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ABSTRACTS OF COMMUNICATIONS.

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Changes in the composition of the urine after muscular exercise.

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The effect of short periods of strenuous exercise on the composition of the urine was studied. The urine from normal men was collected in ten minute periods and after a suitable fore-period stair running for one or two minutes was introduced and the collections of urine continued. It was hoped in this way to learn the rapidity and the extent of the response of the kidney to the chemical and physical changes taking place in the organism. There was a marked fall in the urine volume after exercise which could not be overcome by drinking small quantities of water at frequent intervals. A considerable increase in the excretion of acids and conservation of base were demonstrated by the rapid increase in the hydrogen ion concentration, titratable acidity, ammonia and ratio of ammonia to total nitrogen of the urine. The inorganic phosphates increased parallel with the acid excretion. The values reached a maximum in twenty minutes and returned to normal in less than an hour. The hydrogen ion concentration frequently returned to normal more slowly and the phosphate excretion always fell below normal

toward the end of the experiment. There was a marked fall in chlorides which apparently was not due to the decreased fluid output or to the loss of chlorides in the perspiration. The excretion of chlorides fell to a minimum in twenty minutes after exercise and then returned to normal. There was a considerable fall in the total nitrogen excretion but no characteristic change in creatinine due to the exercise. The changes observed in the composition of the urine, when compared with the variations in the composition of the blood observed by Barr and his collaborators, indicate that the kidney responds rapidly and efficiently to aid in the neutrality regulation in the body.

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The excretion of lactic acid in the urine after muscular exercise.

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To study the excretion of lactic acid after exercise, urine was collected in ten minute periods and was analyzed for lactic acid by Clausen's method. After one or two minutes of strenuous exercise the lactic acid excretion rose from a normal of about 2 mg. in ten minutes to about 150 mg. in ten minutes. The excretion reached a maximum within twenty minutes after exercise and then fell rapidly. There was a return to normal in about one hour. The experiments were carried out using men as subjects.