

Where's the fat? Plasma lipemia as evidence of feeding in Weddell seals

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Relating dive shape to evidence of foraging is one of the most challenging aspects of understanding diving behavior in marine mammals. Many inferences have been made regarding what dive shapes (e.g., u-shaped, v-shaped) are most likely indicative of foraging, but few data exist that demonstrate conclusive evidence of feeding. Stomach temperature telemetry provides clear evidence of the first meal in a dive bout, but becomes less reliable for subsequent dives. On-board video cameras may capture individual feeding events, but dive-by-dive analysis may be difficult when visibility is limited. In order to further refine our understanding of how telemetered dive data reflect foraging behavior, we collected serial blood samples during post-dive surface periods from 3 instrumented Weddell seals (*Leptonychotes weddellii*) freely diving from an isolated ice hole in McMurdo Sound, Antarctica during the austral summer of 2002. Assuming plasma lipemia as evidence of digestion in previous dives, we analyzed how dive type and lipemia were related. Dives were classified according to shape based on Kooyman (1968). Out of 1401 dives, 360 (~26 %) were Pattern III (W-shaped) dives, which have been previously hypothesized to be foraging dives. Plasma lipemia was observed in a total of 64 blood samples from 2 of the 3 seals, and was more common in Pattern III dives than Pattern I and II dives. As a first step in relating dive type with chemical evidence of foraging, these data indicate that W-shaped dives in Weddell seals are more likely to be involved with foraging than other shaped dives.

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