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国外优秀生命科学教学用书



Education

医学生复习指南丛书

英文影印版

# 胚胎学基本要点

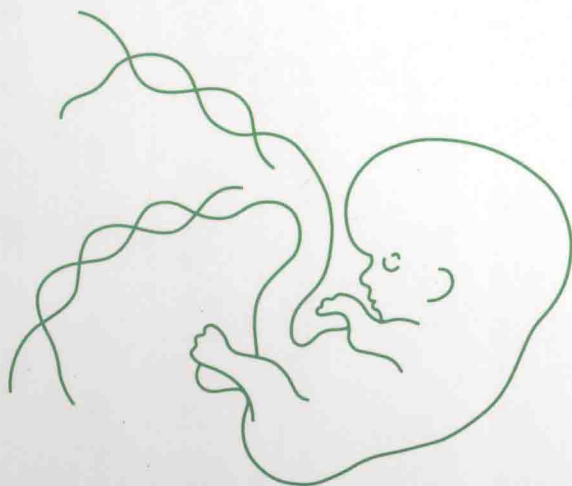
BASIC CONCEPTS

IN

# Embryology

A STUDENT'S SURVIVAL GUIDE

Lauren J. Sweeney



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北京大学医学出版社



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# Embryology

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## Notice

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## 影印出版说明

“医学生复习指南丛书”是美国医学生所用的基础医学阅读参考书系列之一，也是参加“美国医生执照考试”（United States Medical Licensing Examination, USMLE）考前复习的主要参考书。由《生理学基本要点》、《生物化学基本要点》、《免疫学基本要点》、《药理学基本要点》、《病理学基本要点》、《医学遗传学基本要点》、《细胞生物学与组织学基本要点》、《胚胎学基本要点》、《神经科学基本要点》等组成。

本丛书内容主要为基础医学各核心课程中的基本概念及重点内容，涵盖了“美国医生执照考试”（USMLE）的主要考点内容，并用容易理解与掌握的方式对各个学科的难点内容进行了讲解。在编写方式上，作者用简明易懂的文字和大量的图表进行解释，便于学生掌握学科的重点内容，可使学生用最少的时间对学科的内容有一个完整的概念与基本了解。在取材上经过作者的精心取舍，注重知识的系统性和相关知识的联系，加强了临床应用必需的内容，因而在内容的深度和广度上比较适合医学本科教育的需要，也符合医学基础服务于临床的宗旨。例如：“细胞生物学与组织学基础教程”中不仅讲述了从细胞膜至细胞核的基本知识，还介绍了各种组织和各个器官的结构和功能；“医学遗传学基础教程”从遗传学的基础概念联系到大量的临床遗传性疾病；“胚胎学基础教程”讲述了许多先天性畸形的发生机制和危险因子……这样的编排不仅使医学基础知识紧扣临床实际，还会增强学生运用知识的能力。当然，在相互联系中更能巩固所学知识的记忆。

本丛书写作文字流畅，可读性强；条理清晰，方便查阅。对于中国的医学生来说，使用本丛书不仅能使他们掌握各学科的专业基础知识和基本概念，同时，在学习过程中，还能学到更加地道的英语表达方式，提高其专业外语水平。本丛书可作为医学基础课双语教学的英语教学参考书，也是参加美国“医生执照考试”（USMLE）的中国医学生和医生考前复习的必备参考书。



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# • P R O L O G U E •

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*Basic Concepts in Embryology: A Student's Survival Guide* is designed to serve several purposes missing in available embryology books. It can be used as a primary text, a review book, or as a reference for those who occasionally find themselves in need of a quick understanding about a specific point of embryonic development without delving into the whole field.

Embryology has traditionally been a difficult subject for most students to grasp. That difficulty turns off many students to the intriguing story that it tells. After all, we're talking about how a single cell can contain (and correctly express) all the instructions to cause daughter cells to "germinate" into the correct tissues in the correct locations, and how these tissues then interact to form all the specific organs which compose an entire human being.

As the number of embryology lectures in medical curricula decrease, the burden placed on students actually increases, as they are forced to absorb *greater* numbers of new terms and unfamiliar visual pictures per class "contact hour", leaving less time for explanations which tie the facts together. This also means that students learn embryology less thoroughly the first time around, placing more demands on their time as residents and fellows when some of this material becomes clinically relevant.

All of this puts a greater premium than ever on having a short source book which contains just enough of a description of events so that the facts are tied together into a conceptual framework which tells the story of embryonic development. This book is designed to fill that need.





BASIC CONCEPTS



# Embryology



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# • C H A P T E R • 1 •

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## INTRODUCTORY FRAMEWORK

### HOW TO MAKE MAXIMAL USE OF THIS BOOK

#### Where to start

Constantly remind yourself *why* you have opened this book, and zero in on just the material relevant to that purpose. Are you trying to clarify a particular point of basic embryonic development? Are you trying to understand the embryonic basis for a specific congenital defect? Or are you trying to learn the full story of embryology for a current course? Your plan of attack will depend on your goal.

#### Use the chapter subheadings as a preview

Each chapter begins with a detailed outline of its contents, and each section of the chapter contains many headings and subheadings. Most of the subheadings summarize the embryonic story in the text that follows. If you already know the story summarized in the heading, or it's not relevant to your specific quest, you can proceed on to the next heading. The chapter outline and its headings can be used as a preview or overview of the entire chapter. In many cases, that may be all the detail you need on that area.

#### Key in on the information in boxes

Boxes surround key pieces of material within each section. In particular, descriptions of congenital defects and their causation are "boxed up" for ready identification.

#### Text and illustrations are always on facing pages

The format of this book eliminates the need to constantly flip back and forth between figures and the text that explains them.



## TRIVIA SORTER

### Focus on the story that ties together the facts

This book contains just the bare bones facts of embryology to which everyone should have ready access. The text concentrates on outlining the story which connects these facts. However, to the uninitiated, the facts can still overwhelm the story. For example, if you have never studied embryology before, you are unlikely to know what the *primitive streak* or *buccopharyngeal membrane* are, or what role they play in development. Here are some suggestions to take such detail out of the level of apparent trivia and connect it into a story.

### Break down development into categories, and then ask what you need to know about each

Chapter 2 provides you with the overview you will need to divide development into the following categories. Concentrate on answering the following questions in each category, and you will spend a lot less time memorizing facts:

#### Developmental events

*Embryonic* versus *fetal* stages of development:

- What are the major developmental events that occur in each of these stages?
- Which period is more susceptible to formation of congenital defects?

Development of *extraembryonic* “support” structures: yolk sac, amnion, chorion, placenta, and umbilical cord:

- Which extraembryonic structures are formed by embryonic contributions and which by maternal uterine tissues?
- What role does each extraembryonic structure play in embryonic development?

Formation of the germ layers: ectoderm, mesoderm, and endoderm:

- What is the origin of each germ layer?
- How does body folding change the relationship of these layers?
- What are the derivatives of each germ layer?

Specifically, what are the *tissue* derivatives of each germ layer?

For this, you have to know only the basics of the *four* tissue categories in the body; this is introduced in Chap. 5.