

---

Fabio Meneghini **Clinical Facial Analysis**  
Elements Principles Techniques

---

Fabio Meneghini

# Clinical Facial Analysis

Elements Principles Techniques

With 158 Figures and 6 Tables

 Springer

---

**Fabio Meneghini, M.D.**  
Aesthetic Facial Surgery  
Viale Cavallotti, 61  
I-35124 Padova  
Italy

ISBN 3-540-22832-2

Library of Congress Control Number:  
2004110372

This work is subject to copyright. All rights are reserved, whether the whole or part of the material is concerned, specifically the rights of translation, reprinting, reuse of illustrations, recitation, broadcasting, reproduction on microfilms or in any other way, and storage in data banks. Duplication of this publication or parts thereof is permitted only under the provisions of the German Copyright Law of September 9, 1965, in its current version, and permission for use must always be obtained from Springer-Verlag. Violations are liable to prosecution under the German Copyright Law.

Springer is a part  
of Springer Science+Business Media  
springeronline.com

© Springer-Verlag Berlin Heidelberg 2005  
Printed in Germany

Springer-Verlag  
Berlin Heidelberg New York

The use of general descriptive names, registered names, trademarks, etc. in this publications does not imply, even in the absence of a specific statement, that such names are exempt from the relevant protective laws and regulations and therefore free for general use.

Product liability: The publishers cannot guarantee the accuracy of any information about dosage and application contained in this book. In every individual case the user must check such information by consulting the relevant literature.

Editor: Gabriele Schröder, Heidelberg  
Desk Editor: Martina Himberger, Heidelberg  
Typesetting: SDS, Leimen  
Production: Bernd Reichenthaler,  
Pro Edit GmbH, Heidelberg  
Printing: Stürtz, Würzburg  
Binding: Stürtz, Würzburg

Printed on acid-free paper  
24/3150Re - 5 4 3 2 1 0

# Contents

## Facial Analysis:

### What, Why, When, and How 1

What is Clinical Facial Analysis? 2

How Do You Train and Develop  
the Skill for Clinical Facial Analysis? 2

The Spiral of Analysis 2

Searching for a Flexible Method  
of Clinical Facial Analysis 3

Do Not Apply a Method of Analysis  
in a Linear Way 3

## Approaching the Patient for Direct and Photographic Facial Analysis 7

1.1 The Single Room Concept 8

1.1.1 The Interview Area 8

1.1.2 The Clinical  
Examination Area 8

1.1.3 The Clinical  
Photography Area 9

1.2 The First Consultation  
Approach 9

1.2.1 The First Ten Minutes 9

1.2.2 The Entrance 9

1.2.3 The Interview 10

1.2.4 The Direct Clinical  
Examination 10

## Lighting Techniques

### for Clinical Facial Photography 15

2.1 Lighting Techniques  
for Clinical Facial Photogra-  
phy 16

2.2 Equipment and Technique 16

2.3 Discussion 18

2.3.1 Point, Line, and Plane 19

2.3.2 A “Natural” Option 19

The Four Main Components  
Involved in Facial Aesthetics 3

The Three Error Groups 4

Errors in Patient Selection 4

Errors in Preoperative  
Analysis 4

Errors in Technical  
Execution 4

The Appearance-Changing  
Treatments 4

Reference 5

1.2.5 The Clinical Photographic Docu-  
mentation 10

1.2.6 Final Communications  
and Remarks 10

1.3 The Time Spent in Organizing  
the Next Consultation 11

1.4 The Second (and Successive)  
Consultation Approach 11

1.5 How to Enhance Patient/  
Physician Communication 12

1.6 The Single Operator Concept 12

References 12

2.3.3 Problems with Two or More  
Lights 19

2.3.4 Avoid a False Asymmetric  
Face 20

2.3.5 The Importance of Soft Box  
Size 20

2.3.6 Avoid Shadows on the Back-  
ground Panel 20

2.3.7 Advantages of Ceiling-Mounted  
Equipment 20

## INTRODUCTION

## CHAPTER 1

## CHAPTER 2

2.4 The Seven Rules of Multiple Shots **20**

References **21**

### CHAPTER 3

#### Views of Clinical Facial Photography **23**

3.1 Natural Head Position **24**

3.2 How to Obtain Life-Size Photographs **24**

3.3 The Poster “Views of Clinical Facial Photography” **24**

3.4 The Shooting of a Complete Set of Clinical Facial Photographs (Step-by-Step Description) **25**

3.4.1 Accompanying the Patient in the Photo Area **25**

3.4.2 The Eleven Basic Views **25**

3.4.3 The Five Nasal Views **27**

3.4.4 The Five Orthognathic/Orthodontic Views **28**

3.4.5 The Seven Eye Views **30**

3.4.6 The Four Ear Views **30**

3.4.7 Final Remarks **31**

References **32**

### CHAPTER 4

#### The “Facial Points of Interest” **35**

4.1 Eye Movements and Visual Perception **36**

4.2 From the Regions of Interest to the Facial Points of Interest **36**

4.3 A Different – Visual – Approach to Facial Deformities and Aging **38**

4.4 Adding Lines to the Facial Points of Interest **38**

4.5 Illusion in Clinical Facial Analysis **39**

References **40**

### CHAPTER 5

#### Basic Facial Analysis **43**

5.1 Regions of the Face and Neck **44**

5.2 Basic Qualitative Facial Analysis (Without Measurements) **44**

5.2.1 Frontal View Analysis **45**

5.2.2 Basal View Analysis **46**

5.2.3 Oblique Views Analysis **46**

5.2.4 Profile View Analysis **47**

5.3 The Facial Angles **48**

5.4 The Supporting Skeleton Assessment **48**

5.5 Facial Soft Tissue Envelope Assessment **49**

5.6 Facial Soft Tissue Analysis Checklist **53**

5.7 The Overweight Patient, Facial Analysis, and Surgical Treatment **53**

5.8 From Specific to General: A Reversed Approach to Basic Analysis **54**

5.9 Basic Analysis: Preferred Terms **55**

References **56**

**Forehead, Eyebrows, and Eyes 59**

- 6.1 Forehead Analysis **60**
- 6.2 Eyebrow, Eye, and Lids Analysis **60**
  - 6.2.1 The Attractive Female Eye **60**
- 6.3 Upper Lid Crease Malposition **61**
- 6.4 A Closer Look at the Upper Lateral Orbital Quadrant **63**
- 6.5 Eyebrow Malposition and Inappropriate Expressions **64**

**Nasal Analysis 71**

- 7.1 Points, Lines, and Subunits of the External Nose **72**
- 7.2 Direct and Photographic Clinical Analysis for Nasal Deformities **72**
  - 7.2.1 General Considerations **72**
  - 7.2.2 Nasal Upper Third Assessment **75**
  - 7.2.3 Nasal Middle Third Assessment **78**
  - 7.2.4 Nasal Lower Third Assessment **82**
- 7.3 The Close Relationship Between the Nose and the Upper Lip **84**
- 7.4 Nasal Analysis Checklist **86**

**Lips, Teeth, Chin, and Smile Analysis 97**

- 8.1 Dental Occlusion – Basic Assessment **98**
- 8.2 Upper Frontal Teeth Assessment **100**
- 8.3 Lips Assessment **100**
  - 8.3.1 The Attractive Female Lips **102**
- 8.4 Smile Analysis **103**
  - 8.4.1 The Attractive Female Smile **105**
  - 8.4.2 The “No-Smile Patient” **105**
- 8.5 Chin Assessment **105**

- 6.6 Suspect and Search for the Early Signs of Aging in the Upper Third of the Face **65**
- 6.7 Forehead, Eyebrows, and Eyes Analysis Checklist **66**
- 6.8 Forehead, Eyebrows, and Eyes: Preferred Terms **67**
- References **69**

- 7.4.1 Nasal Analysis Checklist – General Considerations **87**
- 7.4.2 Nasal Analysis Checklist – Upper Third of the Nose **88**
- 7.4.3 Nasal Analysis Checklist – Middle Third of the Nose **88**
- 7.4.4 Nasal Analysis Checklist – Lower Third of the Nose **88**
- 7.5 The Nasal Analysis Sheets **89**
- 7.6 Cephalometric Nasal Analysis **90**
  - 7.6.1 The Method of Byrd and Hobar **90**
- 7.7 Nasal Airway Assessment **91**
- 7.8 Nasal Analysis: Preferred Terms **91**
- References **93**

- 8.6 Lips, Teeth, Chin, and Smile Analysis Checklists **108**
  - 8.6.1 Dental Occlusion Analysis Checklist **108**
  - 8.6.2 Upper Frontal Teeth Analysis Checklist **108**
  - 8.6.3 Lips Analysis Checklist **109**
  - 8.6.4 Posed Smile Analysis Checklist **109**
  - 8.6.5 Chin Analysis Checklist **109**
- 8.7 Lips, Teeth, Chin, and Smile Analysis: Preferred Terms **110**
- References **111**

**CHAPTER 6****CHAPTER 7****CHAPTER 8**

## CHAPTER 9

**Dentofacial Deformities 115**

- 9.1 The Basic Components of Dentofacial Deformities **117**
    - 9.1.1 Anterior Vertical Excess **117**
    - 9.1.2 Anterior Vertical Deficiency **118**
    - 9.1.3 Class III Sagittal Discrepancy **119**
    - 9.1.4 Class II Sagittal Discrepancy **121**
    - 9.1.5 Transverse Discrepancies and Asymmetry of the Jaws **123**
    - 9.1.6 The Immense Number of Combinations of Different Types and Grades of the Basic Components of Facial Deformities **123**
  - 9.2 Direct and Photographic Clinical Analysis for Dentofacial Deformities **123**
  - 9.3 The Youthful Neck **129**
  - 9.4 Intraoral and Dental Cast Analysis **130**
  - 9.5 Cephalometric Analysis **130**
    - 9.5.1 A Personal View on Radiographic Cephalometry **130**
    - 9.5.2 Essential Radiographic Cephalometry **130**
  - 9.6 Dental Cephalometric Analysis **131**
    - 9.6.1 Interincisal Angle **131**
    - 9.6.2 Angle Between the Upper Central Incisors and the Maxillary Plane **131**
    - 9.6.3 Angle Between the Lower Incisors and the Mandibular Plane **131**
    - 9.6.4 Protrusion of Maxillary Incisors **132**
  - 9.7 Skeletal Cephalometric Analysis **132**
    - 9.7.1 Maxilla to Cranial Base Antero-posterior Assessment **132**
    - 9.7.2 Mandible to Cranial Base Antero-posterior Assessment **132**
    - 9.7.3 Mandible to Maxilla Assessment **134**
  - 9.8 Soft Tissue Cephalometric Analysis **134**
    - 9.8.1 Vertical Proportions **134**
    - 9.8.2 Nasofacial Angle **134**
    - 9.8.3 Nasomental Angle **134**
    - 9.8.4 Mentocervical Angle **135**
    - 9.8.5 Submental-Neck Angle **135**
    - 9.8.6 Subnasal Vertical **135**
    - 9.8.7 Nasolabial Angle **136**
  - 9.9 The Points, Lines and Angles Difficult to Trace **136**
  - 9.10 The Maxillomandibular Complex Concept **136**
  - 9.11 The Role of Dentofacial Deformities in Premature Aging Appearance **137**
  - 9.12 Dentofacial Analysis Checklist **138**
  - 9.13 Dentofacial Deformities: Preferred Terms **139**
- References **142**

## CHAPTER 10

**The Aging Face 145**

- 10.1 Structural Factors of Aging **147**
- 10.2 Soft Tissue Quality and Aging **148**
- 10.3 Soft Tissue Quantity and Aging **149**
- 10.4 Soft Tissue Dynamics and Aging **149**
- 10.5 Skeletal Supporting Framework and Aging **149**
  - 10.6 Recognizing Aging in the Face **149**
    - 10.6.1 General Considerations **149**
  - 10.7 Recognizing the Signs of Facial Aging **149**
    - 10.7.1 Forehead Transverse Furrows **150**
    - 10.7.2 Frown Lines **150**
    - 10.7.3 Temporal Depression **150**
    - 10.7.4 Eyebrow Ptosis **150**
    - 10.7.5 Upper Eyelid Hooding **151**
    - 10.7.6 Crow's Feet and Eyelid Wrinkles **152**

- 10.7.7 Lateral Canthal Bowing **152**
- 10.7.8 Scleral Show **152**
- 10.7.9 Baggy Lower Eyelid **152**
- 10.7.10 Tear Trough Deformity (Palpebrojugal Fold) and Palpebral Malar Groove **152**
- 10.7.11 Malar Bags (Festoons, “Cheek Bags”) **153**
- 10.7.12 Nasolabial Fold **153**
- 10.7.13 Preauricular Lines **153**
- 10.7.14 Lip Lines **153**
- 10.7.15 Horizontal Upper Lip Line **153**
- 10.7.16 Vertical Lengthening of the Upper Lip and Ptosis of the Lip Commissures **154**
- 10.7.17 Corner of the Mouth Lines (Commissural Lines) and “Marionette” Lines **154**
- 10.7.18 Jowls and Pre-jowl Depression **154**
- 10.7.19 Witch’s Chin Deformity (Ptotic Chin) **154**
- 10.7.20 Platysma Bands and Loss of Cervicomental Angle **154**
- 10.7.21 Horizontal Neck Lines **155**
- 10.7.22 Ptotic Submandibular Gland **155**
- 10.8 Recognizing Nasal Aging **155**
- 10.9 Recognizing Aging in the Oral Frame **155**
- 10.10 The Aging Face Analysis Checklist **155**
- 10.11 The Aging Face: Preferred Terms **158**
  - 10.11.1 Wrinkles, Mimetic Lines, Mimetic Furrows, and Folds **158**
  - 10.11.2 Other Terms **158**
- References **160**

### Continuing Facial Analysis **163**

- 11.1 Meet the Patient the Day Before the Operation **164**
- 11.2 Continuing Facial Analysis in the Operating Room **164**
  - 11.2.1 The Basic Preoperative Documents Are Hanging up in the Operating Room **164**
  - 11.2.2 Problems Related to General Anesthesia and Patient Positioning During Facial Surgery **164**

### Exercises in Clinical Photography and Analysis **167**

- 12.1 Exercise 1  
Orientate the Face in the Natural Head Position **168**
- 12.2 Exercise 2  
Perform a Complete Session of Clinical Facial Photography **168**

- 11.3 The Intraoperative and Postoperative Procedure Documentation **165**
- 11.4 The Continuing Facial Analysis in the Early Postoperative Phase **165**
- 11.5 The Continuing Facial Analysis in the Late Postoperative Phase **166**
- References **166**

- 12.3 Exercise 3  
Find and Compare the Facial Points of Interest in Two Different Subjects **168**
- 12.4 Exercise 4  
Perform a Systematic, Step-by-Step, Facial Analysis **168**

## CHAPTER 11

## CHAPTER 12



**CHAPTER 13****Suggested Reading 171**

- 13.1 Errors in Patient Selection **172**
- 13.2 Enhance Preoperative, Intraoperative, and Postoperative Patient Care **172**
- 13.3 The Normal-Average Face and the Beautiful Face **172**
- 13.4 Forehead Aesthetics and Preoperative Assessment **172**
- 13.5 Eyelid Aesthetics and Preoperative Assessment **173**
- 13.6 Understanding the Nasal Airway **173**
- 13.7 Planning Rhinoplasty **173**
- 13.8 From Nasal Analysis to Nasal Surgery **173**
- 13.9 The Six Keys to Optimal Dental Occlusion **173**
- 13.10 The Smile Analysis: An Orthodontic Point of View **173**
- 13.11 Clinical Cephalometric Analysis **174**
- 13.12 Clinical Analysis of Dentofacial Deformities **174**
- 13.13 Proportion and Disproportion in Dentofacial Deformity **174**
- 13.14 How the Skin Ages **174**
- 13.15 How the Face Ages **174**

**CHAPTER 14****Surround Yourself with Experts (and Other Important Advice for a Constructive and Creative Surgical Practice) 175**

- 14.1 Surround Yourself with Experts **176**
- 14.2 The Cost of Complexity **176**
- 14.3 John F. Kennedy on Myth **176**
- 14.4 Jack Sheen: "A Psychiatrist Once Told Me ..." **176**
- 14.5 The 20 Rules of Surgical Planning (or the "Think in Terms of..." Planning Series) **176**
- 14.6 David Sarver on "Diagnosis by Procedure" **177**
- 14.7 The Three Most Powerful Treatments **177**
- 14.8 The Priority List and the 80/20 Rule (Pareto's Law) **178**
- 14.9 Professional Success is a Consequence of Interest, Joy, and the Desire for Future Happiness **178**

**SUBJECT INDEX**Subject Index **179****CD-ROM****Introduction**Overview of CD-Rom  
(printable file in pdf format)**Section 1**Poster:  
Views of Clinical Facial Photography  
(printable file in jpeg format)**Section 2**Clinical Facial Analysis Checklists  
(printable files in pdf format)**Section 3**Clinical Facial Analysis Preferred Terms  
(printable files in pdf format)**Section 4**Clinical Cases  
(printable files in pdf format)

# Acknowledgements

This book is based on the material collected and organized for a four-day basic course on clinical facial analysis held in October–November 2002 at the Postgraduate School of Maxillofacial Surgery at the Faculty of Medicine, Padova University. The support and encouragement offered by Prof. Giuseppe Feronato, Dr. Stefano Fusetti and Dr. Olindo Procopio helped me in that first step, and, as in every new project, nothing can ever happen without that first key step!

I would also like to thank my many friends and colleagues who have assisted me in my work as a facial surgeon and in the writing of this book, including:

My colleagues and residents at the Postgraduate School of Maxillofacial Surgery at the Faculty of Medicine, Padova University.

My colleagues at Villa Maria Cecilia Hospital.

Dr. Massimiliano Gulin and Dr. Luigi Biagioli for more than a decade of advice and support.

Dr. Michele Maranto, Dr. Demis Barbin, Dr. Laura Toniolo, Dr. Sandra Becarello and all the patient care staff in my practice for sharing with me the vision of a team dedicated to analyzing and treating every aspect of facial deformity.

My mentors, Prof. Camillo Curioni, Dr. Paolo Gottarelli, Dr. Alberto Toffanin, and Dr. Giovanni Botti.

Massimiliano Crespi and Carol Grocott for the countless hours spent on this project.

Gabriele Schröder, Medical Editor at Springer Heidelberg, for her confidence from the very beginning in my proposal for a book on facial analysis ...

... and a special thanks to my beautiful wife and wise advisor, Cinzia.

*Medical writing is functional writing – that is, it is done to serve a function.*

*Almost always, that function is to help the reader make a decision.*

*RL Iles (1997)*

*Guidebook to Better Medical Writing, Island Press, Washington, DC*

