TABLE E-1 The Number of Octogenarians in Finland from 1980 to 2004 Compared with the Number and Ratio of Senior Citizens Undergoing Total Hip Replacement

Year	Population 80 Years of Age and Over	Total Hip Replacements in Patients 80 Years of Age and Over	The Ratio (%) of Population 80 Years of Age and Over Undergoing Total Hip Replacement
1980	86,480	35	0.0405
1985	113,340	59	0.0521
1990	143,536	193	0.1345
1995	164,369	344	0.2093
2000	177,126	496	0.2800
2004	203,318	583	0.2867

TABLE E-2 Factors Associated with Survivorship*

Comparison	Chi Square	DF	P Value
Sex	12.694	1	p < 0.0005
(Female, male)	12.694		p < 0.0005
Year of primary operation	7.844	3	p < 0.05
(1980-1989, 1990-1994)	1.284		p = 0.26
(1980-1989, 1995-1999)	6.041		p < 0.05
(1980-1989, 2000-2004)	3.279		p = 0.07
(1990-1994, 1995-1999)	2.970		p = 0.08
(1990-1994, 2000-2004)	2.102		p = 0.15
(1995-1999, 2000-2004)	0.772		p = 0.38
Fixation	4.897	2	p = 0.09
(Cementless, hybrid)	4.764		p < 0.05
(Cementless, cemented)	1.574		p = 0.21
(Hybrid, cemented)	2.925		p = 0.09

*The results were analyzed by using log-rank (Mantel-Cox) tests for overall comparisons of the predictors, but each pair in that predictor was also subjected to a pairwise comparison. Predictors contained two to four factors. DF = Two factors (male and female) for sex, three factors (cementless, hybrid, and cemented) for fixation, and four factors (1980-1989, 1990-1994, 1995-1999, and 2000-2004) for year of primary operation.

TABLE E-3 Overall Comparison of the Predictors*

Comparison	Chi Square	DF	P Value
Sex	12.694	1	p = 0.00037
(Female, male)	12.694		p = 0.00037
Diagnosis	4.684	5	p = 0.46
(Primary osteoarthritis, secondary osteoarthritis)	1.845		p = 0.17
(Primary osteoarthritis, congenital luxation of the hip)	0.119		p = 0.73
(Primary osteoarthritis, rheumatoid arthritis)	0.026		p = 0.87
(Primary osteoarthritis, other arthritis)	1.123		p = 0.29
(Primary osteoarthritis, other illness)	1.530		p = 0.22
(Secondary osteoarthritis, congenital luxation of the hip)	NA		NA
(Secondary osteoarthritis, rheumatoid arthritis)	1.704		p = 0.19
(Secondary osteoarthritis, other arthritis)	3.753		p = 0.05
(Secondary osteoarthritis, other illness)	2.323		p = 0.13
(Congenital luxation of the hip, rheumatoid arthritis)	0.157		p = 0.69
(Congenital luxation of the hip, other arthritis)	0.343		p = 0.56
(Congenital luxation of the hip, other illness)	0.162		p = 0.69
(Rheumatoid arthritis, other arthritis)	0.841		p = 0.36
(Rheumatoid arthritis, other illness)	0.101		p = 0.75
(Other arthritis, other illness)	0.676		p = 0.41
Year of primary operation	7.844	3	p = 0.049
(1980-1989, 1990-1994)	1.284		p = 0.26
(1980-1989, 1995-1999)	6.041		p = 0.014
(1980-1989, 2000-2004)	3.279		p = 0.07
(1990-1994, 1995-1999)	2.970		p = 0.08
(1990-1994, 2000-2004)	2.102		p = 0.15
(1995-1999, 2000-2004)	0.772		p = 0.38
Design of prosthesis	3.428	5	p = 0.63
(LUBINUS SPII + STD, LUBINUS SPII + ECCENTRIC)	0.248		p = 0.62
(LUBINUS SPII + STD, LUBINUS SPII + FC)	1.363		p = 0.24
(LUBINUS SPII + STD, EXETER UNIVERSAL + ALL POLY)	0.409		p = 0.52
(LUBINUS SPII + STD, EXETER UNIVERSAL + CONTEMPORARY)	0.283		p = 0.60
(LUBINUS SPII + STD, (LUBINUS SPII, EXETER UNIVERSAL) + other manufacturer or other manufacturer + (LUBINUS STD, ECCENTRIC, FC, EXETER ALL POLY, CONTEMPORARY))	0.448		p = 0.50
(LUBINUS SPII + ECCENTRIC, LUBINUS SPII + FC)	1.017		p = 0.31
(LUBINUS SPII + ECCENTRIC, EXETER UNIVERSAL + ALL POLY)	1.017		p = 0.31
(LUBINUS SPII + ECCENTRIC, EXETER UNIVERSAL + CONTEMPORARY)	1.276		p = 0.26
(LUBINUS SPII + ECCENTRIC, (LUBINUS SPII, EXETER UNIVERSAL) + other manufacturer or other manufacturer + (LUBINUS STD, ECCENTRIC, FC, EXETER ALL POLY, CONTEMPORARY))	1.189		p = 0.28

(LUBINUS SPII + FC, EXETER UNIVERSAL + ALL POLY)	1.472		p = 0.22
(LUBINUS SPII + FC, EXETER UNIVERSAL + CONTEMPORARY)	1.809		p = 0.18
(LUBINUS SPII + FC, (LUBINUS SPII, EXETER UNIVERSAL) + other manufacturer or other manufacturer + (LUBINUS STD, ECCENTRIC, FC, EXETER ALL POLY, CONTEMPORARY))	2.314		p = 0.13
(EXETER UNIVERSAL + ALL POLY, EXETER UNIVERSAL + CONTEMPORARY)	0.017		p = 0.90
(EXETER UNIVERSAL + ALL POLY, (LUBINUS SPII, EXETER UNIVERSAL) + other manufacturer or other manufacturer + (LUBINUS STD, ECCENTRIC, FC, EXETER ALL POLY, CONTEMPORARY))	0.036		p = 0.85
(EXETER UNIVERSAL + CONTEMPORARY, (LUBINUS SPII, EXETER UNIVERSAL) + other manufacturer or other manufacturer + (LUBINUS STD, ECCENTRIC, FC, EXETER ALL POLY, CONTEMPORARY))	0.486		p = 0.49
Fixation	4.897	2	p = 0.09
(Cementless, hybrid)	4.764		p = 0.029
(Cementless, cemented)	1.574		p = 0.21
(Hybrid, cemented)	2.925		p = 0.09
Type of hospital	1.013	3	p = 0.80
(University hospital, central hospital)	0.546		p = 0.46
(University hospital, regional hospital)	0.496		p = 0.48
(University hospital, other)	0.891		p = 0.35
(Central hospital, regional hospital)	0.007		p = 0.93
(Central hospital, other)	0.116		p = 0.73
(Regional hospital, other)	0.203		p = 0.65
Side	1.194	1	p = 0.27
(Right, left)	1.194		p = 0.27

*The results were analyzed by using log-rank (Mantel-Cox) tests for overall comparisons of the predictors but each pair in that predictor was also subjected to a pairwise comparison. Predictors contained two to six factors. DF = two factors for sex (female and male) and for side (right and left), three factors for fixation (cementless, hybrid, and cemented), four factors for year of primary operation (1980-1989, 1990-1994, 1995-1999, and 2000-2004) and for type of hospital (university, central, regional, and other), and six factors for diagnosis (primary osteoarthritis, secondary osteoarthritis, congenital luxation of the hip, rheumatoid arthritis, other arthritis, and other illness).

TABLE E-4 Estimated Hazard Ratios in Multivariate Cox Analyses

Factor	Multivariate Analysis		
	Hazard Ratio	95% CI for Hazard Ratio*	P Value
Sex (compared with females)			
Male	1.84	1.34-2.52	<0.0005
Fixation (compared with cementless fixation)			
Hybrid	0.44	0.20-0.96	<0.05
Cemented	0.79	0.46-1.38	0.41
Year of primary operation			
1980-1989	The effect of this covariate was not examined because of its use as a stratification variable		
1990-1994			
1995-1999			
2000-2004			

*CI = confidence interval.
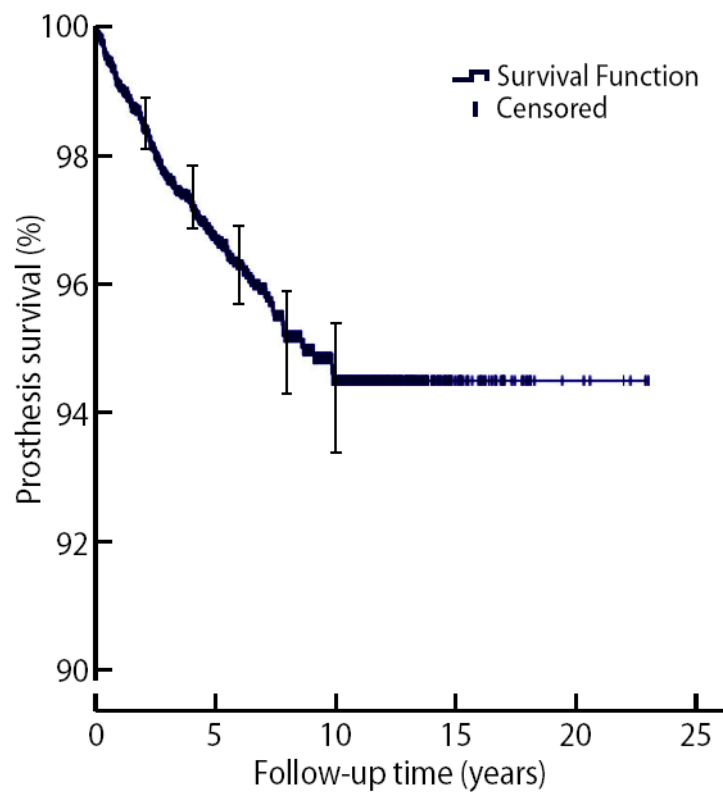
Fig. E-1
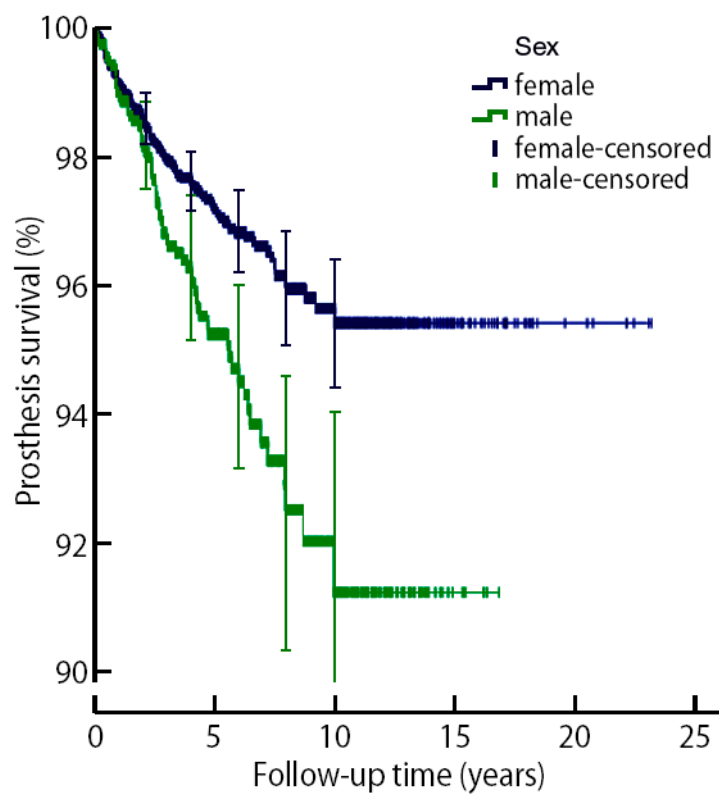Overall prosthetic survival, with the Y axis from 90% to 100%.

Fig. E-2
Survivorship of primary total hip replacements according to sex, with the Y axis from 90% to 100%.
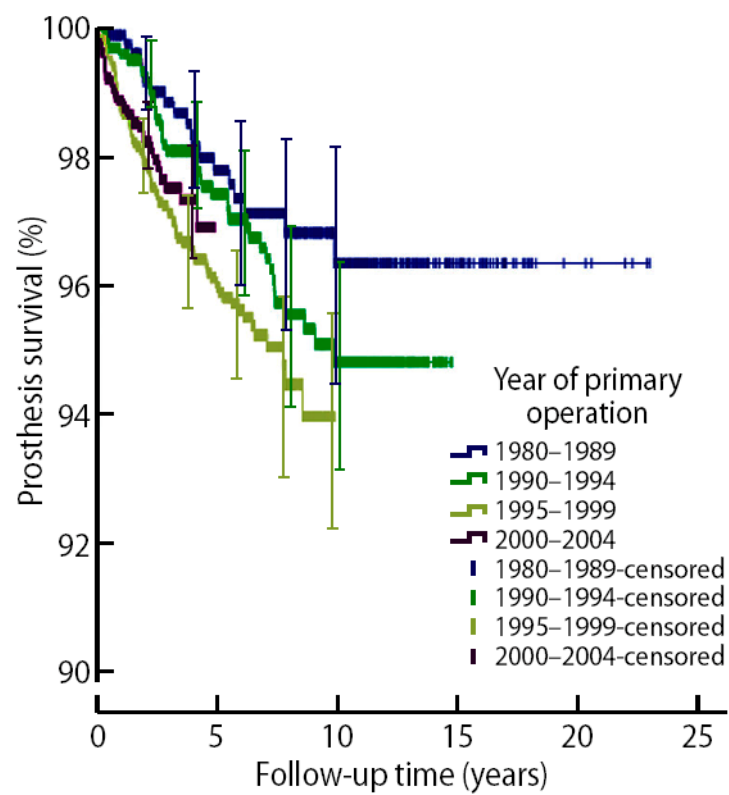
Fig. E-3
Survivorship of primary total hip replacements according to the year of the operation, with the Y axis from 90% to 100%.
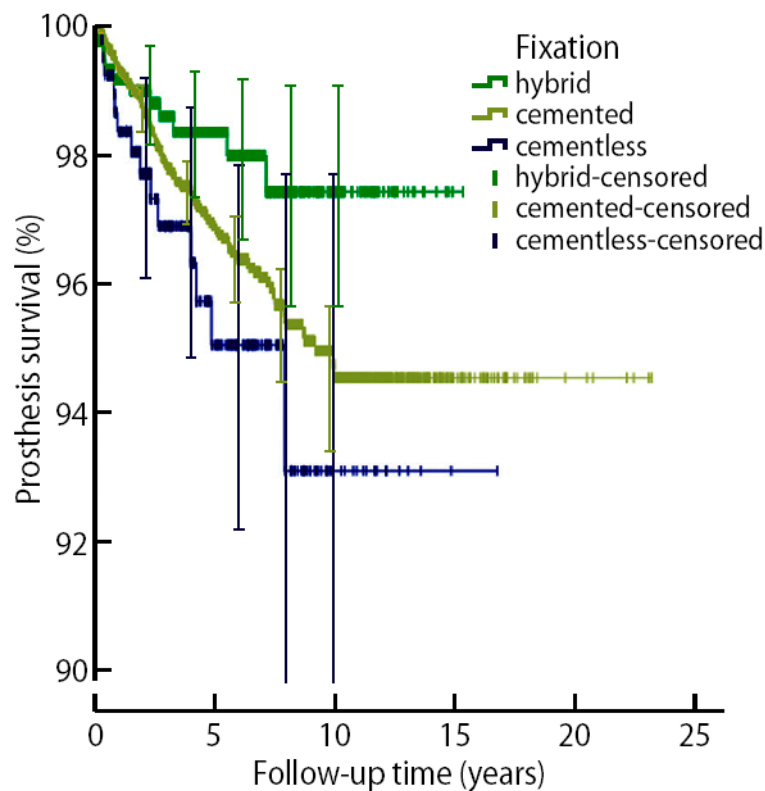
Fig. E-4
Survivorship of primary total hip replacements according to the type of fixation, with the Y axis from 90% to 100%.
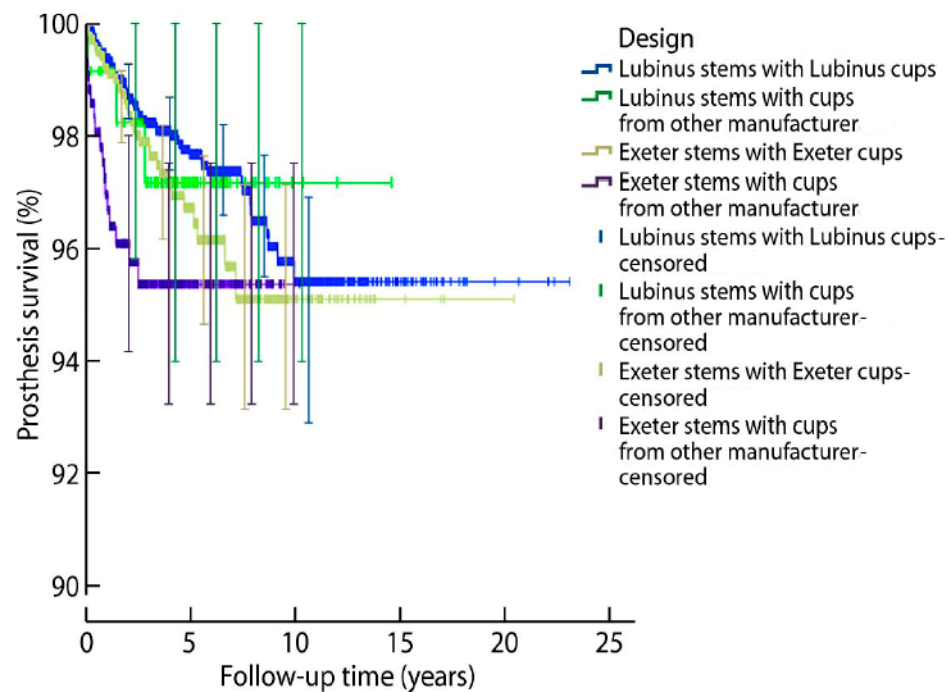

Fig. E-5
Survivorship of primary total hip replacements according to the design of the prosthesis, with the Y axis from 90% to 100%.