Liposuction Technique Matters for Lipedema: Fact or Fake News?

Karol A Gutowski, MD, FACS
Board Certified Plastic Surgeon
Associate Clinical Professor, University of Illinois
Chicago, Illinois
DISCLOSURES

• Nothing to disclose related to lipedema or liposuction
Objectives

• Introduce Levels of Evidence
• Explain types of liposuctions
• Scientific & clinical assessment of techniques
• Understand limitations of liposuction volumes
My Background

- Chair Quality & Performance Metrics Committee (ASPS)
- Chair Tracking Operations & Outcomes in Plastic Surgery (ASPS)
- Patient Safety Committee (ASPS)
- Over 3000 liposuction cases
- Over 250 lipedema patients
- Plastic & Reconstructive Surgery Editorial Board
Show me the Evidence

• Level 1 = High quality RCT or systematic review (SR)
• Level 2 = Lesser quality RCT, comparative study, or SR
• Level 3 = Retrospective comparative study or SR
• Level 4 = Case series
• Level 5 = Expert opinion
Internet Does NOT have Levels of Evidence

“Don’t believe everything you read on the Internet just because there’s a picture with a quote next to it.”

—Abraham Lincoln
Deceptive Lipedema Treatment

Before & after High Def Vaser liposuction treatment, 3 sessions
Deceptive Lipedema Treatment

Before & after High Def Vaser liposuction treatment, 3 sessions
Deceptive Lipedema Treatment

Fake News! This patient had a thigh lift!
It’s a Process.......

Before

After 2 rounds of liposuction SAL & PAL

After liposuction & thigh lift
Published Papers in PubMed

- Lipedema: 183 results
- Lipedema Treatment: 114 results
- Lipedema Surgery: 65 results
- Lipedema Liposuction: 38 results
  - Primary studies on liposuction: 9 publications
  - Reviews of literature: 4 publications
- Comparative studies: 0
- Randomized controlled studies: 0
- Lymphatic Sparing Liposuction: 3 results, 0 related to Lipedema
Liposuction Options

• Tumescent – All liposuction procedures **must** use some tumescent fluid to prevent bleeding

• Traditional (SAL)
• Power Assisted (PAL)
• Ultrasound Assisted (UAL)
• VASER Assisted (VAL)
• Laser Assisted (LAL)
• Water Assisted BodyJet (WAL)

All can be done:
- Awake
- Minimal incisions
- Minimal bruising
Liposuction Options

• Tumescent – All liposuction procedures must use some tumescent fluid to prevent bleeding

• Traditional (SAL)
• Power Assisted (PAL)
• Ultrasound Assisted (UAL)
• VASER Assisted (VAL)
• Laser Assisted (LAL)
• Water Assisted BodyJet (WAL)

I do all of them

Awake
Minimal incisions
Minimal bruising
Traditional Liposuction

Dependable & reliable
Low cost
No energy damage
Low risk
Power Assisted Liposuction

- Dependable & reliable
- Low cost
- No energy damage
- Shorter procedure
- Best for “tough” tissue
Ultrasound & Vaser Assisted Liposuction

Dependable & reliable
High cost
Possible energy damage
Longer procedure
Requires 2 parts
  Vaser treatment to break up fat
  Traditional liposuction to remove fat
No evidence of skin tightening
Water Assisted Liposuction (BodyJet)

- Dependable & reliable
- Moderate cost
- No energy damage
- Longer procedure
- Additional water adds to fat removal limit
- No evidence of “more gentle” treatment
Laser Assisted Liposuction (SmartLipo)

- Dependable & reliable
- Vert high cost
- Possible energy damage
  - Prolonged swelling
- Longer procedure
- Requires 3 parts
  - Laser treatment to break up fat
  - Traditional liposuction to remove fat
  - Laser treatment to tighten skin
- No evidence of skin tightening in lipedema
How Much Fat Can be Removed?

- 5000 cc limit (about 5 quarts)
  - Includes removed fat and fluid
- Otherwise should be
  - Staged – 2 or more outpatient procedures
  - Monitored overnight – 1 procedure but higher cost
- No evidence to support this limit
  - Accepted by most surgery facilities & law in some states

Evidence-Based Patient Safety Advisory: Liposuction

Summary: Liposuction is considered to be one of the most frequently performed plastic surgery procedures in the United States, yet despite the popularity of liposuction, there is relatively little scientific evidence available on patient safety issues. This practice advisory provides an overview of various techniques, practices, and management strategies that pertain to individuals undergoing liposuction, and recommendations are offered for each issue to ensure and enhance patient safety. (Plast. Reconstr. Surg. 124 (Suppl.): 28S, 2009.)
Is There a Safe Lipoaspirate Volume? A Risk Assessment Model of Liposuction Volume as a Function of Body Mass Index

Ian Choe, B.A.
Mohammed S. Alghoul, M.D.
Nina Khavanin, B.S.
Philip J. Hanwright, M.D.
Kristen E. Mayer, B.S.
Keith M. Hume, M.A.
Robert X. Murphy, Jr., M.D., M.S.
Karol A. Gutowski, M.D.
John Y. S. Kim, M.D.

**Background:** No concrete data exist to support a specific volume at which liposuction becomes unsafe; surgeons rely on their own estimates, professional organization advisories, or institutional or government-imposed restrictions. This study represents the first attempt to quantify the comprehensive risk associated with varying liposuction volumes and its interaction with body mass index.

**Methods:** Suction-assisted liposcopies were identified from the Tracking Operations and Outcomes for Plastic Surgeons database. Multivariate regression models incorporating the interaction between liposuction volume and body mass index were used to assess the influence of liposuction volume on complications and to develop a tool that returns a single adjusted odds ratio for any combination of body mass index and liposuction volume. Recursive parti-

- Liposuction limit should be based on BMI
- More than 100 cc per BMI increases complications
- Most common complication: Seroma (fluid collection)
- Not yet accepted by most surgical facilities or laws
Lymphatic System

• Superficial Lymphatic System
  • Medial vessels follow the great saphenous vein
  • Lateral vessels follow the small saphenous vein

• Deep Lymphatic System
  • Follows the deep arteries

• Lymphatic vessels follow the blood vessels
  • If blood vessels are not injured, neither are the lymphatics

• Lymphatic problems do not happen after normal liposuction
“Lymphatic Sparing Liposuction”

Liposuction Technique and Lymphatic Lesions in Lower Legs: Anatomic Study to Reduce Risks
Frick, Andreas M.D.; Hoffmann, Johannes N. M.D.; Baumeister, Rüdiger G. H. M.D.; Putz, Reinhard M.D.

Plastic and Reconstructive Surgery: June 1999 - Volume 103 - Issue 7 - p 1868–1873

- Small cadaver study suggesting less damage to lymphatic system when liposuction is done longitudinally vs transversely
- Nearly all liposuction is done longitudinally (in the same direction as the lymphatic vessels) in the extremities
- Long-term lymphatic damage is not an issue after liposuction
- “Lymphatic Sparing Technique” is actually normal normal liposuction
Lipedema & liposuction clinical studies
Small Study: Power Assisted Lipo

Liposuction is an effective treatment for lipedema – results of a study with 25 patients

Stefan Rapprich, Anne Dingler, Maurizio Podda
Department of Dermatology, Darmstadt Hospital, Germany

- Vibration liposuction (PAL)
- Good results with significant pain and leg volume reduction
Tumescent liposuction in lipoedema yields good long-term results

W. Schmeller, M. Hueppe* and I. Meier-Vollrath

Hanse-Klinik, St-Juergen-Ring 66, D-23564 Lübeck, Germany
*Department of Anaesthesiology, University of Lübeck, Ratzeburger Allee 160, D-23538 Lübeck, Germany

• 164 patients treated with PAL
• 112 evaluated at more than 1 year with standardized questionnaire
• Overall significant improvement in volume, QOL, etc
Best Study: Power Assisted Lipo

Long-term benefit of liposuction in patients with lipoedema: a follow-up study after an average of 4 and 8 years

A. Baumgartner, M. Hueppe and W. Schmeller

• Follow up of previous study
• Compared to 4 years, improvement in pain, sensitivity to pressure, edema, bruising, restricted movement, patient self-assessment cosmetic appearance, quality of life & overall impairment persisted
• At 8 years, reduction in amount of conservative treatment similar to 4 years
• Demonstrates long-lasting positive effects of power assisted liposuction
False & unsupported claims about tumescent fluid & liposuction
• Analyzed the removed fat tissue, not what was left behind
• Did not compare to any other liposuction technique
• Very low fat removal volumes
• No clinical results measured
Power-assisted liposuction (PAL) is more efficient and can remove more fat compared to water-assisted liposuction (WAL).
Liposuction & Skin Tightening

- Many claims to tighten the skin
- Mostly unproven
- Utrasound (UAL) - many claims in the 1990’s but no evidence
  - Vaser (VAL) – Split study vs SAL, no patient reported difference at 6 months
  - Laser (LAL) – Split study vs SAL, LAL 17% tighter at 3 months

A Multicenter, Prospective, Randomized, Single-Blind, Controlled Clinical Trial Comparing VASER-Assisted Lipoplasty and Suction-Assisted Lipoplasty

Background: No scientific comparative study has demonstrated any statistically significant clinical improvement attributable to a new lipoplasty technology relative to traditional suction-assisted lipoplasty. This prospective study used a contralateral study

Randomized, Blinded Split Abdomen Study Evaluating Skin Shrinkage and Skin Tightening in Laser-Assisted Liposuction Versus Liposuction Control

Barry E. DiBernardo, MD
Traditional Liposuction Results
Traditional Liposuction Results
SAL 2 Stages
Conclusions

• Don’t fall for marketing and hype
• Consider the source
  • Many low level publications and meaningless studies
• It’s the surgeon, not the type of liposuction
• Be prepared for more than one liposuction procedure
  • 2 to 3 staged procedures are common
• May need skin removal (thigh lift)
CONTACT INFORMATION

Karol A Gutowski, MD, FACS

- Karol@DrGutowski.com
- 773-870-0732
- DrGutowski.com
- Presentation at DrGutowski.com – FOR PHYSICIANS