

# Introduction

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This second edition of *Physiology of the Skin* has been revised and updated with the addition of 11 new chapters. This book is written for estheticians, to help them understand current scientific developments and prepare for future developments in science. Many new subjects have been added, including basic chemistry and an introduction to biochemistry. The topic of immunology is covered in sufficient detail to allow the serious student to explore the subject further. While the subject of molecular chemistry will grow increasingly important, it is not an appropriate topic for a small book on physiology. The field of enzymology, however, is an area of biochemistry that estheticians will apply often in their practices, both in exfoliating treatments and in specific treatments for acne and other skin conditions. The chapters of the book are organized in two sections—Science and Application. I strongly recommend that you read the Science section first, if even lightly. This will provide you with a basis for understanding the latter chapters in Applications. A brief description of the chapters follows.

**Chapter 1—“Behavior of Normal Skin.”** Even advanced professionals need to review material from time to time, for as waves against the sand, our shoreline of knowledge constantly is being eroded. Several new concepts are presented, as well as many old ones seen from a different point of view. **Chapter 2—“The Desquamation Process.”** An entirely new chapter with up-to-date information on the enzymes of the stratum corneum responsible for exfoliation, this information will prepare you for new exfoliation treatments and help you understand the complexity of the stratum corneum. **Chapter 3—“The Appendages.”** A review with new information on some of the functions of the appendages and some surprises as to how hair really grows! **Chapter 4—“The Lymphatic System.”** A good grounding in the physiology of the lymphatic system is necessary. While knowledgeable estheticians are a leg up on other professions, when it comes to the lymphatic system, there always is more to learn. **Chapter 5—“Pigmentation.”** Always complex and unpredictable, melanin will be a major contender for your time and interest. Understanding the melanocyte and chemistry of melanin is a step up on this pathway. **Chapter 6—“Basic Chemistry of Life.”** This chapter provides the foundation for biochemistry, introducing atomic particles, pH and chemical reactions. **Chapter 7—“Biochemistry.”** Protein, carbohydrates and lipids make up the stuff of life. An appreciation of the structure and reactions of these substances, as well as knowledge of enzymology, is essential to understanding the new science in esthetics. **Chapter 8—“Free Radicals and the Skin.”** A complex chapter, but necessary information if you want to understand antioxidants, ultraviolet radiation and the fundamental processes of life. **Chapter 9—“Sun’s Effect on the Skin.”** A tan may look healthy, but it indicates damaged skin! Read all about it here. **Chapter 10—“Herpes-type Viral Infections.”** Fever blisters, shingles and a lot more—how to tell what that little blister means. **Chapter 11—“Elastin: The Youth Protein.”** No protein in the body adds more to our

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appearance than elastin. Saggy cheeks and droopy eyes mean poor elastin. Elastase is the culprit. Learn how to combat this effect. **Chapter 12—“The Biological Role of Oxygen.”** A subject dear to my heart. More nonsense is written about oxygen than is written in political campaigns. These are the known facts backed by science and presented in a manner that can be understood easily.

The section on applications will contain some basic scientific information; such is the case with **Chapter 13—“Immunology and the Skin Care Specialist.”** The basics of immunology are tough, but like any meat, it is digestible if taken in small chunks. As you read this chapter make sure you understand each concept before going to the next. Much of the new science of skin care will relate in some fashion to immunology. **Chapter 14—“How Wrinkles Develop.”** While a great deal is understood about wrinkle formation, the last word has not been written. Working in esthetics we must contend with wrinkles, but the wrinkle is only a more obvious manifestation of the serious problem of aging. Both problems are dealt with in this chapter. **Chapter 15—“Biology of Acneic Skin.”** The pathophysiology of acne slowly is becoming known. Using the information we have on this subject helps to apply effective therapy. **Chapter 16—“Sun-related Disorders.”** This chapter builds on information gathered in Chapters 8 and 9. Many skin problems relate to ultraviolet damage, some are quite obvious and others are very subtle. Your knowledge in the area will be expanded to help you recognize and understand several sun-related conditions. **Chapter 17—“Systemic Lupus Erythematosus.”** Lupus is a very complex, multifaceted disease that is yielding its secrets bit by bit. You will see a significant number of clients with lupus and this chapter will take you into the pathophysiology for a better understanding of how best to handle this problem. **Chapter 18—“Males and Females: Physiological Differences.”** As much as some liberals would deny, there are biological differences of great magnitude between men and women. Failing to appreciate the physiological differences could blind you to the needs for varied treatments between the sexes.

**Chapter 19—“Estrogens and Phytoestrogens.”** The biochemistry of estrogens and phytoestrogens is found in this new chapter, and it also includes information on hormone receptors and how phytoestrogens work and their benefits to estheticians. **Chapter 20—“Menopausal Skin.”** Menopause induces a major physiological change in women and skin is a very critical target of these changes. This chapter will explain the basic physiological changes and offer some remedies to help your client through this period. **Chapter 21—“New Concepts in Aging.”** Aging is one of my favorite subjects and each year it becomes more interesting to me. Is aging a disease, or is it natural to undergo aging changes? Actually, scientists are divided. I see aging as a disease, something we can slow, or reverse. **Chapter 22—“Supplements and Beyond.”** A wide range of nutritional supplements are available now, so what to take, and how to take them are questions of importance. A new class of agents called nootropics are designed to increase brain power. This chapter leads you into some exciting new areas. **Chapter 23—“The Power of Chemical Peels.”** Chemical peels are here to stay. New peels are available today and some old ones have been “souped-up.” The more you understand about peeling chemistry and physiology, the more versatile and effective you will be using peels. **Chapter 24—“Cellulite.”** There is new scientific evidence that cellulite is a condition related to estrogen. This chapter outlines the information on what can be

done to combat cellulite. **Chapter 25—“Phytotherapy.”** This chapter is an introduction to the use of plants in esthetics. While phytotherapy requires years of training to use, just a little knowledge will help introduce you to the proper use of plants and help avoid the pitfalls of improper use. **Chapter 26—“Sterilization.”** This last chapter deals with the everyday problems of how to keep equipment clean and sterile. This discipline will help you avoid problems and make your life as an esthetician easier.

I hope you enjoy using this book as much as I enjoyed writing it. Remember to take it slowly, give yourself the opportunity to digest the material and understand it before proceeding to the next fact. Don't be discouraged if you can't understand a subject immediately; go over it again. Remember, it took three or four years before we learned to tie our shoes. We start as a single, tiny cell and by adding cells we grow slowly into an intelligent human. So it is with any intellectual discipline—it must be mastered over time with effort.

Peter J. Pugliese, M.D.