Acutrak screw fixation versus cast immobilisation for undisplaced scaphoid waist fractures.

Off training for athletes

Exp-Group: 21 of 26 Patienten (mean reduction 17%) Control-group: 12 of 23 patients (mean reduction 12 %) not statistically significant

Exp-Group: 20 of 26 Patienten (mean loss 13%) Control-group: 12 of 23 patients (mean loss 6 %) (P<0.02)

Acta signs of concomitant fractures or ligament injuries similar to undisplaced types B1 or B2 of the Herbert and Fisher classification

Alho A, Kankaanpaa

fractured tubercle of scaphoid

 perilunar transscaphoid dislocation treated during the same period

trials with any intervention used to treat acute scaphoid fractures. For practical reasons they were grouped

2 Prospektive Kohortenstudien/a

2012

1. Non-operative interventions:

and metaanalysis

above elbow (long) cast).

Colles' cast with the wrist in flexion versus Colles' cast with the wrist in extension (P = 0.30)

grip strength

Colles' cast with the wrist in flexion versus Colles' cast with the wrist in extension significant reduction in the flexed wrist group (95% CI -7.77 -16.23 , P = 0.00001)

operative versus non-operative interventions:

higher rate of complications in the operative group (RD 10%, 95% CI: 5%-16%, P = 0.0004)

1 Systematic Review n/a

2004


Bleakley C, McDonough S, MacAuley D

and Fischer)

xxx 22 xxx xxx xxx xxx xxx xxx xxx xxx xxx yes xxx xxx xxx xxx xxx xxx xxx xxx xxx

xxx n/a

xxx 22 xxx xxx xxx xxx xxx xxx xxx xxx yes xxx xxx xxx xxx xxx xxx xxx xxx xxx

33 Patienten

n/a

retrospektive Fallserie mit Follow-Up

3

20% change their job, 40 % serious problems, 20-40% restriction of

n/a 732 62 33,2 420 307 xxx xxx yes (528 persons were followed up) no Dorsal plaster splint including thumb, 1942–1952

Böhler L, Trojan E, Jahna H.

Grip strength.

Surgical compared with conservative treatment

Time to reunion:

Exp-Group: 8 weeks Control-Group:15 weeks p = 0.0001

Recovery of function (ability to wash, dress, use cuttlery, write, work , drive a vehicle):

Exp-Group: 96% Control-Group: 100%
p=0,4

Pain

Beurteilung nach Wozasek u. Mose

Sehr gut: 30 Patientengut: 5 Patienten

n/a n/a

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Beurteilung nach Wozasek u. Mose

Sehr gut: 30 Patientengut: 5 Patienten

n/a n/a

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20% change their job, 40 % serious problems, 20-40% restriction of
We compared the functional outcome in 50 patients treated by percutaneous osteosynthesis or by a short-arm thumb cast after a minimum follow-up of 12 months. Patients who were not seen until two weeks or more after the injury, who had an associated perilunate dislocation, or who were rejected by the authors, and only fractures which were detected by both were entered into the study.

<table>
<thead>
<tr>
<th>Treatment</th>
<th>Exp-Group</th>
<th>Control Group</th>
</tr>
</thead>
<tbody>
<tr>
<td>Percutaneous</td>
<td>88.7± 38.6</td>
<td>103.9 ± 33.2N (p = 0.13)</td>
</tr>
<tr>
<td>Short-arm thumb cast</td>
<td>57 days (38 to 71)</td>
<td>13 years (10-23)</td>
</tr>
</tbody>
</table>

We did not find the palmar percutaneous approach for the treatment of acute nondisplaced or minimally displaced type B2 scaphoid fractures to be superior to the dorsal limited approach. The functional results and complication rate were comparable.

The data to date have demonstrated that the advantages of surgical fixation are transient, the possible complications of surgical fixation are incompletely understood. If the trend in favor of percutaneous screw fixation continues, that many patients may receive unnecessary surgery, contributing to escalating health care costs and exposing patients to avoidable risks.

Excellent: 13 Patients
Good: 2 Patients
Subjective functional assessment:

Resting pain
Exp-Group 92.5%
Control-Group: 95.0%
p= 0.301

Grip strength (compared with the uninjured hand)
Exp-Group: 29
Control-group: 34

ROM (compared with the uninjured hand)
Exp-Group: 3
Control-Group: 4
Motion of forearm, elbow, wrist was within the normal range in both groups.

Grip strength:
- Exp-Group: 29
- Control-group: 34

Excellent: 13 Patients
Good: 2 Patients
Subjective functional assessment:

There are very few complications reported with cast treatment. The incidence of nonunion with cast treatment was not higher compared to the uninjured hand: 98%

However, a below-elbow cast sufficient if a week 4 CT scan suggests fracture union?

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However, a below-elbow cast sufficient if a week 4 CT scan suggests fracture union?
Fracture union

it is the author's opinion that closed reduction should not be attempted in stage IIb when the lunate is

Patients

Additional procedures

Cancellous Bone grafting

Excellent: 131 (83%)
Fair: 25
Poor: 2

(40–160)

transscaphoid perilunate fracture-dislocations between January 1987 and January 1997

prospektive Fallserie mit Follow-Up

xxx

3

Herzberg G, Forissier D.

n.

Ice is not more effective than rehabilitation only.

n/a

Continuous cryotherapy was associated with a significantly greater decrease in pain after surgery than intermittent cryotherapy.

The postoperative cast immobilization time seems to influence limitations in the range of wrist motion.

Grade 2: 11 Patients
Grade 3: 24 patients

linear type: 2.3 months (SD 0.60)
cystic type: 3.5 months (SD 1.1)

... treated with ultrasound: 3.3 months (SD 0.49)

Patients treated without ultrasound: 3.6 months (SD 1.3) (p=0.62).

Inoue G, Imaeda T.

analysis (363 patients)

... surgical treatment nonsurgical treatments

pooled odds ratio: 3.25 (95% CI: 0.073, 14.39; P= .120, I²=65.4%)->in favor of surgery

osteoarthritis of the scaphotrapeziotrapezoid joint

overall percentage difference: (2.6%; 95% CI: 0.013, 0.066; P=90, I²= 0%)

DASH Score

PRWE Score

Hand) averaged 11.3 and 14.2 points,

... more than 10% loss of movement  compared with the uninjured hand

mean range of motion (flexion and extension):          

J Trauma

2008

... more than 20% loss of grip strength compared with the uninjured hand

Grip Strength, compared to the contralateral hand

mean range of motion (flexion and extension):          

J Hand Surg Am

2007

...  and the other 3 groups.

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mean range of motion (flexion and extension):          

J Hand Surg Am

2007

...  and the other 3 groups.

DASH Score

PRWE Score

Hand) averaged 11.3 and 14.2 points,
established nonunion of an undisplaced fracture of the scaphoid

Group 1 underwent percutaneous fixation

ROM was 40.9° (30° to 60°), 50.6° (35° to 70°), 5.6° (0° to 15°) and 15.3° (10° to 25°) for extension, flexion, radial

We concluded that extensive resorption at the fracture
treated by casting xxx xxx xxx xxx n/a
time to heal:

operative group:

Abstand
two patients had

1. unstable fractures
2. generalized skeletal disorders
3. pathological fractures
4. age of the fracture > 10 days at time of diagnosis

The purpose of this study was to further investigate the outcome and functional results of percutaneous compared with cast immobilisation of fractures of the screw fixation waist of the scaphoid.

Mayr E, Rudzki MM, Rudzki M et al

J Bone Joint Surg Br

was whetherthis therapy also accelerates healing of fresh stable scaphoidfractures.

Although the patients in the operative group regained their grip and pinch strength as well as the ROM more quickly in the...

no intraoperative complications
no cases of wound infection, reflex

dysraphy, scar pain or hypertrophy

for comparison of treatment in patients with AVN, data were available from 7 studies with a total of 64...

tomography in only 1 of these 7 studies. Union was achieved more often in those patients receiving a vascularized
graft combined with either screw or K-wire fixation compared with nonvascularized wedge grafts and

Most patients can be treated in a cast with reliable and predictable results although with a potentially higher risk of ...

but should be balanced with a potential 30% complication rate which is important to discuss when counselling patients.

Adolfsson et al., 2001, cas: 11
Bond et al., 2001, cas: 17
Dias et al., 2005, cas: 18
McQueen, et al., 2008,  cas: 18
Vinnars et al., 2007,  cas: 14

Studies selected were original...

Level of evidence (LoE)

Adolfsson et al., 2001, LoE: 2b
Bhandari and Hanson, 2004, LoE: 2a
Bond et al., 2001, LoE: 1b
Bongers and Ponsen, 1980, LoE: ...

Studies: Randomised Controlled

Level of evidence (LoE)

excellent 27, good 4,  fair 1

We describe the technique of arthroscopic treatment of perilunate dislocations and fracture-dislocations, and report the clinical results of our three cases

At 16 months' follow-up, the patient was pain free and had returned to his previous occupation with full duties. The flexion-

average time to union as seen on radiographs (weeks):

overall radiographic union rate:

One athlete lacked 10° of dorsiflexion and 15° of palmar flexion.)

10 of 12 patients (Two patients had a mild decrease in grip strength (8% and 15%))

immobilization was limited to

transverse fractures regardless of the type of cast.

Exp-group 2 ± 1; control-group 12 ± 3;  (p < 0.01, t = -15.7)

Exp-group 5 ± 6; control-group 5 ± 6; not significant

grip strength injured hand compared with uninjured hand:

range of motion compared with uninjured hand:

radiographs:

1985

Handchir Mikrochir Plast Chir

Studies: Randomised Controlled

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grip strength injured hand compared with uninjured hand:

range of motion compared with uninjured hand:

radiographs:
This systematic review suggests that surgery may reduce rates of non-union in the treatment of acute scaphoid fractures. Some experts suggest that proximal pole fractures should undergo fixation as there is a higher rate of nonunion.

The difference between surgical and nonsurgical treatment groups is greatest at 8 weeks (Weighted Mean Difference, 23%), decreases with time and is no longer significant after 1 year.

<table>
<thead>
<tr>
<th>Methodological quality measured in assessment targets</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
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</tbody>
</table>

Grip strength:
- Dias (2005): 91%
- Vinnars (2007): 82%
- McQueen (2008): 76%
- Bond (2001): 71%
- Gellmann (1989): 67%
- Saeden (2001): 59%
- Alho (1975): 56%
- Clay (1991): 56%
- Adolfsson (2001): 50%
- Hambidge (1999): 48%

Exp-group: 33 ± 6 degrees
Control-group: 35 ± 6 degrees (p < 0.01)

To determine whether the screw placement, which has been shown to affect times to union, was more accurate with use of operative fixation of an acute displaced fracture of the waist of the scaphoid treated with internal fixation with a cannulated screw.

Exp-group: 38 kg (80 ± 11 percent of the strength on the contralateral side)
Control-group: 42 kg (79 ± 16 percent of the contralateral side)

Exp-group: 86 ± 8 percent
Control-group: 86 ± 7 percent

Pain and irritation related to a prominent wire.

J Bone Joint Surg Am

Trumble TE, Gilbert M, Murray LW et al.

Experimental versus control groups: nonoperative treatments.

Nonunion after 3 months:
- Exp-group: 29 patients
- Control-group: 29 patients
- Normal: Exp-group: 29 patients, Control-group: 29 patients
- Less but acceptable: Exp-group: 11 patients, Control-group: 6 patients
- Osteoarthritis in the scaphotrapezial joint with CT: Exp-group: 29 patients, Control-group: 29 patients

Exp-group: 3 points, Control-group: 4 points
Exp-group: 6 points, Control-group: 6 points
Exp-group: 0, Control-group: 0

Implant-related complication:
- Exp-group: 2:
- Control-group: 0

Accidental partial soft-tissue injury:
- Exp-group: 1 patients
- Control-group: 1 patients

Malpositioning of screw with reactive erosion of, or injury to, opposite joint surface:
- Exp-group: 16 patients (11%)
- Control-group + Control-group 2: 6 patients (18.2%)
- Control-group 3: 8 patients

Superficial wound infection:
- Exp-group: 1 patients
- Control-group: 1 patients

Neurovascular injury:
- Exp-group: 1 patients
- Control-group: 1 patients

Syndrome:
- Exp-group: 1 patients
- Control-group: 1 patients

Partial avascular necrosis (stage 1):
- Exp-group: 1 patients
- Control-group: 0 patients

Osteoarthritis in the scaphotrapezial joint with CT, (p = 0.005)

Randomized or quasirandomized clinical trials with results published as a full report in the English literature.

We sought to answer whether operative fixation of an acute scaphoid fracture was more...
Tomosynthesis can demonstrate occult scaphoid fractures not visible at radiography. Gooding A, Coates M, Rothwell A. Skeletal Radiol. 33 persons (64 wrists) 20 scans of female mean 28 (19-53) 33 xxx xxx xxx 1 drop out (not rated from one radiologist) xxx MRI scans of healthy volunteers healthy volunteers xxx xxx xxx n/a acute fractures of the scaphoid n/a 32 2 32 (18 - 66) 32 32 xxx xxx yes (0) xxx We studied the fractures of the scaphoid one to two weeks after injury, by MRI with injection of gadolinium. We have investigated whether assessment of blood flow to the proximal scaphoid can be used to predict nonunion in acute fractures of the scaphoid. MRI assessment: Zur Vermeidung einer Pseudarthrose und deren Folgen für die gesamte Handwurzel müssen Skaphoidfrakturen sicher erkannt ... sowohl die CT zur morphologischen Charakterisierung als auch die MRT für den Vitalitätsnachweis des proximalen Fragments.

The purpose of the present study is to validate the use of early CT compared with the current diagnostic algorithm for clinical fractured scaphoid. MRI assessment: It would appear that the CT scan is at present a rapid, simple, and relatively inexpensive method by which to demonstrate or rule out a clinically suspected fracture of the scaphoid bone. 21 fractures of wrist bones in 20 patients demonstrated at MR imaging were not seen on the initial palin radiographs. On MRI, a fracture was visible in a patient with a normal radiograph. Negative predictive value:

Radiology: The multi-rater kappa reliability was 0.27 (95% confidence interval, kappa = 0.17 to 0.36; p < 0.01) (fair agreement) for the radiographic analysis, 0.43 (95% confidence interval, kappa = 0.32 to 0.52; p < 0.01) (moderate agreement) for the CT analysis, and 0.63 (95% confidence interval, kappa = 0.51 to 0.75; p < 0.01) (substantial agreement) for the MRI analysis. CT and MRI were more accurate than radiography in the detection of scaphoid fractures. CT and MRI were more accurate than radiography in the detection of scaphoid fractures. CT and MRI were more accurate than radiography in the detection of scaphoid fractures. CT and MRI were more accurate than radiography in the detection of scaphoid fractures.

All patients with a wrist trauma who visited the emergency department during the period January 6, 2000, to January 1, 2002, were treated in a below-elbow cast with the patient's wrist in neutral position. All the fractures which were categorized as displaced by both observers were considered for inclusion in this study. High-resolution sonography is a reliable and accurate method of evaluating occult fractures of the scaphoid waist. Cortical disruption is the diagnostic key. Soft-tissue abnormalities alone lack specificity.

Patients with initial radiographievidence of a scaphoid fracture were excluded from the study. Between the MRI and control groups one month, two months, and three months after injury. There was a trend towards a higher prevalence of nonunion in the MRI group. Recommodation Studientyp Primäre Hypothese Objectives Einschlusskriterien Ausschlusskriterien Anzahl eingeschlossener Teilnehmer Krankenhaus Einrichtung 1. Studientyp Primäre Hypothese Objectives Einschlusskriterien Ausschlusskriterien Anzahl eingeschlossener Teilnehmer Krankenhaus Einrichtung 2. Diagnose-instrument Dauer Follow-Up Primäre Zielgröße Sekundäre Zielgrößen Schlussfolgerung der Autoren Bemerkungen.
Our clinical experience has shown that many carpal bone fractures are radiographically occult and detectable only on CT imaging. An avulsion fracture emphasizes the need for specific radiographic views or cross-sectional imaging for fracture detection. For scaphoid fractures, the correlation between radiographic and CT results is 81%. For lunate fractures, the correlation is 0%. For triquetrum fractures, the correlation is 20%. For pisiform fractures, the correlation is 100%. For trapezium fractures, the correlation is 67%. For trapezoid fractures, the correlation is 0%. For capitate fractures, the correlation is 0%. For hamate fractures, the correlation is 40%. For distal radius fractures, the correlation is 100%. For ulna fractures, the correlation is 100%. For proximal metacarpals, the correlation is 75%.

A systematic review and meta-analysis of diagnostic studies found that for scaphoid fractures, sensitivity is 73%, specificity is 50%, positive predictive value is 86%, negative predictive value is 31%, and accuracy is 68%. For trapezium fractures, sensitivity is 68%, specificity is 33%, positive predictive value is 93%, negative predictive value is 8%, and accuracy is 66%. For lunate fractures, sensitivity is 0%, specificity is 100%, positive predictive value is 100%, negative predictive value is 100%, and accuracy is 100%.

For axial loading of the thumb, sensitivity is 70%, specificity is 36%, positive predictive value is 75%, negative predictive value is 31%, and accuracy is 61%. For pronation of the forearm, sensitivity is 89%, specificity is 99%, positive predictive value is 99%, negative predictive value is 99%, and accuracy is 99%.

We hypothesized that patients who had a history of a fall on the outstretched hand and developed tenderness at the wrist may have a scaphoid fracture. Some physical examination signs of the wrist may help to predict the presence of bone injuries. The interobserver agreement as well as the sensitivity of the repeated radiographs alone is unacceptably low. Scintigraphy rather than repeated radiography is recommended for these cases. The sensitivity of bone scintigraphy is 64% (95% CI 44–81%). For MRI, sensitivity is 96%, specificity is 93%, positive predictive value is 98%, negative predictive value is 98%, and accuracy is 98%.

The results of this study indicate that bone scintigraphy rather than repeated radiography is necessary for accurate diagnosis of scaphoid fractures. According to the existing literature, MRI is the best diagnostic radiological test for triage of suspected scaphoid fractures. MRI is not readily available, but all other tests are better for ruling out a fracture than for definitively ruling it in.

We recommend the use of bone scintigraphy rather than repeated radiography for the diagnosis of scaphoid fractures. According to the American College of Radiology (ACR) Appropriateness Criteria, acute hand and wrist trauma should be evaluated using cross-sectional imaging. A CT scan is recommended when there is a question about the age of a scaphoid fracture or its healing. The panel recommends using CT examination in these situations.
### Factors associated with arthroscopically determined scaphoid fracture displacement and instability

Buijze GA, Jorgsholm P, Thomsen NO et al.  
Factors associated with arthroscopically determined scaphoid fracture displacement and instability  
J Hand Surg Am 2012 3  
Prognostic study

We tested the null hypothesis that there was no relationship between fracture location relative to the apex on the dorsal ridge of the scaphoid and arthroscopically evaluated scaphoid fracture displacement and instability.

To identify factors associated with arthroscopically diagnosed scaphoid fracture displacement and instability.

<table>
<thead>
<tr>
<th>Age (y)</th>
<th>Sex</th>
<th>Trauma energy</th>
<th>Comminution</th>
<th>Location</th>
<th>Location relative to apex</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
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<td></td>
<td></td>
<td></td>
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<tr>
<td>18 y or greater</td>
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</tr>
<tr>
<td>Isolated fracture of the scaphoid</td>
<td></td>
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<tr>
<td>No previous history of trauma to the affected wrist</td>
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</tbody>
</table>

In multivariable analysis, comminution was the only variable that was significant. The odds of a comminuted fracture correlating with displacement were 50 times higher than in nondisplaced fractures.

Analysis of Factors Associated With Arthroscopically Diagnosed Displacement (ND=Nondisplaced; DI=Displaced)

- **Age (y):**
  - ND: 34.7 (18–76); DI: 33.2 (20–71); p = .76
- **Sex:**
  - p = .35
- **Male (%):**
  - ND: 22 (71); DI: 22 (81)
- **Female (%):**
  - ND: 9 (29); DI: 5 (19)
- **Trauma energy:**
  - p = .83
- **Low (%):**
  - ND: 21 (68); DI: 19 (70)
- **High (%):**
  - ND: 10 (32); DI: 8 (30)
- **Comminution:**
  - p < .001
  - No (%): ND: 30 (97); DI: 9 (33)
  - Yes (%): ND: 1 (3); DI: 18 (67)
- **Location:**
  - p = .25
  - Proximal third (%): ND: 3 (10); DI: 0
  - Middle third (%): ND: 26 (84); DI: 26 (96)
  - Distal third (%): ND: 2 (6); DI: 1 (4)
- **Location relative to apex:**
  - p = .08
  - Proximal (%): ND: 11 (35); DI: 5 (19)

Our data suggest that scaphoid fracture relative to the apex of the dorsal ridge is not associated with arthroscopically diagnosed displacement and instability.

Fracture comminution is strongly associated with both displacement and instability. The clinical relevance of the mobility between well-aligned fracture fragments (instability) is unknown.

### Perilunate dislocations and fracture-dislocations: a multicenter study

Herzberg G, Comtet JJ, Linscheid RL et al.  
Perilunate dislocations and fracture-dislocations: a multicenter study  
J Hand Surg Am 1993 4  
Fallserie, Prognostic study

Perilunate dislocations (PLD) and fracture-dislocations (PLFD) are rare. The purpose of this survey is to study the distribution of the different forms and provide additional information about the factors of prognosis.

Only the charts in which the initial lateral x-ray films showed a true dislocation of the head of the capitate from the lunate cup were considered, thus excluding subluxations and possibly excluding some dislocations that reduced spontaneously.

<table>
<thead>
<tr>
<th>Distribution (166 Cases)</th>
</tr>
</thead>
<tbody>
<tr>
<td>PLD (n=56)</td>
</tr>
<tr>
<td>Dorsal, Stage 1: 28; Stage 2: 27</td>
</tr>
<tr>
<td>Palmar, Stage 1: 0; Stage 2: 1</td>
</tr>
<tr>
<td>PLFD (intact scaphoid, n = 6)</td>
</tr>
<tr>
<td>Dorsal, Stage 1: 2; Stage 2: 2</td>
</tr>
<tr>
<td>Palmar, Stage 1: 2; Stage 2: 0</td>
</tr>
<tr>
<td>TS-PLFD (trans-scaphoid, n = 104)</td>
</tr>
<tr>
<td>Dorsal, Stage 1: 82; Stage 2: 20</td>
</tr>
<tr>
<td>Palmar, Stage 1: 2; Stage 2: 0</td>
</tr>
</tbody>
</table>

Among the treated cases, the prognosis of PLD and PLFD was more influenced by the open nature of the injury and delay in treatment than by the anatomical type. Whatever the anatomical type, early treatment of PLD and PLFD is needed.

Thus, based on this series, our preferred treatment of PLD and PLFD is ORIF.
| Author | Paper | Journal | Issue | Page | Year | ISSN | Study Design | Setting | Objectives | Inclusion Criteria | Exclusion Criteria | Population at Risk | Number of Participants | Analysis Strategy | Follow-up Duration | Primary Endpoints | Secondary Endpoints | Exclusion Criteria | Follow-up Duration | Study Conclusion | Interpretation |
|--------|-------|---------|------|-----|------|-----|-------------|--------|-------------|-----------------|-----------------|-----------------|---------------------|-----------------|-------------------|-----------------|-----------------|-------------------|-------------------|-----------------|------------------|-----------------|
| Duckworth AD, Jenkins PJ, Aitken SA, Clement ND, Court-Brown CM, McQueen MM | Scaphoid fracture epidemiology | J Trauma Acute Care Surg, 2012 | 3 | 2 | 2012 | 0449-2004 | Local non-random sample | Edinburgh Orthopaedic Trauma Unit | to describe the epidemiology of true scaphoid fractures in a defined adult population | participants who sustained a radiographically confirmed acute fracture of the scaphoid in the population served by Edinburgh Orthopaedic Trauma Unit over 5 years | ≥13 years of age; patients who presented to the unit and lived within the local catchment area | - | 1,315 patients; 514 fractures; mean age 38.5 years (range 19-87) | 29 per 100,000 population (95% CI, 25-34) | median age of injury: males: 25 years (range, 14–75), females: 40 years (range, 14–87) (p=0.002) | mechanism of injury: 41% fall (low energy), 9% fall (high energy), 11% bicycle, 3% MVC, 24% contact/collision sport, 11% assault/direct blow | Herbert classification: 15% A1, 17% A2, 21% B1, 36% B2, 6% B3, 2% B4, 3% B5 | 16% | We have reported the incidence of true scaphoid fractures from a large defined population, with young men found to be at an increased risk of sustaining a fracture. Knowledge of the true incidence of scaphoid fractures and an understanding of the demographic risk factors associated with a fracture are essential when assessing the expected fracture. This is a particular area when considering further imaging modalities such as computed tomography or magnetic resonance imaging. |
| Holloway KL, Moloney DJ, Brennan-Olsen SL, Kotowicz MA, Bucki-Smith G, Morse AG, Timney EN, Dobbins AG, Hyde NK, Pasco JA | Carpal and scaphoid fracture incidence in south-eastern Australia: an epidemiologic study. | Arch Osteoporos, 2015 | 3 | 1 | 2015 | 1621-8106 | Local non-random sample | Barwon Statistical Division | to report the incidence of carpal bone fractures (scaphoid and non-scaphoid) amongst residents from the Barwon Statistical Division over 2 years | patients living in the Barwon Statistical Division over 15 years; fractures with the ICD-9 Code of 814 (carpal) | individuals with fractures who lived outside of the BSD | 212 carpal fractures (261 scaphoid, 51 non-scapoid) | Overall: 42.5 per 100,000 persons per year (95% CI 41.5-43.5), female: 15.1 per 100,000 persons per year (95% CI 14.6-15.6), male 70.6 per 100,000 persons per year (95% CI 69.4-71.7) | median age of injury: males: 34.5 years, females: 38.5 years; All carpal fractures: males: 26.2 years, females: 45.7 years | Side of fracture: scaphoid fractures: left: 79, right: 82; all carpal fractures: left: 101, right: 111 | 16% | Males mainly sustained fractures during young adulthood, whilst females sustained fractures during adolescence and postmenopause. The incidence rates for both scaphoid and non-scaphoid fractures were substantially higher in males than in females. Based on the pattern we observed, scaphoid fractures do not seem to follow a pattern typical of osteoporotic fracture. |
| Arden OJ, Brandt K, Shaw M | Epidemiology of scaphoid fractures in Scotland, Scotland. | J Orthop Res, 1982 | 3 | 4 | 1982 | 0736-0361 | Local non-random sample | Scotland | to determine the age-specific incidence of scaphoid fractures and compare our data with other studies | patients living in the Edinburgh municipality | - | 75,000 to 75,800 in 1980 to 1982 | 29 fractures | 47 (94%) | Associated injuries: main: 8%, female: 3%; Location of fractures: 60% wrist, 10% hand | 6% | Males mainly sustained fractures during young adulthood, whilst females sustained fractures during adolescence and postmenopause. The incidence rates for both scaphoid and non-scaphoid fractures were substantially higher in males than in females. Based on the pattern we observed, scaphoid fractures do not seem to follow a pattern typical of osteoporotic fracture. |
| Hove LM | Epidemiology of scaphoid fractures in Bergen, Norway. | Acta Orthop Scand, 1999 | 3 | 1 | 1999 | 0001-6499 | Local non-random sample | Bergen, Norway | to find out the annual incidence and the age-specific incidence of fractures of the scaphoid bone in a defined adult population | patients living in the Bergen municipality | - | 211,719 to 214,818 in 1983 to 1985 | 211 fractures | 47 (22%) | Associated injuries: main: 8%, female: 3%; Location of fractures: 60% wrist, 10% hand | 6% | Males mainly sustained fractures during young adulthood, whilst females sustained fractures during adolescence and postmenopause. The incidence rates for both scaphoid and non-scaphoid fractures were substantially higher in males than in females. Based on the pattern we observed, scaphoid fractures do not seem to follow a pattern typical of osteoporotic fracture. |