

The Intestinal Tract

**STRUCTURE, FUNCTION AND PATHOLOGY
IN TERMS OF THE BASIC SCIENCES**

By

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PREFACE

THE NEED for a reference volume on the intestinal tract becomes apparent when an attempt is made to obtain a description of its activities from scattered literature references or general text books. The present work is designed to fill part of this need by presenting a source of data basic to an understanding of the intestine. A discussion is given of intestinal structure, function, and pathology so that physicians, research workers, and students can have at their fingertips data which have been quite scattered. Intestinal activities are presented, when possible, in terms of measurable parameters. Methods developed in the last decade supplement older procedures and permit an evaluation of alimentary function with some accuracy (techniques such as mucosal biopsy during life, analysis of enzymes translocated from the intestine to the blood stream, and the use of radioisotopes to follow digestion, absorption, and enzyme production).

Intestinal performance is presented from the view point of the basic processes involved. Ideally, the prime focus of such a study is the individual cell. However, until data concerning the metabolism of each type of intestinal cell are available, we can cautiously rely on fragmentary reports in interpreting normal variations and the altered processes of disease states. Studies relating to the subject, originating from both clinical and laboratory groups, are located in diverse journals. The first task has been compilation, for the availability of this information is prerequisite to its use. The second task has been exposition and correlation, so that a somewhat comprehensive picture emerges. Much of our information has been gathered during studies of disease processes, and attention is given, particularly in the second half of the book, to clinical alterations.

This however is not primarily a book about "bedside gastro-

enterology" in the usual sense (several such volumes are available and provide dosage schedules and other clinical details). Rather, this is a presentation of data necessary for the interpretation of intestinal function and dysfunction. In areas in which clinical aberrations are apparent but no basic data are gathered, findings have been presented, of necessity, in clinical terms. The book may thus serve as a reference for clinical studies, an introduction to the pertinent literature for scientists, and a text for students. No pretext is made to exhausting the subject or including all pertinent references. In a number of instances, more recent but less definitive papers have been listed because of their contained bibliographic material; hence the listing of an article does not necessarily mean that it has chronologic priority. My debt to those who have contributed reviews of the literature is obvious. Certain subjects of great interest in themselves, which have been extensively dealt with elsewhere, are only mentioned in passing. Thus the areas of intraluminal pressure changes, theory of active transport, the mucous barrier, intestinal motility and the portal circuit, are discussed briefly and further reading sources suggested.

During the digestive process, secretions from the stomach, liver, pancreas, and intestine are churned together with food materials. Digestion and absorption take place from this complex medium which is a clinical reality, but a biochemist's nightmare. It is impossible to analyze the situation in a few words or a handful of equations. Out of necessity, the subject has been subdivided for ease of presentation. It should be borne in mind that the body recognizes no such divisions. Acts within the intestine take place sequentially, usually under excellent coordination. We lack information as to the overall mechanisms integrating such acts; this is but one of the problems whose solution awaits the future.

Errors of omission and commission are all too likely to appear in such a volume. For these the author expresses regret, and hopes the reader will call them to his attention. The most serious lack though, is a paucity of data to illuminate, correlate and define the varied aspects of intestinal function. Information will have to be gathered from both the clinic and the laboratory to fill in these blanks.

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R. P. S.

CONTENTS

Page

Preface	vii
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SECTION I

The Intestinal Canal and Methods For Its Study

Chapter

1 DEVELOPMENT, GENETICS, AND STRUCTURE	5
Intestinal Tract of Other Species	7
Embryology	7
Developmental Anomalies	10
Genetically Determined Errors of the Intestinal Tract ..	11
Blood Groups and Gastrointestinal Disease	13
Functional Anatomy	14
References	17
2 CLINICAL AND LABORATORY TECHNIQUES	23
References	31

SECTION II

Intestinal Function and Its Modifiers

3 INNERVATION, PERISTALSIS AND DEFECATION	37
Nerves Within the Intestine	38
Innervation of the Small Intestine	39
Innervation of the Large Intestine	41
Sphincter Control and Defecation	43

<i>Chapter</i>	<i>Page</i>
Movements of the Alimentary Canal	44
Intestinal Tract and Vomiting	46
References	46
4 COMPOSITION AND METABOLISM OF CELLS COMPRISING THE	
INTESTINE	50
Metabolism of Intestinal Muscle Fibers	58
Aspects of the Gradient Theory	60
Some Enzymes of the Intestinal Mucosa	61
References	62
5 SOME PHYSICAL FACTORS AND INTRALUMINAL GAS	68
Other Physical Factors	70
Effects of Electricity	71
Anoxia	71
References	71
6 PRODUCTION AND TRANSLOCATION OF GASTROINTESTINAL	
ENZYMES AND PROTEINS	73
Introduction	73
Enzymes of the Alimentary Lumen	73
Methods of Studying Proteins and Enzymes of the Mucosa	77
Enzyme Production by the Gastrointestinal Tract	79
Some Limiting Factors in Enzyme Production	81
Control and Release of Enzymes	84
Fate of Secreted Enzymes	84
Altered Alimentary Enzyme Patterns	85
Secretion of Other Proteins	88
'Non-Secreted' Proteins in Alimentary Lumen	89
Passage of Amino Acids into Alimentary Lumen	90
Absorption of Intact Proteins	91
Translocation of Alimentary Enzymes and Proteins	92
References	97
7 ENZYMES AND DIGESTIVE PROCESS	107

Chapter	Page
Digestive Enzymes	108
References	122
8 GASTROINTESTINAL HORMONES	127
Secretin	129
Cholecystokinin	129
Gastrin	130
Pancreozymin	130
Enterogastrone	130
Duocrinin, Enterocrinin, Villikinin	131
Urogastrone, Anthelone	131
References	131
9 ABSORPTION	133
Carbohydrates	136
Lipids	138
Steroids	144
Amino Acids	146
Absorption of Nucleic Acids	149
Water and Electrolytes	149
Medications	150
Other Substances	150
Absorption From the Rectum and Sigmoid	151
Disintegration of Medications Within the Intestine	153
Clinical Tests of Intestinal Absorption	154
Clearance by Alimentary Lumen Cells	157
Comments on Use of the Word Clearance	161
References	162
10 ELECTROLYTE SECRETION	173
References	177
11 INTESTINAL BACTERIA AND THEIR PRODUCTS	178
Bacterial Production of Nutrients	180
Bacterial Products in Feces	182

<i>Chapter</i>	<i>Page</i>
Antibiotics and Intestinal Bacteria	185
References	187
12 BLOOD SUPPLY AND GASTROINTESTINAL HEMORRHAGE	191
Studies of Mesenteric and Intestinal Vessels	194
Quantitation of Intestinal Blood Flow and Pressure	194
Blood Within the Alimentary Lumen	196
Effects of Alimentary Hemorrhage	200
References	201
13 PORTAL CIRCUIT AND ENTEROHEPATIC CIRCULATION	206
Enterohepatic Circulation	211
References	214
14 HORMONES	216
Pituitary Hormones	216
Posterior Pituitary	216
Anterior Pituitary	217
Epinephrine-Norepinephrine	218
Adrenal Cortical Hormones	219
Histamine	220
Acetylcholine	221
Insulin	222
Parathyroid Hormone	222
Androgens	224
Estrogens	224
Thyroid Hormone	225
Pregnancy	229
References	230
15 VITAMINS	239
Vitamin A	239
Vitamin C	241
Vitamin D	241
Vitamin E	242

Chapter	Page
Vitamin K	243
The Vitamins B	243
References	246
16 CATHARTICS AND TOXINS	250
Toxins	254
References	257

SECTION III

Disorders of Intestinal Function

17 SOME EFFECTS OF DIET AND PSYCHE	263
References	265
18 ULCERATIVE COLITIS	267
References	273
19 REGIONAL ENTERITIS AND PSEUDOMEMBRANOUS ENTEROCOLITIS	277
References	279
Pseudomembranous Enterocolitis	280
References	282
20 ISOTONICITY AND THE DUMPING SYNDROME	283
References	289
21 POTASSIUM METABOLISM	291
Basis of the Interrelation	291
Intake	292
Intraluminal Pool	293
Quantitation of Absorption	294
Factors Altering Absorption	295
Potassium Loss From the Alimentary Canal	297
Relation of Other Defects of Potassium to Alimentary Function	298
Function of Potassium in Alimentary Cells	299
Therapeutic Aspects	300

<i>Chapter</i>	<i>Page</i>
Summary	301
Appendix	302
References	303
22 PROTEIN LOSS	307
Criteria for Determining Fecal Protein Loss	307
Proteins of Alimentary Secretions	309
Differential Diagnosis of Protein Loss From the Alimentary Canal	310
Practical Methods for Quantitating Protein Loss	311
References	312
23 MALABSORPTION	314
Diagnosis	318
Absorptive Studies During the Malabsorption Syndrome ..	322
Summary of Absorption Studies in Malabsorption	329
Notes on Therapy	329
Site of the Mucosal Defect	330
Appendix A	333
Appendix B	334
References	334
24 SUPRA-ABSORPTION: HEMOCHROMATOSIS AND WILSON'S DISEASE	342
Wilson's Disease	343
Iron Absorption and Hemochromatosis	344
References	351
25 EFFECTS OF IRRADIATION	354
Effects of Irradiation on the Gastrointestinal Tract	354
Radiation Specifically Directed Against the Gastrointestinal Canal	354
Effects of Whole Body Irradiation on the Alimentary Tract	355
Radiation Death and the Role of the Intestine	357
Absorption and Secretion of Radioactive Materials by the Gut	358

<i>Chapter</i>	<i>Page</i>
References	361
26 PIGMENTARY DISORDERS	365
References	370
27 CARCINOID SYNDROME	372
References	376
28 INTESTINAL SUBSTITUTES FOR THE BLADDER	379
References	382
29 MISCELLANEOUS DISORDERS	384
Uremia	384
References	386
Tumors of the Intestinal Tract	387
References	390
Gastrointestinal Amyloidosis	392
References	393
Parasites	394
References	395
'Collagen' Diseases	396
References	396
'Nonspecific' Ulcers of the Intestine	397
References	397
Index	399

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I

THE INTESTINAL CANAL AND METHODS FOR ITS STUDY

