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978-0-521-66338-0 - Body Composition Analysis of Animals: A Handbook of Non-Destructive Methods

Edited by John R. Speakman

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Body Composition Analysis of Animals

In recent years there have been substantial developments in the methodologies available for the non-destructive and non-invasive measurement of body composition in animals. By bringing together in a single volume a mix of traditional and well-established analytical methods with more modern techniques, *Body Composition Analysis: A Handbook of Non-Destructive Methods* provides a theoretical overview of different methodologies combined with practical advice on the use of these techniques. Methods covered include the use of destructive methods of analysis, body condition indices, isotope and gas dilution methods, total body electrical conductivity, bioimpedance analysis, ultrasound scanning and dual energy X-ray absorptiometry. Aimed at active research workers from undergraduate level upwards, this book will be of particular interest to those working in the fields of animal ecology, conservation biology, animal nutrition and physiology.

JOHN R. SPEAKMAN is Professor of Zoology at the University of Aberdeen, Scotland, and Head of the Division of Appetite and Energy Balance at the Rowett Institute, also in Aberdeen. He is a leading figure in the field of animal energetics. His research interests include the causes and consequences of variation in energy expenditure of a wide range of animals from bats and other small mammals to dolphins and turtles. In 1996 he received the Zoological Society of London Scientific Medal for his work on energetics and in 2000 was a Royal Society Leverhulme Senior Research Fellow.

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Preface

My first experience of writing a book was such that once it finally appeared I swore I would not write another. However, time heals, and after a few years had passed I entertained the notion of writing a second book, primarily because I was convinced that there was a need for a volume that summarized, in one place, useful information about non-invasive methods of body composition analysis. The problem, however, was that I wasn't really the best person to write the book because my own experience is limited to only a couple of the available methods. I decided therefore, that the best route would be to try and bring together a group of authors with the appropriate expertise and edit together their combined knowledge into a single text. I thought that, by editing a book, rather than writing it, I could still see the final volume realized, but that the process of producing it would be far less painful and stressful, and at the same time better by far than what I could achieve alone. And, indeed, this proved to be the case. But it was only like this because I had an excellent and co-operative group of colleagues on whom I could rely to deliver their chapters, and exceed my ambitious demands (that invariably clashed with examinations and teaching commitments) by only modest numbers of months.

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My greatest thanks, therefore, go to all the authors of the individual chapters that make up this volume. Particular thanks are due to Matthias Starck, Maurine Dietz and Theunis Piersma who stood in at the last minute to replace another author who had to withdraw from the project on health grounds. (Hope you are feeling better Graham.) I think the final product is a credit to you all.

Thanks to those of you who put in time and effort (sometimes on multiple occasions) to peer review and improve the chapters that now comprise this book: Kim Hammond, Rob McAllen, Jack Hayes, Colin Selman, Sally Ward, Ian Mitchell, Ian Scott, Wouter van Marken Lichtenbelt, Brian Henen, Simon Heymsfield, Tom Kunz and Paul Thompson. I am also grateful to the anonymous reviewer selected by the publisher to provide an additional review of Chapter 5. Thanks are due to Tracey Sanderson of CUP who took the project on board and to the anonymous referees who favourably reviewed the original synopsis. I hope the final product lives up to the anticipations I had, and that you accepted as realistic.

While this book was being put together, Basil, our 15-year-old Cocker spaniel finally died – in good body condition to the very end.

J.R. Speakman
Aberdeen May 2000