

## Vollständige Literatur zu „Leitlinien, Empfehlungen und Expertenmeinungen zur Viscosupplementation“ von Jörg Jerosch.

### Literatur

- Abate M, Scuccimarra T, Vanni D, Pantalone A, Salini V: Femoroacetabular impingement: is hyaluronic acid effective? *Knee Surg Sports Traumatol Arthrosc.* 2014; 22: 889–92
- Abate M, Schiavone C, Salini V: Hyaluronic acid in ankle osteoarthritis: why evidence of efficacy is still lacking? *Clin Exp Rheumatol.* 2012; 30: 277–81
- Abbott T, Altmann RD, Dirnig R et al.: Do hyaluronic acid injections delay total knee replacement surgery? *Arthritis Rheum* 2013; 65: 910–1
- Adverse effects associated with non-opioid and opioid treatment in patients with chronic pain. *Clin Drug Investig.* 2012; 32 Suppl 1: 53–63
- Aihara S, Murakami N, Ishii R et al.: Effects of sodium hyaluronate on the nociceptive response of rats with experimentally induced arthritis. *Nippon Yakurigaku Zasshi* 1992; 100: 359–65
- Atchia I, Kane D, Reed MR, Isaacs JD, Birrell F. Efficacy of a single ultrasound-guided injection for the treatment of hip osteoarthritis. *Ann Rheum Dis.* 2011; 70: 110–6
- Avouac J, Gossec L, Dougados M: Efficacy and safety of opioids for osteoarthritis: a meta-analysis of randomized controlled trials. *Osteoarthritis Cartilage* 2007; 15: 957–65
- Balazs E: The physical properties of synovial fluid and the specific role of hyaluronic acid. In Helfet AJ (ed) *Disorders of the knee.* Philadelphia: Lippincott, 1982: 61–74
- Bannuru RR, Schmid CH, Kent DM, Vaysbrot EE, Wong JB, McAlindon TE: Comparative Effectiveness of Pharmacologic Interventions for Knee Osteoarthritis: A Systematic Review and Network Meta-analysis. *Ann Intern Med.* 2015; 162: 46–54
- Bannuru RR, Vaysbrot EE, Sullivan MC, McAlindon TE: Relative efficacy of hyaluronic acid in comparison with NSAIDs for knee osteoarthritis: a systematic review and metaanalysis. *Semin Arthritis Rheum* 2014; 43: 593–99
- Bannuru RR, Vaysbrot EE, Sullivan MC, McAlindon TE: Relative efficacy of hyaluronic acid in comparison with NSAIDs for knee osteoarthritis: a systematic review and meta-analysis. *Semin Arthritis Rheum* 2013; 43: 593–9
- Bannuru RR, Natov NS, Dasi UR et al.: Therapeutic trajectory following intra-articular hyaluronic acid injection in knee osteoarthritis-metaanalysis. *Osteoarthritis Cartilage* 2011; 19: 611–19
- Bannuru RR, Natov NS, Obadan IE, Price LL, Schmid CH, McAlindon TE: Therapeutic trajectory of hyaluronic acid versus corticosteroids in the treatment of knee osteoarthritis: a systematic review and meta-analysis. *Arthritis Rheum* 2009; 61: 1704–11
- Bellamy N, Campbell J, Robinson V, Gee T, Bourne R, Wells G. Intraarticular corticosteroid for treatment of osteoarthritis of the knee. *Cochrane Database Syst Rev* 2006; CD005328 [review]
- Bjorndal JM, Ljunggren AE, Klovning A, Slørdal L: Non-steroidal anti-inflammatory drugs, including cyclo-oxygenase-2 inhibitors, in osteoarthritic knee pain: meta-analysis of randomised placebo controlled trials. *BMJ* 2004;329: 1317–22
- Blaine T, Moskowitz R, Udell J: Treatment of persistent shoulder pain with sodium hyaluronate: a randomized, controlled trial. *J Bone Joint Surg Am.* 2008; 90: 970–9
- Blieden M, Paramore LC, Shah D, Ben-Joseph R: A perspective on the epidemiology of acetaminophen exposure and toxicity in the United States. *Expert Rev Clin Pharmacol.* 2014; 7: 341–8
- Bruyère, Cooper C, Pelletier JP et al.: An algorithm recommendation for the management of knee osteoarthritis in Europe and internationally: A report from a task force of the European Society for Clinical and Economic Aspects of Osteoporosis and Osteoarthritis (ESCEO). *Semin Arthritis Rheum* 2014; 44: 253–63
- Campbell J, Bellamy N, Gee T: Differences between systematic reviews/meta-analyses of hyaluronic acid/hyaluronan/hylan in osteoarthritis of the knee. *Osteoarthritis Cartilage* 2007; 15: 1424–36
- Cardone DA, Tallia AF: Diagnostic and therapeutic injection of the hip and knee. *Am Fam Physician.* 2003; 67: 2147–52
- Chang KV, Hsiao MY, Chen WS, Wang TG, Chien KL: Effectiveness of intra-articular hyaluronic acid for ankle osteoarthritis treatment: a systematic review and meta-analysis. *Arch Phys Med Rehabil.* 2013; 94: 951–60
- Chevalier X, Jerosch J, Goupille P: Single, intra-articular treatment with 6 ml hylan G-F 20 in patients with symptomatic primary osteoarthritis of the knee: a randomised, multicentre, double-blind, placebo controlled trial. *Ann Rheum Dis.* 2010; 69: 113–9
- Colen S, van den Bekerom MP, Mulier M, Haverkamp D: Hyaluronic acid in the treatment of knee osteoarthritis: a systematic review and meta-analysis with emphasis on the efficacy of different products. *BioDrugs* 2012 ;26: 257–68
- Conrozier T, Bossert M, Walliser-Lohse A, Sondag M, Balblanc JC: Viscosupplementation with HANOX-M-XL is effective in moderate hip osteoarthritis but is not an alternative to hip joint surgery in patients with severe disease. Results of a clinical survey in 191 patients treated in daily practice. *European journal of Musculoskeletal Diseases* 2014; 3: 49–55
- Conrozier T, Mathieu P, Rinaudo M: Mannitol allows to preserve the elasto-viscous properties of hyaluronic acid in an in vitro model of oxidative stress. *Rheumatology and Therapy* 2014; doi:1007/s40744-014-0001-8
- Conrozier T, Balblanc JC, Richette P et al.: Early effect of hyaluronic acid intra-articular injections on serum and urine biomarkers in patients with knee osteoarthritis: An open-label observational prospective study. *J Orthop Res* 2012; 30: 679–85
- Conrozier T, Couris CM, Mathieu P et al.: Safety, efficacy and predictive factors of efficacy of a single intra-articular injection of non-animal-stabilized-hyaluronic-acid in the hip joint: results of a standardized follow-up of patients treated for hip osteoarthritis in daily practice. *Arch Orthop Trauma Surg.* 2009; 129: 843–8
- Conrozier T, Jerosch J, Beks P et al.: Prospective, multi-centre, randomised evaluation of the safety and efficacy of five dosing regimens of viscosupplementation with hylan G-F 20 in patients with symptomatic tibio-femoral osteoarthritis: a pilot study. *Arch Orthop Trauma Surg.* 2009;129: 417–23
- Conrozier T, Chevalier X. Long-term experience with hylan GF-20 in the treatment of knee osteoarthritis. *Expert Opin Pharmacother.* 2008; 9: 1797–804
- Conrozier T, Vignon E: Is there evidence to support the inclusion of viscosupplementation in the treatment paradigm for patients with hip osteoarthritis? *Clin Exp Rheumatol.* 2005; 23: 711–6
- Conrozier T, Mathieu P, Schott AM et al.: Factors predicting long-term efficacy of Hylan GF-20 viscosupplementation

- on in knee osteoarthritis. *Joint Bone Spine*. 2003; 70: 128–33
32. de Campos GC, Rezende MU, Pailo AF, Frucchi R, Camargo OP: Adding triamcinolone improves viscosupplementation: a randomized clinical trial. *Clin Orthop Relat Res*. 2013; 471: 613–20
  33. DeGroot H 3rd, Uzunishvili S, Weir R, Al-omari A, Gomes B: Intra-articular injection of hyaluronic acid is not superior to saline solution injection for ankle arthritis: a randomized, double-blind, placebo-controlled study. *J Bone Joint Surg Am*. 2012; 94: 2–8
  34. Di Sante L, Cacchio A, Scettri P, Paoloni M, Ioppolo F, Santilli V: Ultrasound-guided procedure for the treatment of trapeziometacarpal osteoarthritis. *Clin Rheumatol*. 2011; 30: 1195–200
  35. Douglas RJ: Aspiration and injection of the knee joint: approach portal. *Knee Surg Relat Res*. 2014; 26: 1–6
  36. Elmorsy S, Funakoshi T, Sasazawa F, Todoh M, Tadano S, Iwasaki N: Chondroprotective effects of high-molecular-weight cross-linked hyaluronic acid in a rabbit knee osteoarthritis model. *Osteoarthritis Cartilage*. 2014: 121–7
  37. Fernandez Lopez JC, Ruano-Ravina A: Efficacy and safety of intraarticular hyaluronic acid in the treatment of hip osteoarthritis: a systematic review. *Osteoarthritis Cartilage* 2006; 14: 1306–11
  38. Forrester JV, Balsz EA: Inhibition of phagocytosis by high molecular weight hyaluronate. *Immunology* 1980; 40: 435–46
  39. Frean SP, Abraham LA, Lees P: In vitro stimulation of equine articular cartilage proteoglycan synthesis by hyaluronan and carprofen. *Res Vet Sci* 1999; 67: 183–90
  40. Fuchs S, Mönikes R, Wohlmeiner A, Heyse T: Intra-articular hyaluronic acid compared with corticoid injections for the treatment of rhizarthrosis. *Osteoarthritis Cartilage*. 2006; 14: 82–8
  41. Goldberg VM, Coutts RD: Pseudo-septic reactions to hylan viscosupplementation: diagnosis and treatment. *Clin Orthop Relat Res*. 2004; 419: 130–7
  42. Gomis A, Miralles A, Schmidt RF, Belmonte C: Nozizeptive nerve activity in an experimental model of knee joint osteoarthritis of the guinea pig: Effect of intraarticular hyaluronan application. *Pain* 2007; 130: 126–36
  43. Goto M, Hanyu T, Yoshio T et al.: Intra-articular injection of hyaluronate (SI-6601D) improves joint pain and prostaglandin E2 levels in rheumatoid arthritis: a multicenter clinical trial. *Clin Exp Rheumatol* 2001; 19: 377–83
  44. Grecomoro G, Piccione F, Letizia G: Therapeutic synergism between hyaluronic acid and dexamethasone in the intra-articular treatment of osteoarthritis of the knee: a preliminary open study. *Curr Med Res Opin*. 1992; 13: 49–55
  45. Hamburger MI, Lakhpal S, Mooar PA, Oster D: Intra-articular hyaluronans: a review of product-specific safety profiles. *Semin Arthritis Rheum*. 2003; 32: 296–309
  46. Han SH, Park do Y, Kim TH: Prognostic factors after intra-articular hyaluronic acid injection in ankle osteoarthritis. *Yonsei Med J*. 2014; 55: 1080–6
  47. Hatoum HT, Fierlinger AL, Lin SJ, Altman RD: Cost-effectiveness analysis of intra-articular injections of a high molecular weight bioengineered hyaluronic acid for the treatment of osteoarthritis knee pain. *J Med Econ*. 2014; 17: 326–37
  48. Heisel J, Kipshoven C: Safety and efficacy findings from a non-interventional study of a new hyaluronic acid/sorbitol formulation (GO-ON(R) matrix) for intra-articular injection to relieve pain and disability in osteoarthritis patients. *Drug Res* 2013; 63: 445–9
  49. Hempfling H: Intra-articular hyaluronic acid after knee arthroscopy: a two year study. *Knee Surg Sports Traumatol Arthrosc* 2007; 15: 537–46
  50. Henrotin Yves, Raghu Raman, Pascal Richette: Consensus statement on viscosupplementation with hyaluronic acid for the management of osteoarthritis. *Seminars in Rheumatism and Arthritis* 2016; 45: 4 Suppl, 3–11
  51. Henrotin Y, Chevalier X, Deberg M et al.: Early decrease of serum biomarkers of type II collagen degradation (Coll2-1) and joint inflammation (Coll2-1 NO<sub>2</sub>) by hyaluronic acid intra articular injections in patients with knee osteoarthritis: a research study part of the Biovisco study. *J Orthop Res*. 2013; 31: 901–7
  52. Heyworth BE, Lee JH, Kim PD, Lipton CB, Strauch RJ, Rosenwasser MP: Hylan versus corticosteroid versus placebo for treatment of basal joint arthritis: a prospective, randomized, double-blinded clinical trial. *J Hand Surg Am*. 2008; 33: 40–8
  53. Hochberg MC, Altman RD, April KT et al.: American College of Rheumatology 2012 recommendations for the use of nonpharmacologic and pharmacologic therapies in osteoarthritis of the hand, hip, and knee. *Arthritis Care Res* 2012; 64: 465–74
  54. Homandberg GA, Hui F, Wen C, Kuettner KE, Williams JM: Hyaluronic acid suppresses fibronectin fragment mediated cartilage chondrolysis; *Osteoarth. Cartilage* 1997; 5: 309–19
  55. Ingegnoli F, Soldi A, Meroni PL: Power Doppler sonography and clinical monitoring for hyaluronic acid treatment of rhizarthrosis: a pilot study. *J Hand Microsurg*. 2011; 3: 51–4
  56. Jevsevar DS: Treatment of osteoarthritis of the knee: evidence-based guideline, 2nd edition. *J Am Acad Orthop Surg*. 2013; 21: 571–6
  57. Kahan A, Llleu PL, Salin L: Prospective randomized study comparing the medico-economic benefits of Hylan GF-20 vs conventional treatment in knee osteoarthritis. *Joint Bone Spine*. 2003; 7: 276–81
  58. Karakurum G, Karakok M, Tarakcioglu M, Kocer NE, Kocabas R, Bagci C: Comparative effect of intra-articular administration of hyaluronan and/or cortisone with evaluation of malondialdehyde on degenerative osteoarthritis of the rabbit's knee. *Tohoku J Exp Med*. 2003; 199: 127–34
  59. Kawasaki K, Ochi M, Uchio Y, Adachi N, Matsusaki M: Hyaluronic acid enhances proliferation and chondroitin sulphate synthesis in cultured chondrocytes embedded in collagen gels. *J Cell Physiol* 1999; 179: 142–148
  60. Kirchner M, Marshall D: A double-blind randomized controlled trial comparing alternate forms of high molecular weight hyaluronan for the treatment of osteoarthritis of the knee. *Osteoarthritis Cartilage* 2006 ;14: 154–62
  61. Kobayashi K, Amiel M, Harwood FL et al.: The long term effects of hyaluronan during development of osteoarthritis following partial meniscectomy in a rabbit model. *Osteoarthritis and Cartilage* 2000; 8: 359–65
  62. Kwon YW, Eisenberg G, Zuckerman JD: Sodium hyaluronate for the treatment of chronic shoulder pain associated with glenohumeral osteoarthritis: a multicenter, randomized, double-blind, placebo-controlled trial. *J Shoulder Elbow Surg*. 2013; 22: 584–94
  63. Labianca R, Sarzi-Puttini P, Zuccaro SM, Cherubino P, Vellucci R, Fornasari D: Adverse effects associated with non-opioid and opioid treatment in patients with chronic pain. *Clin Drug Investig*. 2012; 32 Suppl 1: 53–63
  64. Larsen NE, Dursema HD, Pollak CT, Skrabut EM: Clearance kinetics of a hylan-based viscosupplement after intra-articular and intravenous administration in animal models. *J. Biomed. Mater. Res. B Appl. Biomater*. 2011; doi:10.1002/jbm.b. 31971
  65. Li P, Raitcheva D, Hawes M et al.: Hylan G-F 20 maintains cartilage integrity and decreases osteophyte formation in osteoarthritis through both anabolic and anti-catabolic mechanisms. *Osteoarthritis Cartilage*. 2012; 20: 1336–46
  66. Lindqvist U, Tolmachev V, Kairemo K, Åström G, Jonsson E, Lundqvist H: Elimination of stabilised hyaluronan from the knee joint in healthy men. *Clin. Pharmacokinet*. 2002, 4, 603–613
  67. Lucas Y, Hernandez J, Darcel V, Chauveaux D, Laffenêtre O: Viscosupplementation of the ankle: a prospective study with an average follow-up of 45.5 months. *Orthop Traumatol Surg Res*. 2013; 99: 593–9

68. Mandl LA, Hotchkiss RN, Adler RS et al.: Injectable hyaluronan for the treatment of carpometacarpal osteoarthritis: open label pilot trial. *Curr Med Res Opin.* 2009 ;25: 2103–8
69. Mandl LA, Hotchkiss RN, Adler RS, Ariola LA, Katz JN: Can the carpometacarpal joint be injected accurately in the office setting? Implications for therapy. *J Rheumatol.* 2006; 33: 1137–9
70. Marshall KW, Manolopoulos V, Mancer K, Staples J, Damyanovich A: Amelioration of disease severity by intraarticular hylan therapy in bilateral canine osteoarthritis. *J Orthop Res* 2000; 18: 416–425
71. McAlindon TE, Bannuru RR, Sullivan MC et al.: OARSJ guidelines for the non-surgical management of knee osteoarthritis. *Osteoarthritis Cartilage.* 2014; 22: 363–88
72. Migliore A, Tormenta S, Laganà B et al.: Safety of intra-articular hip injection of hyaluronic acid products by ultrasound guidance: an open study from ANTIAGE register. *Eur Rev Med Pharmacol Sci.* 2013 ;17: 1752–9
73. Migliore A, Bella A, Bisignani M et al.: Total hip replacement rate in a cohort of patients affected by symptomatic hip osteoarthritis following intra-articular sodium hyaluronate (MW 1,500–2,000 kDa) ORTOBRIX study. *Clin Rheumatol.* 2012; 31: 1187–96
74. Migliore A, Bizzi E, Massafra U et al.: The impact of treatment with hylan G-F 20 on progression to total hip arthroplasty in patients with symptomatic hip OA: a retrospective study. *Curr Med Res Opin.* 2012; 28: 755–60
75. Migliore A, Tormenta S, Martin Martin LS et al.: The symptomatic effects of intra-articular administration of hylan G-F 20 on osteoarthritis of the hip: clinical data of 6 months follow-up. *Clin Rheumatol.* 2006; 25: 389–93
76. Miller LE, Block JE: An 8-Week Knee Osteoarthritis Treatment Program of Hyaluronic Acid Injection, Deliberate Physical Rehabilitation, and Patient Education is Cost Effective at 2 Years Follow-up: The Osteoarthritis Centers of America (SM) Experience. *Clin Med Insights Arthritis Musculoskelet Disord.* 2014; 7: 49–55
77. Miller LE, Block JE: US-approved Intra-articular hyaluronic acid injections are safe and effective in patients with knee osteoarthritis: Systematic review and meta-analysis of randomized saline-controlled trials. *Clin Med Insights Arthritis Musculoskelet Disord* 2013; 6: 57–63
78. Monfort J, Rotés-Sala D, Segalés N et al.: Comparative efficacy of intra-articular hyaluronic acid and corticoid injections in osteoarthritis of the first carpometacarpal joint: Results of a 6-month single-masked randomized study. *Joint Bone Spine.* 2015; 82: 116–21
79. Moreland LW: Intra-articular hyaluronan (hyaluronic acid) and hylans for the treatment of osteoarthritis: mechanisms of action. *Arthritis Res Ther.* 2003; 5: 54–67
80. Noël E, Hardy P, Hagena FW et al.: Efficacy and safety of Hylan G-F 20 in shoulder osteoarthritis with an intact rotator cuff. Open-label prospective multicenter study. *Joint Bone Spine.* 2009; 76: 670–3
81. Ozturk C, Atamaz F, Hepguler S, Argin M, Arkun R: The safety and efficacy of intraarticular hyaluronan with/without corticosteroid in knee osteoarthritis: 1-year, single-blind, randomized study. *Rheumatol Int.* 2006; 26: 314–9
82. Peluso GF, Perbellini A, Tajana GF: The effect of high and low molecular weight hyaluronic acid on mitogen induced lymphocyte proliferation. *Curr Ther Res* 1990; 47: 437–43
83. Punzi L, Schiavon F, Cavasin F, Ramonda R, Gambari PE, Todesco S: The influence of intra-articular hyaluronic acid on PGE2 and cAMP of synovial fluid. *Clin Exp Rheumatol* 1989; 7: 247–50
84. Qvistgaard E, Christensen R, Torp-Pedersen S, Bliddal H: Intra-articular treatment of hip osteoarthritis: a randomized trial of hyaluronic acid, corticosteroid, and isotonic saline. *Osteoarthritis Cartilage* 2006; 14: 163–70
85. Rannou F, Dimet J, Boutron I et al.: Splint for base-of-thumb osteoarthritis: a randomized trial. *Ann Intern Med.* 2009. 19; 150: 661–9
86. Raveendhara R, Bannuru MD, Christopher H et al.: Comparative Effectiveness of Pharmacologic Interventions for Knee Osteoarthritis: A Systematic Review and Network Meta-analysis. *Ann Intern Med.* 2015; 162: 46–54
87. Reichenbach R, Blank S, Rutjes AW et al.: Hylan versus hyaluroniv acid for osteoarthritis of the knee: a systematic review and meta-analysis. *Arthritis Rheum* 2007; 57: 1410–18
88. Richette P, Ravaud P, Conrozier T et al.: Effect of hyaluronic acid in symptomatic hip osteoarthritis: a multicenter, randomized, placebo-controlled trial. *Arthritis Rheum.* 2009; 60: 824–30
89. Rutjes AW, Jüni P, da Costa BR et al.: Viscosupplementation for osteoarthritis of the knee: a systematic review and meta-analysis. *Ann Intern Med.* 2012 ;157: 180–91
90. Salk RS, Chang TJ, D'Costa WF, Soomekh DJ, Grogan KA: Sodium hyaluronate in the treatment of osteoarthritis of the ankle: a controlled, randomized, double-blind pilot study. *J Bone Joint Surg Am.* 2006; 88: 295–302
91. Smith MM, Gosh P: The synthesis of hyaluronic acid by human synovial fibroblasts is influenced by the nature of the hyaluronate in the extracellular environment. *Rheumatol Int* 1987; 7: 113–22
92. Stahl S, Karsh-Zafirir I, Ratzon N, Rosenberg N: Comparison of intraarticular injection of depot corticosteroid and hyaluronic acid for treatment of degenerative trapeziometacarpal joints. *J Clin Rheumatol.* 2005; 11: 299–302
93. Sun SE, Chou YJ, Hsu CW et al.: Efficacy of intra-articular hyaluronic acid in patients with osteoarthritis of the ankle: a prospective study. *Osteoarthritis Cartilage.* 2006; 14: 867–74
94. Tobetto K, Kasai K, Akatsuka M, Yasui T, Ando T, Hirano S: Inhibitory effects of hyaluronan on neutrophil-mediated cartilage degradation; *Connect Tissue Res* 1993; 29: 181–90
95. Toh EM, Prasad PS, Teanby D: Correlating the efficacy of knee viscosupplementation with osteoarthritic changes on roentgenological examination. *Knee.* 2002; 9: 321–30
96. van den Bekerom MP, Lamme B, Sermon A, Mulier M: What is the evidence for viscosupplementation in the treatment of patients with hip osteoarthritis? Systematic review of the literature. *Arch Orthop Trauma Surg* 2008; 128: 815–23
97. Vavken P, Dorotka R: A systematic review of conflicting meta-analyses in orthopaedic surgery. *Clin Orthop Relat Res* 2009; 467: 2723–35
98. Waddell DD, Marino AA: Chronic knee effusions in patients with advanced osteoarthritis: implications for functional outcome of viscosupplementation. *J Knee Surg.* 2007; 20: 181–4
99. Waddell DD: Viscosupplementation with hyaluronans for osteoarthritis of the knee: clinical efficacy and economic implications. *Drugs Aging.* 2007; 24: 629–42
100. Wang Y, Hall S, Hanna Fet al.: Effects of Hylan G-F 20 supplementation on cartilage preservation detected by magnetic resonance imaging in osteoarthritis of the knee: a two-year single-blind clinical trial. *BMC Musculoskelet Disord.* 2011; 12: 195
101. Wisniewski SJ, Smith J, Patterson DG, Carmichael SW, Pawlina W: Ultrasound-guided versus nonguided tibiotalar joint and sinus tarsi injections: a cadaveric study. *PM R.* 2010; 2: 277–81
102. Zóboli AA, de Rezende MU, de Campos GC, Pasqualin T, Frucchi R, de Camargo OP: Prospective randomized clinical trial: single and weekly viscosupplementation. *Acta Ortop Bras.* 2013; 21: 271–5