# Advanced Techniques in Abdominoplasty: Optimizing Results & the Patient Experience

Karol A Gutowski, MD, FACS

**Private Practice** 

Clinical Associate Professor - University of Illinois, Chicago



#### Disclosures

Merz – Trainer, Advisory Board Suneva Medical - Instructor

Will use brand names due to lack of distinguishing generic names

## Abdominoplasty Evolution

- Panniculectomy
- Flap elevation and umbilical transposition
- Concurrent non-flap liposuction
- Extended & circumferential abdominoplasty
- Lipo-abdominoplasty (flap liposuction)
- No-drain techniques
- Enhanced recovery protocols
- Addition of energy devices?

#### Patient Concerns

- "Ideal candidate" by BMI
- Pain
- Downtime
- Scar
  - Too high
  - Too visible
  - Too long
- Unnatural result
  - Dog ears
  - Mons aesthetics

#### Solutions

- "Ideal candidate" by BMI
- Pain
- Downtime
- Scar
  - Too high
  - Too visible
  - Too long
- Unnatural result
  - Dog ears
  - Mons aesthetics

Extend BMI range

**ERAS** protocols + NDTT

**ERAS** protocols + NDTT

Scar planning

**Incision markings** 

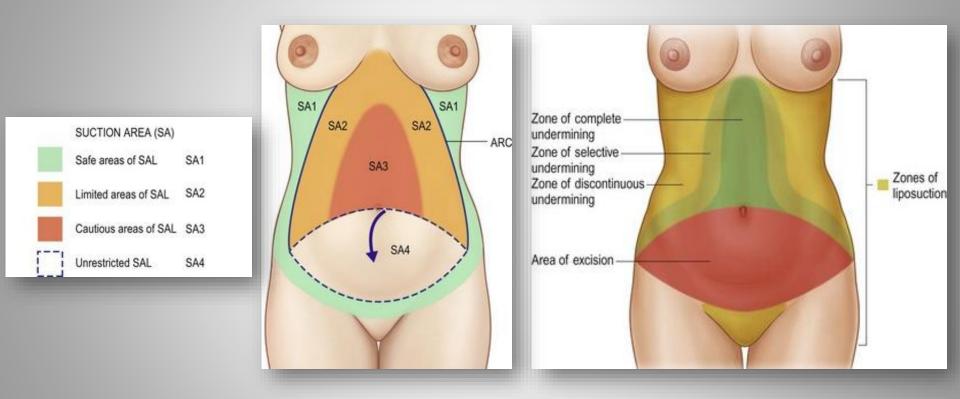
Scar care

Explain the need

Technique modifications

Lipo-abdominoplasty

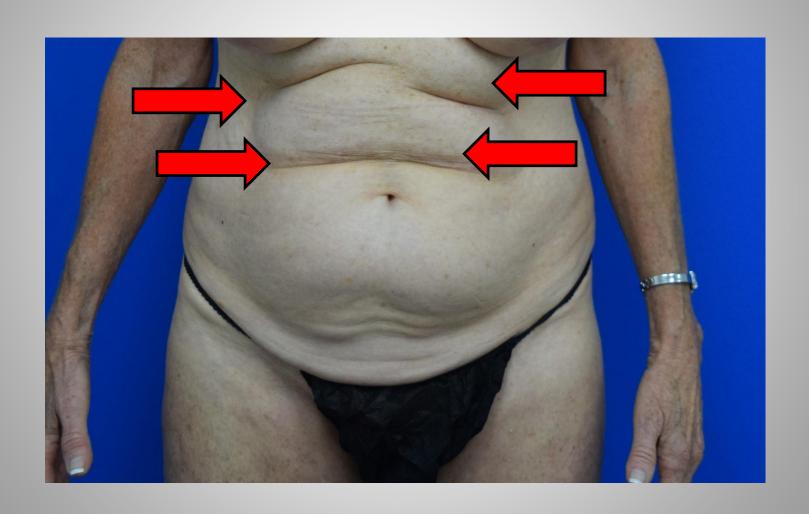
Mons lift



Traditional limited liposuction with abdominoplasty

Extensive liposuction with abdominoplasty

## Not a Lipo-Abdominoplasty Candidate



#### COSMETIC

#### Liposuction Abdominoplasty: An Advanced Body Contouring Technique

Daniel Brauman, M.B.B.S., M.D. Josephine Capocci, B.S.N., M.S.N.

White Plains, N.Y.

**Background:** Liposuction abdominoplasty was first performed by the author in 1997. In 2002, the procedure was presented as an "evolving concept" at the 71st Annual Meeting of the American Society of Plastic Surgeons. Over the next 6 years, an additional 294 procedures were added to the initial 43 (n=337 patients), culminating in an advanced body contouring technique.

#### COSMETIC

## Liposuction Abdominoplasty: An Advanced Body Conterring Technique

Daniel Brauman, M.B.B.
M.
Josephine Capocci, B.S.
M.S.

White Plains, N

COSMETIC

#### Aesthetic Evaluation of Lipoabdominoplasty in Overweight Patients

Ph.D.
Alessandra G. Salles, M.D.,
Ph.D.
Marcus C. Ferreira, M.D.,
Ph.D.
Francis Llaverias, M.D.
Luis H. U. Morelli, M.D.
Osvaldo R. Saldanha Filho,
M.D.
Cristianna B. Saldanha, M.D.

Osvaldo R. Saldanha, M.D.,

Santos and São Paulo, Brazil

**Background:** The aim of this study was to evaluate the aesthetic results of lipoabdominoplasty in overweight patients (body mass index, 25 to 29.9) compared with normal weight patients (body mass index, 18.5 to 24.9).

**Methods:** The authors performed a retrospective and comparative analysis of late follow-up results after lipoabdominoplasty performed from 2000 to 2009 in two groups of 30 patients, one with a body mass index of 25 to 29.9 and one with a body mass index of 18 to 24.9. Aesthetic results were evaluated using a scale with five objective parameters, developed in the Faculty of Medicine, University of São Paulo. There were seven evaluators: three plastic surgeons, three nondoctors, and the surgeon performing the procedure.

**Results:** For all evaluators, the postoperative average grade was significantly higher than before surgery for the entire group of patients (n = 60) and in

#### COSMETIC

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Cosmetic

#### Lipoabdominoplasty with Progressive Traction Sutures

Javier Vera Cucchiaro, MD Horacio Lostia, MD, SACPER, FILACP Patricia Velazquez, MD, SACPER,

FILACP Elizabeth Liska, MD **Background:** Proactively preserving Scarpa's fascia and thus its intrinsic lymphatic drainage and tensile strength for suture placement can eliminate the need for drains after lipoabdominoplasty and therefore reduce the rate of seroma development. In this article, we describe the effectiveness of a modified progressive traction suture (PTS) technique, which enables us to lessen the most common complications and avoid hospital readmission; these sutures take 3–5 minutes of additional surgery time.

## Extended BMI Range

- Patients with BMI > 30 can still get good results
  - If fat is extra-abdominal
  - Use circumferential truck liposuction
- BMI alone is not the deciding factor
- Consider body shape and fat distribution
- Manage expectations

## BMI 37.8









# Circumferential Liposuction Extended Lipo-Abdominoplasty

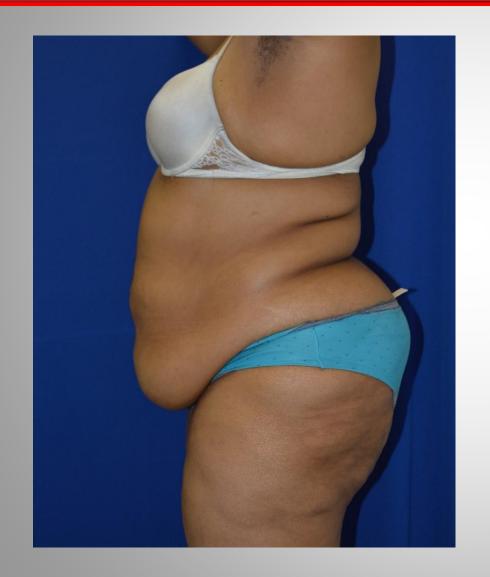


# Circumferential Liposuction Extended Lipo-Abdominoplasty





# Circumferential Liposuction Extended Lipo-Abdominoplasty





#### Circumferential Liposuction Extended Lipo-Abdominoplasty





## Too Many Dog Ears & Flank Excess







## Patients Are Telling Us What To Do









mgill2012 Novi, MI 9 hours ago





#### Not enough fat removed

12 weeks post op of a tummy tuck and liposuction done to the flanks. I was told they got 900cc of out each side of my flanks. But I'm not satisfied with my results. Could this still be swelling or is more lipo needed? I love how flat my stomach is but when I sit down my sides roll over so bad! At 12 weeks when will it be ideal to get more lipo done?

#### Not enough skin removed











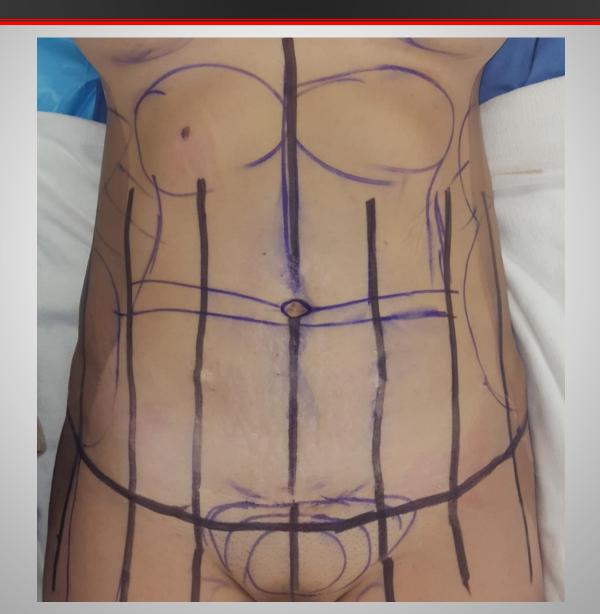


I tried calling the PS but have not gotten a response. Not sure traveling to Miami for sx was smart. Maybe being in home state would produce better response. I am 17 days post TT. I have a bunching of skin at the end of my incision. It looks and feels like maybe it's stitched too tight. Will this go away when the swelling goes down? What can I do to help it heal? Should I be concerned? Will I need more sx?

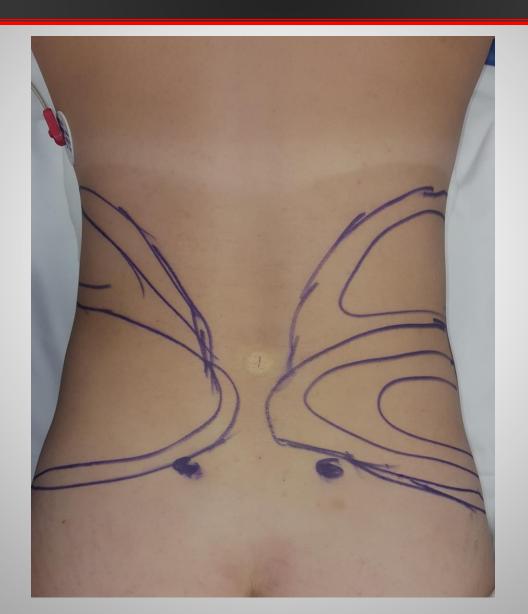
## Prevent Abdominoplasty Dog Ears

- Line markings
  - Align tissue correctly
- Liposuction of flanks & love handles
  - Lateral debulking
- Longer incision
  - More lateral skin excision after debulking
- Longitudinal traction (NOT Lateral)
  - Prevent tissue from bunching up

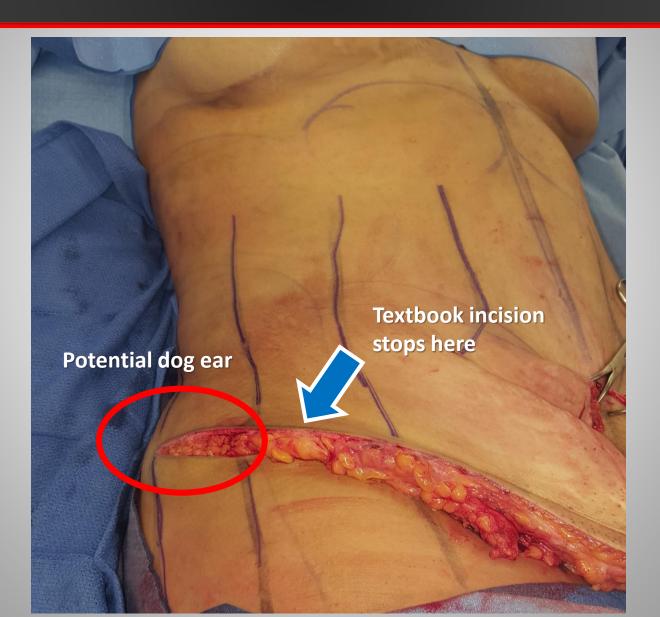
## Standing: Mark Vertical Lines Every 5 cm



## **Liposuction** From Front & Back

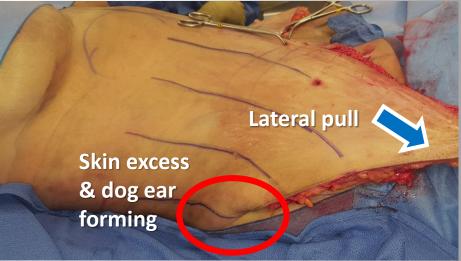


## Longer Incision Past Anterior Axillary Line

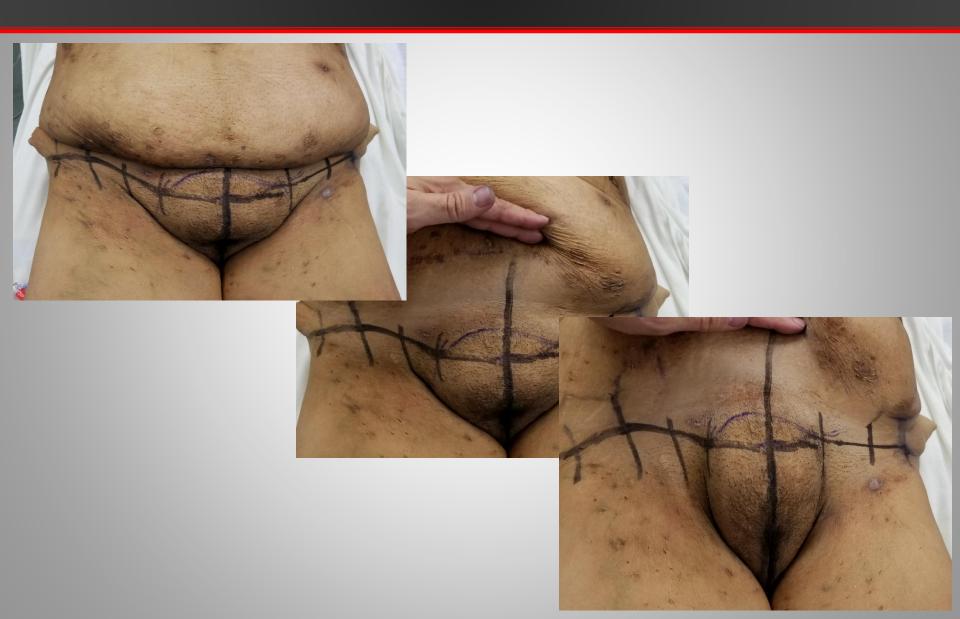


#### Longitudinal Pull for Marking Skin Excision





## Need to Lower the Incision



#### Drain Free Procedures

- Breast
  - Reduction
  - Mastopexy
  - Augmentation
- Trunk
  - Abdominoplasty
  - Body lift
- Extremity
  - Arm lift
  - Thigh lift (depends)





#### Drains

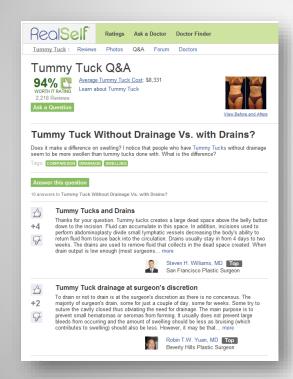
- "Standard of care" for many procedures
- Benefit: often NOT proven
- Downside: pain, cost, less mobility, anxiety, phone calls, infection, scars
- Not substitute for good surgical technique

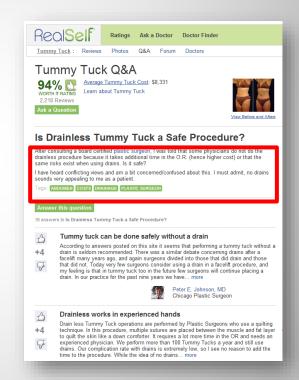
#### PTS Criticisms

- Requires an assistant
- Takes too long
- Does it really work?
- Cost

But I was trained to do it this way......

## Patient's Perception of Drains





## Patient's Perception of Drains



#### Tissue Adhesives

#### **Body Contouring**

Effect of Tissue Adhesives on Seroma Incidence After Abdominoplasty: A Systematic Review and Meta-Analysis

Marwan W. Nasr, MD; Samer F. Jabbour, MD; Rachad I. Mhawej, MD; Joseph S. Elkhoury, MD; and Fadi H. Sleilati, MD

- Lack of high-quality evidence to support TAs to prevent seroma after abdominoplasty
- Well-designed RCTs are needed

#### Pivotal Publication

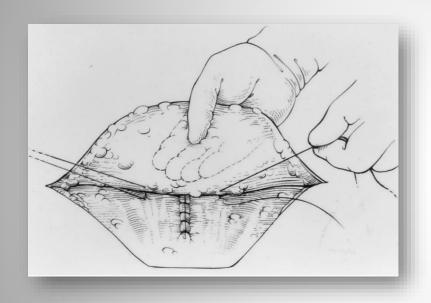
Techniques in Cosmetic Surgery

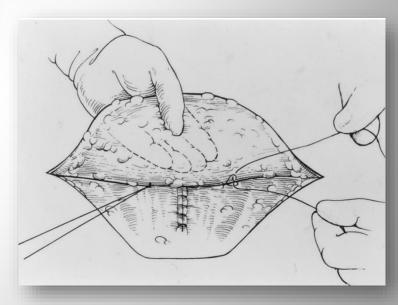
Progressive Tension Sutures: A Technique to Reduce Local Complications in Abdominoplasty

Harlan Pollock, M.D., and Todd Pollock, M.D.

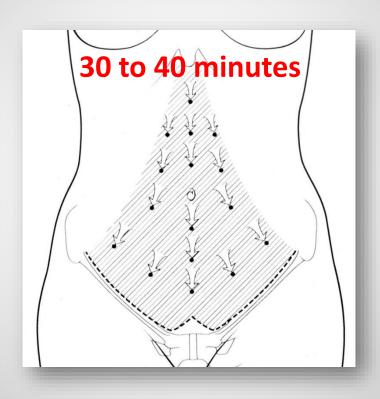
Dallas, Texas

## **Individual Sutures**





## Progressive Inferior Tension



#### Introduction of Barbed PTS

#### **Body Contouring**

#### Abdominoplasty With Progressive Tension Closure Using A Barbed Suture Technique

ASJ 2009

Jeremy P. Warner, MD; and Karol A. Gutowski, MD

#### **IDEAS AND INNOVATIONS**

Use of Absorbable Running Barbed Suture and Progressive Tension Technique in Abdominoplasty: A Novel Approach

Allen D. Rosen, M.D.

Montelair, N.J.

PRS 2010

## Subsequent Publications

#### **Body Contouring**

#### Prevention of Seroma After Abdominoplasty

Gertrude M. Beer, MD; and Heinz Wallner, MD

Background: Seroma is one of the most troubling complications after abdominoplasty; incidence rates of that shearing forces between the two separated abdominal layers play a key role in the development of patient until the layers are sufficiently adhered may be a solution to the problem.

Methods: This retrospective study included 60 patients; half were immobilized for 24 hours (group 1) an 48 hours (group 2). For thromboembolism prophylaxis, all patients received low molecular weight hepari follow-up for detection of seroma continued for at least three months.

Results: Mobilization after 24 hours led to a seroma rate of 13%, whereas immobilization of at least 48 h Conclusions: For abdominoplasty patients with a low or moderate thromboembolic risk, the data sugg with chemical and mechanical thromboembolism prophylaxis significantly reduces the risk of seroma.

Aesthetic Surgery Journal 30(3) 414–417 © 2010 The American Society for Aesthetic Plastic Surgery, Inc. Reprints and permiss Reprints and permission: http://www.sagepub.com/ journalsPermissions.nav DOI: 10.1177/1090820X10374116 SSAGE

#### **Body Contouring**

Objective: The authors examine the association between length of immobilization and the development Reducing Seroma in Outpatient Abdominoplasty: Analysis of 516 Consecutive Cases

John W. Antonetti, MD, and Alfred R. Antonetti, MD

Background: Over the past 30 years, the preferred techniques and settings for abdominoplasty have evolve regarding the surgical and postoperative approaches that best limit serious complications such as seroma. Objective: The authors evaluate their 28-year experience with abdominoplasty and suggest a technique (programme) of drains) for reducing the overall complication rate, most significantly with regard to seroma.

Methods: A retrospective review was conducted of 517 consecutive abdominoplasty cases in the senior author groups based on operative setting, postoperative care, and surgical technique. Concurrent procedures and comp Results: The authors found that the last group of patients, in whom abdominoplasty with progressive tension su as an outpatient procedure, had the lowest incidence of seroma. Specifically, the incidence of clinically significant s 9.6% in early groups, when abdominoplasty was performed as an inpatient procedure; the rate was 24% when it w without the placement of progressive tension sutures, but was then reduced to 1.7% with the placement of progres Conclusions: Abdominoplasty can be safely performed with other concomitant procedures (such as liposuc surgical time is limited. Despite controversy in the previous literature, the authors' data support the conclusion I sutures without drains dramatically decreases overall complication and seroma rate during abdominoplasty.

Aesthetic Surgery Journal 30(3) 418–427 © 2010 The American Society for Aesthetic Plastic Surgery, Inc. Reprints and permission: http://www.sagepub.com/ DOI: 10.1177/1090820X10372048

RISAGE

Aesthetic Surgery Journal 30(3)

#### Commentary

Karol A. Gutowski, MD, FACS

#### DOI: 10.1177/1090820X10371752

Although seroma after abdominoplasty is rarely a cause of significant morbidity or reoperation, its presence does result in increased patient visits and occasional discomfort due to percutaneous aspirations or additional drain placement. Rarely, a seroma may contribute to infection, inci-

Are other options available to minimize seroma formation without the additional cost and risk of prolonged immobilization? Starting with Pollock and Pollock's first patient series,2 reports have been published supporting the role of internal progressive tension sutures in not only minimizing seroma formation, but also eliminating the need for drain placement. 3,4,11 This technique is simple and

## Subsequent Publications

#### **Body Contouring**

Use of Quilting Sutures During Abdominoplasty to Prevent Seroma Formation: Are They Really Effective?

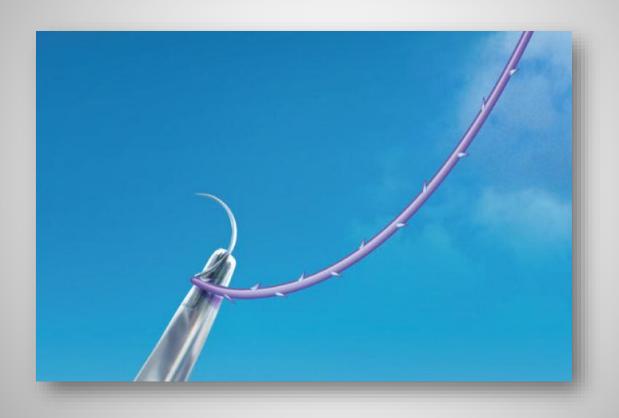
Marcos Sforza, MD; Rodwan Husein; Katarina Andjelkov, MD, PhD; Paulo Cesar Rozental-Fernandes, MD; Renato Zaccheddu, MD; and Milan Jovanovic, MD, PhD

#### **Body Contouring**

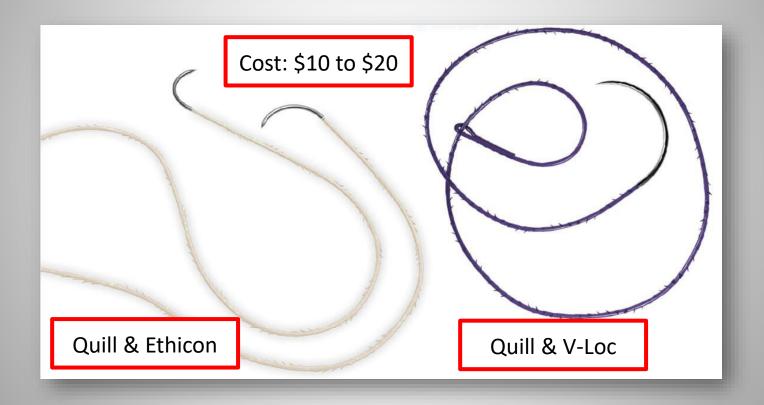
Decrease in Seroma Rate After Adopting Progressive Tension Sutures Without Drains: A Single Surgery Center Experience of 451 Abdominoplasties Over 7 Years

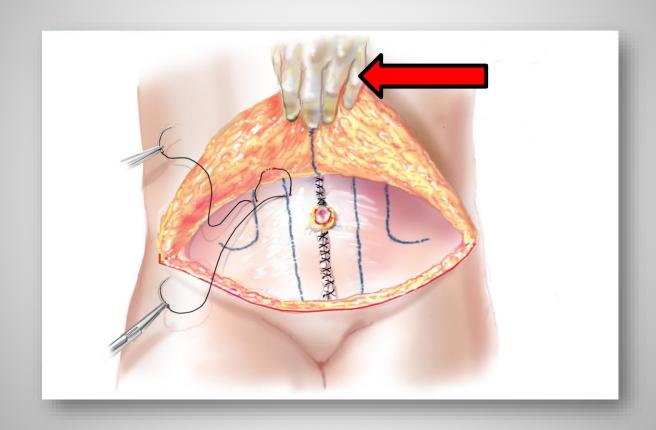
Luis H. Macias, MD, FACS; Edwin Kwon, MD; Daniel J. Gould, MD, PhD; Michelle A. Spring, MD, FACS; and W. Grant Stevens, MD, FACS

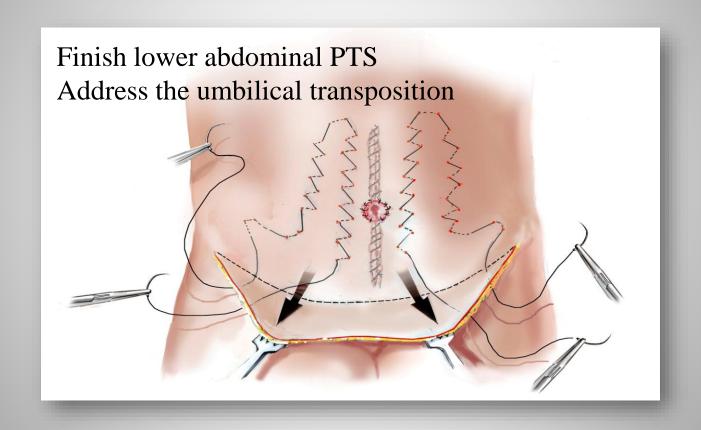
## Barbed Suture Technology

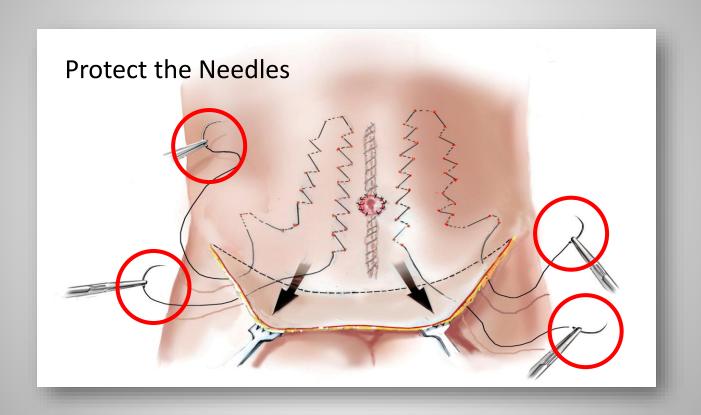


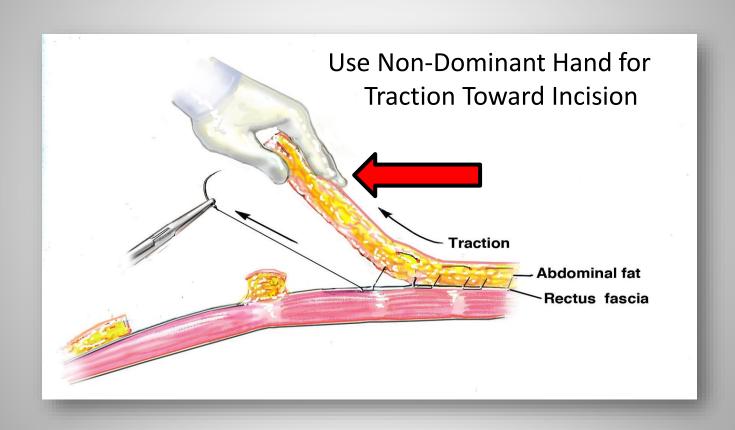
## Barbed Suture Technology











## **Unidirectional Barbed Suture**





Rosen, PRS 2010



Arm lift

Mastopexy with lateral autoaugmentation

Body lift

Thigh lift



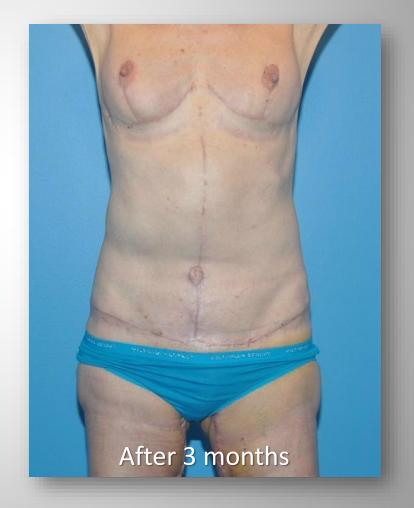












## No Drains No Suture

#### **Body Contouring**

Lipoabdominoplasty Without Drains or Progressive Tension Sutures: An Analysis of 100 Consecutive Patients

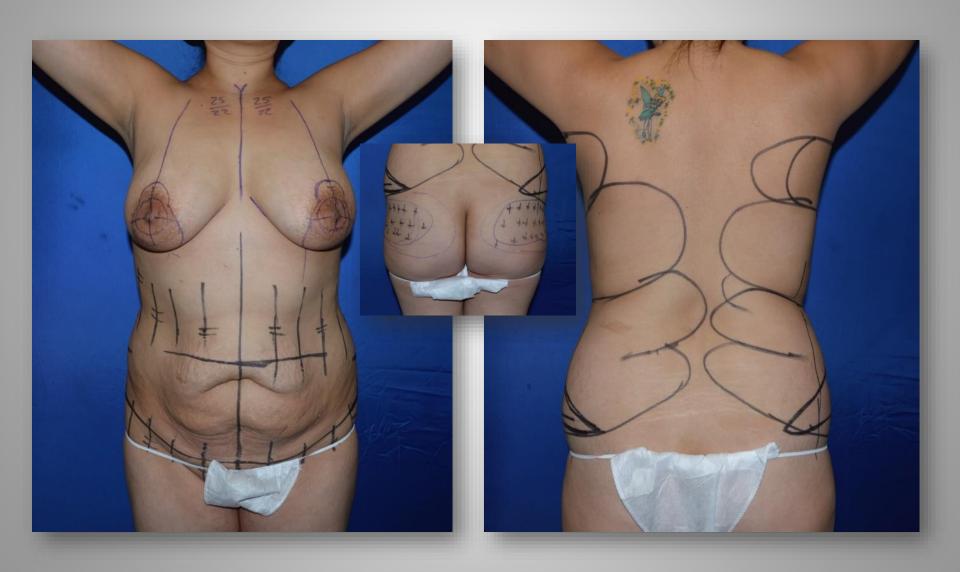
Sarah Epstein; Michael A. Epstein, MD, FACS; and Karol A. Gutowski, MD, FACS

## No Drains No Suture





## Treat Entire Trunk







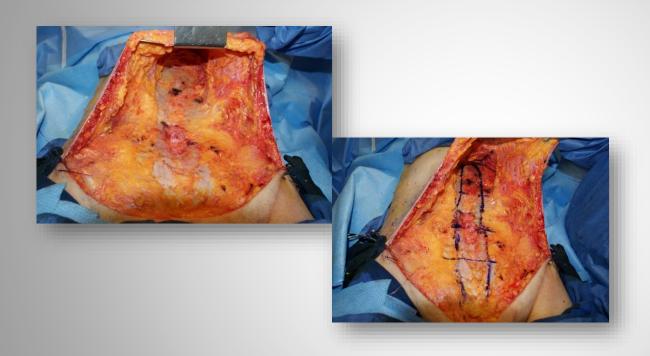


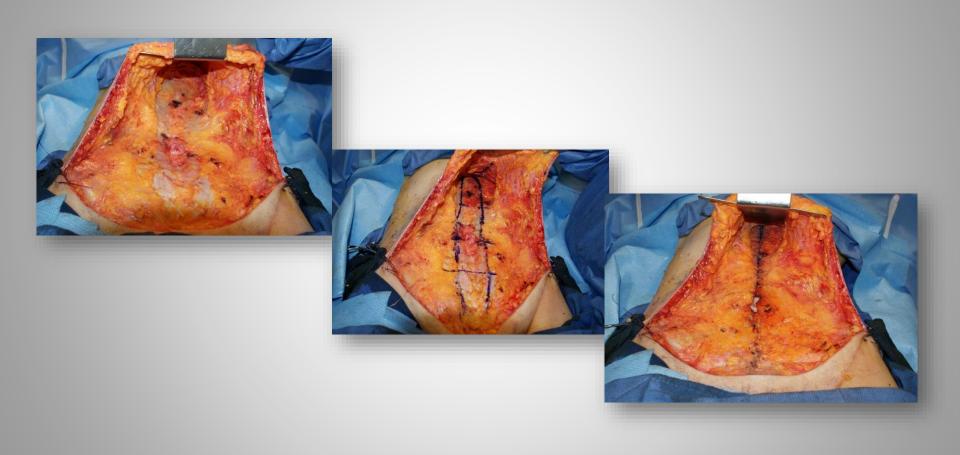












## Compression



## Technique Advantages

- Fast closure
  - 8 to 10 minutes additional time for PTS
- Can do without an assistant
- Maintains tissue approximation
  - Less tissue pull-through
- Eliminate abdominal drains
- Need for abdominal binder?

## Seroma Treatment

- Aspirate if in doubt
- SeromaCath
- Sclerosis
  - Doxycycline
  - Ethanol
- Excision





## Not Using Drains is an Uplifting Experience!



## A Better Patient Experience

- Modern pain control
- Minimize opioid medications
- Early mobilization
- No drain technique
- Compression garments, not stiff binders

## Why is Non-Opioid Analgesia Important

- Opioid epidemic
- Less opioid use
- Less PONV

#### Clinical Consequences of Inadequate Pain Relief: Barriers to Optimal Pain Management

Jaime L. Baratta, MD Eric S. Schwenk, MD Eugene R. Viscusi, MD

Philadelphia, Pa

**Summary:** Uncontrolled postoperative pain may result in significant clinical, psychological, and socioeconomic consequences. Not only does inadequate pain management following surgery result in increased morbidity and mortality but it also may delay recovery, result in unanticipated readmissions, de-

- Faster transfer from PACU
- Faster discharge home
- Normalized physiology (RR, HR, BP)
- Decreased surgical stress response?
- Decreased risk of long-term pain & CRPS?
- Better patient reviews on RealSelf

## Liposomal Bupivacaine (Exparel)

- Controlled bupivacaine release
- Pain relief 2 to 3 days
- Can't mix with lidocaine within 20 min
- May be an "add on" cost
- Mixed results in breast augmentation
- Use in plastic surgery not standardized



\$300 vial

## Systematic Review of Liposomal Bupivacaine (Exparel) for Postoperative Analgesia

Krishna S. Vyas, M.D., M.H.S. Sibi Rajendran, B.S. Shane D. Morrison, M.D., M.S. Afaaf Shakir, B.S. Samir Mardini, M.D. Valerie Lemaine, M.D.

**Background:** Management of postoperative pain often requires multimodal approaches. Suboptimal dosages of current therapies can leave patients experiencing periods of insufficient analgesia, often requiring rescue therapy. With absence of a validated and standardized approach to pain management, further refinement of treatment protocols and targeted therapeutics is needed. Liposomal bupivacaine (Exparel) is a longer acting form of traditional bupivacaine that delivers the drug by means of a multivesicular liposomal system. The effectiveness of liposomal bupivacaine has not been systematically analyzed relative to conventional treatments in plastic surgery.

## Liposomal Bupivacaine – Big Picture



- <u>Lack of evidence</u> prevents assessment of liposomal bupivacaine as a peripheral <u>nerve block</u> (2016)
- Liposomal bupivacaine at surgical site (2017)
  - Does appear to reduce pain compared to placebo
  - Limited evidence does NOT demonstrate superiority <u>to</u> <u>bupivacaine</u>

## Preemptive & Preventive Analgesia

- Preemptive analgesia (before incision) effectiveness is debatable
  - Local anesthetic at incision sites (mandatory in MAC cases)
  - Preoperative oral NSAIDs, acetaminophen (useful for short cases)
- Preventive analgesia (after incision) effectiveness is debatable
- Has to be part of ERAS protocol

# Preemptive, Preventive, Multimodal Analgesia: What Do They Really Mean?

Eric B. Rosero, MD, MSc Girish P. Joshi, MBBS, MD, FFARCSI

**Summary:** To improve postoperative pain management, several concepts have been developed, including preemptive analgesia, preventive analgesia, and multimodal analgesia. This article will discuss the role of these concepts in improving perioperative pain management. Preemptive analgesia refers to the

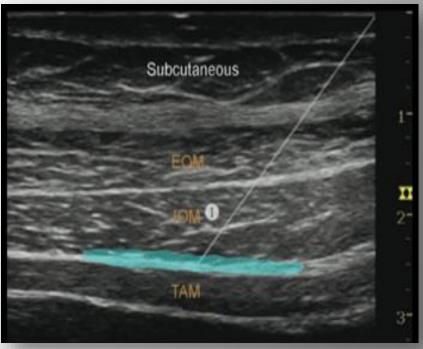
Dallas, Tex.

## Transversus Abdominis Plane (TAP) Block

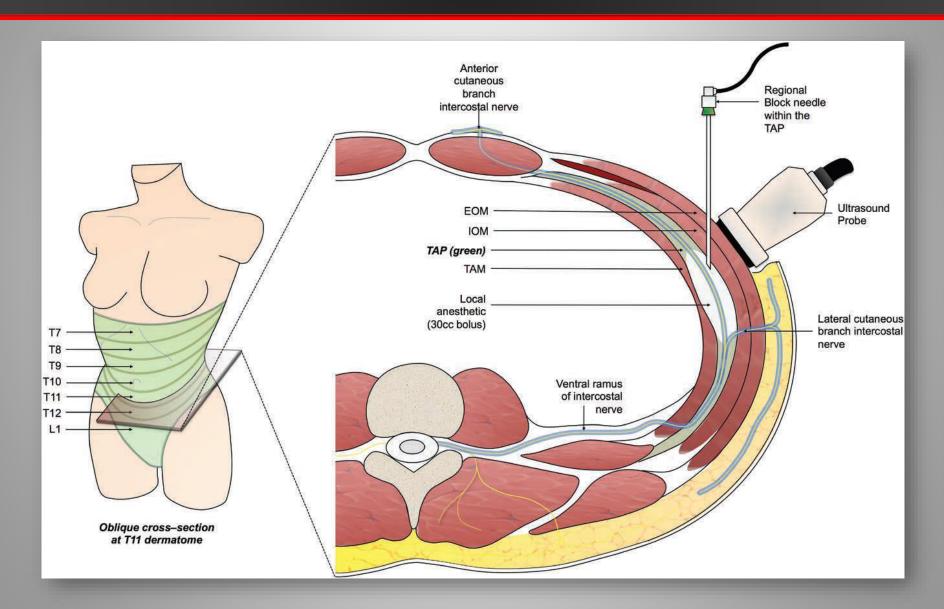
- TRANSVERSUS ABDOMINIS PLANE (TAP)
- Between transversus abdominis and internal oblique muscle
- 30 mL 0.25% ropivacaine or bupivacaine (with Epi) per side
- Ultrasound guided by anesthesiologist
- Open access by surgeon intraoperative

## Transversus Abdominis Plane (TAP) Block





## Intraoperative TAP Block



# Abdominal Wall Disruption





## Abdominal Wall Hernias & Diastasis





## Outpatient & Fast Recovery



## Abdominoplasty Intraoperative TAP Block

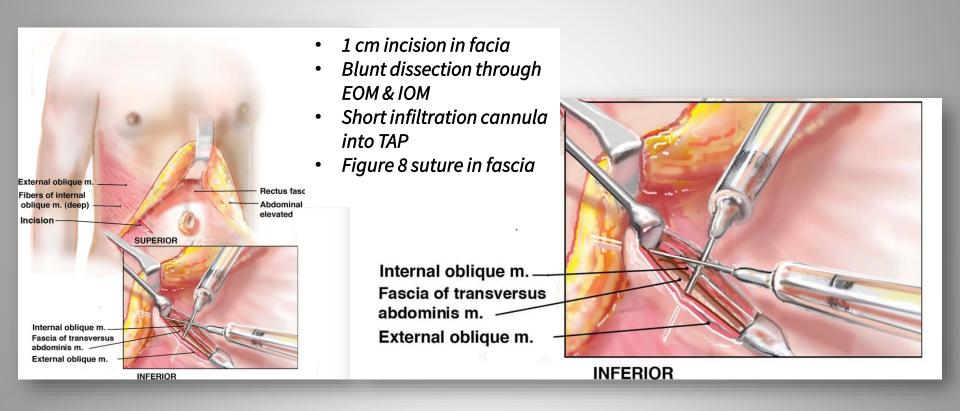
- 10 ml 0.5% bupivacaine 0.5% + 10 ml 1% lidocaine with Epi
- Reduced morphine requirement
- Earlier ambulation
- Lower pain scores

## Transversus Abdominis Plane Block Anesthesia in Abdominoplasties

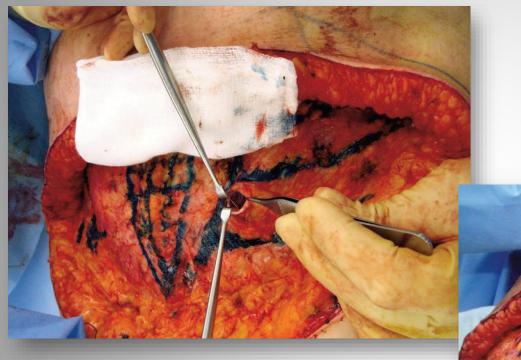
Marcos Sforza, M.D. Katarina Andjelkov, M.D., M.S. Renato Zaccheddu, M.D. Hussein Nagi, M.D. Miodrag Colic, M.D., Ph.D.

**Background:** The transversus abdominis plane block is a promising approach to the provision of postoperative analgesia following abdominal incision. This effective method blocks the sensory nerve supply to the anterior abdominal wall. The authors evaluated its analgesic efficacy over the first 12 postoperative hours after abdominoplasty with liposculpture in a randomized, controlled, double-blind clinical trial.

## Transversus Abdominis Plane (TAP) Block



# Intraoperative TAP Block





Gianpiero Gravante, PRS 2010

## NSAIDs Are Safe in Plastic Surgery

Time to dispel myth of NSAIDs causing bleeding in breast & body cases

#### Ketorolac Does Not Increase Perioperative Bleeding: A Meta-Analysis of Randomized Controlled Trials

Ryan M. Gobble, M.D. Han L. T. Hoang, M.D. Bart Kachniarz, B.A. Dennis P. Orgill, M.D., Ph.D.

**Background:** Postoperative pain control is essential for optimal patient outcomes. Ketorolac is an attractive alternative for achieving pain control postoperatively, but concerns over postoperative bleeding have limited its use. **Methods:** Computer searches of the MEDLINE, EMBASE, and Cochrane Library databases were performed. Twenty-seven double-blind, randomized,

### Ibuprofen May Not Increase Bleeding Risk in Plastic Surgery: A Systematic Review and Meta-Analysis

Brian P. Kelley, M.D. Katelyn G. Bennett, M.D. Kevin C. Chung, M.D., M.S. Jeffrey H. Kozlow, M.D., M.S. **Background:** Nonsteroidal antiinflammatory drugs such as ibuprofen are common medications with multiple useful effects, including pain relief and reduction of inflammation. However, surgeons commonly withhold all nonsteroidal antiinflammatory drugs perioperatively because of bleeding concerns. However, not all nonsteroidal antiinflammatory drugs irreversibly block platelet function. The authors hypothesized that the use of ibuprofen would have no

## Team Effort with Anesthesiologist

- Seek out those who want to give a better patient experience
- Collaborate on ERAS protocols
- Give them patient feedback
- Learn from each other



## Lipo-Abdominoplasty & Body Lift Protocol

- Gabapentin 300 mg PO (#40)
  - 600 mg at bedtime before surgery, then every 6 hrs x 3 to 5 days
- TAP or RS block
- SQ tumescent infiltration (500 mg lidocaine/L +epi)
- Ketorolac 30 mg IV during skin closure
- Tramadol 25 mg before discharge
- Acetaminophen 500 mg + NSAID of choice every 4 hr
- Oxycodone + acetaminophen (5/325 mg) as needed (#24)
- Ondansetron 4 mg ODT prn #4

# Repurpose the Fat





# Repurpose the Fat



# Advanced Techniques in Abdominoplasty: Optimizing Results & the Patient Experience

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