



对《Pathophysiology: the biologic basis for disease in adults and children》

第6版的介绍和评价

北京大学医学部病理生理室

吴立玲



◆ Kathryn L. McCance博士

◆ Sue E. Huether博士

共同主编

Mosby公司出版

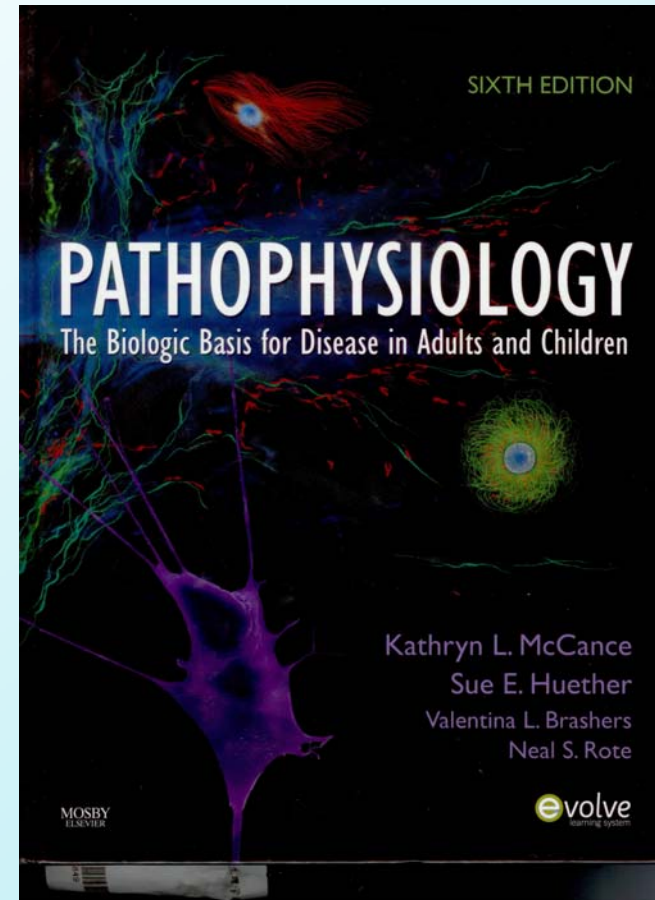
1990年第1版

每4年再版1次

2010年出版第6版

多次在Amazon图书网站的评论中

获得五星级的最高评价





一、主编简介

◆ **Kathryn L. McCance** 博士是犹他大学护理学院的教授，同时也是犹他州立卫生院的 合作顾问。她一直致力于病理生理学的教学工作，曾在犹他大学的资助下，负责在计算机辅助下采用多媒体手段加强传统及非传统模式下病理生理学教学的发展计划，于1999 年获得 **Calvin S. 和 JeNeal H. Hatch** 教学奖

◆ **Sue E. Huether** 博士是犹他大学护理学院 的名誉教授，曾担任犹他大学护理学院的副 院长和项目部主任



二、教材的基本构架

全书分为两大部分，共十五个单元。
每个单元又分为若干章节，共计四十七章

第一部分 病理生理学的中心概念：细胞和组织
(CENTRAL CONCEPTS OF PATHOPHYSIOLOGY:
CELLS AND TISSUES)

第二部分 器官和系统的病理生理学变化
(PATHOPHYSIOLOGIC ALTERATIONS: ORGANS
AND SYSTEMS)

第一单元 细胞(The Cell)

第二单元 基因和基因与环境的相互作用
(Genes and Gene-Environment Interaction)

第三单元 自身防御的机制
(Mechanisms of Self-Defense)

第四单元 细胞增殖：肿瘤
(Cellular Proliferation: Cancer)

第一单元的三个章节中分别阐述了细胞生物学、细胞和组织生物学变化、细胞的环境-水、电解质和酸碱平衡对人体健康与疾病的影响。在第六版中充实了细胞内信号传递和细胞间联系的内容。

第二单元 基因和基因与环境的相互作用 (Genes and Gene-Environment Interaction)

第二单元的两个章节着重介绍基因与基因病、基因与环境及常见疾病，新版中主要增加了氧化应激、细胞死亡的类型、凋亡和衰老的内容。

第三单元 自身防御的机制

(Mechanisms of Self-Defense)

第三单元分五个章节分别介绍了机体的自身防御机制，包括先天性免疫-炎症反应、获得性免疫、免疫和炎症反应变化、感染、应激与疾病。作者对正常机体的先天性免疫和获得性免疫，以及免疫功能变化和炎症的内容进行了更新，特别是对感染的内容进行了较大的修订，对应激与疾病一章进行了重新编排。

第四单元 细胞增殖：肿瘤

(Cellular Proliferation: Cancer)

第四单元着重阐述了细胞增殖，特别是肿瘤的相关内容，分为肿瘤生物学，临床表现及其治疗、肿瘤的流行病学以及儿童肿瘤三个章节，新版中对肿瘤生物学、肿瘤的侵袭与转移的内容进行了重新编排并增加新的内容。



第二部分 器官和系统的病理生理学变化 (PATHOPHYSIOLOGIC ALTERATIONS: ORGANS AND SYSTEMS)

十一个单元，共计三十三个章节

前十单元：将人体分为神经，内分泌、生殖、血液、心血管、呼吸、泌尿、消化、运动和皮肤十大系统，分别阐述各个系统某些主要疾病的病理生理过程。

最后一个单元：专门论述了多系统的相互作用，用两个章节分别对成人和儿童在休克、多器官功能障碍综合征和烧伤过程中的变化和机制进行介绍。



第六版中的第二部分，作者进行了较大的修订，特别是对认知障碍、痴呆等神经系统改变，内分泌改变的基因基础、胰岛素抵抗的病理生理、血细胞的功能、内皮细胞损伤、哮喘的基因与环境因素及其细胞因子的作用、遗传性因素对肾功能的影响、消化性溃疡和肠道疾病的研究进展等进行了充实和改编。



三、相关资源

与该教材相配套的还有2个独立的纸本和网络学习资源作为教材的补充和扩展。

《Study Guide for Pathophysiology》

- ◆ 学习目标 (learning objectives)
- ◆ 记忆提示 (memory checks)
- ◆ 关键点总结 (summaries of key chapter concept)
- ◆ 考试练习 (practice examinations)
- ◆ 病例分析 (case studies)

帮助读者帮助理解和复习教材的内容



[Http://evolve.elsevier.com/McCance/](http://evolve.elsevier.com/McCance/)网站

学习 Pathophysiology Online 中的 Evolve courses

- ◆ 775个复习题
- ◆ 1000多个专业名词的综合词汇表
- ◆ 部分为有声词汇表
- ◆ 25个动画
- ◆ 网络站点联接



四、各章节的编写特点

各章节的编写格式基本一致

- ◆ 多媒体资源：在网站上提供各章的复习题和答案、动画、词汇表和相关的站点链接
- ◆ 详细的二级目录
- ◆ 正文
- ◆ 章后的小结
- ◆ 关键词表
- ◆ 参考文献



作者采用简洁明了的语言和富有逻辑性的编排对内容进行阐述，特别突出的是使用了大量的彩图、表格和文本框对重要内容进行归纳和讲解。

表格简洁

Cell growth and survival
Amino acid and electrolyte transport

Figure 20-16 Insulin action on cells. Binding of insulin to its receptor causes autophosphorylation of the receptor, which then itself acts as a tyrosine kinase that phosphorylates insulin receptor substrate 1 (IRS-1). Numerous target enzymes, such as protein kinase B and MAP kinase are activated, and these enzymes have a multitude of effects on cell function. The glucose transporter, GLUT4, is recruited to the plasma membrane, where it facilitates glucose entry into the cell. The transport of amino acids, potassium, magnesium, and phosphate into the cell is also facilitated. The synthesis of various enzymes is induced or suppressed, and cell growth is regulated by signal molecules that modulate gene expression. MAP, mitogen-activated protein. (Redrawn from Berne RM, Levy MN: Principles of physiology, ed 3, St Louis, 2000, Mosby.)

Table 20-8 Insulin Actions

Actions	Sites of Insulin-Promoted Synthesis		
	Liver Cells	Muscle Cells	Adipose Cells
Glucose uptake	Increased	Increased	Increased
Glucose use	—	—	Increased glycerol phosphate
Glycogenesis	Increased	Increased	—
Glycogenolysis	Decreased	Decreased	Increased
Glycolysis	Increased	Increased	—
Gluconeogenesis	Increased	Increased amino acid uptake	Increased fat esterification
Other	Increased fatty acid synthesis	Increased protein synthesis	Decreased lipolysis
	Decreased ketogenesis	Decreased proteolysis	Increased fat storage
	Decreased urea cycle activity		

of growth hormone and TSH. Little is known about pancreatic somatostatin, but in animal studies it has been found to be involved in the regulation of alpha cell and beta cell function within the islets.⁵⁵ Presumably, somatostatin inhibits glucagon and insulin secretion, and it may prevent excess secretion of insulin.

is released by F cells in response to hypoglycemia and pre-rich meals and signals satiety.⁶⁶ It also inhibits gallbladder contraction and exocrine pancreas secretion and inhibits gastric acid secretion. It is frequently increased in pancreatic tumors and in diabetes.

Adrenal Glands
The adrenal glands are paired pyramid-shaped organs.



各种颜色的文本框侧重不同

“Box”文本框着重归纳知识点

举例：总结内皮细胞的功能

Box 29-2 Vascular Protection and Injury Properties of Insulin

Protection
Insulin increases endothelial cell production of nitric oxide. NO (in vitro) inhibits growth of vascular smooth muscle. NO decreases the inflammatory reaction by reducing expression of adhesion molecules and inhibiting release of proinflammatory cytokines (e.g., tumor necrosis factor- α , monocyte chemoattractant protein-1 [MCP-1]). NO decreases the binding of monocytes/macrophages to the vessel wall. NO also inhibits the thrombotic process by decreasing platelet adhesion and enhancing the effect of prostaglandin to inhibit platelet aggregation.

Injury
Insulin slightly increases growth of vascular smooth muscle (VSMCs). Insulin increases the effect of platelet-derived growth factor. Insulin resistance is likely more important to the atherosclerotic process than hyperinsulinemia, and insulin resistance disrupts the balance between vasoprotective effects mediated by NO and the atherogenic effects involving VSMC proliferation, stimulating plasminogen activator inhibition and increasing clot formation.

Data from Sobel BE: Am J Med 113(Suppl 8A):105-123, 2002; Sorsky A: Am J Ther 9(5):516-521, 2002; Terryson CE: Arterioscler Thromb Vasc Biol 23(Suppl 1):S450-S459, 2002.



各种颜色的文本框侧重不同

What's New? 文本框总结了基础和临床的最新成果

- ◆ ACE的新亚型(ACE2)
- ◆ 新功能
- ◆ Ang受体新亚型(AT4)
- ◆ AngII疫苗

WHAT'S NEW? The Renin-Angiotensin-Aldosterone System Revisited

Exciting research is uncovering additional roles of the renin-angiotensin-aldosterone system (RAAS) in cardiovascular and systemic conditions:

1. A new type of angiotensin-converting enzyme (ACE₂) has been identified that decreases angiotensin II (Ang II) levels and may offer a whole new way of combating hypertension.
2. The RAAS has profound effects on glucose metabolism, endothelial cell function, and renal disease that has led to new uses for drugs that block angiotensin receptors, especially in individuals with diabetes and kidney disease.
3. Activation of angiotensin 1 receptor (AT₁) promotes systemic inflammation and mediates inflammatory myocyte hypertrophy, fibroblast proliferation, collagen synthesis, smooth muscle cell growth, endothelial adhesion molecule expression, and catecholamine synthesis. Thus there is likely an important role for the RAAS in many diseases including atherosclerosis, heart failure, and shock.
4. A new angiotensin receptor (AT₄) has been described that is concentrated in the brain and may be involved in cerebral processing, cerebroprotection, local blood flow, stress, anxiety, and depression.
5. Vaccines to Ang II and its receptors are being developed that might provide a more targeted and potent blockade of the RAAS.

Data from Lambert DW, Hooper NM, Turner AJ. *Biochem Pharmacol* 75(4):781-786, 2008; Perkins JM, Davis SN. *Curr Opin Endocrinol Diabetes Obes* 15(2):147-152, 2008; Skultetyova D et al. *Recent Patents Cardiovasc Drug Discov* 2(1):23-27, 2007; Widdop RE et al. *Clin Exp Pharmacol Physiol* 35(4):388-390, 2008; Wright JW, Yamamoto BJ, Harding JW. *Prog Neurobiol* 84(2):157-181, 2008; Zhu F, Zhou Z, Liao Y. *Curr Opin Invest Drugs* 9(3):266-269, 2008.

properties through the second messenger system. ADM acts as a local autocrine hormone and is increased in the plasma of patients with cardiovascular diseases such as hypertension, chronic congestive heart failure. Overall, ADM plays an important role in fluid and electrolyte balance regulation. Recent studies in rats with congestive heart failure where ADM was administered reveals cardiac remodeling and heart failure.

ADM plays an important role in decreasing oxidative stress, limiting endothelial dysfunction, promoting vasodilation, and promoting a

WHAT'S NEW? New Insights into the Role of Atrial Natriuretic Peptide (ANP), Brain Natriuretic Peptide (BNP), and C-type Natriuretic Peptide (CNP) in Hypertension and Heart Failure

Atrial natriuretic peptide (ANP), brain natriuretic peptide (BNP), and C-type natriuretic peptide (CNP) are known to play a role in hypertension and heart failure by reducing blood volume and increasing vasodilation. New and exciting peptides have been described, including ANP-related peptides, that may play a role in growth, immunity, asthma, myocardial hypertrophy, and endothelial function. Although there is a need to better understand the complexity of these molecules and their role in disease, it is needed to better understand their potential in many diseases.

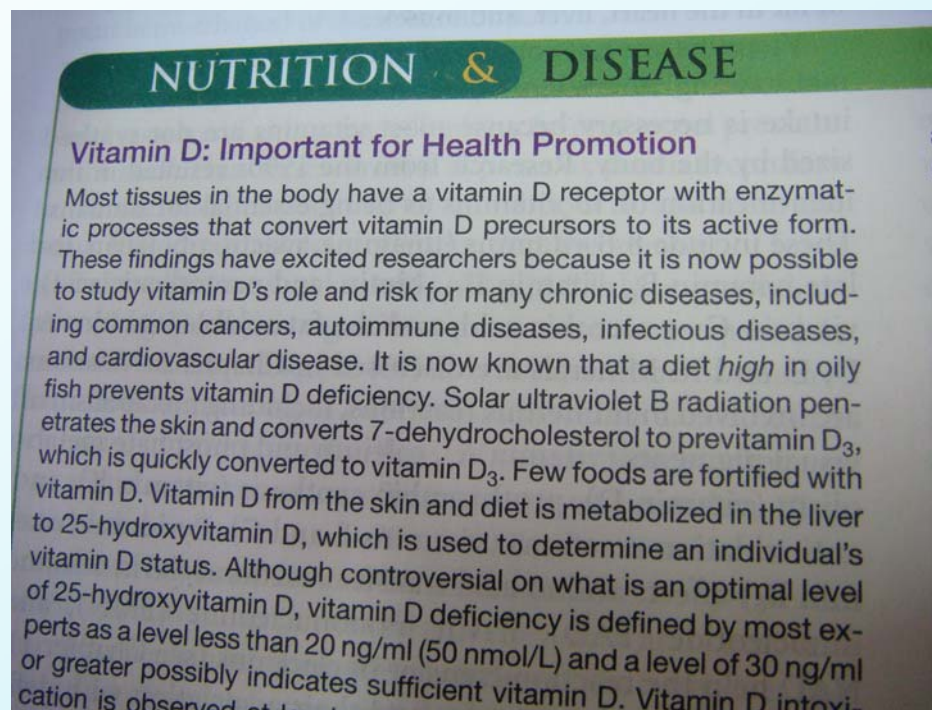
Data from Chen H et al. *J Biol Chem* 283(7):4194-4200, 2008; Gardner DG et al. *Hypertension* 49(3):419-424, 2007; Langericki I et al. *J Mol Med* 85(8):707-711, 2007; Wang J et al. *Trends Pharmacol Sci* 28(2):61-67, 2007.

总结新进展，指出其在药物研发和疾病诊治中的意义和潜在的应用价值，内容新颖而且富有启发性



各种颜色的文本框侧重不同

“营养与疾病”文本框强调了营养与健康的关系，特别是在疾病中的作用。



举例：饱和脂肪酸、单价不饱和脂肪酸、多价不饱和脂肪酸、必需脂肪酸和反式脂肪的来源及作用，不但有助于读者明确脂肪与动脉粥样硬化的关系，还为通过调控脂肪的成分改变疾病的危险因素和发病过程提供了指导。



大量的精美插图
在国外同类教材
中也是首屈一指

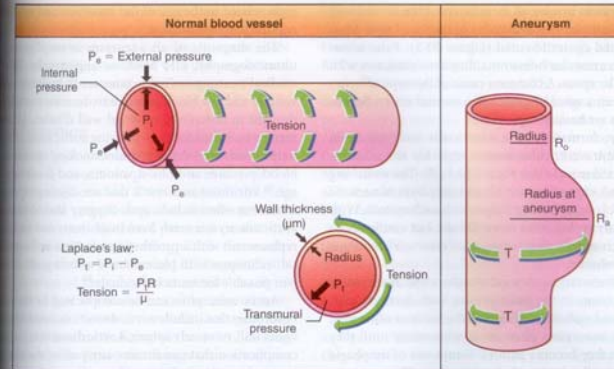
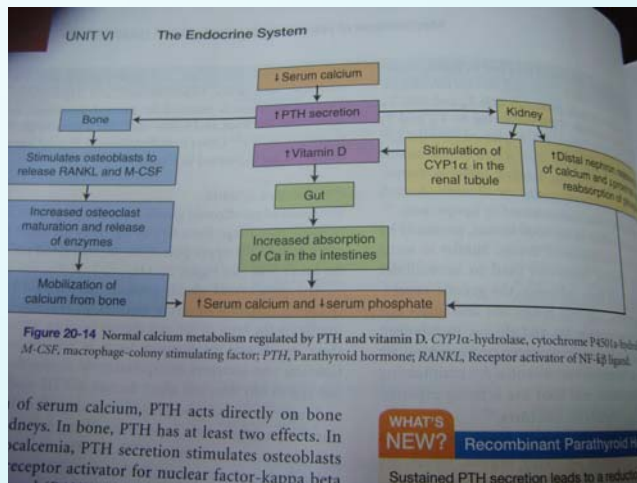
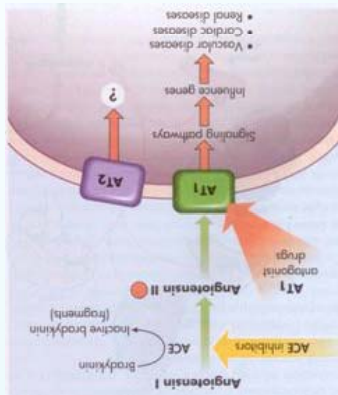


Figure 30-3 Pressure-tension and wall thickness relations in blood vessels or cardiac chambers (Laplace's law).

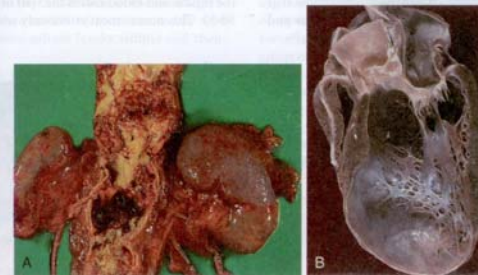


Figure 30-4 Aneurysms. A, Abdominal aortic atherosclerotic aneurysm. B, In a long-axis view of the left ventricle there is a large thin-walled apical aneurysm that does not contain thrombus. (From Damjanov I, Linder J, editors: *Anderson's pathology*, ed 10, St Louis, 1996, Mosby.)

law is discussed in detail in Chapter 29.) Aneurysms commonly occur in the thoracic or abdominal aorta. Aorta is particularly susceptible to aneurysm formation because of constant stress on the vessel wall and the absence of the vasa vasorum in the media layer (Figure 30-4), estimated that up to 10% of older individuals have aneurysms, and about 15,000 persons in the United States die from aortic aneurysm rupture annually.²⁶ Arterio-sclerosis and hypertension are found in more than half of all patients with aneurysms. Chronic hypertension results in increased wall tension and shear forces that contribute to remodeling and thinning of the vessel wall. Atherosclerosis is a cause of aneurysms because plaque formation erodes

the vessel wall. Infections, such as syphilis, collagen disorders (such as Marfan syndrome), and traumatic injury to the chest or abdomen, also can cause aortic aneurysms. For those aortic aneurysms not clearly related to atherosclerosis, infection, Marfan syndrome or trauma, or numerous genetic susceptibilities have been identified including genes polymorphisms for the production of growth factors, myosin, and proteases.^{26,27} Inflammation, with the production of toxic oxygen radicals, activates matrix degrading proteins and smooth muscle cell apoptosis resulting in loss of medial elastic lamellae and thinning of the tunica media. Autoimmunity and the production of metalloproteinases and elastases further contribute to the degradation of the vessel wall.^{26,28}



每章后的
小结简明扼要
的归纳了主要
知识点，是复
习的良好指南

NUTRITION & DISEASE

Vitamin D: Important for Health Promotion

Most tissues in the body have a vitamin D receptor with enzymatic processes that convert vitamin D precursors to its active form. These findings have excited researchers because it is now possible to study vitamin D's role and risk for many chronic diseases, including common cancers, autoimmune diseases, infectious diseases, and cardiovascular disease. It is now known that a diet *high* in oily fish prevents vitamin D deficiency. Solar ultraviolet B radiation penetrates the skin and converts 7-dehydrocholesterol to previtamin D₃, which is quickly converted to vitamin D₃. Few foods are fortified with vitamin D. Vitamin D from the skin and diet is metabolized in the liver to 25-hydroxyvitamin D, which is used to determine an individual's vitamin D status. Although controversial on what is an optimal level of 25-hydroxyvitamin D, vitamin D deficiency is defined by most experts as a level less than 20 ng/ml (50 nmol/L) and a level of 30 ng/ml or greater possibly indicates sufficient vitamin D. Vitamin D intoxication is observed at level



关键词表并给出页码，供读者快速查找。

KEY TERMS

Acrania, 672

Alar plate, 666

Anencephaly, 669

Arnold-Chiari type II malformation, 670

Aseptic meningitis, 681

Ataxic cerebral palsy, 676

Bacterial meningitis, 681

Basal plate, 666

Benign febrile seizure, 680

Brainstem glioma, 687

Cerebellar astrocytoma, 687



五、教材的比较

- (一) 内容的全面与系统性
- (二) 内容的编排和对学习的指导
- (三) 图表的制作
- (四) 与临床学科的联系



谢谢!

各位专家的认真研究
图书馆老师大力支持
教育部外国教材研究中心的资助