
Preface

Transformation and Identity

My faculty advisors in medical school were a plastic surgeon, Ted Huang, and an anthropologist, Mary Knudson. Dr. Knudson hired me, a 19-year-old freshman medical student, to participate in a research project at the Shriners' Burn Hospital studying adolescent patients with severe facial burns. When I began, I could not imagine how the children could continue living in their disfigured condition. I sat for hours talking to children with mutilating burn scars: most were missing ears, or noses; some had no eyelids; others had mouths scarred into small holes. Within the first weeks, I recognized that amazing personalities were trapped inside their young, scarred faces.

My other faculty advisor, Dr. Huang, invited me to observe him as he performed reconstructive procedures on the young burn patients I was interviewing. Over the next months, as plastic surgery transformed disfigured faces, the inner selves of the children emerged from behind their scarred masks.

I showed so much interest in the project that Dr. Huang showed me how to suture using pig's feet so that I could scrub with him on the cases. I was no longer just watching the transformation, but playing a part in it.

Galveston was one of the transgender centers in the 1970s. Ted Huang and Mary Knudson were on the hospital committee that interviewed potential sex reassignment cases. They invited me at 20 years of age to join their committee, and I followed numerous conflicted patients through their staged gender transformations. I maintained contact with some of the patients over the next 30 years as they became successful businesspersons, actresses, and housewives.

By the end of my second year in medical school, I had witnessed scores of plastic surgeries and had the unusual privilege of knowing the patients before the surgery and then following their adjustment afterward. I observed the alteration of physical appearance, as well as the profound psychological impact that would allow these patients to better assimilate into their world. Thus at an early age I discovered the necessity of understanding the whole person—body and mind.

The synchrony of a person's physical appearance and his or her psyche is essential for any human's communication of condition and feelings. Helping to make a person's soul more visible to the world was the best feeling I ever had, and it still is to this day.

The Revolution

I was born into a revolution in plastic surgery. I began my plastic surgery residency during a time of upheaval: new musculocutaneous flaps were regularly being introduced, free flaps were still cutting-edge technology, liposuction had arrived on the American scene with much fanfare, injectable collagen was on the verge of approval, silicone implants were being used everywhere in the body, and lasers were just on the horizon. There were so many new procedures and so much ongoing change that by all rights, textbooks should have been updated monthly.

I was fortunate to be in a residency program headed by Mark Gorney, who felt that wide exposure was imperative to learning. We had 14 attendings on staff, and all of the resources of UCSF and Stanford. The three residency programs in the San Francisco area shared experiences and residents. But there was more—Dr. Gorney arranged for me to spend months with great thinkers such as Harry Buncke, Antonio Fuente del Campo, and Fernando Ortiz-Monasterio. He also allowed me time to study briefly with Mario González-Ulloa, Bruce Connell, and Burt Brent, to name a few.

The only constant I discerned in my plastic surgery academic travels was change. Almost every surgeon I encountered in those 3 years challenged the ideas of the people around them and before them. Each proposed a different solution to every problem, whether reconstructive or aesthetic. It was a time of movement and revolution.

Fat Grafting

In 1985, I moved to New York City to set up practice. Some of my first consultations were with women I met at dinner parties, who would show me their arms, thighs, or even abdomens where too much fat had been removed during liposuction procedures by respected plastic surgeons. Their deformities made it increasingly obvious to me that liposuction, which was on its way to being the most commonly performed procedure in the world, was far from problem free. It was frequently associated with surface irregularities. This recognition prompted me to investigate fat grafting for correction of the new problem of iatrogenic liposuction deformities. In 1986, I visited or spoke to plastic surgeons around the world who had been known for grafting fat. The consensus was that grafting fat was unpredictable, but definitely worked some of the time.

By 1986, there were hardly any published articles on fat grafting, and most were negative and dismissive. The reports claimed significant diminution of the implanted fat and variable results. For example, Illouz suggested the results of injected fat into the face were similar in longevity to results with collagen.

With such a paucity of current experience to rely on, I looked back into the history of medicine for my lessons and guidance. I learned that fat grafting had been done through open incisions since 1893. And in 1926, Charles Conrad Miller described his experiences with infiltration of fatty tissue through hollow metal cannulas. He claimed that depositing fat through a cannula had significant advantages over implanting fat through a larger incision. He observed a better long-term correction and a more natural-appearing change in facial and body contours with infiltrated fat than with other methods of fat grafting. Although Conrad Miller reported good results with injected fat, the technique he described never became widely used.

It was not until 30 years later that Lyndon Peer took a more scientific look at fat grafts. His studies of open-incision fat grafting concluded that about 50% of the fatty tissue survived after he cut it into small pieces and transplanted them into recipient sites. Unfortunately, the surgeons of the time preferred (as surgeons today often do) to focus on the 50% of tissue that died rather than the 50% that lived, and fat grafting did not become popular.

In December 1986, I began grafting fat to correct iatrogenic liposuction deformities. I approached grafting with the enthusiasm of Conrad Miller, but with the skepticism that grafted fat might not last longer than collagen.

After early success with iatrogenic liposuction deformities, patients began asking me to place fat into their faces instead of collagen. At their suggestion, I began placing fat in my patients' faces for aesthetic reasons. My earliest attempts at fat grafting yielded long-term structural changes with every indication of permanence. In 1988, I presented my experience with fat grafting at the American Society of Aesthetic Plastic Surgery meeting in San Francisco. At that time, it appeared that grafted fat was still present at 1 year. I followed some of those patients for up to 7 years with no diminution in the volume of placed fat. Since 1988, it has been my consistent observation that fat grafted in the manner described in the following pages has every indication of permanence.

From 1987 to 1992, I developed the approach to fat grafting for changing facial contours that is described in this book. This approach emphasizes respect for handling tissues and basic sound surgical technique. During this evolutionary process, attitudes have also evolved, and plastic surgeons today accept the potential longevity of transplanted fat and are more interested in learning about its applications.

However, there are skeptics who still avoid using autologous fat over other materials for tissue augmentation because they claim that fat grafting is too dependent on the technique used to harvest, refine, transfer, and place fat. *Of course* fat grafting is technique dependent—every procedure is dependent on the technique used! That is the reason we endeavor to choose the techniques that yield the best results and abandon those that are unreliable. For instance, the survival of a skin graft after transplantation depends on many factors: the thickness of the skin graft, sterile technique, placement of the der-

mis side of the graft against a good capillary bed, and so on. Varying the technique can cause the graft to die. Making the skin graft too thin or too thick, contaminating the graft, or placing the graft with the epidermal side down may kill the transplanted skin. Similarly, many intraoperative maneuvers can kill fatty tissue during grafting procedures.

Our quest should be to identify those techniques that encourage long-term survival and reliable results with grafted fatty tissue. As Dr. Miller warned, “The end-results in free fat transplantation depend, aside from various local and general factors, on the method and technique.” These words are as much a key to successful fat grafting now as they were 74 years ago. The method of fat grafting described in this book is designed to reliably transplant autologous fat.

The Book

Structural Fat Grafting has grown out of my experiences with fat grafting and my desire to educate my colleagues about the innovative applications this technique has to offer. My goal is to provide physicians with the practical and detailed information needed to master the art and science of fat grafting so that they can apply this technique to a multitude of problems and applications.

The subject of facial aging is one of the core issues that runs throughout this book. Therefore it seemed appropriate to begin the book with an introduction to the counterrevolution that is taking place in plastic surgery and transforming our previous paradigms of aging and facial proportion.

The opening chapter focuses on the consultation and the doctor-patient relationship. I think that is the most important part of any plastic surgery procedure. The surgeon must comprehend the needs and desires of the patient and must be certain that the patient understands not only the subtle changes that a procedure can achieve, but also the limitations and potential problems associated with that procedure. It is key for the surgeon to establish a relationship with the patient to better explore and understand how the patient’s psyche is reflected in his or her view of the outer self.

Chapters 2 and 3 explain my method for harvesting subcutaneous tissue and refining it into relatively pure fatty tissue, ready for placement into any part of the body or face.

Chapter 4 is a thorough discussion of the potential problems surgeons may encounter while grafting fat. The aim is to arm readers so they can avoid complications and minimize untoward effects, such as swelling.

The remaining chapters focus on the placement of fatty tissue into specific parts of the face and body. I begin with hands in Chapter 5; this is one of the easiest areas because the fatty tissue is grafted in a planar fashion. A surgeon does not need experience or ability in three-dimensional sculpting to graft fat to the dorsum of the hand. In this

chapter I provide surgeons with a step-by-step method for placing tissue over the dorsum of the hand so they can refine their technique of infiltration without being as concerned with the need for three-dimensional sculpting.

Chapter 6 considers iatrogenic liposuction deformities, because anyone who suctions fat should be able to repair the deformities that will eventually be created. Liposuction is now the most commonly performed procedure in the world, and liposuction deformities are the most common complications of this procedure. The importance of this chapter is obvious. Here the reader begins to consider the simplest three-dimensional approach to soft tissue augmentation: filling a hole.

For the transition to the face, in Chapter 7 I chose the nasolabial folds and marionette grooves. These are probably the easiest indications for the reader to understand, and are more commonly requested uses of soft tissue augmentation. In this chapter the reader begins to make a minimal transition to three-dimensional sculpting and a consideration of how this part of the face fits into the whole face.

Changing the structure of the lips, discussed in Chapter 8, is a relatively simple procedure, but one often poorly understood by surgeons and patients. An understanding of the aging process in the lip and the mechanisms for restoring or creating structure in the lip is essential to produce consistent results. This is the first area described in the book in which the surgeon needs to do much more than fill a hole; in the lips it is necessary to be able to visualize a three-dimensional structure and sculpt in free-form. Because of the precise nature of placement that I believe is essential for predictable results, I have devoted more time in this chapter to detailing the exact level and locations for placement of the grafted tissue.

A strong, sculpted mandibular border and healthy-appearing neck project youth, health, and well-being. Chapters 9 and 10 address the complexities of restructuring these areas.

The final two chapters are devoted to the periorbital and cheek regions. Chapter 11 explains how adding support to the midface and lower eyelids rather than excising and suspending structures in this area produces a more natural rejuvenation and enhancement. The cheek, both malar and buccal, is a relatively easy area to visualize in three dimensions and it is an area that I recommend highly for learning three-dimensional manipulation of the face.

On the other hand, the lower eyelid is probably the most difficult area for structural grafting. If the surgeon is not intimately familiar with the properties of transplanted fat in the lower eyelid, areas of excess fullness and even irregularities or small lumps will be visible through the skin when the swelling resolves. The lower eyelid is not the area to learn transplanting fat; augmentation in this region should only be attempted when the surgeon has performed enough grafting in other areas to approach the lower eyelid with confidence in the technique.

The upper third of the face, described in Chapter 12, is the most misunderstood area of the face. Although much easier to approach technically than the lower eyelid, fat grafting to the temples and brow requires a complete rethinking of our traditional approach to the area for successful rejuvenation. Rather than adhering to conventional wisdom, it is important that we reevaluate our concept of aging and consider a paradigm shift in how we approach treatment—one that will lead us to think in terms of augmentation by filling rather than excising and lifting. In *Structural Fat Grafting* a new model for rejuvenation is presented that yields excellent, subtle results—results that actually improve over the long term.

The aesthetic surgeon's responsibility is a heavy one: to recognize the nature of a patient's inner self and to adjust his or her visage or body so that it allows the patient to more accurately communicate emotion and condition. I challenge readers to know their patients not just as procedures, but as souls with personalities, histories, and futures that you can help them to shape.

Structural Fat Grafting is not just a recipe book for grafting fat from one part of the body to another; it is a text devoted to natural augmentation. The principles established in this book are applicable to any type of aesthetic augmentation, and I hope they will prove valuable to the reader as additional safe fillers become available. My goal is to add to the wealth of knowledge and experience that has served us so well and to provide a new vehicle for future growth and innovation.

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