Supplementary material

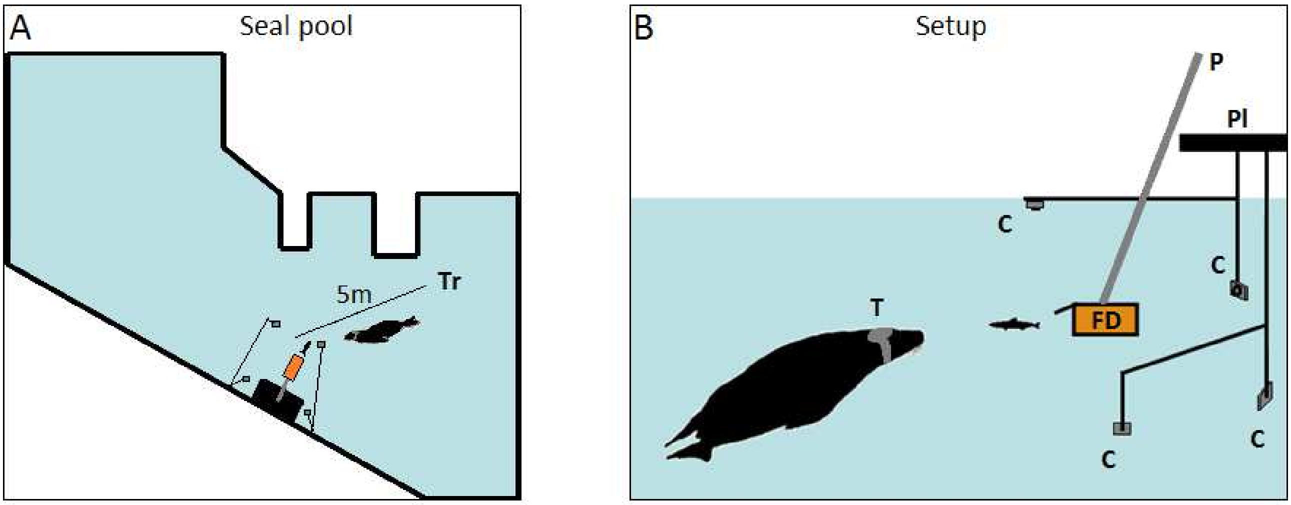


Fig. S1 Experimental setup. A) A series of prey captures were carried out by a trained harbour seal. The seal was rewarded with a small fish after each successful trial. The seal was trained to wear an OpenTag in a neoprene hood**.** The hood was custom made to fit the shape of the seal's head, and equipped with a buckle for putting it on and taking it off. The experimental procedure consisted of sending the seal to the fish dispenser (a distance of approximately five meters) where a fish would be released. Tr marks the position of the trainer in the water. B) The fish dispenser (FD) was operated by a person (P) standing on a platform (Pl) and pulling a string to simultaneously open the lid in front of the dispenser and release a spring attached to a plate moving through the cylindrical tube and pushing out the fish. All prey captures were filmed with GoPro HD Hero2 cameras (C) in underwater housings positioned in four different places to obtain recordings from different angles and so maximize the chances of getting clear video of captures. Because the seal enclosure is a net pen facility situated in a harbour, factors such as tide level and visibility strongly affected the clarity of the video. Thus, prey captures in which it was not possible to distinguish the mouth opening time (t0) were discarded. Prey captures that were successfully filmed, were synchronized with acceleration data obtained from the OpenTag (T) and then the triaxial acceleration signals were processed as described in the paper.

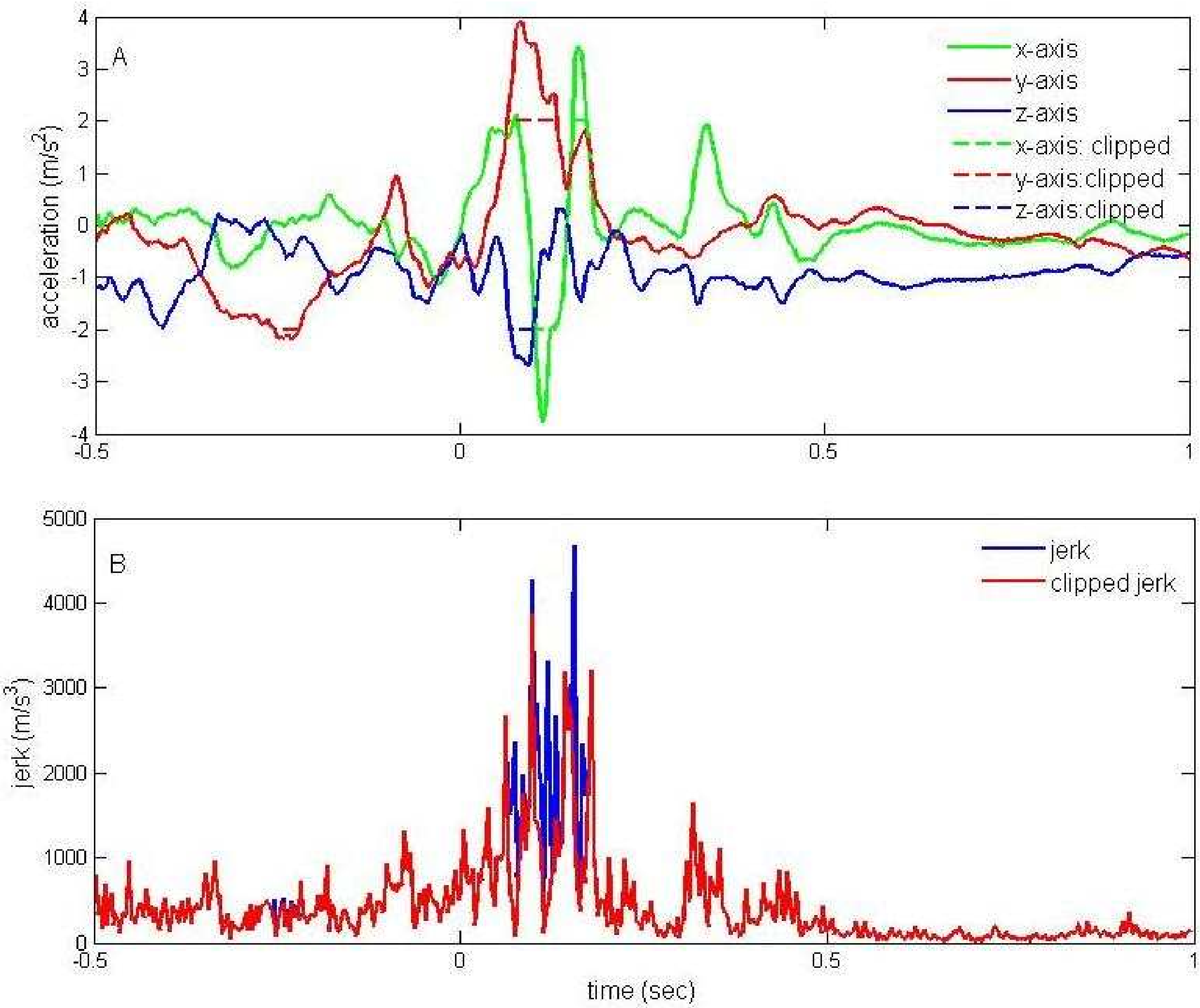
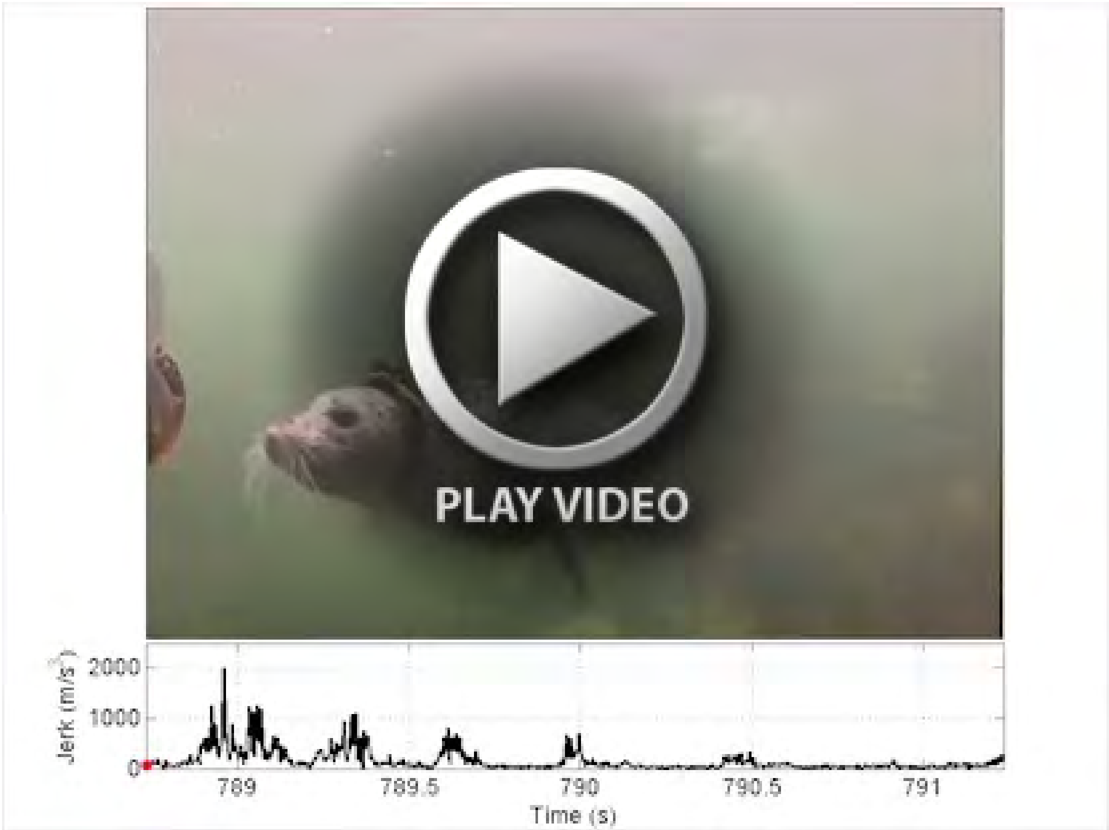


Fig. S2 An example of artificially clipped and non-clipped acceleration data. A) In the first experiment, the tag recorded each accelerometer axis at 200Hz and with a clipping level of +/-2g. Solid lines are non-clipped data and dashed lines are for data clipped at +/-2g. B) In the second experiment the tag was adjusted for 333Hz sampling rate and a clipping level of +/-16g. To investigate the influence of clipping on the RMS jerk measure, artificial clipping was applied by truncating the levels of unclipped 16g data to 2g. Such hard limiting should produce zero change in acceleration resulting in zero jerk in the clipped axis while clipping lasts. Thus, the jerk will be underestimated as exemplified. Blue line depicts the total jerk of non-clipped data and red the clipped data demonstrating that clipping leads to underestimation of total jerk. However, RMS averaging of the jerk provides some robustness to clipping: artificial clipping of the 16g acceleration data on average only led to a 6.4% (std. ± 8%, 6 trials) reduction in RMS jerk measured over a 250msec window starting at t0.



Movie 1. Prey capture. Prey capture of large live trout. This prey capture is also used in Fig. 1 in the main article. The movie was filmed using an underwater camera (explained in the Materials and methods section of the main article).