

# The Efficacy of Major Peripheral Nerve Neuroma Surgery in Reducing Postoperative Opioid Use in Patients with Preoperative Opioid Use

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## Introduction/Objectives

- Neuromas can cause severe neuropathic pain, leading to functional decline and psychosocial distress.
- For pain relief, some patients use opioids; however, their use can cause adverse effects .
- The objective of this study is to evaluate whether upper extremity neuroma excision reduces postoperative opioid use and if adjunctive nerve procedures further reduce opioid use.

## Methods

- Queried the MExtr dataset from the PearlDiver database focusing on hand, elbow, and nerve procedures from 2010-2020.
- Patients were identified by CPT codes for excision of major peripheral nerve neuromas.
- Patients with opioid prescription fill records preoperatively were stratified by operative technique: excision alone, excision with implantation or excision with nerve reconstruction.
- Records were
- Prescription fill rates preoperatively and postoperatively, and across techniques, were analyzed using chi-square analysis.
- Logistic regression was used to identify risk factors for prolonged opioid use.
- Results were statistically significant at  $p < 0.05$ .

## Results: Study Population Characteristics

Patient Characteristics	
No.	3,941
Age (mean)	49.0 ± 16.0
Sex	
Male	1,820
Female	2,121
Smoking	332
Diabetes	388
Peripheral Vascular Disease	34
Preoperative Opioid Use	1175
Operative Technique	
Excision Alone	2,839
Implantation	839
Nerve Reconstruction	265
Preoperative Opiate Use by Operative Technique	
Excision Alone	813
Implantation	277
Nerve Reconstruction	85

## Results

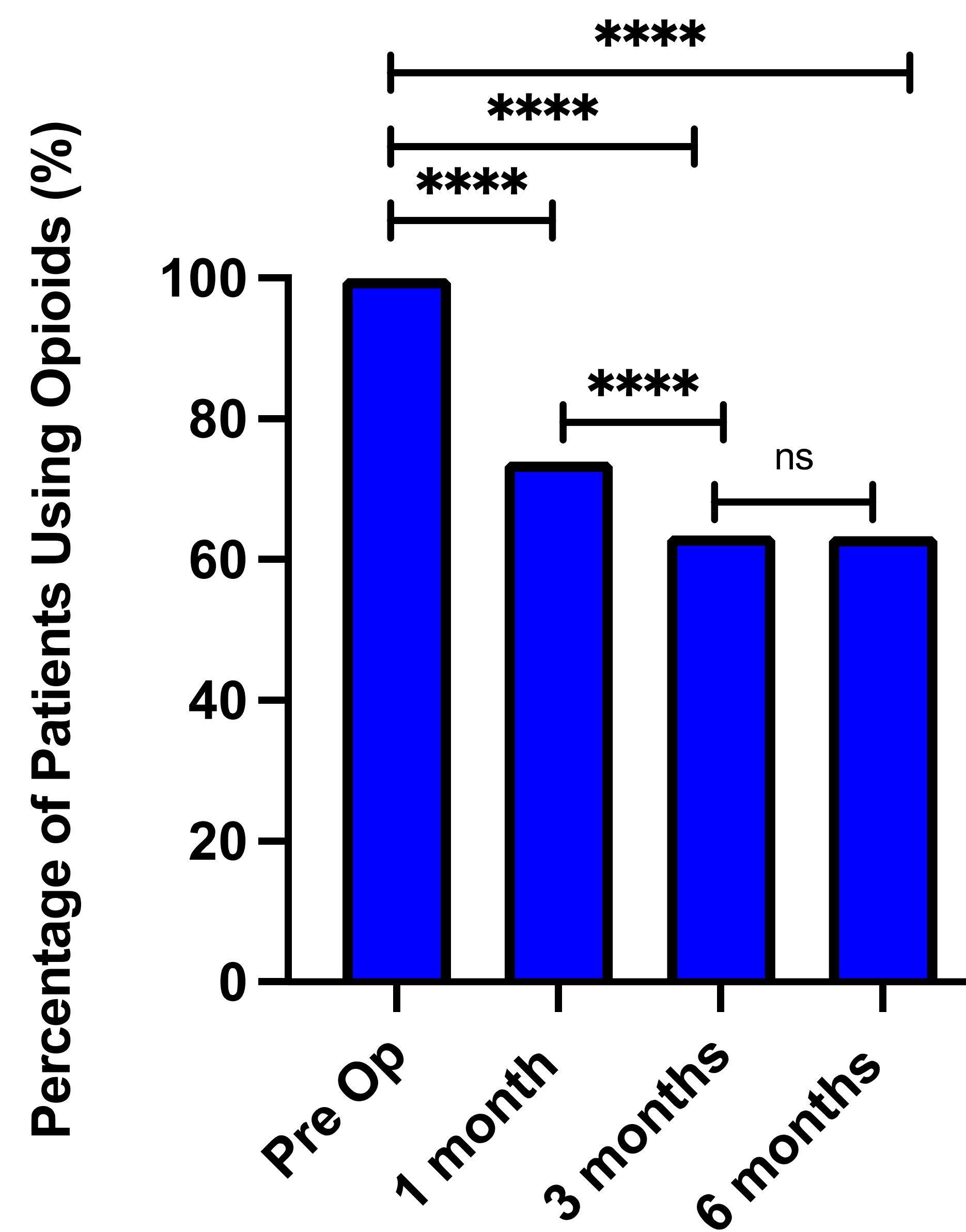


Figure 1: Bar graph depicting changes in opioid use postoperatively in patients with preoperative opioid use undergoing major peripheral nerve neuroma excision. \*\*\*\* $p < 0.0001$ , ns = non-significant.

Table 1: Logistic Regression for Prolonged Opioid Use Postoperatively.

Variable	OR	95%CI	P-value
Smoking	1.94	1.64-2.29	$p < 0.001$
Diabetes	1.43	1.20-1.71	$p < 0.001$

OR, odds ratio; CI confidence interval

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## Results

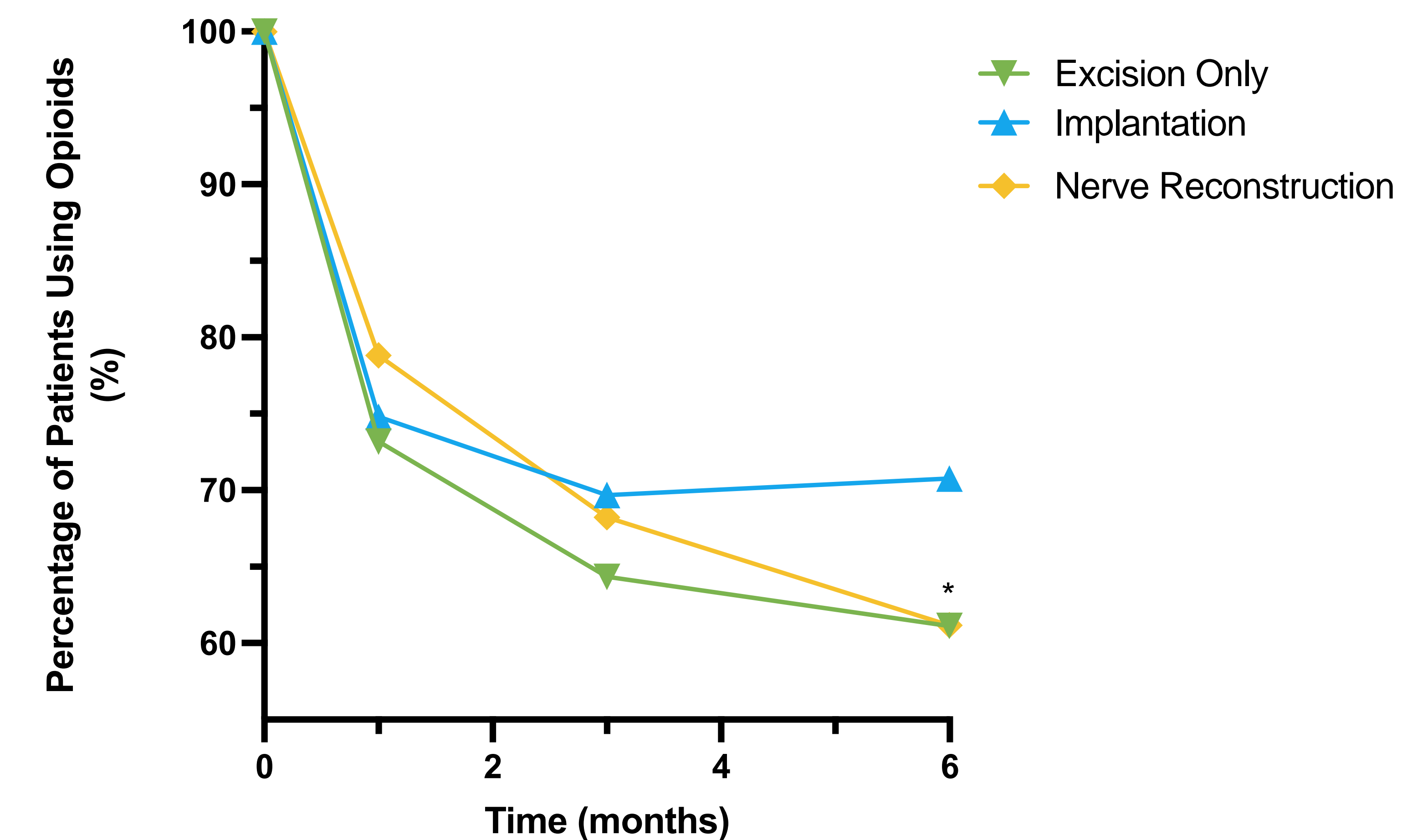


Figure 2: Line graph depicting changes in opioid use over time stratified by the different neuroma excision techniques. Asterisk (\*) denotes significant differences between excision alone versus implantation at 6 months, with a significance level of  $p < 0.05$ .

## Conclusion

- Surgical neuroma excision effectively reduces postoperative opioid reliance in patients with preoperative opioid use.
- Additional operative techniques to neuroma excision did not notably decrease postoperative opioid utilization.
- Patients with history of smoking or diabetes were significantly more likely to have prolonged opioid use.
- These findings highlight the effectiveness of neuroma surgery in managing opioid use pending accurate diagnosis and localization of the neuroma.

## References

1. Poppler LH, Parikh RP, Bichanich MJ et al. Surgical Interventions for the treatment of painful neuroma: a comparative meta-analysis. Pain. 2018 February; 159 (2): 214-223
2. Eberlin KR, Ducic I. Surgical Algorithm for Neuroma Management: A Changing Treatment Paradigm. PRS Global Open 2018; 6:e1952