

# Successful Training in **Gastrointestinal Endoscopy**

Edited by  
**Jonathan Cohen**



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# Successful Training in Gastrointestinal Endoscopy

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 **WILEY-BLACKWELL**

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# Foreword

Throughout the years, it is evident that the best practitioners of endoscopy are not necessarily the best teachers and, parenthetically, the best teachers may not be the best practitioners of this discipline. Teaching is a skill that can be learned, but in the field of gastrointestinal endoscopy, most teachers acquire their ability to impart their knowledge to others by watching their teachers over years of schooling and incorporating the best parts of several educators into their personal style of educational communication. In the field of endoscopy, all who become teachers have an enormous responsibility, not only to share their knowledge completely and selflessly with the student, but to watch over the patient at all times to ensure their safety and that the teaching aspect of the procedure does not infringe upon the ability to provide the best endoscopic examination possible. The information that is given must become a part of the student's approach to the entire endoscopic experience including such aspects as informed consent, the preparation of the patient, the discussion of the procedure both before and after the instrumentation takes place and, of course, the careful and repetitive steps needed for the effortless and practiced performance of the examination itself. The endoscopic approach, learned by the side of the instructor, will be used for the rest of the professional lives of the students and are skills that will be further enhanced as the student becomes more familiar with the myriad procedures that are possible and seemingly impossible but that can be built upon by a solid foundation to cope with emerging technology. It is not possible in this book to present all the facets of learning all aspects of endoscopy, but Dr. Cohen has made it a priority to present all facets of teaching the procedural aspect of gastrointestinal endoscopy, and has done it well.

Prior to assigning chapters to write, Dr. Cohen identified three attributes that had to be realized in each of the authors whom he invited to participate in this unique teaching endeavor. Each author had to be a superb endoscopic technician who also is currently engaged in formally teaching endoscopy to students as well as other endoscopists, and has demonstrated skill in writing and putting their thoughts on paper in an organized fashion. Having

written a multiauthored book on narrow band imaging (*Comprehensive Atlas of High Resolution Endoscopy and Narrowband Imaging*), Dr. Cohen used his networking ability to find the right endoscopy colleagues for each chapter of the present book. In spite of its title "*Successful Gastrointestinal Endoscopy*", this book is not just a teaching manual, but is actually a "how I do it" textbook developed from the standpoint of an endoscopic expert who also teaches. The accumulated mass of knowledge from these teachers of endoscopy are spread evenly throughout each chapter, which showcases their techniques developed over years of teaching fellows while standing by their side, giving verbal instructions, sharing tips, discussing the approach to problems, and being mentors in their training.

In addition to the wisdom imparted through the transfer of knowledge via the written page, there is an extensive video section contained on the enclosed DVD, which demonstrates the techniques that are written about. The videos complement the book and walk the student through the process to increase the understanding of the training set.

The World Endoscopy Organization (WEO) is pleased to endorse this book since its goals are clear and well defined: that to perform endoscopy one needs to have proper training. This training is best accomplished under the watchful tutelage of a person who is dedicated, expert, and facile not only in the performance of the procedure but also in the ability to transfer skills to the next generation of endoscopists. The WEO promotes excellence in endoscopy throughout all parts of the world and focuses on bringing endoscopy to underserved areas where endoscopy is underutilized.

This book will serve as a valuable resource for those who are in training, those accomplished endoscopists who want to increase their knowledge of techniques, and all the endoscopists who train others in this rapidly growing and exciting field.

Jerome D. Waye, MD  
President, World Endoscopy Organization



# Preface

The field of gastrointestinal endoscopy today faces a frenetic intersection of change. Many new technologies are emerging to expand the diagnostic and therapeutic capabilities of endoscopists. Innovative investigators are also devising new therapeutic applications of existing equipment. A heightened focus on optimizing quality performance in our procedures necessarily has required a renewed attention on how to ensure that the individuals asked to practice endoscopy are fully trained to achieve the highest possible outcomes. Competing diagnostic and therapeutic modalities threaten to make some of the standard procedures obsolete and challenge the individuals who spend most of their time performing them to adapt. For many individuals caught in this crossroads mid-career, finding the time and opportunities to retool can be very challenging, irrespective of the personal economic concerns involved in making the commitment to upgrade skills in response to the changing conditions.

At the same time, practitioners from specialties previously not involved with endoscopy have been drawn by various forces to learn endoscopy. Resources for training in major GI endoscopy procedures and in specific advanced techniques are limited. For many procedures, the trainers and trainees are hindered by the lack of sufficient case volume in the given technique to be taught. The availability of expert mentors to teach required skills can be another major impediment to training opportunities.

The increased demand for high-quality training and the supply limitations due to the costs and time required for this labor intensive process have driven the development of novel teaching tools which aim to increase the efficiency of training, and where possible increase the potential for independent learning.

The purpose of this book is to provide a comprehensive examination of the principles and specific components of training in endoscopy. The first section explores the important concepts of training and describes the range of tools that have been utilized in this regard. The next two sections provide in-depth discussion of the major current endoscopic procedure categories as well as most specialized diagnostic and therapeutic techniques. For each of these chapters, the authors have considered prerequisite skills for training, skill sets to be mastered, step-by-step components that must be taught and assessed by trainers, typical learning curve for trainees, and objective measures of competency which

trainees must strive to attain. For some of these topics, there has been scant literature to define these parameters. Accordingly, the authors have drawn from their extensive experience in training and performing these procedures to provide their recommendations where data is lacking. The material presented will identify important questions about training that warrant future investigation. The accompanying edited and annotated video clips on the DVD highlight key teaching points for instructors to emphasize. The final section looks to the future of training and retraining in gastrointestinal endoscopy. Key logistical hurdles to this process are examined and the importance of keeping track of outcomes, the ultimate indicator of successful training, is emphasized.

This combined textbook with DVD provides a comprehensive guide for trainees and trainers in gastrointestinal endoscopy of all aspects of the process of acquiring expertise in the techniques that are currently performed. For each procedure, the focus is to cover what needs to be learned, how best to learn it, and how to ensure that sufficient training has taken place to ensure competency.

The chapters examine the specific skills sets and procedure-related tasks that must be mastered in learning a particular technique. They contain specific descriptions of accessories required, standard training methods for the particular procedure, and optimal utilization of novel learning modalities such as simulators. Quality measures and objective parameters for competency for each procedure are considered when available, along with available tools for assessing competency once training has been completed.

The accompanying DVD included with the text contains over 130 annotated video clips of both actual procedures and ex vivo animal model simulations to illustrate proper techniques in a step-by-step fashion and demonstrates common mistakes and improper technique.

The purpose of this volume is to help endoscopists realize optimal levels of skill as they perform the procedures they aspire to learn.

Though the focus of this textbook/DVD remains on how to learn and how to teach each technique, because doing so requires delineation and illustration of all skill sets to master, the textbook chapters and particularly the video unavoidably serve as learning tools for the proper performance of endoscopic techniques in addition to an authoritative primer on training.

*Jonathan Cohen, MD*

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# Acknowledgements

I wish to thank the many authors who contributed text and video for this volume for their great efforts and willingness in many cases to take on topics that have not been fully explored before. Beyond that, I want to extend my gratitude to the individuals who have been my teachers in endoscopy. Despite all advances in tools and methods of training detailed in this book, the importance of having wonderful mentors remains paramount to successful training in endoscopy. I have been particularly fortunate in this

regard. Besides imparting their wisdom and expertise, they have given me a strong appreciation for the importance of training and of ongoing learning in this ever changing and exciting field.

Thanks also to Cori, Juliette, and Ben for their tremendous understanding, encouragement, and support.

*This book is dedicated to JJC for his lifelong inspiration and for giving me the idea for this project. AELCFIS!*

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# **The Evolution of Basic Principles and Practice**



# Training in Endoscopy: A Historical Background

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## Introduction

Gastrointestinal endoscopy has grown increasingly more complex as the field has evolved over the past several decades, now requiring the practitioner to become proficient at many techniques. To perform high-quality care, endoscopists often have had to devote time to learn new techniques as well as take care to continually maintain existing skills. As the technology and applications have progressed, so too have the methods by which individuals have learned to perform these procedures. In this chapter, we will trace the evolution in training from the self-taught pioneers of the early days to the advent of formal proctored tutelage that remains the mainstay of training in this field. The chapter will also relate the emergence of numerous innovative learning tools that have already served to further transform training in gastrointestinal endoscopy. In particular, we will describe the development of simulator-based instruction from the creation of realistic models to their validation and growing importance in endoscopic training. Lastly, we will address a number of novel principles of education in endoscopy that have paralleled the growing availability of these new teaching tools.

## Standard training in endoscopy: then and now

Self-training for gastrointestinal procedures was the mode by which many of the early endoscopists progressed, largely because devices and equipment became available for which there was no “expert” instruction. In general, this method is not appropriate any longer for training in standard procedures (i.e., colonoscopy, upper endoscopy) where sufficient proctoring is readily available. However, as newer techniques are introduced (i.e., endoscopic suturing, endoscopic mucosal resection (EMR), endoscopic submucosal dissection (ESD), stent placement, transluminal surgery), the question of how to satisfactorily teach these new skills becomes relevant [1]. In fact, “short courses” have been developed to review the cognitive and technical aspects associated with such procedures. American Society for Gastrointestinal Endoscopy (ASGE)

guidelines concerning such “short courses” exist, and suggest them as a possible way for experienced endoscopists to acquire new skills, but reject such methods for initial training for “standard” endoscopic techniques such as colonoscopy, upper endoscopy, ERCP, and EUS [2].

The need to impart the wisdom from the growing expertise with endoscopes was readily apparent to the pioneer generation of flexible fiberoptic endoscopy. As early as 1962, the then recently renamed ASGE conducted a symposium entitled “Teaching Methods in Gastrointestinal Endoscopy” in New York City [3]. Two years later, the ASGE formed a committee to examine the requirements for training endoscopists; the conclusions established training as a priority and created a framework that guided formal endoscopy training for many years to follow. Three items were required: (1) full training in medicine or surgery, (2) special training specifically in GI endoscopy under the supervision of an appropriately skilled teacher, and (3) performance of an adequate number of procedures. Soon to follow was the first annual postgraduate training course.

These efforts at a national level have been complemented by a proliferation of local and regional efforts to promote training with local courses and lectures aimed to supplement the one-on-one supervised instruction of trainees in the endoscopy laboratory as well as keep practicing endoscopists up on all of the latest techniques and advances. In 1973, Jim Eddy, Jerry Wayne, Hiromi Shinya, Sid Winawer, Paul Sherlock, Henry Colcher, David Zimmon, and Richard Mc Cray met at the Yale Club to discuss how they might disseminate their knowledge and excitement about colonoscopy and polypectomy to practicing gastroenterologists. The result was the formation of the New York Society for Gastrointestinal Endoscopy (NYSGE) and shortly thereafter, an annual endoscopy course initially designated “A Day in the Colon.” In this case, a regional society was founded for the sole purpose of promoting training. The evolving role of societies in training is the subject of a subsequent chapter in this book. However, it is important to recognize that from the national to the local level, the endoscopic societies have provided the dedication, organization, and resources to innovate and advance the field of training.