

Vascularized bone grafts for scaphoid nonunion

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Nonunion rate: 10-15% overall (Kushner, Orthop Rev 1994)
35k/year in US (Osterman, Hand Clin 1988)

Risk factors: time from injury
Smoking
Proximal pole
AVN
Compliance

Options: ARIF, ORIF, ORIF+non-vasc graft, ORIF vasc graft, resection

Why vascularized?

Non-vasc grafts 94% success w/o AVN, 47% with AVN (Merrell JHS 2002)

Options:

1,2 intracomp (Zaidenberg): 71% overall, 50% w/ AVN (Chang, JHS 2006)
40% failure (Boyer, JHS 1998)
73% failure (Straw, JHS-E 2002)

vasc ICBG: 6 studies, 87% union
high donor morbidity (Harph, PRS 2001)

vasc MFC: Doi (JHS 2000)
Burger, H, Higgins, J (JHS 2013)
5 studies, 56 pts, 100% union
comparison to 1,2: 60% vs 0% failure (Jones, JBJS 2008)

versatility:

proximal pole arthroplasty (Higgins J Wrist Surg 2013)
Kienbock's, capitate reconstruction