



Tactile discrimination in a trained sea otter

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Previous research in our laboratory has focused on behavioral assessments of sensory abilities in pinnipeds and sea otters. In a recent effort to understand how sea otters use touch to forage, we trained a naïve, captive female sea otter to perform a two-alternative choice (2AFC) procedure. The sea otter learned to discriminate between pairs of stimuli that differed in texture using only her paws or only her vibrissae. Over two years and across three facilities, we trained the sea otter to perform the 2AFC procedure in air and under water. We incorporated multiple controls to restrict the subject from using cues other than touch with the desired structure. For paw testing, the sea otter was trained to reach through a narrow neoprene slit to access the textured stimuli. For vibrissal testing, the sea otter was trained to wear a neoprene blindfold and position her paws on a handlebar to access the textured stimuli with her face. Other than these restrictions, we allowed the sea otter to choose her problem-solving strategy. This decision required careful consideration of relevant and irrelevant behavioral criteria during the training phase. In addition to maintaining the sea otter's motivation to participate in daily husbandry sessions and reach monthly training goals, we strategized how to maintain attention and motivation during each experimental session, as well as over multiple repetitions of the same task during the experimental period. Positive reinforcement training enabled this novel sensory research and data collection in a species not traditionally evaluated in this manner.