Amino Acids Biochemistry And Nutrition

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Amino Acids in Human Nutrition and Health

The second edition of this established textbook provides an accomplished introduction to the principles of nutrition and metabolism with increasing emphasis on the integration and control of metabolism. This book explores the interactions between diet and health and explains the basis for current dietary goals and recommendations. Essential biochemistry for understanding functions of nutrients and the importance of diet and nutrition in health and disease is presented in a clear and authoratative manner. Dr Bender's text asks the question 'Why eat?', and explores the role of diet in the development of the 'diseases of the affluent' as well as obesity and under-nutrition. Clear and simple diagrams aid the discussion of metabolic pathways, and nutritional and physiological aspects are linked throughout. This is an essential text for anyone studying nutrition, dietetics, food science and medicine at an introductory level.

Protein and Amino Acid Nutrition

Amino acid biochemistry and nutrition spans a broad range of fields including biochemistry, metabolism, physiology, immunology, reproduction, pathology,

and cell biology. In the last half-century, there have been many conceptual and technical advancements, from analysis of amino acids by high-performance liquid chromatography and mass spectrometry

Clinical Nutrition and Aging

Meat holds an important position in human nutrition. Although protein from this source has lower biological value than egg albumin, it is an exclusive source of heme iron and vitamins and minerals. Fat content and fatty acid profile from this source are a constant matter of concern. Though currently meat utilization is linked with an array of maladies, including atherosclerosis, leukemia, and diabetes, meat has a noteworthy role not only for safeguarding proper development and health, but also in human wellbeing. Enormous scientific investigations have proved that consuming meat has had a beneficial role in cranial/dental and gastrointestinal tract morphologic changes, human upright stance, reproductive attributes, extended lifespan, and maybe most prominently, in brain and cognitive development.

Advances in Food Biochemistry

Mammalian Protein Metabolism, Volume I focuses on the processes, methodologies, biosynthesis, protein formation, and reactions involved in mammalian protein metabolism. The selection first elaborates on the origin and growth of concepts of protein metabolism, including the development of nitrogen balance as a technique for the study of protein

metabolism; identification of proteins as a chemical class; discovery of nitrogen and its biological consequences; and recognition of the importance of nitrogenous compounds. The text then examines protein digestion and absorption in nonruminants and digestion and absorption of nitrogenous compounds in ruminants. Topics include passage of nitrogenous compounds from the rumen; utilization of nitrogenous compounds in the rumen; and endogenous nitrogen entering the reticulum and rumen. The book examines free amino acids and peptides in tissues, metabolic fate of amino acids, protein biosynthesis in mammalian tissues, and metabolism of plasma proteins. Discussions focus on the distribution of proteins between plasma and lymph, interpretation of plasma radioactivities, amino acid activating enzymes, ribosomes and protein synthesis, pathways of amino acid degradation, and synthesis of urea. The selection is a dependable source of data for researchers interested in mammalian protein metabolism.

Amino Acid Metabolism

Glutamine: Biochemistry, Physiology, and Clinical Applications describes the different functions of glutamine (Gln) in animals and humans. Gln is both a nutrient and a signaling molecule, and its functions go beyond those of a simple metabolic fuel or protein precursor. This book has gathered together, in an unbiased and critical manner, all the available evidence and research on Gln including pathology (neurological diseases, intestinal diseases, critical

illness, and cancer), physiology (successful aging), catabolic states, immunity, and exercise. Special attention is given to the potential benefit of Gln in states of insulin resistance and the role of Gln as a "conditionally essential" amino acid. The contributors are either pioneers or experts in the area of Gln from all around the globe, including Australia, Brazil, Canada, Europe, China, and the United States. This book is a valuable source of information for nutrition scientists, medical doctors, sports scientists, food scientists, dietitians, and anyone interested in nutrition. It is also a valuable resource for students in these fields and will be an important addition to university libraries.

Metabolic & Therapeutic Aspects of Amino Acids in Clinical Nutrition

Glutamine is the most abundant amino acid and is a major contributor to whole body nitrogen metabolism and is considered to be “conditionally essential.” Glutamine in Health and Disease presents the application of current nutritional knowledge by physicians and dietitians and incorporates emerging fields of science and important discoveries. Section 1 covers glutamine structure and function, glutamine synthetase, glutamine binding protein, glutamine transport, glutamine-rich activation domains and transcription, glutamine transaminase and cell biochemistry. Section 2 covers glucose-independent glutamine metabolism, intestinal barrier function, thyroid-stimulating hormone, glutamine resonances, focal ischemia, plasma glutamine, metabolic stress,

cancer and absorption. Section 3 covers dipeptide-bound glutamine, DNA protection, oxidative stress, NF-KB, the inflammatory response, the lung, kidney, GI tract and liver, autophagy, ethanol and diabetes. Finally, Section 4 covers the use of glutamine in preoperative states, enteral and parenteral nutrition, pulmonary infections, cancer, hypoxic injury, arginyl-glutamine, paediatrics, pancreatic surgery, the elderly, gastric emptying gastric bypass and use glutamine cocktails. Written by authors of international and national standing, leaders in the field and trendsetters, Glutamine in Health and Disease is essential reading for nutritionists and dietitians, public health scientists, physicians, epidemiologists, policy makers, and health care professionals of various disciplines.

The Role of Protein and Amino Acids in Sustaining and Enhancing Performance

Containing all the new as well as classical methodologies used in the investigation of amino acid and protein metabolism in human and animal models, this book is needed because of the dramatic increase in research in this field. There is no other book currently on the market that covers these methods of investigation. Methods for Investigation of Amino Acid and Protein Metabolism explores areas such as amino acid transfer across tissue membranes, past and new applications using stable isotopes, protein synthesis in organs and tissues, and more. Because of the importance of research methods in the field of amino acid and protein nutrition and metabolism, this book

facilitates the reader's integration of the concepts involved in these investigative research methods and their corollaries. In addition to helping any nutrition investigator design and conduct appropriate research protocols in this area of nutrition, this book assists students who are planning to investigate amino acid and protein metabolism in humans or laboratory animals.

Chemistry and Biochemistry of the Amino Acids

Amino acid metabolism and nutrition of farm animals continues to be an active area of research. However, since the publication of the first edition, as Amino Acids in Farm Animal Nutrition (1994), there is now a need to take into account advances in the amino acid nutrition of a wider range of animals, including companion animals. In this new edition, the editor has attempted to retain chapter imparting strength to the first version, while introducing authors with new ideas and vision, as well as chapters on other animals such as cats and dogs. The book is thematically structured. Part 1 includes chapter of an introductory and general nature with applications to a wide range of animal species. The next four parts are species-related sections, including pigs, poultry, ruminants and other animals. The chapters in the final section cover applications and perspectives. The book has been written as a reference work for advanced students as well as researchers in animal nutrition.

A Biochemical Approach to Nutrition

Bridging the gap between basic and clinical science concepts, the Textbook of Veterinary Physiological Chemistry, Third Edition offers broad coverage of biochemical principles for students and practitioners of veterinary medicine. The only recent biochemistry book written specifically for the veterinary field, this text covers cellular-level concepts related to whole-body physiologic processes in a reader-friendly, approachable manner. Each chapter is written in a succinct and concise style that includes an overview summary section, numerous illustrations for best comprehension of the subject matter, targeted learning objectives, and end of the chapter study questions to assess understanding. With new illustrations and an instructor website with updated PowerPoint images, the Textbook of Veterinary Physiological Chemistry, Third Edition, proves useful to students and lecturers from diverse educational backgrounds. Sectional exams and case studies, new to this edition, extend the breadth and depth of learning resources. Provides newly developed case studies that demonstrate practical application of concepts Presents comprehensive sectional exams for self-assessment Delivers instructor website with updated PowerPoint images and lecture slides to enhance teaching and learning Employs a succinct communication style in support of quick comprehension

The Handbook of Microbial Metabolism of Amino Acids

The first edition of this innovative book brought a new

perspective to the metabolic and therapeutic aspects of amino acids in clinical nutrition. Since its publication, a number of very important advances have been made in the field and interesting new findings have emerged. Until now, no reference has fully explored the promising new developments

Principles of Animal Nutrition

Discusses the general metabolism of amino acids and other nitrogenous compounds and the detailed metabolism of individual amino acids with special reference to problems of human nutrition, medical biochemistry and disease.

Methods for Investigation of Amino Acid and Protein Metabolism

Publisher's Note: Products purchased from 3rd Party sellers are not guaranteed by the Publisher for quality, authenticity, or access to any online entitlements included with the product. Practical, approachable, and perfect for today's busy medical students and practitioners, BRS Biochemistry, Molecular Biology, and Genetics, Seventh Edition helps ensure excellence in class exams and on the USMLE Step 1. The popular Board Review Series outline format keeps content succinct and accessible for the most efficient review, accompanied by bolded key terms, detailed figures, quick-reference tables, and other aids that highlight important concepts and reinforce understanding. This revised edition is updated to reflect the latest perspectives in

biochemistry, molecular biology, and genetics, with a clinical emphasis essential to success in practice. New Clinical Correlation boxes detail the real-world application of chapter concepts, and updated USMLE-style questions with answers test retention and enhance preparation for board exams and beyond.

Amino Acids

Human Physiology, Biochemistry and Basic Medicine is a unique perspective that draws together human biology, physiology, biochemistry, nutrition, and cell biology in one comprehensive volume. In this way, it is uniquely qualified to address the needs of the emerging field of humanology, a holistic approach to understanding the biology of humans and how they are distinguished from other animals. Coverage starts with human anatomy and physiology and the details of the workings of all parts of the male and female body. Next, coverage of human biochemistry and how sugars, fats, and amino acids are made and digested is discussed, as is human basic medicine, covering the science of diseases and human evolution and pseudo-evolution. The book concludes with coverage of basic human nutrition, diseases, and treatments, and contains broad coverage that will give the reader an understanding of the entire human picture. Covers the physiology, anatomy, nutrition, biochemistry and cell biology of humans, showing how they are distinguished from other animals Includes medical literature and internet references, example test questions, and a list of pertinent words at the end of each chapter Provides unique perspective into all

aspects of what makes up and controls humans

Amino Acid Metabolism

Proceedings of the International Study Group for Tryptophan Research: Sixth International Meeting, held in Baltimore, Maryland, May 9--12, 1989

Amino Acid Chelation in Human and Animal Nutrition

Amino acid biochemistry and nutrition spans a broad range of fields including biochemistry, metabolism, physiology, immunology, reproduction, pathology, and cell biology. In the last half-century, there have been many conceptual and technical advancements, from analysis of amino acids by high-performance liquid chromatography and mass spectrometry to molecular cloning of transporters for amino acids and small peptides. Amino Acids: Biochemistry and Nutrition presents comprehensive coverage of these scientific developments, providing a useful reference for students and researchers in both biomedicine and agriculture. The text begins with the discoveries and basic concepts of amino acids, peptides, and proteins, and then moves to protein digestion and absorption of peptides and amino acids. Additional chapters cover cell-, tissue-, and species-specific synthesis and catabolism of amino acids and related nitrogenous substances, as well as the use of isotopes to study amino acid metabolism in cells and the body. The book also details protein synthesis and degradation, regulation of amino acid metabolism, physiological

functions of amino acids, and inborn errors of amino acid metabolism. The final chapter discusses dietary requirements of amino acids by humans and other animals. While emphasizing basic principles and classical concepts of amino acid biochemistry and nutrition, the author includes recent progress in the field. This book also provides concise coverage of major historical developments of the scientific discipline, so that readers will appreciate the past, understand the current state of the knowledge, and explore the future of the field. Each chapter contains select references to provide comprehensive reviews and original experimental data on the topics discussed.

Amino Acids in Animal Nutrition

Though the major emphasis of this book will be references to several basic texts are given at the to provide the nutritionist with a biochemical end of the introduction. approach to his experimental and practical To facilitate easy reference, the book has problems, it is hoped that the book will also be been divided into chapters according to the of use to the biochemist and physiologist to roles of the basic nutrients in metabolism. demonstrate how dietary nutrition manipula Within chapters, discussion will include such tion can be used as a powerful tool in solving topics as the effects of nutrients on metabolism, problems in both physiology and biochemistry. the fate of nutrien ts, the roles of various tissues There will be no attempt to write an all-encom and interaction of tissues in utilizing nutrients,

passing treatise on the relationship between and the biochernical mechanisms involved. biochemistry and nutrition; rather, it is hoped Toward the end of the book, several example that the suggestions and partial answers offered problems will be presented, which we hope will here will provide the reader with a basis for provide the reader with the opportunity to approaching problems and designing experi form testable hypotheses and design experi ments.

Nutritional Biochemistry of the Vitamins

Human health issues relating to amino acids are extremely broad and include metabolic disorders of amino acid metabolism as well as their presence in food and use as supplements. This book covers the biochemistry of amino acid metabolism in the context of health and disease. It discusses their use as food supplements, in clinical therapy and nutritional support and focuses on major recent developments, highlighting new areas of research that will be needed to sustain further interest in the field.

Human Biochemistry

Animals are biological transformers of dietary matter and energy to produce high-quality foods and wools for human consumption and use. Mammals, birds, fish, and shrimp require nutrients to survive, grow, develop, and reproduce. As an interesting, dynamic, and challenging discipline in biological sciences, animal nutrition spans an immense range from chemistry, biochemistry, anatomy and physiology to

reproduction, immunology, pathology, and cell biology. Thus, nutrition is a foundational subject in livestock, poultry and fish production, as well as the rearing and health of companion animals. This book entitled Principles of Animal Nutrition consists of 13 chapters. Recent advances in biochemistry, physiology and anatomy provide the foundation to understand how nutrients are utilized by ruminants and non-ruminants. The text begins with an overview of the physiological and biochemical bases of animal nutrition, followed by a detailed description of chemical properties of carbohydrates, lipids, protein, and amino acids. It advances to the coverage of the digestion, absorption, transport, and metabolism of macronutrients, energy, vitamins, and minerals in animals. To integrate the basic knowledge of nutrition with practical animal feeding, the book continues with discussion on nutritional requirements of animals for maintenance and production, as well as the regulation of food intake by animals. Finally, the book closes with feed additives, including those used to enhance animal growth and survival, improve feed efficiency for protein production, and replace feed antibiotics. While the classical and modern concepts of animal nutrition are emphasized throughout the book, every effort has been made to include the most recent progress in this ever-expanding field, so that readers in various biological disciplines can integrate biochemistry and physiology with nutrition, health, and disease in mammals, birds, and other animal species (e.g., fish and shrimp). All chapters clearly provide the essential literature related to the principles of animal nutrition, which should be useful for academic researchers, practitioners, beginners,

and government policy makers. This book is an excellent reference for professionals and a comprehensive textbook for senior undergraduate and graduate students in animal science, biochemistry, biomedicine, biology, food science, nutrition, veterinary medicine, and related fields.

Amino Acids in Human Nutrition and Health

Amino acids are featured in course syllabuses and in project and research work over a wide spectrum of subject areas in chemistry and biology. Chemists and biochemists using amino acids have many common needs when they turn to the literature for comprehensive information. Among these common interests, analytical studies, in particular, have undergone rapid development in recent years. All other chemical and biochemical aspects of amino acids - synthesis, properties and reactions, preparation of derivatives for use in peptide synthesis, racemization and other fundamental mechanistic knowledge - have been the subject of vigorous progress. This book offers a thorough treatment of all these developing areas, and is structured in the belief that biochemists, physiologists and others will profit from access to information on topics such as the physical chemistry of amino acid solutions, as well as from thorough coverage of amino acid metabolism, biosynthesis and enzyme inhibition; and that chemists will find relevant material in biological areas as well as in the analysis, synthesis and reactions of amino acids.

Glutamine in Clinical Nutrition

Amino Acid Metabolism, 3rd Edition covers all aspects of the biochemistry and nutritional biochemistry of the amino acids. Starting with an overview of nitrogen fixation and the incorporation of inorganic nitrogen into amino acids, the book then details other major nitrogenous compounds in micro-organisms, plants and animals. Contents include a discussion of the catabolism of amino acids and other nitrogenous compounds in animals, and the microbiological reactions involved in release of nitrogen gas back into the atmosphere. Mammalian (mainly human) protein and amino acid requirements are considered in detail, and the methods that are used to determine them. Chapters consider individual amino acids, grouped according to their metabolic origin, and discussing their biosynthesis (in plants and micro-organisms for those that are dietary essentials for human beings), major metabolic roles (mainly in human metabolism) and catabolism (again mainly in human metabolism). There is also discussion of regulatory mechanisms for all these metabolic pathways, and of metabolic and genetic diseases affecting the (human) metabolism of amino acids. Throughout the book the emphasis is on the nutritional importance of amino acids, integration and control of metabolism and metabolic and other disturbances of relevance to human biochemistry and health. Completely revised edition of this comprehensive text covering all the latest findings in amino acid metabolism research Written by an authority in the field Covers new advances in structural biology Clear illustrations of all structures

and metabolic pathways Full list of recommended further reading for each chapter and bibliography of papers cited in the text

BRS Biochemistry, Molecular Biology, and Genetics

Agricultural Biochemistry will provide an introduction to the subject of biochemistry from a perspective that will be particularly applicable to agricultural scientists. It will focus on the chemistry of plant and animal metabolism and the biomolecules that are involved in these pathways and then go on to discuss strategies plants and animals adopt for processing of nutrients, the adaptation of these organisms to environmental conditions and the ways in which new genetic engineering techniques can be used to manipulate growth.

Protein Nutrition and Mineral Absorption

The Molecular Nutrition of Amino Acids and Proteins provides an in-depth look at the involvement and role of amino acids and proteins in molecular nutrition. Editor Dominique Dardevet has assembled a collection of chapters written by leading researchers and top professors that provide the reader with a comprehensive understanding of amino acids and proteins. The book provides an introduction to the fundamentals of amino acids and proteins as well as the composition of food. It then delves into the molecular biology of the cell and genetic machinery and its function. The Molecular Nutrition of Amino

Acids and Proteins also features reference guides for terms and bullet-point summaries, making it readily accessible to novices while still providing the most up-to-date and detailed information that experienced researchers need. Provides a gentle introduction to the subject by first addressing nutritional information and then building in molecular aspects, clearly establishing fundamental information for the reader Facilitates reader comprehension by including succinct summary points in each chapter Contains a glossary of definitions that allows readers to easily reference terms Provides both a deep and broad understanding of the subject by containing overviews as well as detail-focused chapters

Amino Acids

This is the first volume in a 2-volume compendium that is the go-to source for both research- and practice-oriented information on the importance of branched chain amino acids in maintaining the nutritional status and overall health of individuals, especially those with certain disease conditions. Over 150 well recognized and respected contributors have come together to compile these up-to-date and well-referenced works. The volumes will serve the reader as the benchmarks in this complex area of interrelationships between dietary protein intakes and individual amino acid supplementation, the unique role of the branched chain amino acids in the synthesis of brain neurotransmitters, collagen formation, insulin and glucose modulation and the functioning of all organ systems that are involved in

the maintenance of the body's metabolic integrity. Moreover, the physiological, genetic and pathological interactions between plasma levels of branched chain amino acids and aromatic amino acids are clearly delineated so that students as well as practitioners can better understand the complexities of these interactions. Branched Chain Amino Acids in Clinical Nutrition: Volume 1 covers basic processes at the cellular level, inherited defects in branched chain amino acid metabolism, and experimental models of growth and disease states.

Meat Science and Nutrition

Amino Acid - New Insights and Roles in Plant and Animal provides useful information on new aspects of amino acid structure, synthesis reactions, dietary application in animals, and metabolism in plants. Section 1 includes chapters that describe the therapeutic uses, antiallergic effects, new aspects in the D-amino acid structure, historical background of desmosines, and stereoselective synthesis of ?-aminophosphonic acids. Section 2 presents the role of amino acids in plants, which includes new insights and aspects of D-amino acids, metabolism and transport in soybean, changes during energy storage compound accumulation of microalgae, and determination of amino acids from natural compounds. Section 3 describes the chapters on methodologies and requirement of dietary amino acids for Japanese quails, laying hens, and finishing pigs. The final chapter identifies potential importance of glutathione S-transferase activity for generating

resistance to triclabendazole in Fasciola hepatica.

Nutritional Improvement of Food and Feed Proteins

This book collates and reviews recent advances in the microbial metabolism of amino acids, emphasizing diversity - in terms of the range of organisms under investigation and their natural ecology - and the unique features of amino acid metabolism in bacteria, yeasts, fungi, protozoa and nematodes. As well as studying the individual amino acids, including arginine, sulfur amino acids, branched-chain amino acids and aromatic amino acids, a number of themes are explored throughout the work. As the volume of research into the metabolism of amino acids grows, this comprehensive study of the subject is a vital tool for researchers in the fields of biological, medical and veterinary sciences, including microbiology, biochemistry, genetics and pathology. This book is also essential for corporate organizations with active research and development programmes, such as those in the pharmaceutical industry.

Human Physiology, Biochemistry and Basic Medicine

Introduction and perspectives; Some species and age differences in amino acid requirements; Individuality of amino acid needs; Utilization of d-amino acids; The efficiency of utilization of dietary proteins; Dietary proteins and synthesis of tissue proteins; Food energy and the metabolism of nitrogen; An integrated

essential amino acid index for predicting the biological value of proteins; Criteria of protein nutrition; The amino acid requirements of animals; Amino acid supplementation of foods and feeds.

Mammalian Protein Metabolism

The nutritional quality of a protein depends on the proportion of its amino acids-especially the essential amino acids-their physio logical availability, and the specific requirements of the consumer. Availability varies and depends on protein source, interaction with other dietary components, and the consumer's age and physiological state. In many foods, especially those from plants, low levels of various essential amino acids limits their nutritive value. This is particularly important for cereals (which may be inadequate in the essential amino acids isoleucine, lysine, threonine, and tryto phan) and legumes (which are often poor sources of methionine). Moreover, these commodities are principle sources of protein for much of the earth's rapidly growing population. At the current annual growth rate of about 2 percent, the world population of about 4 billion will increase to 6.5 billion by the year 2000 and to 17 billion by the year 2050. Five hundred milliQn people are presently estimated to suffer protein malnutrition, with about fifteen thousand daily deaths. The ratio of malnourished to adequately nourished will almost surely increase. For these reasons, and especially in view of the limited availability of high quality (largely animal) protein to feed present and future populations, improvement of food and feed quality is

especially important.

Plant Amino Acids

It is a commonly held belief that athletes, particularly body builders, have greater requirements for dietary protein than sedentary individuals. However, the evidence in support of this contention is controversial. This book is the latest in a series of publications designed to inform both civilian and military scientists and personnel about issues related to nutrition and military service. Among the many other stressors they experience, soldiers face unique nutritional demands during combat. Of particular concern is the role that dietary protein might play in controlling muscle mass and strength, response to injury and infection, and cognitive performance. The first part of the book contains the committee's summary of the workshop, responses to the Army's questions, conclusions, and recommendations. The remainder of the book contains papers contributed by speakers at the workshop on such topics as, the effects of aging and hormones on regulation of muscle mass and function, alterations in protein metabolism due to the stress of injury or infection, the role of individual amino acids, the components of proteins, as neurotransmitters, hormones, and modulators of various physiological processes, and the efficacy and safety considerations associated with dietary supplements aimed at enhancing performance.

Branched Chain Amino Acids in Clinical Nutrition

Containing 45 papers written by outstanding international authors from 14 countries, this three-volume compendium brings together the elements needed to understand the factors which influence the utilization of amino acids. The wide-ranging topics include descriptions of metabolic pathways and mechanisms of the biological utilization of amino acids, as well as factors that influence amino acid bioavailability in enteral and parenteral nutrition. The use of amino acids to improve the quality and safety of the diet is presented. Also discussed are amino acid precursors of biogenic amines and the role of amino acids in atherosclerosis, cancer, and immunity. Scientists from many disciplines will benefit from this broad overview.

Absorption and Utilization of Amino Acids

This title includes a number of Open Access chapters. Sarcopenia—the loss of muscle mass and strength that occurs with advancing age—is a major health challenge, particularly in North America, Europe, and Japan, which have large aging populations. This compendium volume is a valuable addition to the existing literature, providing state-of-the-art information on the most effective prevention and treatment options. Included are research articles on nutrition management and the prevention of sarcopenia; protein therapy for sarcopenia; effect of exercise on sarcopenia; and other therapeutic strategies, including antioxidants and steroids.

Dietary Reference Intakes for Energy, Carbohydrate, Fiber, Fat, Fatty Acids, Cholesterol, Protein, and Amino Acids

Covers the basic knowledge of the regulation of biosynthesis of various amino acids in plants and the application of this knowledge to the discovery of novel inhibitors of amino acid biosynthesis and for enhancing the nutritional value of plant products. Provides an exhaustive list of pathway inhibitors.

Textbook of Veterinary Physiological Chemistry

This book presents advanced nutrition in a comprehensive, easy-to-understand format ideal for graduate students in nutritional programs, organic chemistry, physiology, biochemistry, and molecular biology. It focuses on he biology of human nutrition at the molecular, cellular, tissue, and whole-body levels. Full of student-friendly features - chapter outlines; common abbreviations; critical thinking exercises; detailed illustrations; and feature boxes spotlighting key nutritional data, insights, and clinical correlations. In addition, chapters are organized logically into seven units, reflecting the traditional nutrient class divisions. Nutrition Insight boxes take a closer look at basic science and everyday nutrition, going beyond the content presented in the chapter and spotlighting timely topics. Clinical Correlation boxes discuss various nutrition-related problems and help readers make the connections between abnormalities and their effects on normal metabolism. Food Sources and

RDAs/AIs across the Life Cycle boxes summarize key information from the USDA National Nutrient Database and the Institute of Medicine into abbreviated, to-the-point lists that easily spotlight the key information related to that content area. Life Cycle Considerations boxes highlight particular nutritional processes or concepts applicable to individuals of various ages and in various stages of the life span. Thinking Critically sections within feature boxes encourage students to apply scientific knowledge to "real-life" situations. A chapter outline and listing of common abbreviations help readers gain an overview of each chapter's content at a glance. Comprehensive cross-referencing by chapters and illustrations is used throughout. Current references and recommended readings introduce readers to the broad range of nutrition-related literature and provide additional tools for research. Information provided by 45 expert contributors. In-depth discussions of the 2005 Dietary Guidelines for Americans and MyPyramid and their implications for nutrition. An entire chapter devoted to nonessential food components and their health benefits, including dietary supplements and the many possible phytonutrients associated with the decreased risk for chronic diseases. All the latest Dietary Reference Intakes (DRIs) incorporated throughout. Nearly 100 new illustrations to help visually simplify complex biochemical, physiological, and molecular processes and concepts. More extensive information about the sources of nutrients and the amounts contained in typical servings of various foods.

An Introduction To Nutrition And Metabolism

Human Biochemistry includes clinical case studies and applications that are useful to medical, dentistry and pharmacy students. It enables users to practice for future careers as both clinicians and researchers. Offering immediate application of biochemical principles into clinical terms in an updated way, this book is the unparalleled textbook for medical biochemistry courses in medical, dental and pharmacy programs. Winner of a 2018 Most Promising New Textbook (College) Award (Texty) from the Textbook and Academic Authors Association Offers immediate application of biochemical principles into clinical terms in an updated way Contains coverage of the most current research in medical biochemistry Presents the first solution designed to reflect the needs of both research oriented and clinically oriented medical students

Modern Methods in Protein Nutrition and Metabolism

Although introduction of amino acid chelates in mineral nutrition initially met considerable skepticism and controversy, the greater absorption and bioavailability of amino acid chelated minerals compared to nonchelated minerals have been well-documented for decades. Amino Acid Chelation in Human and Animal Nutrition compiles published chemical, nutritional, and clinical studies with new unpublished research. It interprets the combined data

for the first time to explain why the body responds to an amino acid chelate differently than it does to inorganic metal salts. Focusing on digestion, the book follows how chelates are absorbed from the stomach and intestines into the mucosal tissue, their movement from the mucosal tissue into the blood, and uptake into tissue and organ cells. Amino Acid Chelation in Human and Animal Nutrition compares amino acid chelate absorption and metabolism and that of inorganic salts of the same minerals. This book mainly focuses on the ingestion of amino acid metal chelates as a way to optimize mineral absorption, but it also provides a fundamental discussion of chelation chemistry. The author includes his own results, as well as alternate interpretations of the results of numerous studies of animal and human amino acid mineral chelate digestion and absorption. The views published in this book are solely the author's views and do not reflect the views of his company, Albion Laboratories.

Amino Acid

The vitamins are a chemically disparate group of compounds whose only common feature is that they are dietary essentials that are required in small amounts for the normal functioning of the body and maintenance of metabolic integrity. Metabolically they have diverse function, as coenzymes, hormones, antioxidants, mediators of cell signaling and regulators of cell and tissue growth and differentiation. This book, first published in 2003, explores the known biochemical functions of the

vitamins, the extent to which we can explain the effects of deficiency or excess and the scientific basis for reference intakes for the prevention of deficiency and promotion of optimum health and well-being. It also highlights areas where our knowledge is lacking and further research is required. It provides a compact and authoritative reference volume of value to students and specialists alike in the field of nutritional biochemistry, and indeed all who are concerned with vitamin nutrition, deficiency and metabolism.

Glutamine

Human health issues relating to amino acids are extremely broad and include metabolic disorders of amino acid metabolism as well as their presence in food and use as supplements. This book covers the biochemistry of amino acid metabolism in the context of health and disease. It discusses their use as food supplements, in clinical therapy and nutritional support and focuses on major recent developments, highlighting new areas of research that will be needed to sustain further interest in the field.

The Molecular Nutrition of Amino Acids and Proteins

Modern Methods in Protein Nutrition and Metabolism grew out of a series of seminars (Modern Views in Nutrition) held in 1989 at Iowa State University. These seminars and this book were financed primarily through the Wise and Helen Burroughs Lectureship

endowment generously established by the late Dr. Wise Burroughs and his wife Helen. This book comprises 12 chapters, and begins with a focus on amino acid analysis in food and physiological samples. Succeeding chapters go on to discuss concepts and techniques on nitrogen balance; determination of the amino acid requirements of animals; and novel methods for determining protein and amino acid digestibilities in feedstuffs. Other chapters cover measurement of protein digestion in ruminants; evaluation of protein status in humans; surgical models to measure organ amino acid metabolism in vivo; and measurement of whole-body protein content in vivo. The remaining chapters discuss estimation of protein synthesis and proteolysis in vitro; isotopic estimation of protein synthesis and proteolysis in vivo; n-glycine as a tracer to study protein metabolism in vivo; and mathematical models of protein metabolism. This book will be of interest to practitioners in the fields of human nutrition and medicine.

Kynurenine and Serotonin Pathways

This volume presents information regarding the mechanisms of protein absorption under normal and pathologic conditions, in addition to reviewing changes that occur at various stages of life. General modifiers of intestinal absorption, such as the processing of foods, the nutritional status of the individual, and disease, are explored with reference to both proteins and minerals. Inorganic macronutrients, namely calcium, magnesium and phosphorus, are

discussed in relation to protein ingestion. The book also explores the concept of essential trace elements (e.g., iron, zinc, copper, and iodine) and their link to protein sufficiency. The relationship of ultratrace elements with the content of proteins in food is examined, and the book offers a fresh view of the role of certain elements, particularly zinc, on the conformation of proteins linked to DNA, hormone receptors, and gene products. Protein Nutrition and Mineral Absorption is packed with 2,300 references, 100 figures and graphs, plus 25 tables. Nutritionists and physicians will find this book to be an invaluable reference source for rationalizing nutritional interventions and diet modifications for their patients.

An Introduction to Agricultural Biochemistry

Responding to the expansion of scientific knowledge about the roles of nutrients in human health, the Institute of Medicine has developed a new approach to establish Recommended Dietary Allowances (RDAs) and other nutrient reference values. The new title for these values Dietary Reference Intakes (DRIs), is the inclusive name being given to this new approach. These are quantitative estimates of nutrient intakes applicable to healthy individuals in the United States and Canada. This new book is part of a series of books presenting dietary reference values for the intakes of nutrients. It establishes recommendations for energy, carbohydrate, fiber, fat, fatty acids, cholesterol, protein, and amino acids. This book presents new approaches and findings which include the following:

The establishment of Estimated Energy Requirements at four levels of energy expenditure Recommendations for levels of physical activity to decrease risk of chronic disease The establishment of RDAs for dietary carbohydrate and protein The development of the definitions of Dietary Fiber, Functional Fiber, and Total Fiber The establishment of Adequate Intakes (AI) for Total Fiber The establishment of AIs for linolenic and a-linolenic acids Acceptable Macronutrient Distribution Ranges as a percent of energy intake for fat, carbohydrate, linolenic and a-linolenic acids, and protein Research recommendations for information needed to advance understanding of macronutrient requirements and the adverse effects associated with intake of higher amounts Also detailed are recommendations for both physical activity and energy expenditure to maintain health and decrease the risk of disease.

Biochemical, Physiological, and Molecular Aspects of Human Nutrition

Understanding the biochemistry of food is basic to all other research and development in the fields of food science, technology, and nutrition, and the past decade has seen accelerated progress in these areas. Advances in Food Biochemistry provides a unified exploration of foods from a biochemical perspective. Featuring illustrations to elucidate m