

SAFEHIP EVIDENCE BANK



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Type	Country	Environment	Publication name	Publisher	Year	Publication type	Study size	Reduction in hip fractures	Compliance	Selected quotes	Source
Studies/Reviews/Analysis											
Study	Norway	Nursing homes	Risk of hip fractures in protected an unprotected falls in nursing homes in Norway	The National Center for Biotechnology Information. Pubmed.gov.	2008	Published clinical trial	1.236 participants from 18 nursing homes	60%		Both types of hip protector have the potential, when worn correctly, to reduce the risk of a hip fracture in falls by nearly 60%.	http://injuryprevention.bmj.com/content/14/5/306
Trial	Germany	Nursing homes	Effect on hip fractures of increased use of hip protectors in nursing homes: cluster randomised controlled trial	BMJ	2003	Published clinical trial	942 participants from 42 nursing homes	More than 40%.		In conclusion, we have shown that a structured education programme and provision of free hip protectors can increase use..... Increasing the use of hip protectors resulted in a relative reduction of hip fractures of about 40%	https://www.ncbi.nlm.nih.gov/pmc/articles/PMC139934/
Article about study	UK		Prevention of costly hip fractures should be a priority in UK	IOF (International Osteoporosis Foundation)	2015	Article				... hip fractures are an enormous cost to the healthcare system, with total annual hospital costs of new hip fractures estimated to be approximately £1.1 billion.	https://www.iofbonehealth.org/news/prevention-costly-hip-fractures-should-be-priority-uk
Clinical abstract of a study	Germany	Nursing homes	Cost-effectiveness of preventing hip fractures by hip protectors in elderly institutionalized residents in Germany	University of York, Centre for Reviews and dissemination	2010	Clinical abstract				The budget impact analysis demonstrated that accounting for the nursing home population, hip protectors would result in annual cost savings of EUR 12.9 million, in Germany..... The authors concluded that hip protectors for elderly institutionalised residents were a highly cost-effective preventive strategy....On the whole, the study was based on valid methodology and the authors' conclusions appear to be appropriate.	http://www.crd.york.ac.uk/crdweb/ShowRecord.asp?LinkFrom=OAI&ID=22008102134
Review including 19 studies	International	Nursing care facilities, own home	Hip protectors for preventing hip fractures in older people	Cochrane Library	2014	Abstract	17.000 participants	11 fewer people per 1.000 in nursing care facilities, 2 more per 1.000 in own home	Poor	Hip protectors probably reduce the risk of hip fractures if made available to older people in nursing care or residential care settings, without increasing the frequency of falls.... Poor acceptance and adherence by older people offered hip protectors is a barrier to their use. Better understanding is needed of the personal and design factors that may influence acceptance and adherence.	http://onlinelibrary.wiley.com/doi/10.1002/14651858.CD001255.pub5/full
Review including 26 studies	International		Barriers and Facilitators to Hip Protector Compliance in Long-Term Care Facilities	CADTH	2013?	Research in brief				Educate staff on the benefits of hip protectors and their correct use. Engage and educate residents and families. Choose from hip protector models with proven efficacy	http://agingacontactsport.com/wp-content/uploads/2013/05/Fraser-Health_CADTH-Review-in-Brief.pdf

Review incl. 112 articles and 28 studies	Canada		Facilitators of and Barriers to Hip Protector Acceptance and Adherence in Long-term Care Facilities: A Systematic Review	JAMDA	2015	Review article				A potentially fruitful mechanism to enhance compliance, consequently, may be through improved health care provider awareness of the efficacy of hip protectors, especially for patients who are willing and able to wear them....	http://agingcontactsport.com/wp-content/uploads/2015/03/Korall-Feldman-Scott-et-al.-2014-JAMDA.pdf
Study including 19 nursing homes	Norway	Nursing homes	Compliance with external hip protectors in nursing homes in Norway	BMJ	2004	Observational prospective study.	1.040 participants			new hip protectors should be made more comfortable without reducing the preventive effect so that the compliance in the user group will increase.	http://injuryprevention.bmj.com/content/injuryprev/10/6/349.full.pdf
Study including 206 consecutive patients and 100 control subjects	Finland	Orthopedic surgical department of the Tampere City Hospital, Finland	Majority of Hip Fractures Occur as a Result of a Fall and Impact on the Greater Trochanter of the Femur: A Prospective Controlled Hip Fracture Study with 206 Consecutive Patients	SpringerLink	1999	Abstract.	206 consecutive patients and 100 control subjects.			a typical hip fracture is the result of a fall and a subsequent impact on the greater trochanter of the proximal femur.... We suggest that the severity of the falls (impacts on the greater trochanter) could be decreased by an external hip protector.	https://link.springer.com/article/10.1007/s002239900679
Study	Australia	Community-dwelling women, Aged care health services.	A randomised trial of hip protector use by frail older women living in their own homes	BMJ Journals, Injury Prevention	2003	Article	600 elderly women		53%	Hip protectors prevent hip fractures in community dwelling older women if worn at the time of a fall. 21 hip fractures occurred in the intervention group while 22 occurred in the control group. Three hip fractures occurred while participants were wearing hip protectors.	Full text: https://www.ncbi.nlm.nih.gov/pmc/articles/PMC1730958/pdf/v009p00138.pdf
Study	Canada	Simon Fraser University, test lab	The effect of positioning on the biomechanical performance of soft shell hip protectors	Journal of Biomechanics	2009	Article	3 hip protectors tested			The horseshoe shaped protectors provided greater reduction in femoral neck force than the continuous protector, and the 16 mm thick horseshoe pad was the only one that shunted peak pressure outside the danger zone.	https://www.ncbi.nlm.nih.gov/pubmed/20018287
Meta-analysis including 4 trials			Hip protectors decrease hip fracture risk in elderly nursing home residents: a Bayesian meta-analysis	NCBI	2007	Article	1.922 participants.	60%		Using this model, we determined that there is evidence that hip protectors significantly decrease the risk of hip fracture in elderly nursing home residents.	https://www.ncbi.nlm.nih.gov/pmc/articles/PMC5110322/
Research study	UK	Hospitalized patients	Evolution of the hip fracture population: Time to consider the future? A retrospective observational analysis	BMJ	After 2012	Article	10.044			the projected increase in the number of hip fractures, combined with more frail, elderly and socially dependent patients who are likely to experience greater rates of mortality, postoperative morbidity and longer inpatient stays will drive this figure up over the next 20 years. Cost estimates for hip fracture treatment predict a 243% increase in costs to £5.6 billion by 2033.	http://bmiopen.bmj.com/content/4/4/e004405

Study	UK		Projected incidence of proximal femoral fracture in England: A report from the NHS Hip Fracture Anaesthesia Network (HIPFAN)	Scientific Research	2011	Article				Despite a decline in the prevalence of PFF among the aging population (2.98% since 2002), we estimate that approximately 100,000 patients annually will require surgery for fractured neck of femur by 2033 in England, with a 30d mortality of 8.9–9.3%, costing £3.6–5.6 billion (inflation adjusted) in total care.	http://www.injuryjournal.com/article/S0020-1383(10)00747-3/fulltext
Cost-effective analysis	Canada	Nursing homes	Cost-Effectiveness of hip protectors in the prevention of osteoporosis related hip fractures in elderly nursing home residents	The Journal of Rheumatology	2004	Article	1,000 nursing home residents			In summary, hip protectors appear to be an exciting, cost-effective treatment option to prevent hip fractures in elderly nursing home residents in Canada. With the low unit cost of 150 dollars, hip protectors may save money while preventing fractures, prolonging life, and improving quality of life.	https://www.researchgate.net/publication/8419292_Cost-Effectiveness_of_hip_protectors_in_the_prevention_of_osteoporosis_related_hip_fractures_in_elderly_nursing_home_residents
Study	Norway		Forecasting the burden of future post-menopausal hip fractures	Researchgate	2014	Article				An annual decline in hip fracture rates of 1.1-2.2% until 2040 is required to counteract the effects of a growing elderly population on the future burden of hip fractures in Norway, the USA, France, Germany and the UK.	https://www.researchgate.net/publication/263584451_Forecasting_the_burden_of_future_post-menopausal_hip_fractures
Study review	USA		Timing of Hip Fracture Surgery in the Elderly		2014	Article				Although there is disagreement among clinicians on whether early surgery confers a survival benefit per se, most reports agree that early surgery improves other outcomes such as length of stay, the incidence of pressure sores, and return to independent living.	https://www.ncbi.nlm.nih.gov/pmc/articles/PMC4212427/
Study	Sweden and DK		Recent hip fracture trends in Sweden and Denmark with age-period-cohort effects	Osteoporosis Int.	2016	Article				Following from the results of the current analyses, we expect a reversal of the present decline in rates, with increasing hip fracture rates in both Denmark and Sweden during the upcoming decade.	https://www.ncbi.nlm.nih.gov/pmc/articles/PMC5206266/
Study	Sweden		The annual number of hip fractures in Sweden will double from year 2002 to 2050	Acta Orthop.	2014					we predicted that there would be approximately 30,000 hip fractures in Sweden in the year 2050. Use of nationwide rates for 2002 in the predictive model gave similar results, which correspond to an increase in the number of hip fractures by a factor of 1.9... compared to 2002.	https://www.ncbi.nlm.nih.gov/pmc/articles/PMC4062788/
Study	Australia		An economic evaluation of falls prevention strategies for older adults living in the community in Australia	Centre for Health Economics Research and Evaluation, Faculty of Business, University of Technology Sydney	2007	Report				In the high risk population, home hazard assessment/ modification and group-based exercise appeared to be the most cost-effective interventions.	https://pdfs.semanticscholar.org/4b37/db24be0cd8d9f3d32e8eb04799d02dc961ed.pdf

Article	Finland		Prevention of falls and consequent injuries in elderly people	The Lancet	2005	Summary			Care must be taken, however, to rigorously select the right actions for those people most likely to benefit, such as vitamin D and calcium supplementation and hip protectors for elderly people living in institutions.	http://www.thelancet.com/journals/lancet/article/PIIS0140-6736(05)67604-0/fulltext
Article			A Review of Hip Fracture Mortality—Why and How Does Such a Large Proportion of These Elderly Patients Die?	Surgical Science	2014	Article			As highlighted there are a number of common causes of death which still harbour room for improvement in management and warrant further research to help guide clinicians on the optimal care of the growing cohort of patients with hip fractures ahead.	http://file.scirp.org/Html/6-2300643_46295.htm
Article	Brazil		In Brazil number of hip fractures expected to increase 32% by 2050	IOF - International Osteoporosis Foundation	2012				New IOF report forecasts dramatic rise in osteoporosis-related fractures due to ageing of Brazilian population, with costly economic and social repercussions	https://www.iofbonehealth.org/brazil-number-hip-fractures-expected-increase-32-2050
Article	UK	Nursing homes	Preventing broken hips in care homes	JCN	2011	Article	535 residents		Residents frequently reported that they felt more "secure" when wearing hip protectors. Wearing hip protectors improves falls self-efficacy. The immediate protection offered by hip protectors, combined with minimal adverse effects makes them an attractive preventive option.	Contact Tytex for access to article.
Article	UK		Fear of falling "raises fall risk"	Nursing Times	2010	Article	500 elderly		The researchers found that anxiety about falling may contribute to the risk of falling in the elderly. They speculate that this may be due in part to a lower fear of falling contributing to greater physical activity and increased strength.	https://www.nursingtimes.net/news/behind-the-headlines-archive/fear-of-falling-raises-fall-risk/5018690.article
Brochures										
Fact sheet	UK		Hip protectors and osteoporosis	The National Osteoporosis Society	2015	Fact Sheet			A recent large review of hip protector studies, suggested that frail older people who wore hip protectors in nursing homes had a modest reduction in hip fracture. However there was no evidence of this reduction in people who used hip protectors in their own homes. The reason for these findings is uncertain but it is possible that some individuals did not wear the hip protectors all the time or that they were not fitted properly.	https://nos.org.uk/help-and-support/living-with-osteoporosis/hip-protectors-and-osteoporosis/
Statements										

Statement	Finland	Accident & Trauma Research Centre	Hip protectors may not be as ineffective as claimed	BMJ	2006	E-letter/response				We may easily deem the content of the intervention (here hip protector) ineffective, when the truth may be that there was only insufficient effort to implement the intervention.... Since it is well known that the various designs of hip protectors differ considerably by their basic function... and... by their user compliance as well, it is not very rational to combine the results of all kind of hip protectors into one meta-analysis	http://www.bmj.com/rapid-response/2011/10/31/hip-protectors-may-not-be-ineffective-claimed
Statement	Canada	Simon Fraser University, Canada	Clinical effectiveness of Safehip AirX hip protector		2008					The new Safehip AirX has improved material properties and biomechanical performance in laboratory studies	Contact Tytex for further information.
Webinars/Videos											
Video	Canada		Aging is a contact sport: Hip protectors	Fraser Health Authority	2013	Video					http://agingisacontactsport.com/
Guidelines											
	UK		Hip fracture: management	NICE	2011 (updated 2017)	Guideline				Perform surgery on the day of, or the day after, admission... Offer patients a physiotherapy assessment and, unless medically or surgically contraindicated, mobilisation on the day after surgery.... Offer patients mobilisation at least once a day and ensure regular physiotherapy review.	https://www.nice.org.uk/guidance/cg124
Reports											
Report	International		Facts and Statistics	IOF		Homepage				For the year 2000, there were an estimated 9 million new osteoporotic fractures, of which 1.6 million were at the hip.... In white women, the lifetime risk of hip fracture is 1 in 6, compared with a 1 in 9 risk of a diagnosis of breast cancer	https://www.iofbonehealth.org/facts-statistics
Report	UK			NHFD (National Hip Fracture Database)	2017	Report				Hip fracture care still improving, but two in five patients still not receiving best practice care.	https://www.nhfd.co.uk/20/hipfractureR.nsf/docs/2017Report
Report	Sweden		National Registration of Hip Fractures in Sweden	SpringerLink	2009	Report				At present the hip fracture care in Sweden costs 1,5 billion Swedish Crowns yearly.	http://webcache.googleusercontent.com/search?q=cache:AYKDttOsfyUJ:www.springer.com/cda/content/document/cda_downloaddocument/9783642009655-c1.pdf%3FSGWID%3D0-0-45-734927-p173896312+&cd=1&hl=da&ct=clnk&gl=dk
Report	Sweden		Rikshöft Årsrapport 2016	Rikshöft	2016	Report				Varje år drabbas knappt 18000 personer i Sverige av en höftfraktur. Medelåldern för dem som drabbas är över 80 år och cirka 75% är kvinnor.	http://rikshoft.se/wp-content/uploads/2013/07/rikshoft_rapport2016.pdf
Fact sheets											
Fact sheet	USA		Important facts about falls	CDC - Centers for Disease Control and prevention		Facts				Falling once doubles your chances of falling again...In 2015, the total medical costs for falls totaled more than \$50 billion.10 Medicare and Medicaid shouldered 75% of these costs.	https://www.cdc.gov/homeandrecreationalafety/falls/adultfalls.html