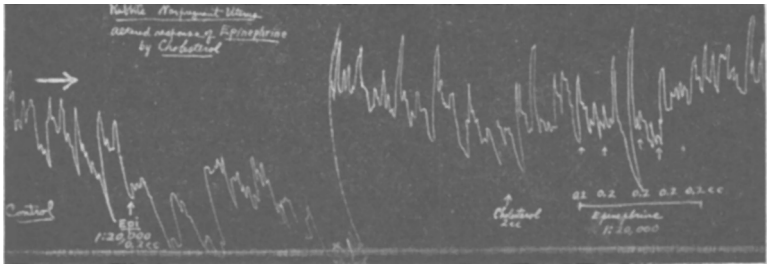

FIG. 2.

Strip of non-pregnant rabbit's uterus in 50 cc. Tyrode's Solution at 38° C. Epinephrine caused depression in Tyrode alone (control) and stimulation after cholesterol (altered response). Reduced to one-twentieth.

themselves cause interesting alterations of smooth muscle responses to certain autonomic poisons.

The results obtained on smooth muscle of the intestine and uterus agree with the older observations of Danilewsky[1] on cardiac muscle of perfused frog hearts which responded to cholesterol with increased systolic contractions without appreciable changes in rate and tonus. They are also in line with vasoconstriction (tonus increase) from cholesterol in perfused organs recently reported by Handovsky,[2] who attaches importance to this action of the product in certain serum effects. These various augmentations of muscular activity by cholesterol together with other reputed effects on vessels, on metabolism, in pathological states, etc., indicate that cholesterol is a physiologically active product. The study is being continued.

259 (2782)

The anaerobic bacteria of the oral cavity.

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Investigation of 55 samples of saliva collected from 43 individuals showed, 1st, that sporulating anaerobes are not commonly found; 2nd, that when they are found it is usually impossible to detect the same species in subsequent samples from the same mouth.

Only 6 specimens yielded sporulating anaerobes, which included *B. Welchii, B. bifermentans,* an unidentified non-pathogen, *B. tetanomorphus,* and a strongly toxicogenic *B. tetani.* This is believed to be the first record, with rigid proof, for *B. tetani* from the mouth. No importance is to be attached, however, to the occasional presence of any of these micro-organisms in the oral

[1] Danilewsky, *Arch. f. d. ges. Physiol.*, 1907, cxx, 181.

[2] Handovsky, *Klin. Wchnschr.*, 1924, xxx, 3.

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