increased by 15 to 17 beats per minute; pulse pressure decreased in both the ventral and dorsal aortas without change in the pressure gradient across the gills, presumably reflecting the passive response of the gill circulation to an increase in heart rate. Acetylcholine produced cardiac arrest and a precipitous decline of blood pressure in both aortas; resumption of the heart beat was associated with a rise in the ventral aortic pressures to above control levels and an increase in dorsal aortic pressures toward control values; the "overshoot" of ventral aortic pressures was attributed to the re-expansion of the blood volume of the gill and of its vascular bed. With infusion of blood or Ringer's solution, dorsal and ventral aortic pressures increased with a widening of the pressure gradient across the gill. Norepinephrine increased dorsal aortic pressure more than ventral aortic pressure, thereby narrowing the pressure gradient across the gills; this response was presumably due to "back pressure" on the gill circulation from systemic vasoconstriction. These observations provide no evidence for independent vasomotor regulation of the gill circulation. Instead, they suggest that the circulation through the dogfish gills is regulated passively by the heart rate and by the systemic circulation.

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URIC ACID TRANSPORT BY THE AGLOMERULAR KIDNEY OF Lophius americanus

H. V. Murdaugh, E. D. Robin, and W. F. Drewry, University of Alabama, Birmingham, Ala., and University of Pittsburgh, Pittsburgh, Pa.

Recently reported data indicate that uric acid may be secreted as well as reabsorbed by the nephron of the mammalian kidney. The possibility of bidirectional movement of uric acid across the tubule cells in the glomerular kidney hampers interpretation of specific effects of substances upon uric acid excretion mechanisms. The aglomerular kidney of the goosefish, Lophius americanus, has served as a classic model for tubule transport mechanisms since the absence of filtration-reabsorption decreases the variables to be considered. Uric acid concentrations of goosefish urine (U) and ultrafiltrates (UF) of goosefish plasma were determined in 13 fish. U/UF exceeded 1.1 in 11 of the 13 fish and averaged 1.75. The value 1.1 was used instead of 1.0 since 9% of uric acid was restricted in UF of uric acid standards of concentrations equal to goosefish plasma uric acid concentrations. After the intravascular administration of sodium salicylate or probenecid the urine uric acid concentrations decreased to or below plasma UF uric acid concentrations. These findings suggest that uric acid can be secreted by the renal tubule of the goosefish, and that both sodium salicylate and probenecid can inhibit uric acid secretion.

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THE HYPOUREMIC DOGFISH

H. V. Murdaugh, Jr., E. D. Robin, C. D. Hearn, E. Weiss, and W. Drewry, University of Alabama, Birmingham, Ala., and the University of Pittsburgh, Pittsburgh, Pa.

Marine elasmobranchs utilize two major substances for the maintenance of extracellular fluid