

Assessing the Value of Autologous Fat Grafting: A Focused Review of the Safety, Effectiveness, and Efficiency Among Reconstructive and Cosmetic Applications

Scott L. Spear, MD¹; Courtney N. Coles, MPH²; Braden K. Leung, PhD³; Matthew Gitlin, PharmD²; Mousam Parekh, MS⁴; David Macarios, MBA, MSc⁴

¹Sibley Memorial Hospital, Washington DC; ²BluePath Solutions, Santa Monica, CA; ³ACELITY, San Antonio, TX; ⁴LifeCell, an ACELITY Company, Bridgewater, NJ

Introduction

- In 2014, 15.6 million cosmetic and 5.8 million reconstructive autologous fat grafting (AFG) procedures were performed in the United States.
- There is increasing evidence suggesting the safety and effectiveness of AFG.
- However, little is known about the efficiency of AFG.

Study Objective:

- To conduct a literature review of the safety, effectiveness, and efficiency of AFG in all applications.

Methods

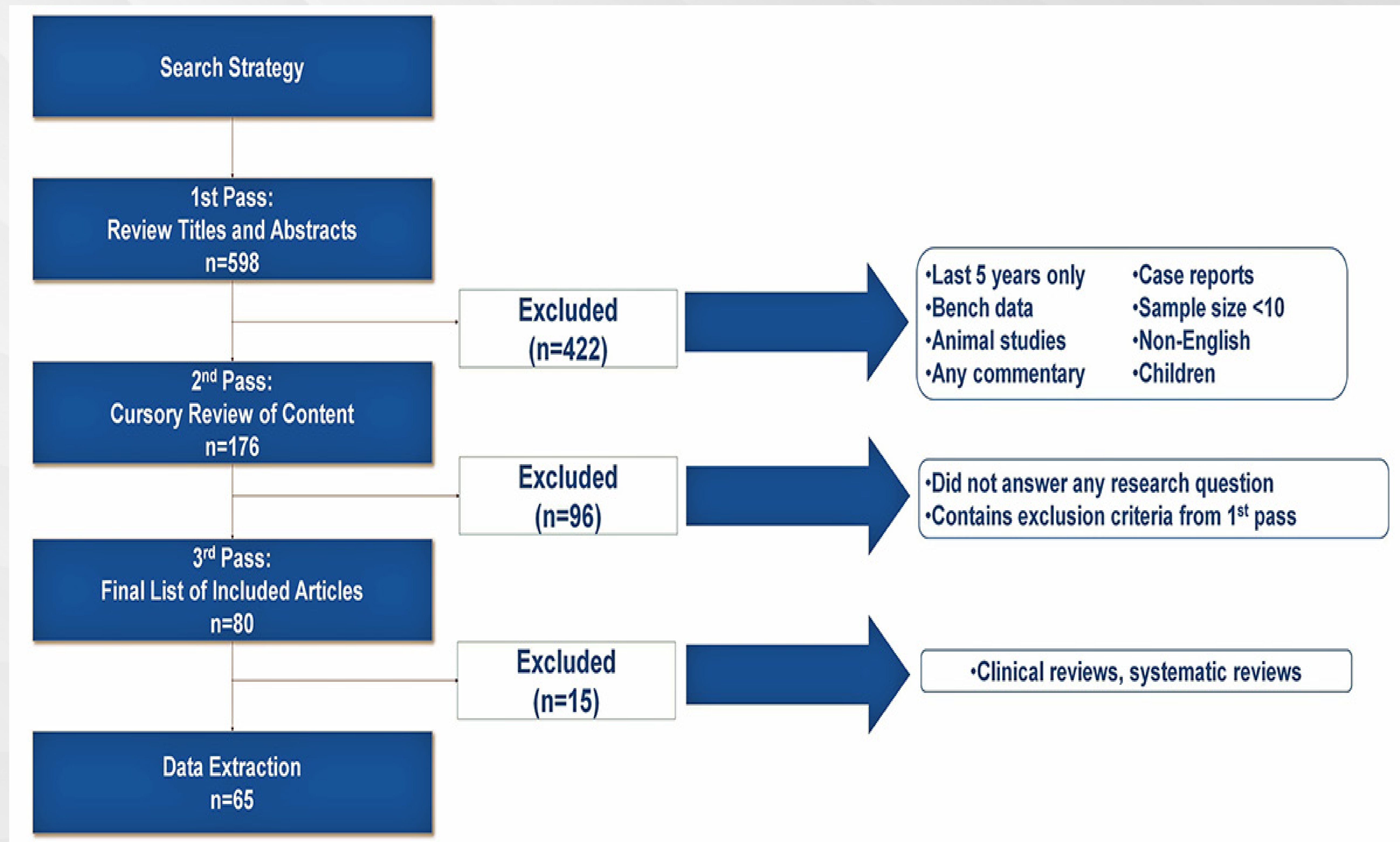
- Systematic literature review of fat grafting procedures
- **Time Frame:** April 1, 2010 and April 30, 2015
- **Database:** PubMed
- **Variables collected:** Study, patient, surgical characteristics, and safety, effectiveness and efficiency outcomes
- **Data Output:** Descriptive Statistics (Weighted Mean or Weighted Percentage), Univariate Analysis
- Two reviewers independently reviewed the articles and any differences were resolved by a third reviewer.

Assessing the Value of Autologous Fat Grafting: A Focused Review of the Safety, Effectiveness, and Efficiency Among Reconstructive and Cosmetic Applications

Scott L. Spear, MD¹; Courtney N. Coles, MPH²; Braden K. Leung, PhD³; Matthew Gitlin, PharmD²; Mousam Parekh, MS⁴; David Macarios, MBA, MSc⁴

¹Sibley Memorial Hospital, Washington DC; ²BluePath Solutions, Santa Monica, CA; ³ACELITY, San Antonio, TX; ⁴LifeCell, an ACELITY Company, Bridgewater, NJ

Results



Studies Included:

- Clinical trials
- Randomized Controlled trials
- Prospective/ Retrospective studies
- Epidemiology studies
- Burden and cost of illness

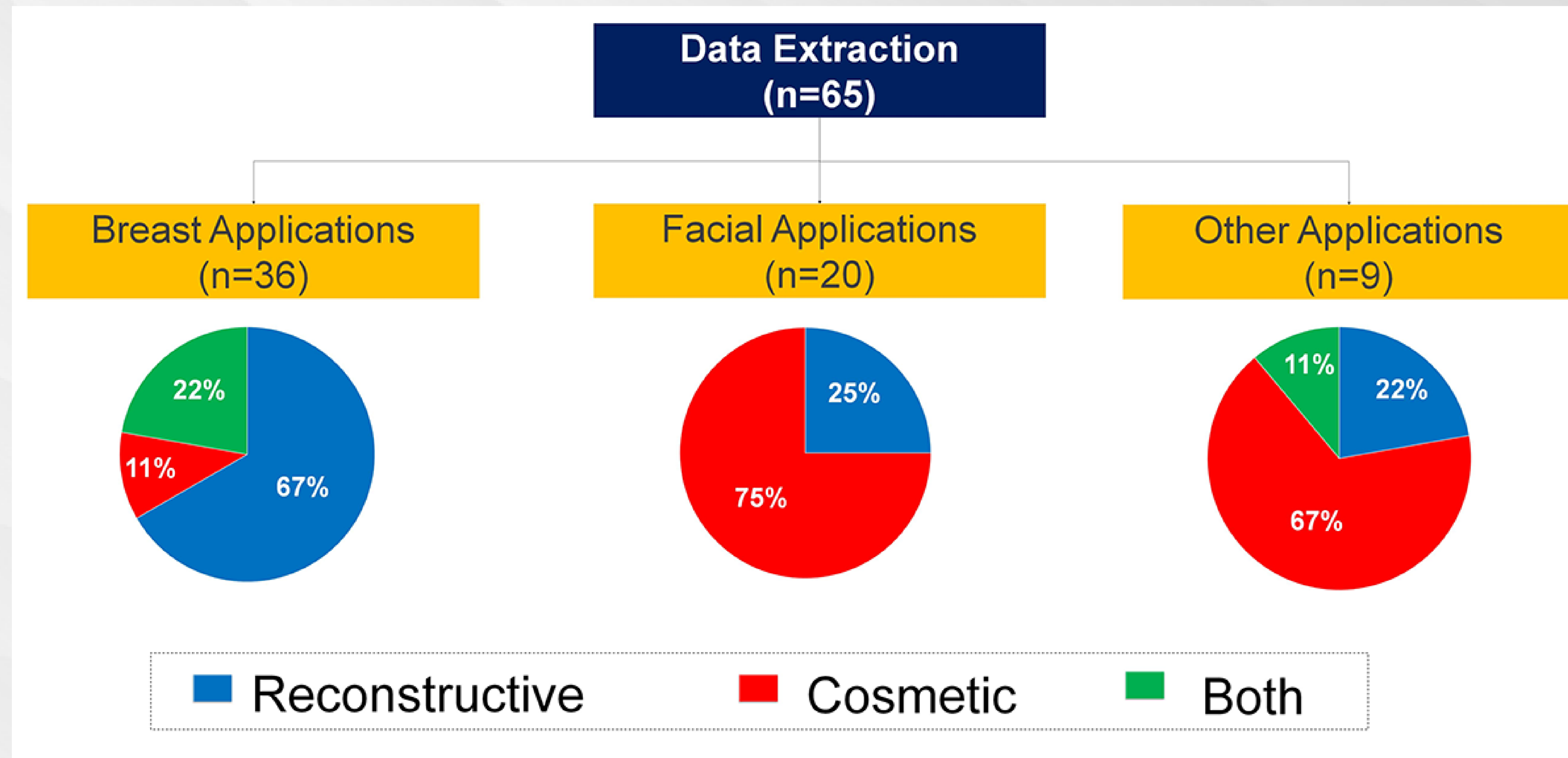
Assessing the Value of Autologous Fat Grafting: A Focused Review of the Safety, Effectiveness, and Efficiency Among Reconstructive and Cosmetic Applications

Scott L. Spear, MD¹; Courtney N. Coles, MPH²; Braden K. Leung, PhD³; Matthew Gitlin, PharmD²; Mousam Parekh, MS⁴; David Macarios, MBA, MSc⁴

¹Sibley Memorial Hospital, Washington DC; ²BluePath Solutions, Santa Monica, CA; ³ACELITY, San Antonio, TX; ⁴LifeCell, an ACELITY Company, Bridgewater, NJ

Results (Cont'd)

Study characteristics



Variable	Breast	Facial	Other
Mean Follow-Up Time Months (Range)	25.4 (5-91)	15.1 (3-27)	52.2 (12-71.5)
Mean Study Size Subjects (Range)	121.1 (18-1000)	69.2 (12-500)	241.3 (12-789)

Patient characteristics

- Facial application patient cohort had a higher mean age and BMI (body mass index) compared to breast or other applications.

Variable	Breast	Facial	Other
Age yrs, (Range)	44.5 (23-65)	50.2 (17-74)	31.9 (28-46)
BMI kg/m², Range)	22.6 (18.5-29.9)	23.9 (23.5-24.3)	21.5 (20.4-24.6)

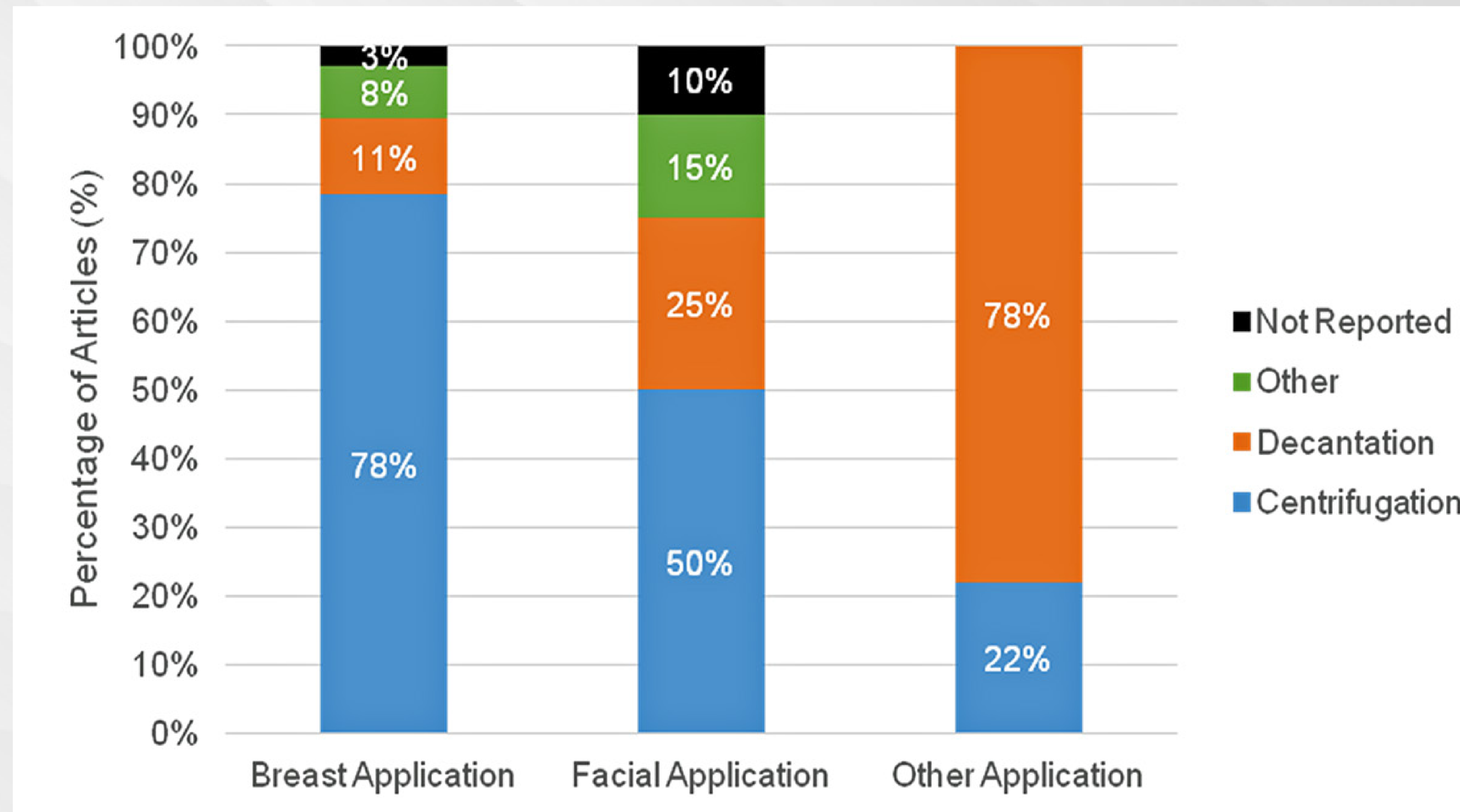
Assessing the Value of Autologous Fat Grafting: A Focused Review of the Safety, Effectiveness, and Efficiency Among Reconstructive and Cosmetic Applications

Scott L. Spear, MD¹; Courtney N. Coles, MPH²; Braden K. Leung, PhD³; Matthew Gitlin, PharmD²; Mousam Parekh, MS⁴; David Macarios, MBA, MSc⁴

¹Sibley Memorial Hospital, Washington DC; ²BluePath Solutions, Santa Monica, CA; ³ACELITY, San Antonio, TX; ⁴LifeCell, an ACELITY Company, Bridgewater, NJ

Results (Cont'd)

Fat processing technique



Safety & Effectiveness Outcomes

- Breast cancer recurrence rates post-reconstruction were about 3% using a weighted average (by sample size).

Variable	Breast	Facial	Other
Reoperation (Range)	20% (3-68%)	3% (0-12%)	6.5% (5-16%)
Cyst Formation (Range)	5% (0-25%)	0% (0%)	Not Reported
Fat Necrosis (Range)	6% (0-19%)	1.1% (0-2%)	1.4% (0-3%)
Infection (Range)	1% (0-4%)	4.3% (0-14%)	0.4% (0-1%)
Retention (Range)	62% (39-78%)	63% (54-85%)	70%*
Patient Satisfaction (Range)	93% (68-100%)	89% (46-100%)	96% (91-100%)

* Range Not Available

Assessing the Value of Autologous Fat Grafting: A Focused Review of the Safety, Effectiveness, and Efficiency Among Reconstructive and Cosmetic Applications

Scott L. Spear, MD¹; Courtney N. Coles, MPH²; Braden K. Leung, PhD³; Matthew Gitlin, PharmD²; Mousam Parekh, MS⁴; David Macarios, MBA, MSc⁴

¹Sibley Memorial Hospital, Washington DC; ²BluePath Solutions, Santa Monica, CA; ³ACELITY, San Antonio, TX; ⁴LifeCell, an ACELITY Company, Bridgewater, NJ

Results (Cont'd)

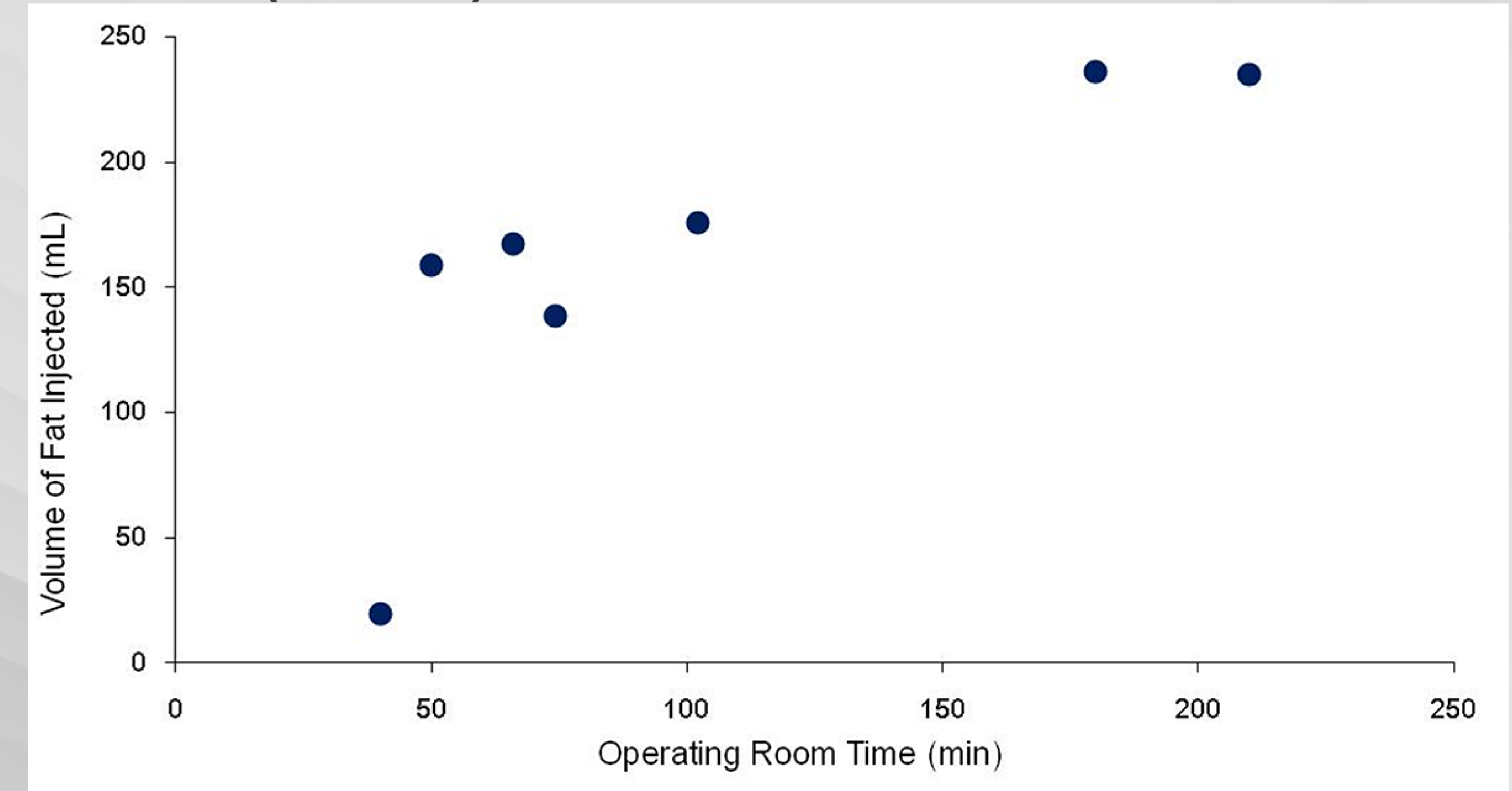
Efficiency outcomes

- For breast applications, there was an association between volume injected and operating room time.
- Data was not available for facial/other applications.

Variable	Breast	Facial	Other
Mean Harvest Volume (Range)	558 ml (120-1299ml)	62 ml (35-360ml)	1753.8 ml*
Mean Injection Volume (Range)	145 mL (20-606 ml)	14.5 ml (2.1-27.1 ml)	336.1 ml (18-692 ml)
Operating Room Time (Range)	125 minutes (40-210 minutes)	Not Reported	Not Reported

* Range Not Available

Results (Cont'd)



Conclusions

- **Safety/Effectiveness:** The safety and effectiveness results were consistent and validate previous research published.

Assessing the Value of Autologous Fat Grafting: A Focused Review of the Safety, Effectiveness, and Efficiency Among Reconstructive and Cosmetic Applications

Scott L. Spear, MD¹; Courtney N. Coles, MPH²; Braden K. Leung, PhD³; Matthew Gitlin, PharmD²; Mousam Parekh, MS⁴; David Macarios, MBA, MSc⁴

¹Sibley Memorial Hospital, Washington DC; ²BluePath Solutions, Santa Monica, CA; ³ACELITY, San Antonio, TX; ⁴LifeCell, an ACELITY Company, Bridgewater, NJ

Conclusions (Cont'd)

- **Safety/Effectiveness:** The safety and effectiveness results were consistent and validate previous research published.
- **Efficiency:** The efficiency data available, although limited, suggest that there is an opportunity to reduce OR time and resources.
- **Limitation:** There was high variability and lack of uniformity in reporting among these studies.
- *Limited data suggests need for the ASPS effort to collect and standardize data by using the GRAFT registry.*

References

Available upon request

Contact: PubsMgt@Acelity.com

Disclosures

- SLS: Consultant to LifeCell, an ACELITY Company, Allergan, Establishment Labs, and Novadaq and Endurance Labs
- CNC: Received funding to conduct research
- BKL: Employee of ACELITY
- MG: Received funding to conduct research
- MP, DM: Employees of LifeCell, an ACELITY Company