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Meeting Abstract

P3-116 Monday, Jan. 6 **Fiber-type profile of the *longissimus dorsi* muscle of the ringed seal**
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The ringed seal (*Pusa hispida*) can dive into the ocean and forage in the water column for 8 min and dive 20 to 140 meters deep, which is greater than some other Arctic seal species. To better understand the ringed seal, we need to characterize the physiological profile of the ringed seal and determine how it could contribute to their swimming and diving behavior. The specific feature of the ringed seal that we focused on is the longissimus dorsi (LD) muscle, which is one of the muscles responsible for locomotion. We investigated the fiber-type profile of this muscle in order to ascertain how the structure of the muscle contributes to the diving behavior of the ringed seal. To determine the fiber-type profile of the ringed seal LD muscle, we froze the muscle samples from ten different specimens, cut sections from them using a cryostat, and placed the sections on microscope slides. Afterwards, we stained the sections for their myosin ATPase activity or their reaction to two myosin heavy chain antibodies, which would then be imaged. Imaging ATPase sections allowed us to count how many fast-twitch or slow-twitch fibers there were in the sections. The imaging also allowed us to measure the diameters of the fibers in ImageJ. All of these data will allow us to build a profile of the LD muscle and determine how it can contribute to the swimming and diving behavior of the ringed seal. We also will compare the fiber-type profile of the ringed seal LD with the profile of this muscle in other Arctic seal species, such as the bearded and spotted seal, to better understand the relationship between muscle characteristics and behavior.