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Posterior Torso and Buttocks Contour Enhancement

Edward M. Zimmerman

Abstract

The harmonious contour and movement of the dorsal human form--male and female, youthful through senescent--has been observed, critiqued, and physically and surgically sculpted throughout human existence with the goal of producing a more functional, balanced and beautiful body. This chapter will explore variations and pendulum swings of desirable/beautiful/athletic posterior contours and how the cosmetic units of the upper back, bra roll, axilla, waist, low back, upper buttocks, vertical and horizontal buttocks folds, lateral hips and banana rolls are both independent and interdependent. The evaluation of the topography of the posterior torso and buttocks, at rest and in movement, will be reviewed, Invasive and non-invasive technologies, utilized alone and bundled together for sculpting and refining optimal outcomes with reduced risks will be discussed. Improving the elasticity and tightness of the tissues and enveloping skin will be considered.

Keywords: Buttocks, waist, posterior torso, bra roll, liposuction, tissue tightening, cellulite

1. Introduction

1.1 Overview

Humankind has observed and drawn, sculpted media and their own physique since earliest recorded history. Pictograms of fertility and barren, conquerors and down-trodden, leaders and protectors, deities and devils, and young and old, are some of our earliest shared memories. Whether thin or thick, young, or old, athletic, or sedentary, fertile, or fragile, we carry with us preconceived visions of what each of these descriptors means to us. We critically evaluate each human we encounter against these standards which predate spoken word and have been genetically embedded in every member of the *Homo Sapiens* family. In fact, we often respond and are responded to initially based solely on our physicality. Since appearance is often evaluated before function or cognition, it is of great importance, often playing a pivotal role in our life opportunities, paths, health, and happiness.

1.2 Patient assessment

Each cosmetic patient who shares their time, goals, and dreams with us is concerned about the appearance they present to their family, spouse, peers, and the world in general. Often, there is adipose between the skin and the muscles that we may be able to sculpt and reveal by selective reduction, addition, tightening of the

enveloping cutaneous shell and beyond what has been genetically predetermined. Diet, supplements, exercise, lifestyle, and genes amalgam to create the ultimate exterior expression possible to achieve, short of surgically implanted prosthetic contours.

Our task is to sieve through the unrealistic options and present the possible. Balance risk with reward, outcome with economy and counsel our patients appropriately and patiently, perform our tasks skillfully, and rejoice in our patient's success.

After a thorough discussion of the patient's medical history, physical exam and desires we must counsel them on the possible avenues of intervention. Liposculpting, fat shifting and grafting, and tissue tightening are the major tools of rejuvenating the appearance of the dorsal aspects of a human to help them appear more youthful, healthy and powerful.

1.3 Pertinent anatomy

Specifically, we evaluate the looseness and elasticity of the skin, the contour and definition of the deltoids, trapezius, latissimus dorsi, rhomboids, gluteal muscles, shoulder blades, posterior rib cage, spine, and hip bones as well as the curves, symmetry, and proportions that we aspire to emulate in athletic, vigorous, hormonally optimized men and women considering age and ethnic heritage.

2. Technique

2.1 Markings

Once standardized digital pictures are obtained (standing, 6 views with arms out to sides or relaxed behind and additional flexing and extending views if the procedure will be "Hi Def") the skin is cleaned (Hypochlorous Acid works well) and dried. Surgical markers, or "Sharpie Permanent markers" can be used to outline the effects of gravity on the standing form. A topography map is developed that shows elevations, depressions, adhesions, dimples, cellulite, transition areas and extent of tumescent anesthesia to be instilled. In my office we often use Green Sharpie for elevations and extent of tumescence, cross-hatched areas for divots and cellulite that may be addressed, blue for areas to have fat shifting or fill. Red means be careful or needs more attention/precision) for insertion sites and areas to maximally thinned for desired definition or energy application or both.

In general, we seek to emphasize sinuous muscle and bone contours, debulk horizontal planes to supply "snatched" female waists and celebrate the transitions between the horizontal dimensions of the posterior rib cage framed by the shoulders, traps, lats and rhomboids; waist including the obliques and expansion of the hips and buttocks, where the ideal female waist may be significantly smaller than its borders. Male measurement comparisons may be less dramatic but endeavor to show off muscle contour, sometimes to the extreme in HiDef cases.

Phi (the "Golden Ratio of measure) can be loosely applied to the torso in that the maximal chest and buttocks circumference is roughly 1.618 times the desired waist measurement. The vertical fold of the buttocks is roughly 1.618 as high as the desired horizontal intragluteal fold (tethering of tissue to the ischial tuberosity) under each cheek and the height of the buttocks, measured from the infra-gluteal fold is 1.618 as high as the desired perpendicular projection of the buttocks (depending on ethnic background and the current esthetic swings of

the pendulum). The low back and lateral waist generally have a gentle rather than abrupt transition into the hip and buttocks projection.

Buttocks projection, starting somewhat below the height of the superior iliac spine, may be maximized based on desired ethnic appearance: Patients of Latin heritage sometimes want a lower point of maximal projection with blending into the lateral hip, a Caucasian “bubble butt” has maximal projection about mid buttocks height, around the level of the greater trochanter and patients of African American heritage may desire their maximal buttocks projection at the level of the upper pole and prefer somewhat more global volume.

The lateral hip depression, sometimes referred to as “Hip Dip” is formed from a condensation of the gluteus medius and maximus, vastus lateralis, quadratus femoris and greater trochanter. It is more apparent in thinner, athletic, and older/deflated patients and may be accentuated or filled as desired, consistent with the overall esthetic goal.

There is a “V” shaped contour arising from the superior pole of the vertical gluteal crease that outlines the superior-medial aspect of the upper buttocks adjacent to the sacrum which can be emphasized or not, again depending upon esthetic goals. Similarly, the posterior dimples (of “Venus”) presented by where the spine amalgams with the bones of the pelvis, align with the vectors of the posterior superior iliac spines, help outline the superior medial buttocks should probably be left intact [1].

2.2 Anesthesia

A key to allowing these procedures to be safely performed in the office as an elective procedure is great tumescent (to fill and make firm) anesthesia. Physicians from Gynecology, Dermatology and Plastic Surgery all take credit for this advancement at about the same time in history (late 1980's). Because lidocaine is so tightly bound in external fat compartments, profound anesthesia lasting hours can be derived from very dilute concentrations compared to typical derm and dental procedures. We all learned the 5 mg/kg body weight limit of Lidocaine without epinephrine and 7 mg/kg body weight limit for Lidocaine mixed with Epi, to avoid side effects including bradycardia. Interestingly, dilute solutions (0.05% lido with 1:1 M Epi and 12 mEq/L Sodium Bicarbonate mixed in Normal Saline or Lactated Ringers solution, works well below the waist; 0.1% lido etc. works fine for most torso lipo procedures; 0.15% lido for abdominoplasties, breast, male chest, axilla and upper arm procedures and 0.2% lido allows for pain free face and neck lipo and surgeries). A total of 35-50mgLido/kg body weight is generally considered safe. Comfort continues for 10–15 hours after the procedure, but that allows for peak levels and possible toxicity at 12 to 15 hours after your case started and the patient is at home otherwise oblivious to the cause of their peri-oral numbness, restlessness, nausea, tinnitus, seizures and even cardiac arrest. So these are discussed with the patient and in the after-surgery care-taker instructions to call the treating physician or facility if these symptoms occur. With conservative adherence to limiting lidocaine to 35-50 mg/kg body weight this should rarely be a problem. The treatment for lidocaine toxicity is IV 20% lipid emulsion solutions like IntraLipid with a loading dose of 1.5 ml/kg over 1 minute followed by and infusion of 15 ml/kg/hour while CPR is being performed throughout. An additional 2–3 boluses may be supplied every 5 minutes if needed for return of spontaneous circulation and the drip can be doubled up to 30 mg/kg/hour up to total dose of 10-12 ml/kg depending on the guidelines utilized for relief of symptoms. The IV lipids competitively bind the free lidocaine and pull it out of the neurologic, cardiac and GI systems [2].

Isotonic tumescent fluid volume should be limited to roughly 1.2 times the healthy patient's daily fluid requirements of 3–4 Liters/day for most men and women thereby avoiding cardio-pulmonary and renal issues. No additional IV fluids are desired, although IV access via saline lock is recommended for safety and to administer certain meds. This is based on understanding that a variable portion of the tumescent fluid will be suctioned out during the procedure, some will ooze out, and the patient will gradually utilize the rest.

Tranexamic Acid is often mixed into tumescent fluids (and even given IV) at 500-1000 mg/liter NS or RL to assist in hemostasis.

Injection of the tumescent fluid in small areas may simply be by 20 cc syringe and a spinal needle, but larger areas are more easily instilled with a pressure bag or peristaltic infusion pump with a foot pedal and 12–16-gauge, blunt, multi-holed (Rainbird or similar configuration) cannula. Generally, keep the cannula parallel to the skin. It should slide through the fat compartment easily. If the tip end hits or snags, change the vector and depth of deployment and try again. Fluid may be infused on both antegrade and retrograde strokes. Start with deeper infusions in radial fashion and work towards the skin in with gentle deployment and retrograde strokes and a slow infusion rate for comfort and precision. Once the tissue is firm, move on to another insertion site and cross hatch the area for better anesthesia. Massage the tissue to spread the fluid evenly through the fat and allow 20–60 minutes for anesthetic effect to set up. Blanching of the skin is often observed from the epinephrine component and the tissue will soften and become more moldable.

2.3 Sedation

Small areas of adiposity can be lipo-sculpted comfortably after tumescent anesthesia is instilled. Fat for facial fat grafting, cellular medicine and research can be obtained in this fashion. Oral sedation with sedative-hypnotics or antihistamine (eg: diazepam or hydroxyzine) and opiates have been used safely for decades and are easily reversible. ProNox and other patient administered analgesia can assist in “awake” procedures.

If larger (1 to 4 Liters of supernatant fat, depending on state regulations) procedures are planned, they are safer when performed in an accredited office-based facility or ASC equipped to handle the potential adverse side effects of deeper sedation.

IV and IM sedation with continual monitoring and IV access are generally preferred over intubation, so the patient can assist in repositioning and flexing during the procedure and sitting or standing up in order to judge effect of procedure, symmetry and re-mark the patient to fine tune the result periodically [3–5].

2.4 Placement of insertion sites

3-5 mm insertion sites can be places surreptitiously in axillary, infra-mammary, gluteal and even flank folds after local wheals of 1% Lido with epi and bicarb have been raised at the point that a cross clamped 11 blade or 2 mm punch adits are intended. Inside the umbilicus is another useful insertion area for shaving down the lateral waist with a longer cannula. Insertion sites should be parallel to Langer's lines and made just large enough to admit the tips of a sharpened hemostat or small scissors which are used to stretch the opening (along lines of tension) slightly larger than any intended cannula. Doing so allows the skin edges to be less traumatized during the procedure. Have the patient put on typical bathing suits or underwear and outline their design. Hide lateral hip, lower waist and back insertion sites where

they will at least be covered most of the time. Alternatively, freckles, moles and tattoos can be used to hide insertion sites.

Insertion sites may be placed symmetrically for ease of sculpting symmetrically or placed irregularly in attempt to mask the procedure. However, most insertion sites heal so well in a year as to barely be visible, so this author generally prefers symmetric placement.

Insertion sites in more friable (older) skin or darker skin types prone to produce pigment after trauma can be protected with a coating of mastic and Duoderm against the skin and Tegaderm on top of that to hold the dressing in place during suctioning. Insertion sites should be closed with a stitch if they get too irritated during the procedure. Remove the stitch in about a week so it does not leave a scar of its own [3–5].

2.5 Liposculpting

Historically, early liposuction was little more than large bore tubes used to remove conduits of fat. Because tumescent anesthesia had not been discovered yet, some of those patients exsanguinated from blood loss, had significant contour irregularities and skin sloughs. While these are all possible risks of modern liposculpting, they are very rare because of the techniques and technologies currently employed.

LipoSculpting is both an art and a science. After the tumescent anesthesia has taken effect, and lack of sensation to painful stimuli removed, it is helpful to establish a surgical plane through the fat for suction cannula passage using a cannula without suction or a multi-holed, non-suction, fat shifting/emulsifying cannula (Blugerman or cheese grater style). This 3-5 mm blunt tipped cannula should be introduced through the same insertion sites and pushed parallel to the skin surface. The “dumb” hand pushes and pulls the cannula through the compartment. It should travel easily through the fatty layers and not pushed with enough force to penetrate through the skin or fascia. The “smart” hand feels and directs the cannula through the tissue and monitors the thinning of the fat compartment. A thumb slot in a cannula handle indicates that the majority of openings at the tip are on the other side. This helps orient the cannula so as to not overly rasp the undersurface of the skin and cause unnecessary scaring, slough or erythema ab igne.

Cannulas come in every configuration and size desired. They are generally attached via a disposable suction tube, to glass or disposable canister which is attached to a vacuum pump that generates 15-25 mm Hg vacuum. There are both manual cannulas and power assisted oscillating, rotary or vibrating cannulas. Decreasing the cannula size, number of openings in the tip and decreasing the suction, all decrease effect and vice versa. Once the treatment areas are tunneled and a surgical plane designed, suction cannula(s) are used to sculpt the underlying fat to reveal the desired anatomic contours available. The aspirate should generally be yellow to orange, indicating that there is hemostasis in that area. Presuming one has stayed in the plane of subdermal adiposity, excessive aspirated blood noted would be a reason to stop rasping that area, potentially infuse more tumescent fluid into the area to help with hemostasis and discomfort and hold direct pressure on the area briefly to assure hemostasis ensues.

Viewing the sculpted form from the head and feet, overhead, at table level and sitting or standing the patient up to see how the tissue contours due to gravity is helpful to assure desired contours and symmetry.

Once sculpting is completed, the patient is cleaned and dried, any overly traumatized insertion sites are loosely closed (leaving some open to drain by gravity or any drains placed).

A compression garment of 10-20 mm Hg that covers both the sculpted and immediately adjacent areas to help blend their contours rather than tourniquet or indent the treated tissue is applied. It has an opening that can be pulled forward or back in the crotch area for hygiene, rather than grommets to release and has side zippers to allow easy changing or the absorbent pads applied over the insertion sites without taking the garment fully off or down. The garment is left in place and supports the patient's blood pressure by preventing rapid third spacing until the tissues start to reattach in the first few days. Thereafter, the garment can be worn primarily when the patient is awake and removed during sleep for 4–6 weeks, at which point the tissues should have reattached well, softened and seromas resolved or drained early on (sometimes with ultrasound guidance and sometimes just by palpation when the patient is standing). The patient is offered fluids, and they are observed until they meet discharge criteria—alert enough to cooperate, minimal nausea, good hemostasis, no orthostatic vital signs and an adult to drive them home and supervise them as any sedation wears off. Contact information and instructions including medication use and pad changes are verified and follow up visit time and date is reviewed with the responsible person who is picking the patient up and staying with them that night. A call in a few hours to verify patient comfort and review instructions and medications is helpful. Many physicians put patients on broad spectrum anti-biotics starting 1–3 days pre-op and continuing for 5–10 days post op. Others give just a gram of Ancef or similar at the start of the case. Lipo-sculpting is at best a clean, rather than sterile procedure because of all the movements the patient makes during the procedure. That said, the use of oral antibiotics, anti-microbial soap use at home for several days pre-op, surgical prep of the treatment areas, use of bacteriostatic tumescent fluid, sterile instruments etc., and dedicated OR or procedure rooms, make infection quite rare. An inexpensive single (parting) dose of Gentamicin 5 mg/kg IM in an ASA 1–2 patient with normal kidney and ear function is performed by some physicians as well [3–5].

2.6 Drains

Drains are not usually required in straight lipo cases but may be utilized when combined with skin excision or abdominoplasty cases, even small Penrose drains that only stay in for a few days may decrease the risk of seromas and the resulting “woody” areas of healing.

2.7 Ancillary procedures

2.7.1 Fat shifting

Guillermo Blugerman, MD designed a multi holed tip on a solid cannula that is used in cheese grater fashion to blend and shift fat under the skin. Useful diameters range from 3 mm for fine tuning HiDef procedures and sculpting faces and necks, to 4 to 6 mm cannulas used for the rest of the body. This cannula can be used to grossly define a surgical/suction-able plane and elegantly adjust variations in skin pinch to improve surface contours. The fat morsels liberated by the distal holes are released from the proximal holes and vice versa, with each stroke, literally leveling the “playing field” and allowing the skin to drape more smoothly. I use this cannula to define the thickness of the fat and make a plane that is easy for the suctioning cannula to pass when starting the procedure, adjust for fine symmetry during a case, and fine tune every liposculpting case after sitting the patient up and marking remaining contour and symmetry issues. Depending on the tightness or pressure of the “smart” hand pressing the tissue into the holes of the cannula as the cannula is moved by the

“dumb” hand, macro or micro effects can be achieved. Manual skin manipulation is useful for massaging and blending the emulsified fat to the desired locations.

2.7.2 Fat grafting

Volumes have been written about fat grafting. For the sake of completeness, it will be described.

Fat is the most convenient and likely inexpensive autologous, homologous volumizer available today. It is a natural product of liposculpting and contains thousands of times for regenerative cells and the accompanying milieu than bone marrow. Fat is a complex organ of metabolism and endocrine function as well as a physical and thermally protective tissue that makes our exterior contours more (or less) esthetically pleasing. The basics of fat grafting involve collection of Macro (structural) fat (1-3 mm) is collected via a small-holed suction cannula at lower pressures.

(12-20 mm Hg vacuum) into a sterile container. The fat is allowed to separate (it floats above the infranatant tumescent fluid and blood) from via sitting or sitting on a vibrating platform and/or some centrifuge fat. Many prefer to strain or wash lidocaine containing fluid and fibrous material out in some fashion. (Consider PureGraft and Wells Johnson systems or variations as “closed” to the air vs. open straining techniques). Oil (fractured fat cells and other inflammatory substances) should be removed from the top of the mix as well. Once macro fat is gently collected and processed, it is important to weave it into the subcutaneous space with as little trauma as possible to preserve as much viability as possible. Weaving of the fat can be performed in basketweave fashion with a larger (3-4 mm), single holed, blunt cannula, with the least effective injection pressure used, on the retrograde portion of the pass ONLY, to decrease the risk of fat embolization into an arterial vessel. Injecting fat into muscle is not recommended, despite the possible higher fat survival rate and greater effect on contour, it is not justified considering the increased and unpredictable risk of arterial injection and fat emboli causing pulmonary blockage and death from an elective esthetic procedure. Fat grafting is more successful if performed from several different insertion sites and not creating lakes or puddles of fat which may become a hypoxic, necrotic source of inflammation and fibrous induration.

After macro fat is placed in the subcutaneous plane to contour the buttocks and hips into the desired shape, it can be further infiltrated and smoothed with micro and nano (supportive) fat (less than 400 micron cells) obtained by sieving the fat through smaller holes (Hogue Surgical) of pushing through various sized screens or ball bearing (Tulip, NanoCube and others) and then metabolically supported with the patients' own platelet rich plasma in as nearly a 1:1 ratio as possible (it may go up to 1:20) injected into the same area. While it is likely that few of the initial fat cells injected survive (Yoshimora et al), it is estimated that 50-70 percent of the volume deposited may survive at a year. Recognize that the fat cells are disconnected from both their nutrient and waste removal systems when they are grafted. It is theorized that some cells “hibernate” until they are reconnected in their new location and then enlarge further as they thrive once again. Larger clumps of transferred fat cells die as they are poisoned by hypoxic inner core saponification leading to inflammation of the surrounding fat cells which are then more prone to macrophage attack. Tender, palpable “oil” pockets that can be found for 0 = months after a procedure should be removed when possible (Ultrasound directed I and D) or an area of fibrous scar tissue can result. It is more successful to plan for several sessions of fat grafting over the course of a year than to attempt ambitious volumes in one procedure that are prone to issues.

Fat grafted areas require some compression and support to help the fat “gel” and stay in position as it evolves into a long lasting volumizer. Compression garments generally supply 10-15 mm of compression to grafted areas and more to lipo'd areas. They are generally worn 23/7 for 2–3 weeks and when up afterwards, for a total of 4 to 10 weeks. We sit on our ischial tuberosities and move throughout our sleep cycle, so it is dubious that most fat grafted buttocks require the patient to purchase special foam wedges to sit on or adhere to caveats about excessive supine sleeping preventing circulation to most if not all the grafted areas.

Fat grafting should not be offered to current smokers, patients who are avid exercisers or who are or plan to actively diet. The original grafted fat does may not survive to any great extent anyway according to Yoshimura et al. [6, 7].

2.7.3 Tissue tightening

Over the last 2 decades, subdermal tissue tightening via bulk heating, (after debulking the fat compartment with lipo), has evolved from various 0.5 to 1.5 mm laser fibers of different infrared wavelengths that were run inside of cannulas and projected in non-columnated beams out the tip or side of the cannula, to monopolar 15 cm x 2 mm tubes (ThermiTight) that allowed for bulk heating with a tip the size of several grains of rice. None of these technologies were particularly successful for larger body areas because they produced too small an effect to cover the volume and surface presented. Further, they were fraught with risk of end hits, skin burns and uneven distribution of thermal effect. Lack of homogeneous effect resulted in adding undulations to the skin and tissue they were trying to smooth.

A newer technology available in the US for about 4 years, utilizing an RF generated helium plasma field (Renuvion by Apyx Medical) is proving itself to be a more useful and predictable tool for subdermal tissue tightening of the body as well as the face and neck. The plasma field influences tissue for several centimeters around its either in-line or side-firing tip and uses the interaction with and contraction of the fibro-septal network to tighten the tissue without bulk heating. The risk of burn-throughs caused by end hits is substantially reduced. The technology can be utilized to tighten skin envelopes that does not exhibit stria by 10–20 percent with a single treatment and treatments can be repeated over time. It can be used deeper in the tissue before fat grafting is performed more superficially.

A key to success with this technology is assuring that the helium flow, generally 1–3 liters/minute has adequate exit ports that are connected with the treatment area(s) and that periodic milking of the treatment area pushes excess gas out of those ports. Gentle suctioning of the treatment area(s) at the conclusion of Helium Plasma application removes additional gas, residual tissue and oil generated during the procedure, decreasing risk of sub-cutaneous crepitus which can take 3–10 days to resolve or inflammatory healing. Some physicians advocate external infrared thermal monitoring to maximize safety and homogeneous effect.

Another key to success with this technology is *not* over-treating an area. This technology is sometimes combined with ultrasonic fat sculpting (VASER) and or other RF skin technologies. The initial appreciated tissue tightening will generally continue to improve over several months. Excessive treatment with Renuvion alone or in concert with other Energy Based technologies, especially in thinner tissue areas like necks, can cause irregular contraction and fibrosis requiring steroid injection, massage, undermining and even redraping procedures. Grade 1 to 2 compression of treatment areas and weekly or more lymphatic drainage massage both improve the rate of return to full activities and esthetic outcome.

The current flexible, carbon fiber, single use handpiece is available in 15 and nearly 30 cm lengths and is only 3 mm in diameter. There is an original 5 mm

diameter (stiffer) in-line port, single use handpiece available in various lengths as well. The results of this technology have generally been predictable and sustainable, and they offer an alternative to surgical skin excision in appropriate cases with and without liposculpting and/or fat grafting.

Renuvion allows the clinician to offer less invasive procedures in select patients, that previously would have required more invasive surgery (Eg: J plazty® vs. a surgical neck lift). The company supports the exchange of information between providers with User Meetings and on-line forums. This has allowed the technology to be utilized more rapidly and more safely, worldwide [8, 9].

2.8 Pre- and post-operative protocols and considerations

ASA 1–2 patients who have maintained their current body weight, have BMIs under 35, are not stressed, have enough time, support, and appropriate nutrition to survive and prosper from this elective surgery are candidates. The pre and post op protocols and considerations are like traditional lipo-sculpting. The use of appropriate wound drainage, tissue support and compression of tunneled tissue without over compression of fat grafted or skin excision areas, and weekly or more often lymphatic drainage massage assures the best possible outcome long-term for these patients. Practices that do not supply all aspects of care to their posterior torso and buttocks contour patients may not enjoy as successful and trouble-free outcomes.

2.9 Complications

Issues are prevented by scrupulous planning, attention to detail, micro-management of the patient and team members involved in their care and personally seeing the patient whenever there is any concern. We cannot control or even imagine what patients do outside of our offices, so our duty to “first do no harm” is challenging to fulfill.

Caveats learned through the years are repetitive but true: anything that can go wrong, will; be extra careful operating on family and friends, they are both hard to come by and sometimes less understanding if there is an issue; frame expectations well, ahead of time (consider your consultation like speed dating and your consent is a pre-nuptial agreement); beware of pet owners, they will cuddle their pets and may get atypical infections weeks and months after their procedures.

3. Summary

3.1 Pearls and pitfalls

Doctors Robert Yoho and Jeff Klein gave me sage advice to start with manual techniques for more forgiving areas like torso lipo on more slim patient without skin laxity using a spinal needle for comfortable, though time consuming, tumescing and careful suctioning with smaller cannulas for my first 50 patients. Torsos are directly connected to axilla, pubic, hip and upper buttocks areas, so they were attempted next. Then move on to more complex and potentially challenging areas like neck and extremities. Gradually I mastered effective tumescence from deep to superficial planes with 12–16 gauge cannulas that did not overfill the tissue (prolonging recovery and masking the actual fat thickness) as well as the art of comparing the subdermal fat by palpation and skin pinch to achieve fairly symmetric results. Suctioning should be deployed from several insertion sites or adits to cancel out the grooves and irregularities that suctioning aggressively from one insertion

site almost always yields. When you get comfortable with manual techniques, consider adding Power Assisted technologies. I prefer rotary versus reciprocating power cannulas which seem smoother, more forgiving and faster, but perhaps best to try each technology for yourself. This journey is harder than it looks. It's time consuming and there are no shortcuts to sculpting the living human and developing your tactile skills and endpoints-much like learning a new instrument or competitive sport. Frequent sitting up, standing and positioning the treatment area(s) as they hang when standing, marking persistent elevations, divots and other contour asymmetries and progressively enhancing these contours will always give a better long term result than sculpting performed under deeper sedation in just a supine or prone position. Detailed op notes and critical examination of before, 6 week and 3 month or more photos will help perfect your skills and allow you to accomplish more precise contours in less time. Each patient is a new challenge of art, science and skill. Each one leads to better success, finesse and allows you to achieve the subtle nuances of depth and shadow, youth and age, masculine and feminine, and an appreciation that what you leave intact is at least as important as what you remove. The mature sculpture has insight of when to struggle and strive for further definition, contour and tightness and when the work is "done"-to walk away before the result is corrupted.

Suggestions and considerations are strewn and densely packed in this chapter. Use and modify them in your unique fashion. Perhaps the best advice is "life is short, learn from the mistakes of others". I have tried to openly share many of my most time consuming, brain-damaging and painful-for both patient and practitioner-lessons. I wish you luck, fulfillment and great success. Enjoy the journey!

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