mean whole body intracellular pH measured 6.97 pH units. Intracellular pH in the dogfish is not significantly different from that found in man and in the dog. The pH gradient between extra- and intracellular water averages 0.44 pH units indicating that the H⁺ concentrations of intracellular water is 2.7 times as large as that of extracellular water.

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Extracellular Volume (Sucrose Space) In The Dogfish

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The extracellular fluid volume (E.C.F.) is not completely defined conceptually. It is now generally accepted that the volumes of distribution of sucrose and inulin more closely approximate E.C.F. than the volumes of distribution of other test substances. These substances appear to be appropriate both because they are biologically inert and because, in general, they do not penetrate cell membranes. To our knowledge, no previous measurements of E.C.F. in the dogfish have been made. Investigation of the metabolism of sucrose reveal that a relative plateau of plasma sucrose concentration is reached four hours after the intra-vascular administration of 0.50 gms. of sucrose. This plateau is based on the fact that no excretion occurs across the gills, and, urinary excretion, although present, is quite small. For practical purposes, urinary excretion may be disregarded and E.C.F. calculated as follows:

E.C.F. (liters of plasma water) = $\frac{\text{Total sucrose injected}}{\text{Plasma sucrose concentration x 0.93}}$ (time = 4 hrs.)

Measurements of the E.C.F. in 17 dogfish averaged 0.65 ± 0.51 L. which amounted to $20\pm3.5\%$ of total body weight.

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Total Body Water (T.B.W.) and Intracellular Body Water In The Dogfish

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Textbooks generally state that total body water (T.B.W.) in fish is equal to 80% of total body weight. This statement oversimplifies the results of the data on which it is based. There is good evidence to indicate that T.B.W. varies from species to species and from individual to in-