

THE HUMAN BODY

Structure and function
in health and disease

SECOND EDITION

Stewart M. Brooks
Natalie Paynton-Brooks

THE HUMAN BODY

STRUCTURE AND FUNCTION IN HEALTH AND DISEASE

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SECOND EDITION

with 445 illustrations

The C. V. Mosby Company

ST. LOUIS • TORONTO • LONDON 1980

SECOND EDITION

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Previous edition copyrighted 1975

Printed in the United States of America

The C. V. Mosby Company
11830 Westline Industrial Drive, St. Louis, Missouri 63141

Library of Congress Cataloging in Publication Data

Brooks, Stewart M

The human body, structure and function in health and disease.

Published in 1975 under title: Basic science and the human body.

Bibliography: p.

Includes index.

1. Human physiology. 2. Anatomy, Human.

I. Paynton-Brooks, Natalie, joint author. II. Title.

[DNLM: 1. Anatomy. 2. Physiology. QS4.3 B873h]

QP34.5.B72 1980 612 79-24085

ISBN 0-8016-0808-2

THE HUMAN BODY

**STRUCTURE AND FUNCTION
IN HEALTH AND DISEASE**

In memory of
Mary Ann Paynton

Preface

This book is addressed to undergraduates taking courses in anatomy and physiology. It should prove of special value to students in nursing and the health sciences. Above all, it affords unique features, including supportive physics and chemistry and highlights of the common and major diseases.

A major weakness of currently available anatomy and physiology texts is the assumption that the student is familiar with the basic principles of physics, chemistry, and scientific measurement. By and large, this is a false assumption. At the very least, some sort of refresher is needed to help students attain maximum understanding of difficult material. In the area of acid-base balance, for instance, it is one thing to say that bicarbonate is a base and quite another to appreciate what this really means. Bicarbonate is a base because it accepts the hydrogen ion—acid! Many incoming students—including the best—do not know this. Whether or not they “never had it” or had had it but had forgotten it is quite beside the point. What is the point relates to knowing such fundamental facts here and now for immediate use. Some books attempt to remedy the situation by the use of footnotes or other digressive devices, but this leads to disjointed learning and, not uncommonly, frustration. In our view, the most logical solution is to present appropriate background information at the outset in a clear, concise, and cohesive fashion. This is the purpose of Part 1. In some instances the instructor may wish to cover all or parts of the

material therein as a formal segment of the course. Alternately, this could be left up to the student. Stated otherwise, Part 1 is an aid of wide adaptability.

The extensive coverage of disease is a feature of signal importance. This not only stimulates student interest but also serves to enhance and perfect an understanding of the normal via the abnormal. Innovative teachers of anatomy and physiology have embellished their lectures in this fashion since time immemorial, so why not put it into print? Disease, of course, encompasses infection, and fundamental to infection is microbiology, the essence of which is also presented in Part 1.

A great deal of effort was put into the selection of the large number of illustrations for the sole purpose of enhancing the student's understanding of the text and to underscore basic points. An illustration put in for any other purpose seems to us as wasted space.

The questions at the end of each chapter are numerous and searching; they are not afterthoughts. Many center on tie-in knowledge, and some are intended to stimulate outside reading.

People everywhere have been more than kind in assisting us. We wish to thank all the many scientists, authors, publishers, and manufacturers for the use of illustrative materials. Finally, we welcome all and any constructive remarks that could possibly perfect further editions.

Stewart M. Brooks
Natalie Paynton-Brooks

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PART 1

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