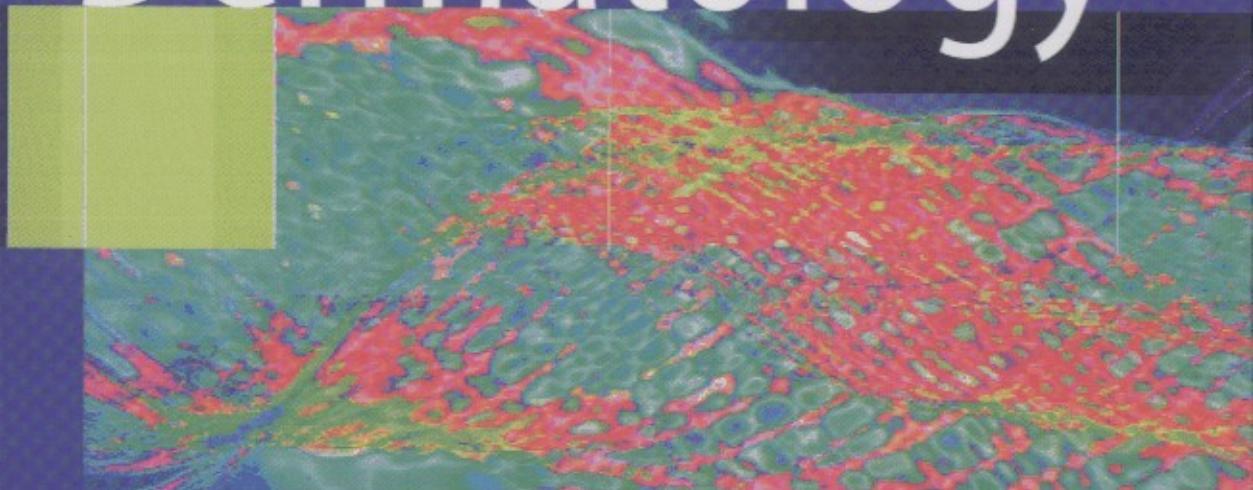


David J. Goldberg  
*Editor*

# Laser Dermatology



 Springer

---

# Contents

Chapter 1			
<b>Basic Laser Physics and Safety . . . . .</b>			
RONALD G. WHEELAND			
History . . . . .	1	Facial Telangiectasia . . . . .	24
What Is Light? . . . . .	1	Psoriasis . . . . .	26
What Is a Laser? . . . . .	1	Scars . . . . .	26
Currently Available Technology . . . . .	2	Verrucae . . . . .	27
How Does Laser Light Interact with Tissue? . . . . .	5	Treatment of Other Cutaneous Vascular Lesions . . . . .	28
What Is a Q-Switched Laser? . . . . .	2	Disadvantages . . . . .	28
Indications . . . . .	5	Contraindications . . . . .	29
Vascular Lesions . . . . .	5	Personal Laser Technique . . . . .	30
Pigmented Lesions and Tattoos . . . . .	6	Facial Telangiectasia . . . . .	30
Unwanted Hair . . . . .	7	Port Wine Stains . . . . .	32
Ablative and Nonablative Facial Resurfacing . . . . .	7	Postoperative Care . . . . .	33
Safety . . . . .	7	Complications . . . . .	33
Training . . . . .	7	The Future . . . . .	34
Signage . . . . .	8	References . . . . .	34
Eye Protection . . . . .	8		
Laser Plume . . . . .	8	Chapter 3	
Laser Splatter . . . . .	8	<b>Laser Treatment of Pigmented Lesions .</b>	37
Fire . . . . .	8	CHRISTINE C. DIERICKX	
Future. . . . .	9		
References . . . . .	10	History . . . . .	37
	10	Selective Photothermolysis . . . . .	37
	10	Pigmented Lesion Removal by Selective Photothermolysis . . . . .	37
	10	Currently Available Technology . . . . .	38
		Lasers and Intense Pulsed Light Sources Used to Treat Pigmented Lesions and Tattoos . . . . .	38
Chapter 2			
<b>Laser Treatment of Vascular Lesions . . .</b>	13	Indications . . . . .	44
SEAN W. LANIGAN		Epidermal Pigmented Lesions . . . . .	44
History . . . . .	13	Dermal-Epidermal Pigmented Lesions . .	46
Port Wine Stain Treatment . . . . .	13	Dermal Pigmented Lesions . . . . .	47
Currently Available Lasers for Vascular Lesions . . . . .	13	Tattoos . . . . .	48
Indications . . . . .	16	Consent. . . . .	49
Port Wine Stains . . . . .	16	Personal Laser Technique . . . . .	49
Capillary (Strawberry) Hemangiomas . . .	16	Q-Switched Ruby Laser (694 nm) . . . .	50
Leg Veins and Telangiectasia . . . . .	20	Q-Switched Nd:YAG Laser (532–1064 nm) .	51
	21	Q-Switched Alexandrite Laser (755 nm) . .	55
		Pulsed Dye Laser (510 nm) . . . . .	55

Continuous Wave (CW) Lasers . . . . .	55	Hypopigmentation . . . . .	79
CO <sub>2</sub> and Erbium Lasers . . . . .	55	Hyperpigmentation . . . . .	79
Intense Pulsed Light (IPL) Sources . . . . .	55	Pain . . . . .	80
Further Treatment Pearls . . . . .	56	Scarring and Textural Changes . . . . .	80
Complications . . . . .	58	Effects on Tattoos and Freckles . . . . .	80
Future Developments. . . . .	59	Infections . . . . .	80
References . . . . .	59	Plume . . . . .	80
		The Future . . . . .	80
		References . . . . .	80
<b>Chapter 4</b>			
<b>Laser Treatment of Unwanted Hair . . . . .</b>	<b>61</b>	<b>Chapter 5</b>	
DAVID J. GOLDBERG, MUSSARRAT HUSSAIN			
History . . . . .	61	<b>Ablative and Nonablative</b>	
Selective Photothermolysis . . . . .	62	<b>Facial Resurfacing . . . . .</b>	83
Extended Theory of Selective		SUZANNE L. KILMER, NATALIE SEMCHYSHYN	
Photothermolysis. . . . .	62	History . . . . .	83
Physical Basis of Laser Hair Removal . . . . .	62	Ablative Resurfacing . . . . .	84
Pulse Duration . . . . .	63	Currently Available Technology . . . . .	84
Spot Size . . . . .	63	Advantages . . . . .	84
Fluence . . . . .	63	Disadvantages . . . . .	85
Factors Affecting Efficacy/Results . . . . .	63	Indications . . . . .	85
Hair Color . . . . .	63	Contraindications . . . . .	85
Growth Centers of Hairs . . . . .	64	Consent . . . . .	85
Hair Cycle . . . . .	64	Personal Laser Technique . . . . .	88
Cooling. . . . .	65	Postoperative Care and Complications . . . . .	89
Age . . . . .	65	Results . . . . .	90
Hormones . . . . .	65	The Future . . . . .	90
Currently Available Lasers and Light		Nonablative Resurfacing . . . . .	90
Sources Used for Hair Removal . . . . .	66	Currently Available Technology . . . . .	90
Ruby Lasers . . . . .	66	Advantages . . . . .	92
Alexandrite Lasers . . . . .	67	Disadvantages . . . . .	93
Diode Lasers . . . . .	68	Indications . . . . .	93
Nd:YAG Lasers . . . . .	68	Contraindications . . . . .	93
Q-Switched Nd:YAG Laser . . . . .	69	Consent . . . . .	93
Intense Pulsed Light Systems . . . . .	69	Personal Laser Technique . . . . .	93
Advantages . . . . .	70	Postoperative Care and Complications . . . . .	95
Disadvantages . . . . .	70	Results . . . . .	95
Indications . . . . .	70	The Future . . . . .	95
Contraindications . . . . .	71	References . . . . .	98
Consent. . . . .	71		
Personal Laser Approach. . . . .	71	<b>Chapter 6</b>	
Alexandrite Laser . . . . .	71	<b>Lasers, Photodynamic Therapy, and</b>	
Diode Laser . . . . .	73	<b>the Treatment of Medical Dermatologic</b>	
Nd:YAG Laser . . . . .	73	<b>Conditions . . . . .</b>	99
IPL . . . . .	77	MICHAEL H. GOLD	
Treatment Approach . . . . .	78	History of Photodynamic Therapy . . . . .	99
Postoperative Considerations . . . . .	79	Currently Available Technology . . . . .	101
Complications . . . . .	79		
Pigmentary Changes . . . . .	79		

## Contents

ix

Photodynamic Therapy: The Experience with Actinic Keratoses in the United States . . . . .	101	Disadvantages . . . . .	118
Photodynamic Therapy: New Indications for Photodynamic Photo- rejuvenation in the United States . . . . .	103	Contraindications . . . . .	118
Photodynamic Therapy: The (Primarily) European Experience with Actinic Keratoses and Skin Cancers . . . . .	106	Personal Laser Technique . . . . .	119
Photodynamic Therapy – Other Indications . . . . .	107	ALA-PDT Technique . . . . .	119
Advantages . . . . .	112	Postoperative Care . . . . .	119
Psoriasis and Disorders of Hypopigmentation . . . . .	113	Postoperative Care Following ALA-PDT . .	119
		Postoperative Care for Psoriasis and Disorders of Hypopigmentations . . .	120
		The Future . . . . .	120
		References . . . . .	120
		Subject Index . . . . .	123