

INTRODUCTION

Massive weight loss (MWL) patients have a range of problems requiring multiple body contouring surgery (BCS). This article is a guide for prioritizing procedures and is complementary to the author's prior publication.¹ Pre-operative evaluation, markings and surgical techniques are not discussed and are beyond the scope of this article.

METHODS

The article is based on 30 plus years' experience of body contouring surgery (BCS) of patients with diet and exercise resistant lipodystrophy, post-pregnancy abdominal laxity and massive weight loss (MWL). There are three stages of the surgical management of the MWL/BCS patient (Fig. 1). Stage 1, lower body (LB) (Fig. 2), Stages 2A and 2B, upper body (UB) and upper extremity (UE) (Figs. 3 and 4) and Stage 3, lower extremity (LE) (Fig. 5). UB and UE surgery are combined within Stage 2 because they are often performed together.

Stage 1, (Fig. 2) Abdominoplasty / LBL surgery are usually but not always, performed first as these procedures have the longest recovery and may also reduce the extent of subsequent surgeries. Stage 2 is bifurcated for each gender. Thigh lift procedures can be staged, one thigh, then the other, particularly if a vertical thigh lift is combined with an anchor thigh lift. This allows the patient a non-operated buttock on which to sit and prevents rubbing of one incision upon another in the medial (inner) aspect of the thigh.

In Figs. 2-5, Stage is identified as a red box on the left. To the right are three columns. The central column is the *index* procedure for the anatomical region and the columns to either side represent additions to the *index* procedure depending on degree of skin and fat redundancy. Significantly, suction lipoplasty by any method is not listed separately because it is often used in all procedures as an adjunctive technique.

Stage 1 (Fig. 2) has two options in the central column, Option A, Type IV abdominoplasty² and Option B being a panniculectomy. The left-hand column specifies lateral flank and thigh laxity indicating an extended abdominoplasty and the right-hand

column posterior back and buttock laxity indicating a circumferential procedure or lower body lift (LBL).

Stage 2: management of the male upper body (UB) (Fig. 3). Stage 2A: central column describes management of 'end-stage-gynecomastia', or pseudo-gynecomastia as described by Gusenoff³ with an inferior pedicle areola transposition and a single inframammary scar technique. The left-hand column details management of lateral chest wall laxity and the right-hand column lateral chest wall and posterior back laxity combined. Stage 2B central column addresses upper arm laxity and posterior back laxity. The left-hand column addresses lateral chest wall laxity with upper arm laxity and the right-hand column deals lateral chest and back laxity combined with upper arm laxity.

Stage 2: management of the female UB (Fig. 4) outlines management of the female chest. Stage 2A, central column describes management of breast ptosis with breast auto-augmentation (BAA)⁴⁻⁶. The left-hand column details management of lateral chest wall laxity and the right-hand column management of lateral chest wall and posterior back laxity combined. Stage 2B is identical for male and female.

Stage 3 management of the lower extremity (Fig. 5). Medial superior laxity (central column) is managed with a medial thigh lift. The left-hand column details management of vertical thigh laxity with a vertical thigh lift (VTL) and the right-hand column management of lateral posterior thigh laxity with an anchor thigh lift (ATL).⁶

RESULTS

Flow Charts of Stages 1 to 3 are presented (Figs 1-5). These are complementary to the author's previous publication.¹

LIMITATIONS

The staging recognizes that every patient and every surgeon is unique, thus allowing for different surgical plans. Surgical techniques are not described except where they are pertinent to staging algorithms. Suction assisted lipoplasty (SAL) is an integral part of many BCS procedures and is not specifically identified as a line item.

DISCUSSION

Massive weight loss patients often request and require multiple staged procedures. The surgeon must decide in which order to plan these surgical procedures. Some surgeons use a multi-team approach performing multiple simultaneous procedures at the same time.^{7,8} Multiple procedures with prolonged anesthesia and increased blood loss may increase the risk of complications and prolong the recovery after surgery.^{7,8} Hurwitz⁹ and Rohrich¹⁰ have previously described their approach in BCS. Various algorithms have also been published.^{7,11} Resulting scars must also be considered in obtaining the optimum result.¹ Dr. Kirwan usually recommends lower body before upper body surgery. Correcting skin redundancy in the lower back may eliminate the need for excision of excess tissue in the upper body. Also, a Wise-pattern (anchor shaped incision) mastopexy is not recommended at the same time as an abdominoplasty as it creates incisions at the upper margin of the abdomen which may reduce the blood supply to the abdominal flap.¹² A fleur-de-lis abdominoplasty¹¹ places a scar in the midline of the abdomen from the xiphoid to pubis, and prevents the patient from wearing a crop top, shorts or a two-piece swimsuit.¹ Vertical midline abdominal incisions may also impair the blood supply at the junction of the vertical and horizontal incisions.¹² A further principle to the six previously published¹ is to avoid 'T' junctions such as the inferior end of an abdominoplasty flap.¹² This principle also applies to the superior or upper end of a vertical thigh lift.¹³ Dr. Kirwan opts instead for a 'J' thighplasty,¹⁴ or anchor thigh lift¹⁵ combined with a vertical thigh lift ,(which is the reverse of the J thighplasty).¹⁴ This avoids the 'T' junction where the vertical thigh lift repair meets the horizontal medial thigh lift incision.

CONCLUSION

There are three stages of body contouring surgery: Stage 1, lower body, Stage 2, Upper body / upper extremity and Stage 3, lower extremity. Each stage is modifiable depending on the degree of associated skin and fat redundancy in the adjacent anatomic regions. Stage 1 is divided into options A and B to allow for a panniculectomy versus a Stage IV abdominoplasty.² Liposuction is often used in all stages of BCS and is not therefore included as a stand-alone procedure.

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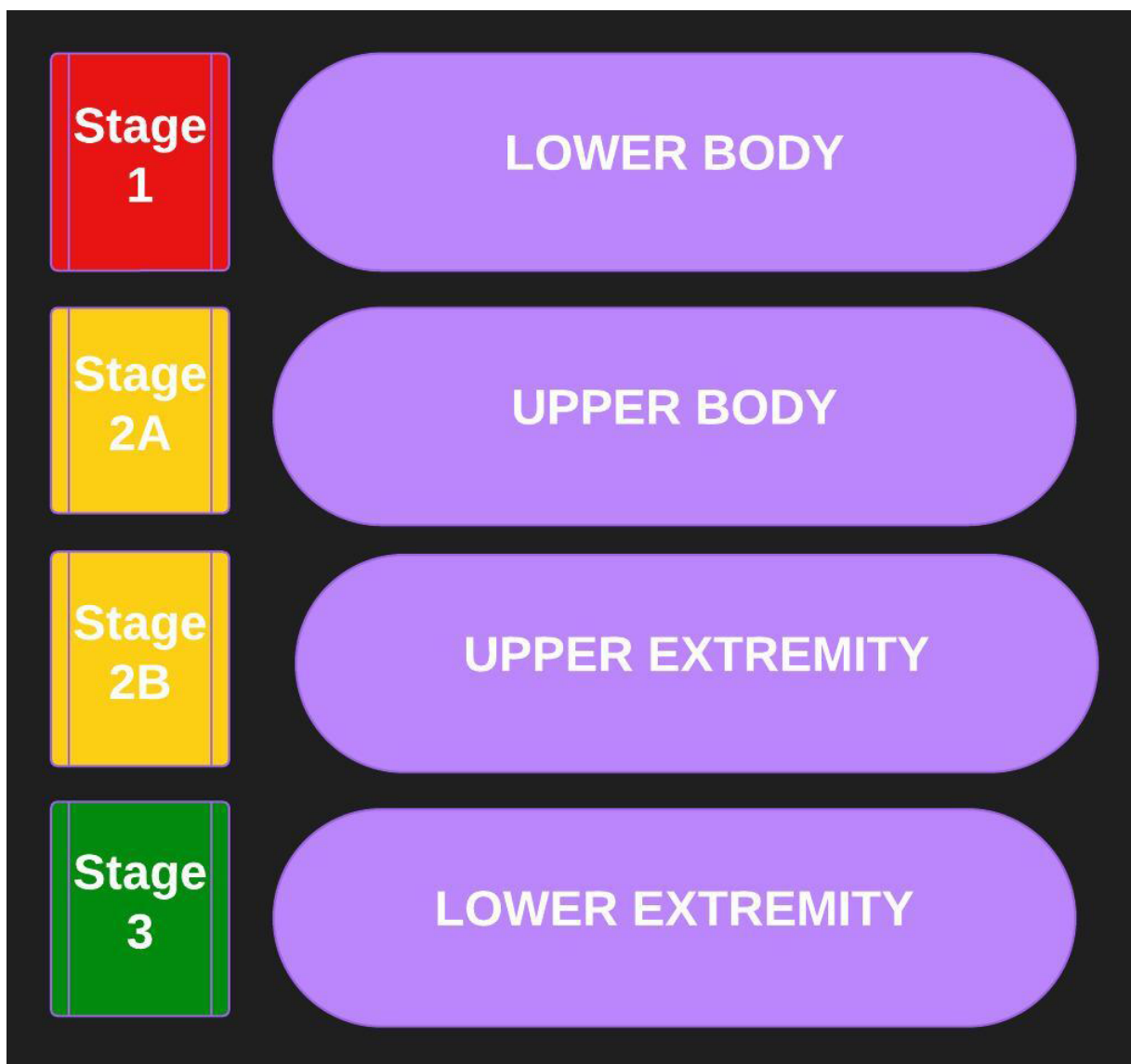


Fig. 1. Flow Chart: The three stages of body contouring surgery.

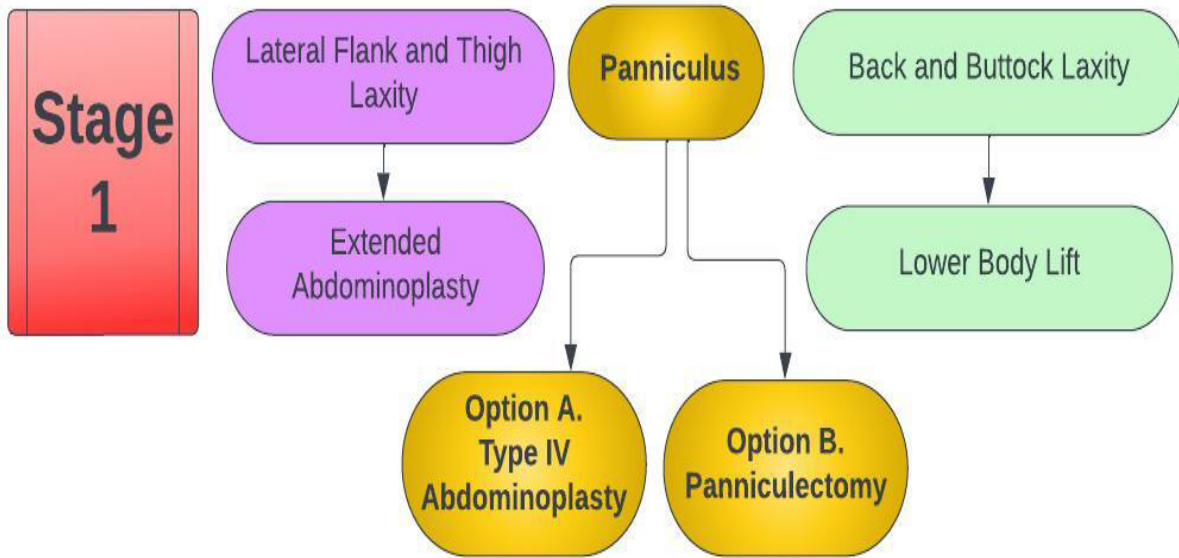


Fig. 2. Flow Chart: Stage 1, lower body contouring surgery.

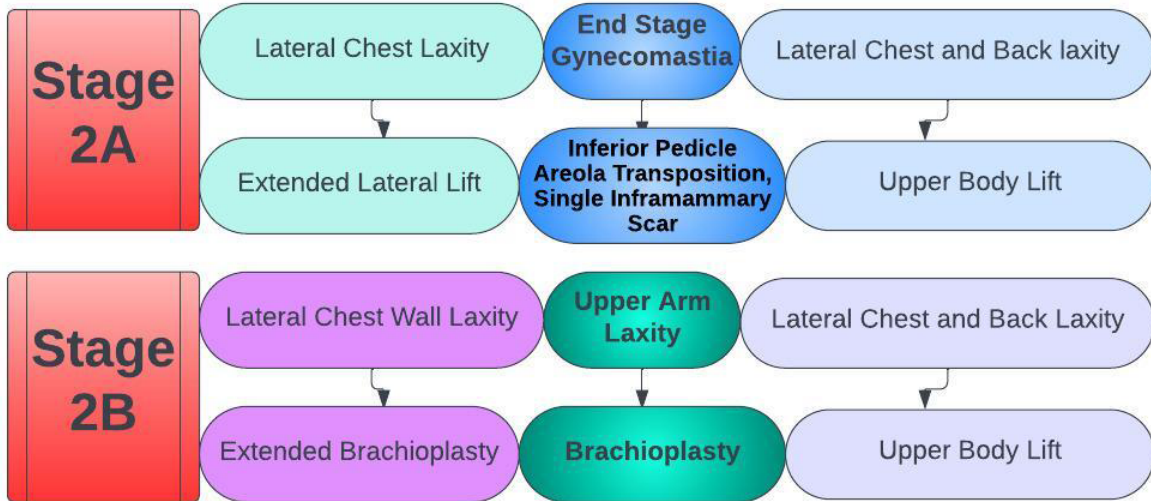


Fig. 3. Flow Chart: Male Stage 2A and 2B, upper body and extremity contouring surgery.

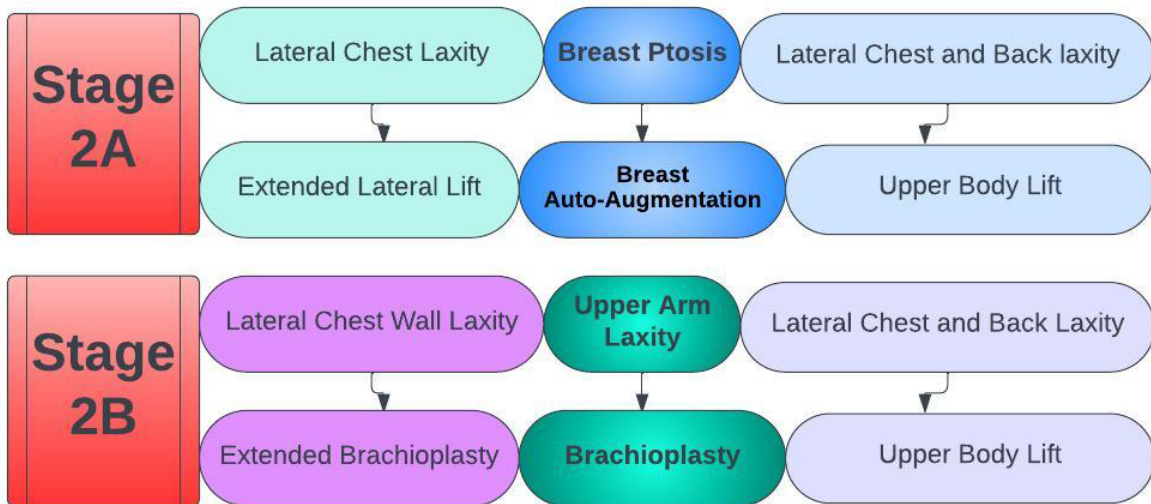


Fig. 4. Flow Chart: Female Stage 2A and 2B, upper body extremity contouring surgery.

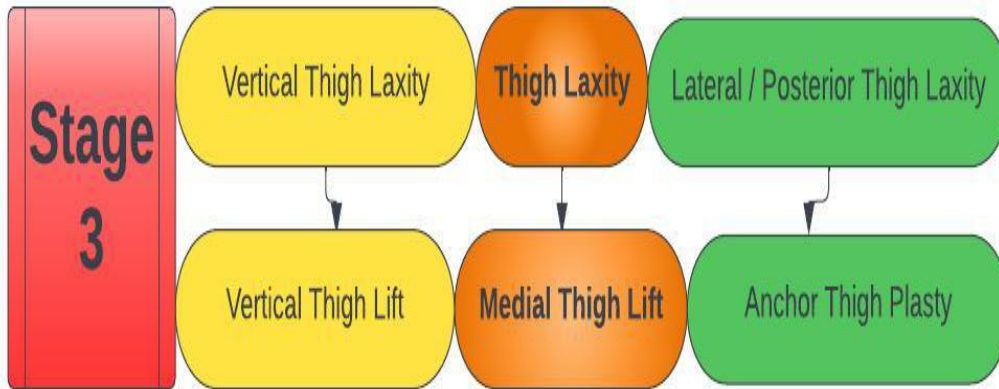


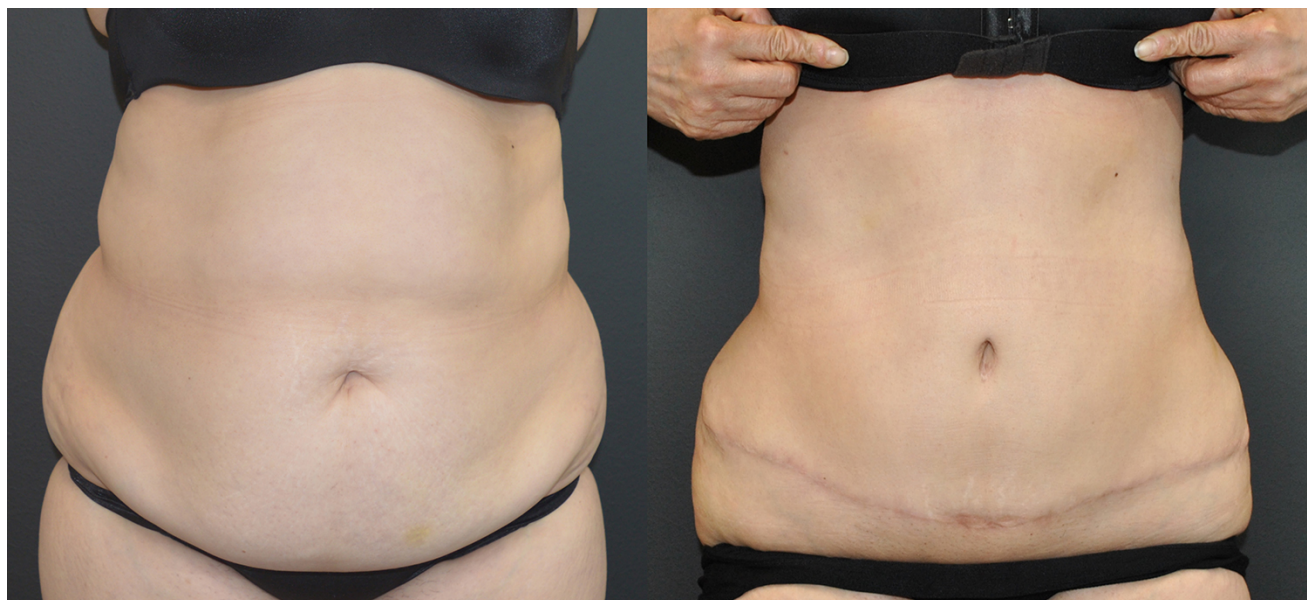
Fig. 5. Flow Chart: Stage 3, lower extremity surgery.



Fig 6A, 6B. Patient 1 Stage 1, Option B, Apronectomy. 42-year-old, African American Female, 5'4." 91 Kg., body mass index (BMI) 37.4 kg/m². 3000 gm excision. 900 cc Liposuction upper abdomen, 2 lb. weight loss postoperatively. Preoperative view (left) and postoperative view (right) 7 months after apronectomy, front view.



Fig. 7A, 7B. Patient 1 Stage 1, Option B, apronectomy, left lateral view.



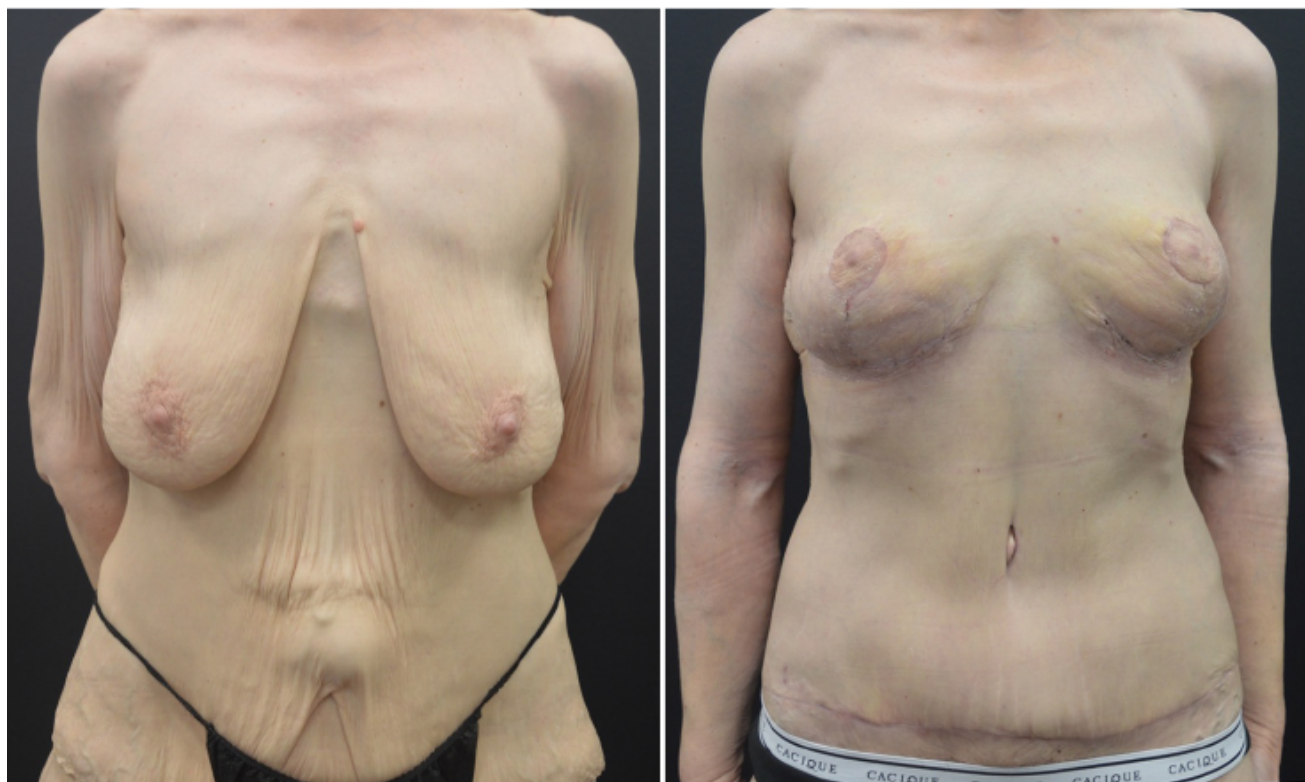
Figs. 8A, 8B. Patient 2 Stage 1, 58-year-old, Hispanic female, 5'0" 68 Kg. BMI 29.3 (25.5 after surgery). Para 4, Gravida 4. Hysterectomy 30 years ago. Non-smoker, non-drinker. No other past medical history of note. Postoperative views (right) 8 months after extended abdominoplasty with liposuction of upper abdomen, hips, flanks, and back; 1250 ml lipospirate, 1541 gm excision lower abdomen and 5 months after additional 200 cc suction lipoplasty of flanks and sides of breasts combined with autologous fat grafting 90 cc to superior buttocks and Bodytite to flanks. Patient had 9 Kg. weight loss between the preoperative and postoperative images. Front.



Figs. 9A, 9B. Patient 2 Stage 1, 58-year-old, Hispanic female, right lateral.



Figs. 10A, 10B. Patient 2 Stage 1, 58-year-old, Hispanic female, posterior.



Figs. 11A,11 B. Stage 1, 2A & 2B, 56-yo Female Before and After BCS: LBL, Abdominoplasty, BAA, Brachioplasty.



Figs. 12A, 12B. Stage 1, 2A & 2B, 56-yo Female Before and After BCS: LBL, Abdominoplasty, BAA, Brachioplasty.



Figs. 13A, 13B. Stage 3: Spiral Vertical Thigh Lift.



Figs. 14A, 14B. Stage 3: Spiral Vertical Thigh Lift.