many congenital or post-traumatic deformity cases, increasing NTP is essential for nasal function and visual aesthetics. Grafts such as columellar strut grafts (CSGs) and septal extension grafts (SEGs) are commonly used. However, there is a lack of high-level evidence to determine if grafts are safe and effective at increasing NTP. In our study, we analyze the safety and effectiveness of the most commonly used grafts for increasing NTP.

**METHODS:** The authors reviewed all English language articles in PubMed, Embase, and Web of Science between 2000 and 2020 that reported original outcomes on structural grafts used to increase NTP according to Preferred Reporting Items for Systematic Review and Meta-Analyses guidelines. We recorded and analyzed the following at 6 months postoperatively: NTP change, Goode ratio, nasolabial/columellar-labial angle, postoperative complications, and subjective patient assessments. We excluded interventions without grafts, literature reviews/letters/commentaries, case studies, and non-human/cadaver studies. Risk of bias was assessed. A total of two structural grafts in 35 studies (21 CSG, 14 SEG) were included.

**RESULTS:** Of the 2290 included patients, 1707 received CSGs (21 studies) and 583 received SEGs (14 studies). Overall nasal tip projection (NTP) increased after using either graft. However, NTP, goode ratio, and nasolabial angle measurements obtained showed no statistically significant differences between the groups. Subgroup analysis showed that more patients suffered postoperative complications after receiving SEGs (23.7%) than CSGs (9.7%). For patient satisfaction, three CSG studies found 83.3% of patients rated their satisfaction “high,” 12.1% “moderate,” and 4.5% “not satisfied” (n = 66). Most patients reported improvement in tip projection (97.0%), breathing (86.4%), and smell (83.3%). Additionally, there was a significant increase in average patient satisfaction and in aesthetics and nasal obstruction on the Visual Analogue Scale (n = 39). Only 5.5% of patients reported dissatisfaction with SEG outcomes.

**CONCLUSIONS:** Findings show CSG and SEG grafts were safe and effective at increasing NTP. We suggest CSG may be safer and more effective than SEG at increasing NTP in rhinoplasties. Further prospective studies may elucidate the mechanisms underlying the differences between CSGs and SEGs in patient safety and satisfaction when increasing NTP in surgical rhinoplasty.

**The Global Macroeconomic Burden of Burn Injuries**

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**PURPOSE:** The objective of this study was to quantify the global macroeconomic burden of injuries inflicted by fire, heat, and hot substances.

**BACKGROUND:** Over nine million people suffer from thermal injuries annually across the world. Among those injured, 90% of mortality occurs in low- and middle-income countries (LMICs). The economic impact of the morbidity and mortality incurred as a result of such injuries remains unclear. Quantifying the financial impact of these injuries can educate government and non-governmental organization funding initiatives designed to increase access to care.

**METHODS:** Data on incidence, mortality, and disability adjusted life years (DALYs) from injuries caused by fire, heat, and hot substances were collected from the Global Burden of Disease Study 2019. The global macroeconomic burden of burns in the form of welfare lost was calculated by multiplying GDP per capita and DALYs for 190 individual countries. Gross domestic product (GDP) per capita adjusted for purchasing power parity (PPP) data were collected from the World Development Indicator Database. Temporal trends from 2009 to 2019 were evaluated with a specific focus on sub-Saharan Africa and South Asia.

**RESULTS:** In 2019, the incidence of burns was 1.2 million in South Asia and 1.3 million in sub-Saharan Africa compared with 0.5 million cases in the United States. Mortality rates were higher in both South Asia (2.6 per 100 patients) and sub-Saharan Africa (1.8 per 100 patients) than in the United States (0.7 per 100 patients). Between 2009 and 2019, the incidence of burns increased by 3.1% in sub-Saharan Africa and decreased by 4.0% in South Asia. Burn-related mortality decreased between 2009 and 2019 in both sub-Saharan Africa (20.0%) and South Asia (8.6%).

Lifetime burden of disease due to burn injuries was 1,617,220 DALYs for sub-Saharan Africa and 1,876,506 DALYs for South Asia. In 2019, 11.7 billion USD in South
Asia and 6.1 billion USD in sub-Saharan Africa were lost
due to burns. This was equivalent to 0.10% and 0.15% of
GDP, respectively. Welfare losses due to burns as a share of
GDP within specific South Asian economies were 0.12% for
India, 0.04% for Nepal, 0.09% for Pakistan, 0.07% for
Bhutan, and 0.06% for Bangladesh. Welfare losses were
highest in Papua New Guinea, equivalent to 0.63% of GDP.

CONCLUSIONS: While mortality rates due to burns are
decreasing over time, the impact on GDP remains signifi-
cant; the impact on GDP exceeds that due to cervical can-
cer and HIV in South Asia and tuberculosis in sub-Saharan
Africa. Temporal trends indicate that progress has been
made in the treatment of burns in these regions. Additional
resources, including intensive care units, skin banks, and
hospital beds, may enhance care for patients with more
severe burns and address the magnitude of injuries each year.
In the setting of rising incidence, efforts designed to pre-
vent burn injuries in the form of education are required. To
convince governments to fund such initiatives in resource-
limited environments, demonstrating the financial impact of
burn injuries on a population level is one approach.

Microsurgical Nose Replantation:
Is Venous Repair Necessary?

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OBJECTIVE: Nasal partial or total amputation reconstruc-
tions represent a challenge scenario for plastic surgeon. The
advances in microsurgical techniques have allowed facial
tissues to be replanted successfully. The most difficult chal-
lenge in nasal replantation is identifying an appropriated
donor vein for anastomosis, and in some cases the option is
to do an artery only anastomosis.1

The aim of this study was to assess if the mode of vascular
reconstruction affects the outcomes of nose reimplantation.

METHODS: A review was made by searching in EMBASE,
PUBMED, and SCOPUS the following keywords: “nose,”
“external nose,” “reimplantation,” “replantation,” and

“Surgical reimplantation” in different combinations, until
November 2020.

The inclusion criteria were articles with description of
microsurgical nasal reimplantation and in English. All arti-
cles with non-microsurgical reimplantation were excluded.

All variables were collected in an Excel chart. Statistical
analysis was performed using the Student t and the chi-
square, $P < 0.05$ being considered significant.

RESULTS: A total of 183 articles were found. After the
first stage, by eliminating duplicates and analyzing title and
abstract, we excluded 144. After a full text review, we fin-
ished with 27 articles, with 29 cases reports.

The microsurgical anastomosis were venous and artery
repair in 15 (51.7%) cases and 14 (48.3%) had only
artery anastomosis ($P = 0.85$). The overall medium age
was 29.6 years, and 18 ($P = 67.1$%) were men and 11
($P = 37.9$%) women. We did not find age ($P = 0.92$) and gender
($P = 0.59$) statistical difference.

The main etiology found was trauma (46.7%) in the venous
and artery repair group, and dog bite (57.1%) in the group
without venous anastomosis ($P = 0.40; P = 0.56$).

The medium ischemic time was 6 hours and 18 minutes for
the venous and artery repair group and 6 hours and 45 min-
utes for the only-artery anastomosis ($P = 0.75$). And medium
surgical time was 7 hours and 41 minutes in the first group,
and 4 hours and 30 minutes in the second ($P = 0.04$).

The overall medium hospital stay were 11.8 days, with no
statistical difference ($P = 0.73$).

Blood transfusion was necessary in 8 (53.3%) patients with
venous and artery repair, and in 5 (37.7%) in only artery ana-
ostomosis ($P = 0.4$). Leech therapy was utilized in 26.7% in the
first group, and in 71.4% in the second ($P = 0.01$, with no
statistical significance in the length of this therapy ($P = 0.17$).

There was no statistical difference among groups in the
reoperation rates ($P = 0.32$). Vein thrombosis was the main
complication in the venous and artery repair, occurring in
40% of cases ($P = 0.01$), and aesthetic defect and total
necrosis happened just in the only anastomosis patients,
however with no statistical difference ($P = 0.32; P = 0.16$).

CONCLUSION: The microsurgical repair for nose reim-
plantation is a safety technique, and even when artery-only
anastomosis was performed, it can lead to a successful
result.