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Treatment Variables Affecting Facial Growth in Complete Unilateral Cleft Lip and Palate

R. Bruce Ross

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EDITOR'S NOTE

This issue of *The Cleft Palate Journal* presents a series of articles reporting a remarkable clinical research effort by Dr. R. Bruce Ross. The series is presented *in toto* for reasons of reader convenience, continuity, and space economy.

Clinicians and scientists from cleft lip and palate treatment centers around the world provided Dr. Ross with radiographs and information. We are indebted to them. Dr. Ross used the resources they provided to confront important questions about the effects of habilitative services on patients. The effects of various treatment modalities on growth and development are the special focus of the project.

Dr. Ross's bold presentation strikes to the core of clinical work with patients possessing cleft lip and palate. We hope that readers will be stimulated and enlightened by careful consideration of the results and discussion that are presented.

Dr. Ross's interpretative style is thoughtful, readable, and provocative. The information he reports should modify the ways in which we dispense various treatments for the myriad problems associated with cleft lip and palate. His work poses a challenge to modify some views of treatment and to continue efforts to evaluate thoroughly the work that we do.

Robert M. Mason, Ph.D, D.M.D.
Associate Editor for Dentistry

FOREWORD

This study had its genesis several years ago when Dr. Margaret Hotz asked me to assume some responsibility for the facial growth and development content of the Third International Symposium on the Early Treatment of Cleft Lip and Palate held in Zurich in September, 1984. The literature abounds with studies on the facial growth of groups of individuals with clefts who have received a particular method of treatment as compared to another method or to a control group. It seemed that the task would be to tabulate the results of all available studies and to establish which treatment methods had produced the best facial growth results by comparing the data.

On examining the literature, it became obvious that such a survey would barely be useful. There was too great a variability in sample size, age, sex, precise cleft type, and ethnic origin. Even more significant was the variation in the choice of cephalometric measurements and the unstated but inevitable variability of each researcher's interpretation of landmarks for obtaining measurements. Although real differences could be expected to be fairly slight, even gross differences might escape detection under these conditions, and differences might be noted that did not in fact exist.

The only solution, which seemed impossible to accomplish, would be to assemble a tremendously large sample with a wide variety of treatment approaches and to analyze all of the records in exactly the same manner. Incredibly, when individuals were approached to participate in a unique international study by sending their cephalometric radiographs to Toronto for analysis, the response was enthusiastic. In a remarkable demonstration of cooperation and trust, virtually everyone agreed to expose their material to public scrutiny without knowing in advance what the result might be. I am particularly grateful to Dr. Hans Friede and Dr. Bengt Johansson, who had previously published the dismaying results of the bone grafting technique used in Goteborg in the early 1950s (Friede and Johansson, 1974). Their cases were invaluable in establishing parameters of iatrogenic growth inhibition.

Many individuals in each Center were involved in the decision to permit the use of their records, but I would particularly like to express my appreciation to the following who went to considerable effort to prepare the data collection sheets for each patient, and assemble, duplicate and mail the radiographs:

- Drs. Olav Bergland and Gunvor Semb, Oslo, Norway (Oslo sample)
- Dr. William Brogan, Perth, Australia (Perth sample)
- Dr. Eric Dahl, Copenhagen, Denmark (Copenhagen and Unoperated samples)
- Dr. Hans Friede, Goteborg, Sweden (Goteborg sample)
- Dr. Rune Hellequist, Uppsala, Sweden (Uppsala sample)
- Drs. Margaret Hotz and Wanda Gnoinski, Zurich, Switzerland (Zurich sample)
- Dr. Margareta Ideberg, Stockholm, Sweden (Stockholm sample)
- Dr. John Peat, Auckland, New Zealand (Auckland sample)
- Dr. Frank Popovich, (Normals sample)
- Dean Norman Robertson, (Manchester sample)
- Dr. Sheldon Rosenstein, Chicago, Illinois (Chicago sample)
- Dr. Karl-Victor Sarnas, Malmo, Sweden (Malmo sample)
- Dr. Wolfram Schweckendiek, Marburg, West Germany (Marburg sample)

The following treatment modalities were investigated and will appear as individual studies in this series:

- Part 1: Treatment Affecting Growth
- Part 2: Infant Orthopaedics
- Part 3: Alveolus Repair and Bone Grafting
- Part 4: Repair of the Cleft Lip
- Part 5: Timing of Palate Repair
- Part 6: Techniques of Palate Repair
- Part 7: An Overview of Treatment and Facial Growth

This series of studies considered virtually every aspect of treatment that might influence facial growth. An attempt was made to control the many variables that influence growth research, so that a clear picture of the effects of each procedure would be available.

Two major assumptions about the sample are necessary if any conclusion can be drawn from these studies. The first is that all *groups* of infants with complete unilateral cleft lip and palate have exactly the same *average* facial morphology at birth, in spite of the enormous individual variation within the group. The second assumption is that one group of infants will respond on the average in exactly the same way as any other group to a particular treatment.

The intent was to assemble relatively pure samples of individuals who had received the given management technique, used consistently on all subjects from a particular center that had a reputation for excellent treatment. Hopefully, there would be several Centers using any given approach, so that their samples could be pooled for greater sensitivity in testing that approach.

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