

Komplexe Kniechirurgie - 1. Jahreskongress DKG - 2012

Erweiterte arthroskopische Zugangswege beim Knieinfekt



Stefan Hinterwimmer
www.sportortho.de



ASK Zugänge beim Knieinfekt



- Literatursuche
- Grundlagen zum "Knieinfekt"
- Fragen und Antworten



Literatursuche

PubMed | **Search** | **Advanced**

Search Results | **1 to 20 of 3613**

Display Settings: Summary, 20 per page, Sorted by Recently Added

Filters: **Match Filters**

Text availability: Abstract available, Free full-text available, Full-text available

Publication dates: 5 years, 10 years, Custom range...

Species: Humans, Other Animals

Article types: Clinical Trial, Meta-Analysis, Practice Guideline, Randomized Controlled Trial, Review, Systematic Reviews, more...

Languages: English, more...

Clear all

Show additional filters

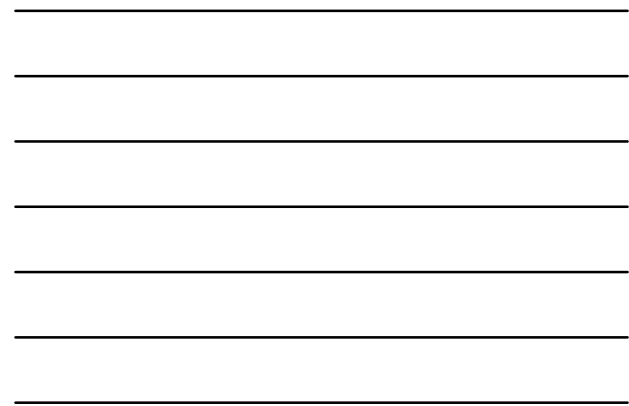
Results:

- Contributions to enhanced activity in rectus femoris in response to Lokomat-assisted rehabilitation.**
 Kijner T, Broun JS, Carpenter MG, Lam T.
Exp Brain Res. 2012 Nov 28. [Epub ahead of print].
 PMID: 23102228 [PubMed] - as supplied by publisher
- Knee Joint Loading during Gait in Healthy Controls and Individuals with Knee Osteoarthritis.**
 Kumar D, Mandl KT, Rudolph KS.
Osteoarthritis Cartilage. 2012 Nov 22. doi: 10.1016/j.joca.2012.11.008. [Epub ahead of print].
 PMID: 23102814 [PubMed] - as supplied by publisher
- Gonion cyst of the temporomandibular joint.**
 Savolainen JJ, Kalkkio J.
J Oral Maxillofac Surg. 2012 Nov 20. doi: 10.1016/j.joms.2012.10.028. [Epub ahead of print].
 PMID: 23117758 [PubMed] - as supplied by publisher
- Human joint recovery using wireless inertial measurement units.**
 Liu JF, Kulk D.
PLoS One. 2012 Nov 23;7(11):e49215. [Epub ahead of print].
 PMID: 23116587 [PubMed] - as supplied by publisher

PMC Images search for knee approach

Titles with your search terms

Approach to the active patient with chronic anterior knee pain...
 Pain management after total knee arthroplasty using a multimodal approach [Ortopedia]. 2012
 Effects of an integrated approach of hatha yoga therapy on falls [J Altern Complement Med. 2012



PubMed | **Search** | **Advanced**

Search Results | **1 to 20 of 247**

Display Settings: Summary, 20 per page, Sorted by Recently Added

Filters: **Match Filters**

Text availability: Abstract available, Free full-text available, Full-text available

Publication dates: 5 years, 10 years, Custom range...

Species: Humans, Other Animals

Article types: Clinical Trial, Meta-Analysis, Randomized Controlled Trial, Review, Systematic Reviews, more...

Languages: English, more...

Clear all

Show additional filters

Results:

- Double-bundle versus single-bundle reconstruction for anterior cruciate ligament rupture in adults.**
 Tamkang T, Samranon S, Fochsaron T, Lappaboon M.
Cochrane Database Syst Rev. 2012 Nov 14. [11 CD009413. doi: 10.1002/14651858.cd009413.pub2].
 PMID: 23102268 [PubMed] - in process
- Risk of revision for fixed versus mobile-bearing primary total knee replacements.**
 Namba RS, Inacio MC, Paxon EW, Alao CF, Wang C, Gross TP, Marinso-Dabic D, Bedrakian A.
J Bone Joint Surg Am. 2012 Nov 7;94(22):1930-5. doi: 10.2196/jbjs.knee.2012.09.001.
 PMID: 23102250 [PubMed] - in process
- Early onset septic hip and knee joint infection: treatment and outcomes in Victoria, Australia.**
 Peck TN, Cheng AC, Cheong PF, Basing KL.
J Hosp Infect. 2012 Dec;81(4):246-53. doi: 10.1016/j.jhin.2012.09.005. [Epub 2012 Oct 22].
 PMID: 2308422 [PubMed] - in process
- A posterior inverted L-shaped approach for the treatment of posterior ilioacral tibial plateau fractures.**
 He X, Ye P, Hu Y, Huang L, Zhang F, Liu Q, Ruan Y, Luo C.
Arch Orthop Trauma Surg. 2012 Oct 19. [Epub ahead of print].
 PMID: 2308422 [PubMed] - as supplied by publisher
- Removal of infected cemented tibial knee prostheses using extended femoral and tibial osteotomies: Six cases.**
 Massin P, Boyer P, Sabourin M, Jeanrot C.
Orthop Traumatol Surg Res. 2012 Nov;98(7):845-8. doi: 10.1016/j.otsr.2012.08.016. [Epub 2012 Oct 6].
 PMID: 2304681 [PubMed] - in process

Search details:

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["knee" OR "knee joint" OR "knee joint replacement" OR "knee joint reconstruction" OR "knee joint infection" OR "knee joint arthroscopy" OR "knee joint surgery" OR "knee joint trauma" OR "knee joint fracture" OR "knee joint dislocation" OR "knee joint instability" OR "knee joint laxity" OR "knee joint pain" OR "knee joint swelling" OR "knee joint redness" OR "knee joint warmth" OR "knee joint tenderness" OR "knee joint locking" OR "knee joint catching" OR "knee joint clicking" OR "knee joint popping" OR "knee joint grinding" OR "knee joint crepitus" OR "knee joint instability" OR "knee joint laxity" OR "knee joint pain" OR "knee joint swelling" OR "knee joint redness" OR "knee joint warmth" OR "knee joint tenderness" OR "knee joint locking" OR "knee joint catching" OR "knee joint clicking" OR "knee joint popping" OR "knee joint grinding" OR "knee joint crepitus"] AND

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Recent activity:

- knee approach infection (247)
- knee approach knee (2413)
- access knee (509)



PubMed | **Search** | **Advanced**

Search Results | **1 to 20 of 12**

Display Settings: Summary, 20 per page, Sorted by Recently Added

Filters: **Match Filters**

Text availability: Abstract available, Free full-text available, Full-text available

Publication dates: 5 years, 10 years, Custom range...

Species: Humans

Article types: Review, more...

Languages: English, more...

Clear all

Show additional filters

Results:

- Graft selection in arthroscopic anterior cruciate ligament reconstruction.**
 Romanin E, D'Angelo F, De Masi S, Adiani E, Magaletti M, Lacorte E, Liriochuta P, Sagolca L, Moricano C, Mele A.
J Orthop Traumatol. 2012 Dec;11(4):211-8. [Epub 2012 Dec 23. Review].
 PMID: 23118223 [PubMed] - indexed for MEDLINE Free PMC Article
- Analysis of postoperative knee results after retrograde nail insertion of open femoral shaft fractures.**
 Ortoleva RV, Richey K, Carrasco LA, Henneky M, Scapini MF, Shi LL, Woodford M, Harris MB.
J Orthop Trauma. 2012 Nov;24(11):677-82.
 PMID: 23019201 [PubMed] - indexed for MEDLINE
- The medial closed-wedge osteotomy of the distal femur for the treatment of unicompartmental lateral osteoarthritis of the knee.**
 Pabinger D, van Heerwaarden R, Staud A, Lubochhofer P.
Oper Orthop Traumatol. 2012 Jul;22(3):317-34. German.
 PMID: 23019202 [PubMed] - indexed for MEDLINE
- Knee arthroplasty.**
- Jerry JF, Lortie-Jacob A, Boisvertout P, Zerkal O, Pujol N, Ziza JM, Gaudin J.**
Rev Chir Orthop Reparatrice Appar Mot. 2008 Dec;92(8 Suppl):484-54. French.
 PMID: 19262020 [PubMed] - indexed for MEDLINE
- The Oxford medial unicompartmental knee replacement using a minimally-invasive approach.**
- Pandit H, Jenkins C, Baker K, Dodd CA, Murray DW.**
J Bone Joint Surg Br. 2005 Jun;87(6):84-92.

Search details:

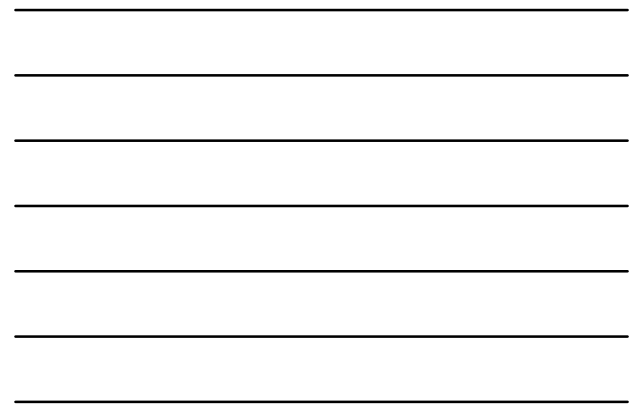
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```

Recent activity:

- knee approach infection arthroscopy (12)
- knee extended approach infection (9)
- knee approach infection (247)
- approach knee (2613)



Diagnostik und arthroskopische Therapie von Gelenkinfekten

→ Septic Arthritis

PubMed

Sportorthopädie TU München

PubMed

Sportorthopädie TU München

Diagnosis Settings: Summary, 20 per page, Sorted by Relevance

Text availability
 Abstract available
 Free full text available
 Full text available

Publication dates
 5 years
 10 years
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Species
 Humans
 Other Animals

Article types
 Clinical Trial
 Randomized Controlled Trial
 Review
 Systematic Reviews
 more...

Languages
 English
 more...

Clear All

Show additional filters

See 1 citation found by title matching your search:
 Septic arthritis of the knee in adults: treatment by arthroscopy or arthrotomy. Witte DC et al. Int Orthop. (2007)

Results: 1 to 20 of 154

1. Poor agreement between data from the National Patient Registry and the Danish Patient Insurance Association.
 Maphahle B, Bartholdy J, Christoffersen JK, Engbak J, Møller AM.
 Dan Med J. 2012 Jun;59(5):A4430.
 PMID: 22677224 (PubMed - in process) Free Article
 Related citations

2. Arthroscopic removal of an intraarticular abscess from the knee.
 Diaz Martin AA, Guerrero-Moyano N, Salinas-Sánchez P, Guisasa-Parras E.
 Acta Ortho Mex. 2011 Jul-Aug;25(4):223-6. Spanish.
 PMID: 22209048 (PubMed - indexed for MEDLINE)
 Related citations

3. Danaher PJ, Mueller WP.
 Int Med. 2011 Dec;70(12):1444-8.
 PMID: 22238283 (PubMed - indexed for MEDLINE)
 Related citations

4. [Diagnostic arthroscopy resulting from H1N1 viral pneumonia].
 Igner U, Krenn V, Blaus L.
 Z Rheumatol. 2012 Feb;71(2):142-6. German.
 PMID: 22517188 (PubMed - indexed for MEDLINE)
 Related citations

5. Septic arthritis of the knee: presentation of a novel irrigation-suction system tested in a cadaver.
 Illuzi.
 Anandharp A, Abrecht D, Schröder S, Heit B, Wisse K, Dolderer JH.
 BMC Musculoskelet Disord. 2011 Aug 7;12:180.
 BMC. URL: http://dx.doi.org/10.1186/1471-2475-12-180. Free Article

Filters: Maximal Filters

7 free full-text articles in PubMed Central
 Septic arthritis of the knee: presentation of a novel irrigator [BMC Musculoskeletal Disord, 2011]
 Septic arthritis and Clostridium septicum in close to colon cancer [JGIM, 2010]
 No-hands technique for arthroscopy without of septic arthritis of [Ann R Coll Surg Engl, 2008]

Find related data
 Database: Select

Search details
 ("arthralgia" OR "infectious" OR "infection") AND "knee" OR "arthroscopy" AND ("arthralgia" OR "infectious" OR "infection") AND "knee" OR "arthroscopy" AND ("arthralgia" OR "infectious" OR "infection") AND "knee" OR "arthroscopy"

Recent activity
 Septic arthritis knee treatment arthroscopy [194]
 Septic arthritis knee treatment arthroscopy [154]
 Septic arthritis knee treatment [281]

PubMed

Sportorthopädie TU München

Diagnosis Settings: Summary, 20 per page, Sorted by Relevance

Text availability
 Abstract available
 Free full text available
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Publication dates
 5 years
 10 years
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 Humans
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Article types
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 more...

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 Anandharp A, Abrecht D, Schröder S, Heit B, Wisse K, Dolderer JH.
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 BMC. URL: http://dx.doi.org/10.1186/1471-2475-12-180. Free Article

Filters: Maximal Filters

7 free full-text articles in PubMed Central
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 Septic arthritis and Clostridium septicum in close to colon cancer [JGIM, 2010]
 No-hands technique for arthroscopy without of septic arthritis of [Ann R Coll Surg Engl, 2008]

Find related data
 Database: Select

Search details
 ("arthralgia" OR "infectious" OR "infection") AND "knee" OR "arthroscopy" AND ("arthralgia" OR "infectious" OR "infection") AND "knee" OR "arthroscopy" AND ("arthralgia" OR "infectious" OR "infection") AND "knee" OR "arthroscopy"

Recent activity
 Septic arthritis knee treatment arthroscopy [194]
 Septic arthritis knee treatment arthroscopy [154]
 Septic arthritis knee treatment [281]

Grundlagen

Inzidenz - iatrogen

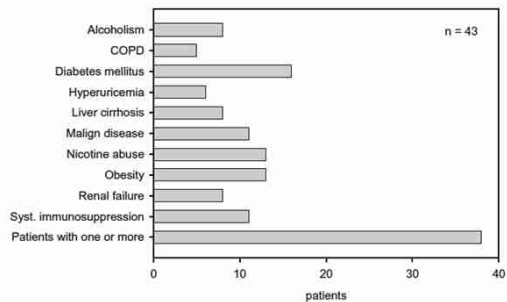
- Punktion → 0.03 %
- Cortisoninjektion → 0.10 %
- Diagnostische ASK → 0.20 %
- Therapeutische ASK → 0.23 %
- Kombiniert ASK / mini open → 0.32 %

Kirchhoff, Pat Saf Surg 2009

Risikoanstieg: durch OP-Dauer, OP-Zahl, Vor-OP s, Steroidinj.

Armstrong et al., Arthroscopy 1992

Risikofaktoren



Kirchhoff et al., Int Orthop 2008

Klinik



Variable	No. of Studies	Sensitivity, % (95% CI)
Joint		
Histo		
Fever	1	51 (32-62)
Sweats	2	27 (20-34)
Rigors	4	19 (15-24)

Cave Spezifität!

Margaretten et al., JAMA 2007

Punktion



- Erregernachweis → 60-100%
 - Falsch-negative Kulturen → bis 40%
- Parisien u Shaffer, Clin Orthop 1992*
- Staphylococcus aureus → 40-80%
 - Staphylococcus epidermidis, hämolysierende Streptokokken, Pneumokokken, Pseudomonas aeruginosa, Proteus mirabilis, E. coli, Hämophilus influenzae, Salmonellen → ≈20%

Kirchhoff et al., International Orthopaedics 2008

Erweiterte Diagnostik



- KM-CT → bei unklarem Befund, bei V.a. Streuung
- MRT → bei Verdacht auf Weichteilbeteiligung
- Szintigraphie → bei unklaren Befunden
- Szinti pos. → Artdiagnose der Speicherung nicht sicher
- Szinti neg. → Infektion unwahrscheinlich

Wukich et al., J Bone Joint Surg Am 1987

Stadieneinteilung



- I Trüb- seröser Erguss, Synovialitis, mögliche petechiale Blutungen, keine rad. Veränderungen
- II Eitriger Erguss, Fibrinablagerungen, keine rad. Veränderungen
- III Synovialisverdickung und Kompartimentbildung (Bild des Badeschwamms), keine rad. Veränderungen
- IV aggressive Pannusbildung mit Infiltration und Unterminierung des Knorpels und Osteolysen und Zysten

Gächter, Hefte zur Unfallheilkunde 1988

Therapie - ASK



	wiederholte ASK	Infektfreiheit
Stadium-I	→ 5%	96%
Stadium-II	→ 52%	95%
Stadium-III	→ 75%	67%

91% erfolgreiche Behandlung (= Infektfreiheit) durch Kombination ASK Spülung & Antibiotikatherapie

Stutz et al., KSSTA 2000

Therapie - Antiseptika



- Antiseptikazusätze → irreversible Knorpelschädigung
Van Huyssteen et al., JBJS-Br 1999
- Antibiotikazusatz zur Spülflüssigkeit → Induktion chem. Synovitis
Lu et al., JBJS-Am 2004
- Ther. Wirkspiegel Synovia wie iv.
Nelson et al., N Engl J Med 1971
- Intraart. Antibiose (Schwämme, Ketten) → Induktion chem. Synovitis
Risiko von Verklebungen
Argen et al., Arch Intern Med 1996

Therapie - Drainage



Gute Resultate mit Überlaufspüldrainagen

Jackson et al., Arthroscopy 1985
Riel et al., Chirurg 1994

Saug-Spül-Drainage → Spülstraßenbildung, Keimaszension,
Pflegeaufwand erhöht

Thiery et al., Arthroscopy 1989
D'Angelo and Ogilvie-Harris, Arthroscopy 1988

Vakuum-Verband → Weichteilkonditionierung
→ Infekttherapie fraglich

Tautenhahn et al., Chirurg 2006

Sentinel-Drainage → Infektkontrolle

Paul et al., Orthopäde 2008
Kirchhoff et al., International Orthopaedics 2008

Fragen und Antworten



Fragen



Reichen „Standardportale“ aus ?

Muß der hintere Recessus exploriert werden ?

Können „alte“ Portale wiederverwendet werden ?

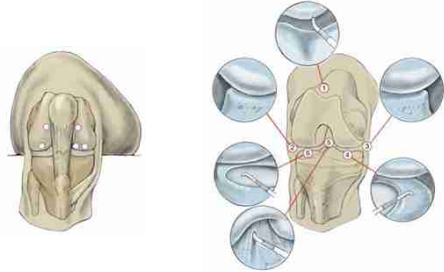
Ab wann offenes Vorgehen ?

Antworten



Reichen „Standardportale“ aus ? → Nein

→ Ja für Diagnostik, Nein für Therapie



Antworten



Muß der hintere Recessus exploriert werden ? → Ja

→ Diagnostisch von ventral, Therapeutisch von dors.-med.

→ Oberer Recessus: sup-lat. Portal



Antworten



Können „alte“ Portale wiederverwendet werden ? → Ja

→ evtl. ausschneiden

→ erweitert heißt nicht „Verbinden der einzelnen Portale...“



Antworten



Ab wann offenes Vorgehen ?




- | | | |
|------------------|---|--|
| Stadium I | → | ASK Gelenkspülung |
| Stadium II/III | → | ASK Debridement |
| Stadium IV | → | offenes Debridement |
| Befundpersistenz | → | frühzeitig Wiederholung, ggf. offenes Vorgehen |

CAVE: Erhalt der Synovialmembran als physiologische Barriere gegen die Ausbreitung des Infekts

*Jeon et al., JBJS Am Vol 2006
Kirchhoff et al., International Orthopaedics 2008*

Zusammenfassung



- n=98 ASK Knie (26x Behandlungsfehler)
- 21x Infektionen 
- 21x „schicksalhafter Verlauf“ 
- 10x falsche OP-Indikation
- 11x Behandlungsfehler
→ inadäquat / **zu spät** 

Gutachterkommission Ärztekammer Nordrhein

Komplexe Knie s DKG - 2012

Erweiterte Behandlungswege

Vie mit

- Grundkurs Knie
- OP-Workshop
- Physiotherapie-Workshop

22./23. März 2013

www.knorpelkurs2013.de

Knorpelkurs 2013

Wissenschaftliche Leitung und Organisation
Prof. Dr. med. Andreas B. Imort
PD Dr. med. Stefan Imort
Dr. med. Philipp Wenzel
Abteilung für Sportorthopädie
Technische Universität München
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