

Diving Physiology Birds

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I. Introduction

A major impediment to progress in the study of the physiology of diving has been, until relatively recently, a general reluctance of physiologists to consider all aspects of the diving habit (i.e., its evolution, its function in different species, and the behavioral characteristics of actual diving activities in naturally diving animals) when planning and interpreting experiments. Thus, for almost a century after the first laboratory experiments, it was almost universally accepted that all air-breathing vertebrates invoke the same stereotyped series of reflexes (the so-called diving response) upon submersion in water. The recent increase in interest in the responses to voluntary dives, made possible by the development of biotelemetry systems of small size and weight, has led to numerous demonstrations of the variability of responses to submersion in different situations. Documented observations of diving behavior in wild birds were available long before the advent of biotelemetry devices, yet these data were largely ignored, as were the few comments that were made to the effect that physiological responses observed in the laboratory may not represent those that occur in nature (e.g., Scholander, 1940; Eliassen, 1960).

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