



# **Five Things Physicians and Patients Should Question**

**Avoid performing routine post-operative deep vein thrombosis** ultrasonography screening in patients who undergo elective hip or knee arthroplasty.

Since ultrasound is not effective at diagnosing unsuspected deep vein thrombosis (DVT) and appropriate alternative screening tests do not exist, if there is no change in the patient's clinical status, routine post-operative screening for DVT after hip or knee arthroplasty does not change outcomes or clinical management.

Don't use needle lavage to treat patients with symptomatic osteoarthritis of the knee for long-term relief.

The use of needle lavage in patients with symptomatic osteoarthritis of the knee does not lead to measurable improvements in pain, function, 50-foot walking time, stiffness, tenderness or swelling.

Don't use glucosamine and chondroitin to treat patients with symptomatic osteoarthritis of the knee.

Both glucosamine and chondroitin sulfate do not provide relief for patients with symptomatic osteoarthritis of the knee.

Don't use lateral wedge insoles to treat patients with symptomatic medial compartment osteoarthritis of the knee.

In patients with symptomatic osteoarthritis of the knee, the use of lateral wedge or neutral insoles does not improve pain or functional outcomes. Comparisons between lateral and neutral heel wedges were investigated, as were comparisons between lateral wedged insoles and lateral wedged insoles with subtalar strapping. The systematic review concludes that there is only limited evidence for the effectiveness of lateral heel wedges and related orthoses. In addition, the possibility exists that those who do not use them may experience fewer symptoms from osteoarthritis of the knee.

Don't use post-operative splinting of the wrist after carpal tunnel release for long-term relief.

Routine post-operative splinting of the wrist after the carpal tunnel release procedure showed no benefit in grip or lateral pinch strength or bowstringing. In addition, the research showed no effect in complication rates, subjective outcomes or patient satisfaction. Clinicians may wish to provide protection for the wrist in a working environment or for temporary protection. However, objective criteria for their appropriate use do not exist. Clinicians should be aware of the detrimental effects including adhesion formation, stiffness and prevention of nerve and tendon movement.

### How the list was created

The Canadian Orthopaedic Association (COA) established its *Choosing Wisely Canada* Top 5 recommendations by asking its National Standards Committee to review the evidence base associated with the five treatments and procedures chosen by the American Academy of Orthopaedic Surgeons for the Choosing Wisely® campaign in the United States. Satisfied that the list was relevant to the Canadian clinical context, the Committee recommended its adoption to the COA's Executive Committee, and the motion was then unanimously approved by the Board of Directors. Therefore, all five items were adopted with permission from the *Five Things Physicians and Patients Should Question*. © 2013 American Academy of Orthopaedic Surgeons

#### **Sources**

Abraham P, Ternisien C, Hubert L, Pidhorz L, Saumet JL. Does venous microemboli detection add to the interpretation of D-dimer values following orthopedic surgery? Ultrasound Med Biol. 1999 May;25(4):637-40.

American Academy of Orthopaedic Surgeons. Preventing venous thromboembolic disease in patients undergoing elective hip and knee arthroplasty: Evidence-based guideline and evidence report [Internet]. 2011 Sep [cited 2014 Feb 20]. Available from: http://www.aaos.org/research/guidelines/VTE/VTE\_full\_guideline.pdf.

Bounameaux H, Miron MJ, Blanchard J, de Moerloose P, Hoffmeyer P, Leyvraz PF. Measurement of plasma D-dimer is not useful in the prediction or diagnosis of postoperative deep vein thrombosis in patients undergoing total knee arthroplasty. Blood Coagul Fibrinolysis. 1998 Nov;9(8):749-52.

Ciccone WJ,2nd, Fox PS, Neumyer M, Rubens D, Parrish WM, Pellegrini VD,Jr. Ultrasound surveillance for asymptomatic deep venous thrombosis after total joint replacement. J Bone Joint Surg Am. 1998 Aug;80(8):1167-74.

Davidson BL, Elliott CG, Lensing AW. Low accuracy of color Doppler ultrasound in the detection of proximal leg vein thrombosis in asymptomatic high-risk patients. The RD heparin arthroplasty group. Ann Intern Med. 1992 Nov 1;117(9):735-8.

Garino JP, Lotke PA, Kitziger KJ, Steinberg ME. Deep venous thrombosis after total joint arthroplasty. The role of compression ultrasonography and the importance of the experience of the technician. J Bone Joint Surg Am. 1996 Sep;78(9):1359-65.

Larcom PG, Lotke PA, Steinberg ME, Holland G, Foster S. Magnetic resonance venography versus contrast venography to diagnose thrombosis after joint surgery. Clin Orthop Relat Res. 1996 Oct;(331)(331):209-15.

Lensing AW, Doris CI, McGrath FP, Cogo A, Sabine MJ, Ginsberg J, et al. A comparison of compression ultrasound with color Doppler ultrasound for the diagnosis of symptomless postoperative deep vein thrombosis. Arch Intern Med. 1997 Apr 14;157(7):765-8.

Mont MA, Jacobs JJ, Boggio LN, Bozic KJ, Della Valle CJ, Goodman SB, et al. Preventing venous thromboembolic disease in patients undergoing elective hip and knee arthroplasty. J Am Acad Orthop Surg. 2011 Dec;19(12):768-76.

Niimi R, Hasegawa M, Sudo A, Shi D, Yamada T, Uchida A. Evaluation of soluble fibrin and D-dimer in the diagnosis of postoperative deep vein thrombosis. Biomarkers. 2010 Mar;15(2):149-57.

Pellegrini VD,Jr, Donaldson CT, Farber DC, Lehman EB, Evarts CM. The John Charnley Award: Prevention of readmission for venous thromboembolic disease after total hip arthroplasty. Clin Orthop Relat Res. 2005 Dec;441:56-62.

Pellegrini VD,Jr, Donaldson CT, Farber DC, Lehman EB, Evarts CM. The Mark Coventry Award: Prevention of readmission for venous thromboembolism after total knee arthroplasty. Clin Orthop Relat Res. 2006 Nov;452:21-7.

Robinson KS, Anderson DR, Gross M, Petrie D, Leighton R, Stanish W, et al. Ultrasonographic screening before hospital discharge for deep venous thrombosis after arthroplasty: The post-arthroplasty screening study. A randomized, controlled trial. Ann Intern Med. 1997 Sep 15;127(6):439-45.

Schmidt B, Michler R, Klein M, Faulmann G, Weber C, Schellong S. Ultrasound screening for distal vein thrombosis is not beneficial after major orthopedic surgery. A randomized controlled trial. Thromb Haemost. 2003 Nov;90(5):949-54.

Westrich GH, Schneider R, Ghelman B, Derkowska I, Tarantino SJ, Ranawat C, Sculco TP. The incidence of deep venous thrombosis with color Doppler imaging compared to ascending venography in total joint arthroplasty: A prospective study. Contemp Surg. 1997;51:225-34.

American Academy of Orthopaedic Surgeons. Treatment of osteoarthritis of the knee (non-arthroplasty): Full guideline [Internet]. 2008 Dec [cited 2014 Feb 20]. Available from: http://www.revivestudio.com.au/media/content\_posts/35/Treatment-of-Osteoarthritis-of-the-Knee-(Guideline).pdf.

Arden NK, Reading IC, Jordan KM, Thomas L, Platten H, Hassan A, et al. A randomised controlled trial of tidal irrigation vs corticosteroid injection in knee osteoarthritis: The KIVIS study. Osteoarthritis Cartilage. 2008 Jun;16(6):733-9.

Bradley JD, Heilman DK, Katz BP, Gsell P, Wallick JE, Brandt KD. Tidal irrigation as treatment for knee osteoarthritis: A sham-controlled, randomized, double-blinded evaluation. Arthritis Rheum. 2002 Jan;46(1):100-8.

Chang RW, Falconer J, Stulberg SD, Arnold WJ, Manheim LM, Dyer AR. A randomized, controlled trial of arthroscopic surgery versus closed-needle joint lavage for patients with osteoarthritis of the knee. Arthritis Rheum. 1993 Mar;36(3):289-96.

Dawes PT, Kirlew C, Haslock I. Saline washout for knee osteoarthritis: Results of a controlled study. Clin Rheumatol. 1987 Mar;6(1):61-3.

lke RW, Arnold WJ, Rothschild EW, Shaw HL. Tidal irrigation versus conservative medical management in patients with osteoarthritis of the knee: A prospective randomized study. Tidal Irrigation Cooperating Group. J Rheumatol. 1992 May;19(5):772-9.

Richmond J, Hunter D, Irrgang J, Jones MH, Levy B, Marx R, et al. Treatment of osteoarthritis of the knee (nonarthroplasty). J Am Acad Orthop Surg. 2009 Sep;17(9):591-600.

Vad VB, Bhat AL, Sculco TP, Wickiewicz TL. Management of knee osteoarthritis: Knee lavage combined with hylan versus hylan alone. Arch Phys Med Rehabil. 2003 May;84(5):634-7.

American Academy of Orthopaedic Surgeons. Treatment of osteoarthritis of the knee (non-arthroplasty): Full guideline [Internet]. 2008 Dec [cited 2014 Feb 20]. Available from: http://www.revivestudio.com.au.myaccess.library.utoronto.ca/media/content\_posts/35/Treatment-of-Osteoarthritis-of-the-Knee-(Guideline).pdf. Altman RD, Marcussen KC. Effects of a ginger extract on knee pain in patients with osteoarthritis. Arthritis Rheum. 2001 Nov;44(11):2531-8.

Bourgeois P, Chales G, Dehais J, Delcambre B, Kuntz JL, Rozenberg S. Efficacy and tolerability of chondroitin sulfate 1200 mg/day vs chondroitin sulfate 3 x 400 mg/day vs placebo. Osteoarthritis Cartilage. 1998 May;6 Suppl A:25-30.

Bucsi L, Poor G. Efficacy and tolerability of oral chondroitin sulfate as a symptomatic slow-acting drug for osteoarthritis (SYSADOA) in the treatment of knee osteoarthritis. Osteoarthritis Cartilage. 1998 May;6 Suppl A:31-6.

Cibere J, Kopec JA, Thorne A, Singer J, Canvin J, Robinson DB, et al. Randomized, double-blind, placebo-controlled glucosamine discontinuation trial in knee osteoarthritis. Arthritis Rheum. 2004 Oct 15:51(5):738-45.

Clegg DO, Reda DJ, Harris CL, Klein MA, O'Dell JR, Hooper MM, et al. Glucosamine, chondroitin sulfate, and the two in combination for painful knee osteoarthritis. N Engl J Med. 2006 Feb 23;354(8):795-808.

Das A,Jr, Hammad TA. Efficacy of a combination of FCHG49 glucosamine hydrochloride, TRH122 low molecular weight sodium chondroitin sulfate and manganese ascorbate in the management of knee osteoarthritis. Osteoarthritis Cartilage. 2000 Sep;8(5):343-50.

Giordano N, Fioravanti A, Papakostas P, Montella A, Giorgi G, Nuti R. The efficacy and tolerability of glucosamine sulfate in the treatment of knee osteoarthritis: A randomized, double-blind, placebo-controlled trial. Curr Ther Res Clin Exper. 2009 Jun;70(3):185-96.

Houpt JB, McMillan R, Wein C, Paget-Dellio SD. Effect of glucosamine hydrochloride in the treatment of pain of osteoarthritis of the knee. J Rheumatol. 1999 Nov;26(11):2423-30.

Hughes R, Carr A. A randomized, double-blind, placebo-controlled trial of glucosamine sulphate as an analgesic in osteoarthritis of the knee. Rheumatology (Oxford). 2002 Mar;41(3):279-84.

Kahan A, Uebelhart D, De Vathaire F, Delmas PD, Reginster JY. Long-term effects of chondroitins 4 and 6 sulfate on knee osteoarthritis: The study on osteoarthritis progression prevention, a two-year, randomized, double-blind, placebo-controlled trial. Arthritis Rheum. 2009 Feb;60(2):524-33.

Mazieres B, Combe B, Phan Van A, Tondut J, Grynfeltt M. Chondroitin sulfate in osteoarthritis of the knee: A prospective, double blind, placebo controlled multicenter clinical study. J Rheumatol. 2001 Jan;28(1):173-81.

Mazieres B, Hucher M, Zaim M, Garnero P. Effect of chondroitin sulphate in symptomatic knee osteoarthritis: A multicentre, randomised, double-blind, placebo-controlled study. Ann Rheum Dis. 2007 May;66(5):639-45.

McAlindon T, Formica M, LaValley M, Lehmer M, Kabbara K. Effectiveness of glucosamine for symptoms of knee osteoarthritis: Results from an internet-based randomized double-blind controlled trial. Am J Med. 2004 Nov 1;117(9):643-9.

Moller I, Perez M, Monfort J, Benito P, Cuevas J, Perna C, et al. Effectiveness of chondroitin sulphate in patients with concomitant knee osteoarthritis and psoriasis: A randomized, double-blind, placebo-controlled study. Osteoarthritis Cartilage. 2010 Jun;18 Suppl 1:S32-40.

Noack W, Fischer M, Forster KK, Rovati LC, Setnikar I. Glucosamine sulfate in osteoarthritis of the knee. Osteoarthritis Cartilage. 1994 Mar;2(1):51-9. Pavelka K,Jr, Sedlackova M, Gatterova J, Becvar R, Pavelka KS. Glycosaminoglycan polysulfuric acid (GAGPS) in osteoarthritis of the knee. Osteoarthritis Cartilage. 1995 Mar;3(1):15-23.

Pavelka K, Coste P, Geher P, Krejci G. Efficacy and safety of piascledine 300 versus chondroitin sulfate in a 6 months treatment plus 2 months observation in patients with osteoarthritis of the knee. Clin Rheumatol. 2010 Jun;29(6):659-70.

Rai J, Pal SK, Gul A, Senthil R, Singh H. Efficacy of chondroitin sulfate and glucosamine sulfate in the progression of symptomatic knee osteoarthritis: A randomized, placebo-controlled, double blind study. Bull Postgrad Inst Med Ed Res Chandigarh. 2004;38(1):18-22.

Richmond J, Hunter D, Irrgang J, Jones MH, Levy B, Marx R, et al. Treatment of osteoarthritis of the knee (nonarthroplasty). J Am Acad Orthop Surg. 2009 Sep: 17(9):591-600.

Rindone JP, Hiller D, Collacott E, Nordhaugen N, Arriola G. Randomized, controlled trial of glucosamine for treating osteoarthritis of the knee. West J Med. 2000 Feb;172(2):91-4.

Samson DJ, Grant MD, Ratko TA, Bonnell CJ, Ziegler KM, Aronson N. Treatment of primary and secondary osteoarthritis of the knee. 2007 Sep 1. Report No.: 157.

Tao QW, Xu Y, Jin DE, Yan XP. Clinical efficacy and safety of gubitong recipe () in treating osteoarthritis of knee joint. Chin J Integr Med. 2009 Dec;15(6):458-61. Trc T, Bohmova J. Efficacy and tolerance of enzymatic hydrolysed collagen (EHC) vs. glucosamine sulphate (GS) in the treatment of knee osteoarthritis (KOA). Int Orthop. 2011 Mar;35(3):341-8.

Uebelhart D, Malaise M, Marcolongo R, de Vathaire F, Piperno M, Mailleux E, et al. Intermittent treatment of knee osteoarthritis with oral chondroitin sulfate: A one-year, randomized, double-blind, multicenter study versus placebo. Osteoarthritis Cartilage. 2004 Apr;12(4):269-76.

Zakeri Z, Izadi S, Bari Z, Soltani F, Narouie B, Ghasemi-Rad M. Evaluating the effects of ginger extract on knee pain, stiffness and difficulty in patients with knee osteoarthritis. J Med Plant Res. 2011;5(15):3375-9.

American Academy of Orthopaedic Surgeons. Treatment of osteoarthritis of the knee (non-arthroplasty): Full guideline [Internet]. 2008 Dec [cited 2014 Feb 20].

Available from: http://www.revivestudio.com.au.myaccess.library.utoronto.ca/media/content\_posts/35/Treatment-of-Osteoarthritis-of-the-Knee-(Guideline).pdf.

Baker K, Goggins J, Xie H, Szumowski K, LaValley M, Hunter DJ, et al. A randomized crossover trial of a wedged insole for treatment of knee osteoarthritis.

Arthritis Rheum. 2007 Apr;56(4):1198-203.

Bennell KL, Bowles KA, Payne C, Cicuttini F, Williamson E, Forbes A, et al. Lateral wedge insoles for medial knee osteoarthritis: 12 month randomised controlled trial. BMJ. 2011 May 18;342:d2912.

Brouwer RW, Jakma TS, Verhagen AP, Verhaar JA, Bierma-Zeinstra SM. Braces and orthoses for treating osteoarthritis of the knee. Cochrane Database Syst Rev. 2005 Jan 25;(1)(1):CD004020.

Maillefert JF, Hudry C, Baron G, Kieffert P, Bourgeois P, Lechevalier D, et al. Laterally elevated wedged insoles in the treatment of medial knee osteoarthritis: A prospective randomized controlled study. Osteoarthritis Cartilage. 2001 Nov;9(8):738-45.

Nigg BM, Emery C, Hiemstra LA. Unstable shoe construction and reduction of pain in osteoarthritis patients. Med Sci Sports Exerc. 2006 Oct;38(10):1701-8. Pham T, Maillefert JF, Hudry C, Kieffert P, Bourgeois P, Lechevalier D, et al. Laterally elevated wedged insoles in the treatment of medial knee osteoarthritis. A two-year prospective randomized controlled study. Osteoarthritis Cartilage. 2004 Jan;12(1):46-55.

Richmond J, Hunter D, Irrgang J, Jones MH, Levy B, Marx R, et al. Treatment of osteoarthritis of the knee (nonarthroplasty). J Am Acad Orthop Surg. 2009 Sep:17(9):591-600.

Toda Y, Segal N. Usefulness of an insole with subtalar strapping for analgesia in patients with medial compartment osteoarthritis of the knee. Arthritis Rheum. 2002 Oct 15;47(5):468-73.

Toda Y, Segal N, Kato A, Yamamoto S, Irie M. Effect of a novel insole on the subtalar joint of patients with medial compartment osteoarthritis of the knee. J Rheumatol. 2001 Dec;28(12):2705-10.

Toda Y, Tsukimura N. A 2-year follow-up of a study to compare the efficacy of lateral wedged insoles with subtalar strapping and in-shoe lateral wedged insoles in patients with varus deformity osteoarthritis of the knee. Osteoarthritis Cartilage. 2006 Mar;14(3):231-7.

Toda Y, Tsukimura N. A comparative study on the effect of the insole materials with subtalar strapping in patients with medial compartment osteoarthritis of the knee. Mod Rheumatol. 2004 Dec;14(6):459-65.

Toda Y, Tsukimura N. A six-month followup of a randomized trial comparing the efficacy of a lateral-wedge insole with subtalar strapping and an in-shoe lateral-wedge insole in patients with varus deformity osteoarthritis of the knee. Arthritis Rheum. 2004 Oct;50(10):3129-36.

American Academy of Orthopaedic Surgeons. Clinical practice guideline on the treatment of carpal tunnel syndrome [Internet]. 2008 Sep [cited 2014 Feb 20]. Available from: http://www.aaos.org/research/guidelines/CTSTreatmentGuideline.pdf.

Bury TF, Akelman E, Weiss AP. Prospective, randomized trial of splinting after carpal tunnel release. Ann Plast Surg. 1995 Jul;35(1):19-22. Cook AC, Szabo RM, Birkholz SW, King EF. Early mobilization following carpal tunnel release. A prospective randomized study. J Hand Surg Br. 1995 Apr;20(2):228-30.

Fagan DJ, Evans A, Ghandour A, Prabhkaran P, Clay NR. A controlled clinical trial of postoperative hand elevation at home following day-case surgery. J Hand Surg Br. 2004 Oct;29(5):458-60.

Finsen V, Andersen K, Russwurm H. No advantage from splinting the wrist after open carpal tunnel release. A randomized study of 82 wrists. Acta Orthop Scand. 1999 Jun;70(3):288-92.

Hochberg J. A randomized prospective study to assess the efficacy of two cold-therapy treatments following carpal tunnel release. J Hand Ther. 2001 Jul-Sep;14(3):208-15.

Jeffrey SL, Belcher HJ. Use of arnica to relieve pain after carpal-tunnel release surgery. Altern Ther Health Med. 2002 Mar-Apr;8(2):66-8.

Martins RS, Siqueira MG, Simplicio H. Wrist immobilization after carpal tunnel release: A prospective study. Arq Neuropsiquiatr. 2006 Sep;64(3A):596-9.

Provinciali L, Giattini A, Splendiani G, Logullo F. Usefulness of hand rehabilitation after carpal tunnel surgery. Muscle Nerve. 2000 Feb;23(2):211-6.

## **About Choosing Wisely Canada**

Choosing Wisely Canada is a campaign to help physicians and patients engage in conversations about unnecessary tests, treatments and procedures, and to help physicians and patients make smart and effective choices to ensure high-quality care.

For more information on *Choosing Wisely Canada* or to see other lists of Five Things Physicians and Patients Should Question, visit www.choosingwiselycanada.org. Join the conversation on Twitter @ChooseWiselyCA.

## **About The Canadian Orthopaedic Association**

The Canadian Orthopaedic Association (COA) is a proud partner of the *Choosing Wisely Canada* campaign. With some 1,300 members, the COA is the national professional association that represents Canada's orthopaedic surgeons. Its mandate is to promote excellence in bone and joint care through continuing professional development, models of care, practice-management strategies, government relations and a code of ethics. The COA has met annually since 1945, providing a venue for Canada's orthopaedic surgeons to update and refine their skills, as well as discuss and respond to professional and patient issues. Faced with increasing subspecialization, the COA has avoided fragmentation by forming subspecialty societies within the parent organization. Thus, the COA continues to speak with a united voice on behalf of the orthopaedic community in Canada.