

before the dive, prevented the rise in blood lactic acid concentration or fall in oxygen content at 4 minutes of diving. Pilocarpine was found to cause a severed small webbed artery to stop bleeding. The data suggest a cholinergic form of control of the arterial constrictor response to diving.

Plasma Protein Patterns of the Hagfish and Certain Elasmobranchs

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The plasma proteins of one marine cyclostome and a number of marine elasmobranchs were studied by paper electrophoresis. The Spinco Durrum type electrophoretic apparatus was used. Ten to 40 μ l of plasma were applied. The paper strips were run for 18 hours in barbital buffer, 0.075 ionic strength, pH 7.8. The milliamperage was held constant at 2.5. They were stained with bromophenol blue.

The single cyclostome (*M. glutinosa*), the hagfish, showed an electrophoretic pattern similar to that which we have reported for the lamprey. The component which moved the farthest appeared to resemble an alpha globulin. Separation of the other components between the origin and the alpha globulin was poor.

The dogfish (*S. acanthias*) showed a pattern similar to that which has been reported before. There is a sharp alpha globulin peak, there is a peak near the origin, and another peak migrating in the opposite direction. The second two peaks may be gamma globulin fractions. Plasma from young dogfish during various stages of development were studied. "Candles" are embryo dogfish less than 1 year after fertilization. The pups are virtually mature fish in second summer of gestation. Plasma protein patterns from the candles indicated a faint alpha globulin peak and a very small amount of homogeneous protein from the alpha globulin back to the origin. The pups showed a strong alpha globulin peak and a lack of the usual gamma globulin peaks. Also in a number of specimens the pup plasma showed a peak in the beta globulin region.

Two other elasmobranchs were studied, the barndoor skate (*R. laevis*), and the little skate (*R. erinacea*). The plasma proteins of both of these elasmobranchs showed patterns somewhat similar to the dogfish, but with the addition of a small but definite concentration of protein which appeared to be albumin.

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