

# Effects of GLP-1 Receptor Agonists on Surgical Wound Healing: A Single Institution Pilot Study

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## INTRODUCTION

GLP-1 receptor agonists (GLP-1RAs) are widely prescribed for type 2 diabetes and obesity, with expanding use in surgical populations.

Preclinical models demonstrate accelerated wound closure and improved tissue survival with GLP-1RA exposure.

Clinical data on GLP-1RAs and surgical wound healing remain limited, with plastic surgery evidence notably sparse.

## PURPOSE

To evaluate the association between GLP-1RA use and wound healing outcomes among adults with non-healing postoperative wounds managed within an academic plastic surgery service.

## METHODS

- IRB-approved retrospective cohort study, NYU Langone Health (2013–2024).
- Adults (≥18) with non-healing postoperative wounds managed by the plastic surgery service.
- Exposure: Active GLP-1RA therapy at index surgery, continued during wound care.
- **Primary outcome: Healing status at last follow-up.**
- Secondary outcomes: Time to wound closure; surgical interventions required.
- Covariates: Age, sex, smoking, PAD, venous insufficiency, CKD, immunosuppression, wound location, insulin/metformin use.
- Statistics: Fisher's exact, Mann-Whitney, univariable and multivariable logistic regression.

## FIGURE

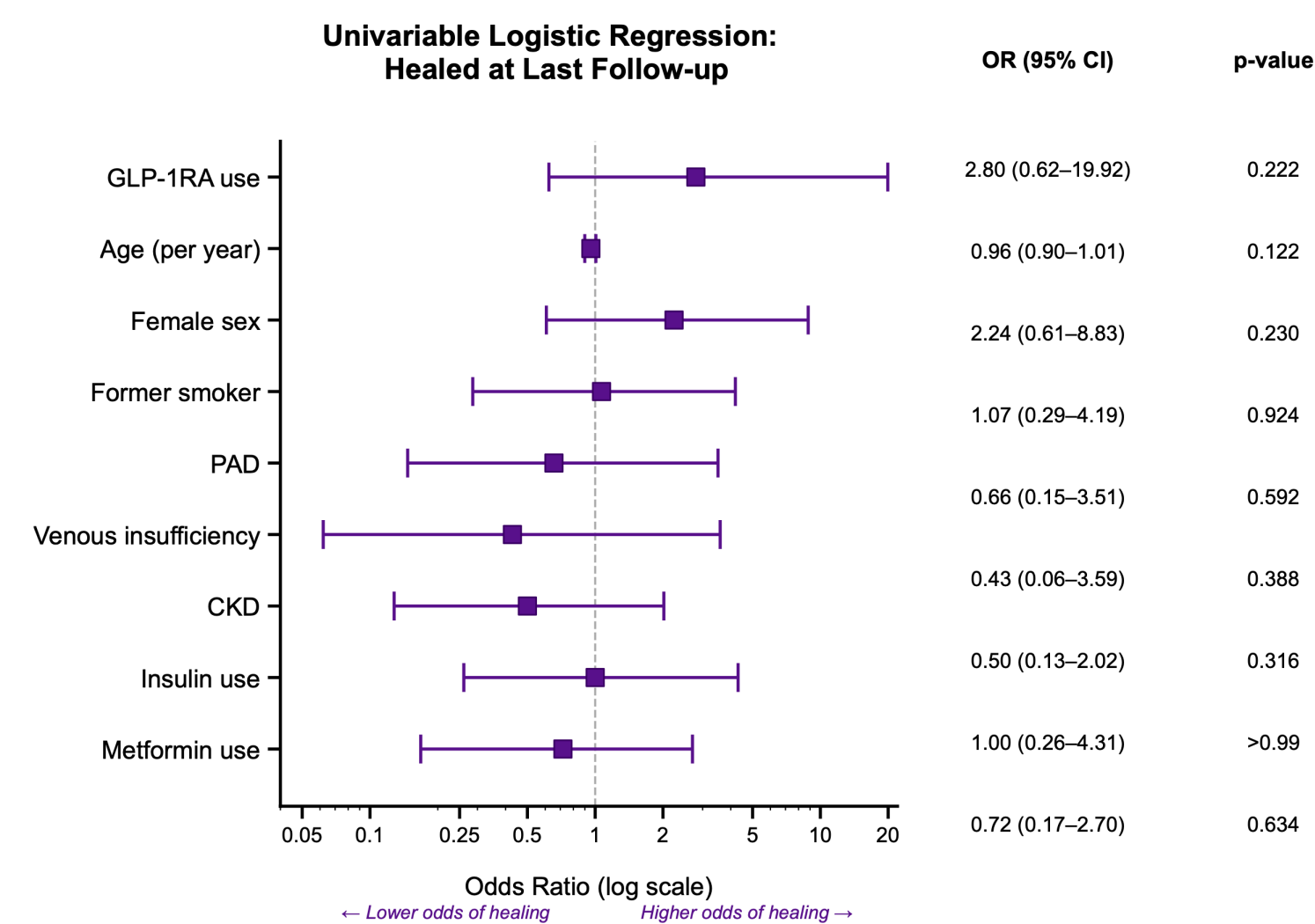


Figure 1. Univariable logistic regression: odds of wound healing at last follow-up. Purple squares represent odds ratios; horizontal bars indicate 95% confidence intervals. Dashed line indicates null (OR=1). Current smoker excluded due to quasi-complete separation.

## FIGURE

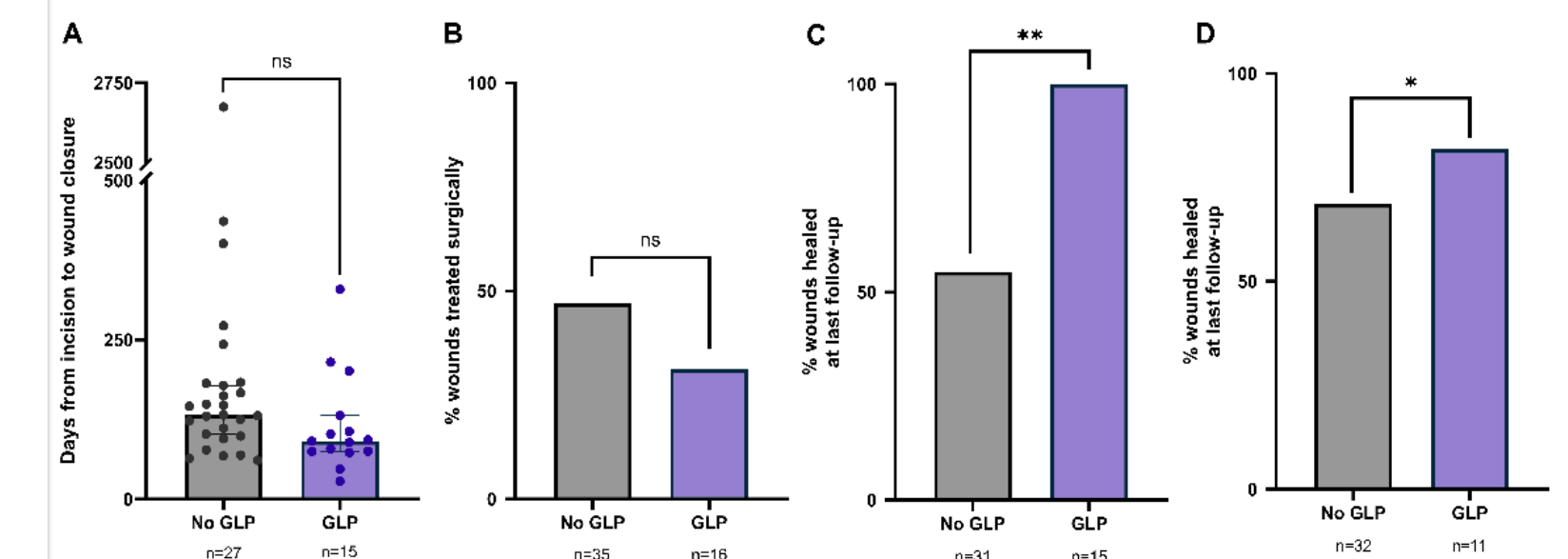


Figure 2. Wound healing outcomes by GLP-1RA exposure. (A) Age distribution. (B) Median time to wound closure (days). (C) Proportion healed at last follow-up (%). (D) Proportion requiring surgical intervention (%).

## RESULTS

**Cohort: 51 patients (16 GLP-1RA users, 35 non-users)**

### Baseline Characteristics:

No significant differences in age, sex, diabetes, smoking, PAD, CKD, or immunosuppression between groups.

Venous insufficiency was more prevalent among GLP-1RA users (27% vs. 3%; p=0.024).

### Wound Healing (Figure 1 & 2):

**Healing at last follow-up: 100% vs. 55% (p=0.0015)**

Median time to closure: 91 vs. 132 days (p=0.05)

Surgical interventions: 33% vs. 47% (p=0.37)

### Diabetic Subgroup:

**All GLP-1RA users healed vs. 66% of diabetic non-users (p=0.0437)**

## CONCLUSION

GLP-1RA use was associated with **significantly higher wound healing rates (100% vs. 55%, p=0.0015)** and a trend toward faster time to closure.

Among diabetic patients, **all GLP-1RA users achieved healing** compared with 66% of non-users (p=0.0437).

Adjusted analyses showed directionally consistent but statistically inconclusive results, limited by small sample size and sparse data.

GLP-1RA therapy does not appear to impair wound healing and may confer benefit in high-risk wound-care populations.

These pilot findings support larger, multicenter studies to evaluate GLP-1RAs as potential modifiers of surgical wound healing.