

## Water content of different tissues of *Squalus acanthias*

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The water content of all cells is remarkably constant with some variations across different types of tissues. There are no reported data for tissues of the spiny dogfish *S. acanthias*. This report provides values for the water content of brain, muscle kidney and rectal gland of the fish

Review of the literature, including our own publications, failed to produce published information on the water content of different *Squalus acanthias* tissues, with the exception of one paper.<sup>1</sup> That paper reported the measurement of the water content of the brain in *S. acanthias* and *Mustelus canis* but gives the percentage, 78.5%, only for *M. canis*. Thus, there are no data to establish a comparison or that could serve as reference. Therefore, we examined the water content of several different tissues of *Squalus acanthias* with the purpose of establishing a reference.

Brain, muscle, kidney, and rectal gland of several spiny dogfish were harvested and placed in tared scintillation vials. The brains including the opthalmic lobes were placed whole in the vials. Muscle, obtained from the hypaxial muscles located below the first dorsal fin were sampled in triplicate. Kidney tissue, also in triplicate, was obtained from the middle portion of the left kidney. Rectal gland tissue, sampled coronally, was obtained from the anterior, middle and distal portions of the gland. All tissues were handled with gloves and forceps, lightly blotted in filter paper, and placed in the scintillation vials. The vials were weighed and placed in an oven, at a nominal temperature of 80°C. The vials containing the tissues, and separate control vials without tissues, were weighed daily until the weight was stable in a balance with a precision to a tenth of a milligram. The results are expressed in milligrams and percent dry solids and water content.

The results are shown in Table 1. Seven days were required for the samples to achieve stable weight. The majority of weight was lost during the first 24 hours. The temperature of the oven recorded each day prior to removal of the samples for weighing averaged 82°C.

<b>Table 1 Wet and dry weights and percent dry solids and water content of <i>S. acanthias</i> tissues</b>					
	Wet weight	Dry weight	Dry solids %	Tissue water %	Number
Brain	1478.6±69.5	302.5±17.2	20.5±1.1	79.5±1.1	6
Muscle	109.6±92.5	44.9±21.1	29.0±2.5	71.0±2.5	10
Kidney	80.3±52.1	24.9±6.8	21.8±1.0	78.2±1.0	9
Rectal gland	108.1±63.4	33.4±11.6	22.5±1.1	77.5±1.1	9
Weights are in milligrams, mean±SD. Number refers to animals sampled.					

The water content of brain, kidney and rectal gland are quite similar, varying by only two percentage points, while water content of muscle is considerably. The value obtained for brain is remarkably close to 78.5%, which was published a century ago for *M. canis*.<sup>1</sup> These observations provide a reference for the water content of some tissues of *S. acanthias*.

1. **Scott GG.** The percentage of water in the brain of the dog-fish. *Exp Biol Med.* 9: 39, 1912.