

## SUPPLEMENTAL MATERIALS:

Supplement table 1: Descriptive statistics (numbers (N), mean with standard deviation (SD) and percentage (%)) of the study sample. The athletes are stratified by sex and sport discipline.

Female athletes				Male athletes					
Sport	N athletes	Career length, yrs (SD)	THAs* (%)	BMI at age 20 (SD)	Sport	N athletes	Career length, yrs (SD)	THAs* (%)	BMI at age 20 (SD)
Handball	279	10.3 (5.1)	9 (3.2)	22.1 (1.8)	Handball	290	12.4 (5.9)	23 (7.9)	23.9 (2.0)
Volleyball	101	10.5 (5.0)	7 (6.9)	21.3 (1.9)	Football	176	14.7 (4.3)	12 (6.8)	22.8 (1.3)
Sprint	78	11.0 (6.2)	5 (6.4)	20.2 (1.6)	X.C. ski	170	12.8 (4.4)	8 (4.7)	22.2 (1.5)
Football	75	12.1 (5.0)	1 (1.3)	21.5 (1.6)	Ice hockey	92	15.8 (5.6)	7 (7.6)	24.2 (4.0)
X.C. ski	73	10.1 (3.9)	5 (6.8)	20.7 (1.7)	Skating	91	13.9 (6.7)	5 (5.5)	23.2 (1.4)
Skating	64	10.7 (7.0)	4 (6.3)	21.4 (2.3)	Volleyball	88	11.6 (5.2)	3 (3.4)	22.6 (2.1)
Throwing	61	10.5 (4.8)	6 (9.8)	23.5 (2.8)	Racewalking	82	13.0 (9.7)	6 (7.3)	21.2 (2.0)
Athletics	59	8.3 (3.7)	4 (6.8)	20.5 (1.7)	Sailing	62	15.7 (9.2)	1 (1.6)	22.7 (2.5)
Orienteering	57	11.8 (5.6)	8 (14.0)	20.2 (2.2)	Ski jumping	61	14.2 (5.9)	5 (8.2)	21.4 (1.7)
Long d. run	51	11.2 (7.3)	2 (3.9)	19.9 (1.9)	Alpine ski	56	12.1 (5.1)	1 (1.7)	24.2 (1.8)
Alpine ski	50	10.4 (6.1)	4 (8.0)	21.7 (1.8)	Orienteering	55	14.2 (4.5)	3 (5.5)	20.7 (1.7)
Racewalking	47	7.5 (5.7)	0	20.1 (2.1)	Mushing	48	13.0 (6.9)	2 (4.2)	22.2 (1.5)
Basketball	45	12.5 (4.7)	3 (6.6)	21.3 (1.7)	Rowing	45	10.8 (4.9)	4 (8.9)	23.0 (2.1)
Swimming	34	8.4 (5.1)	2 (5.9)	21.3 (1.9)	Nordic co.	44	11.4 (3.9)	1 (2.3)	21.5 (1.6)
Floorball	32	10.6 (6.0)	0	21.8 (2.5)	Basketball	44	14.0 (5.0)	4 (9.1)	21.9 (2.3)
Mushing	32	14.0 (7.7)	2 (6.3)	20.5 (1.9)	Weightlifting	40	13.4 (5.7)	5 (12.5)	26.3 (2.6)
Other N < 30		11.1 (6.2)	7 (2.7)	21.0 (2.2)	Other N < 40		13.2 (6.0)	16 (3.5)	22.4 (2.1)

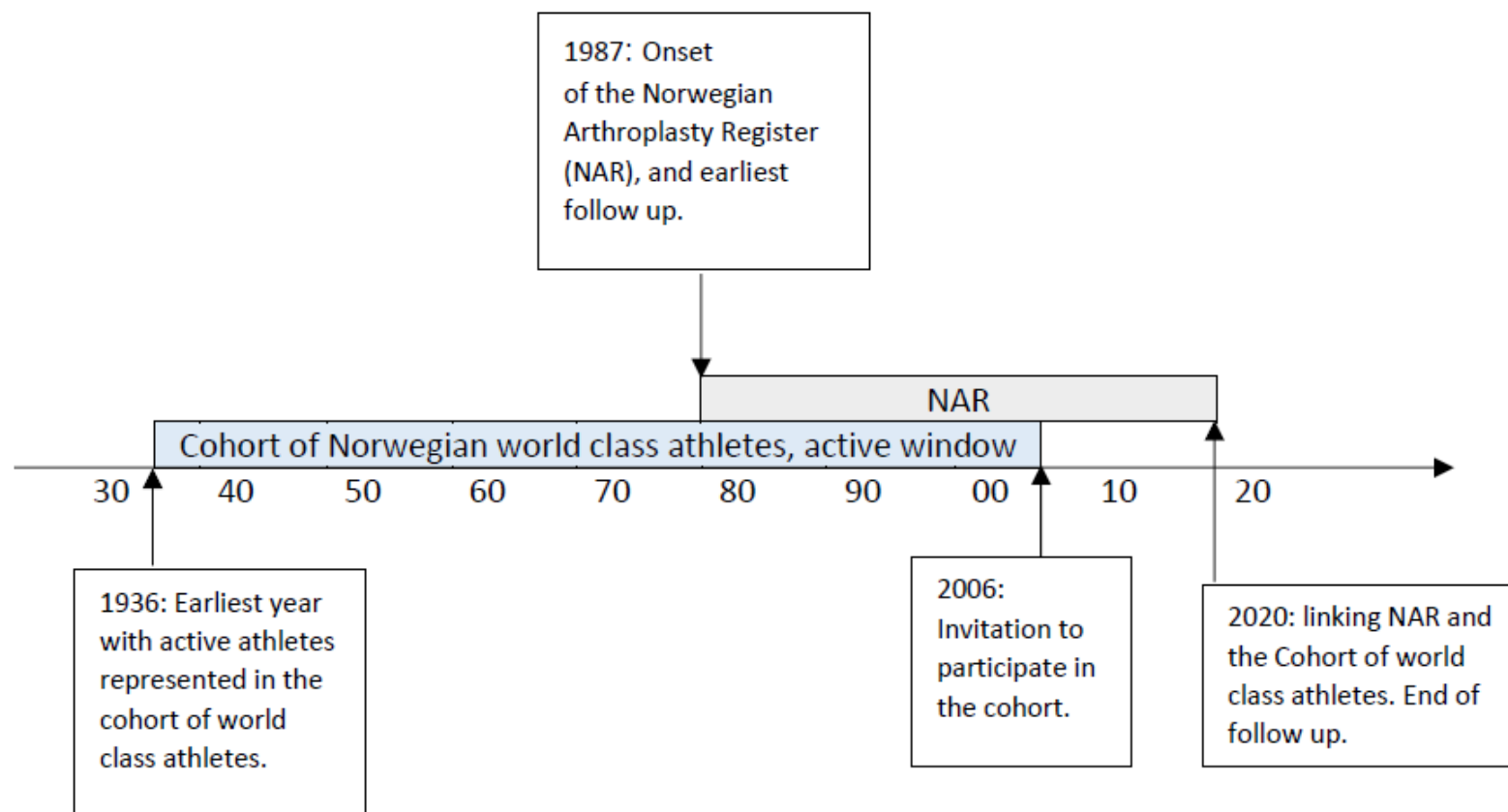
\* Multiple arthroplasties and revisions may be present in the same athlete.

Abbreviations: d. = distance; X.C. ski = cross-country and biathlon; co. = combined

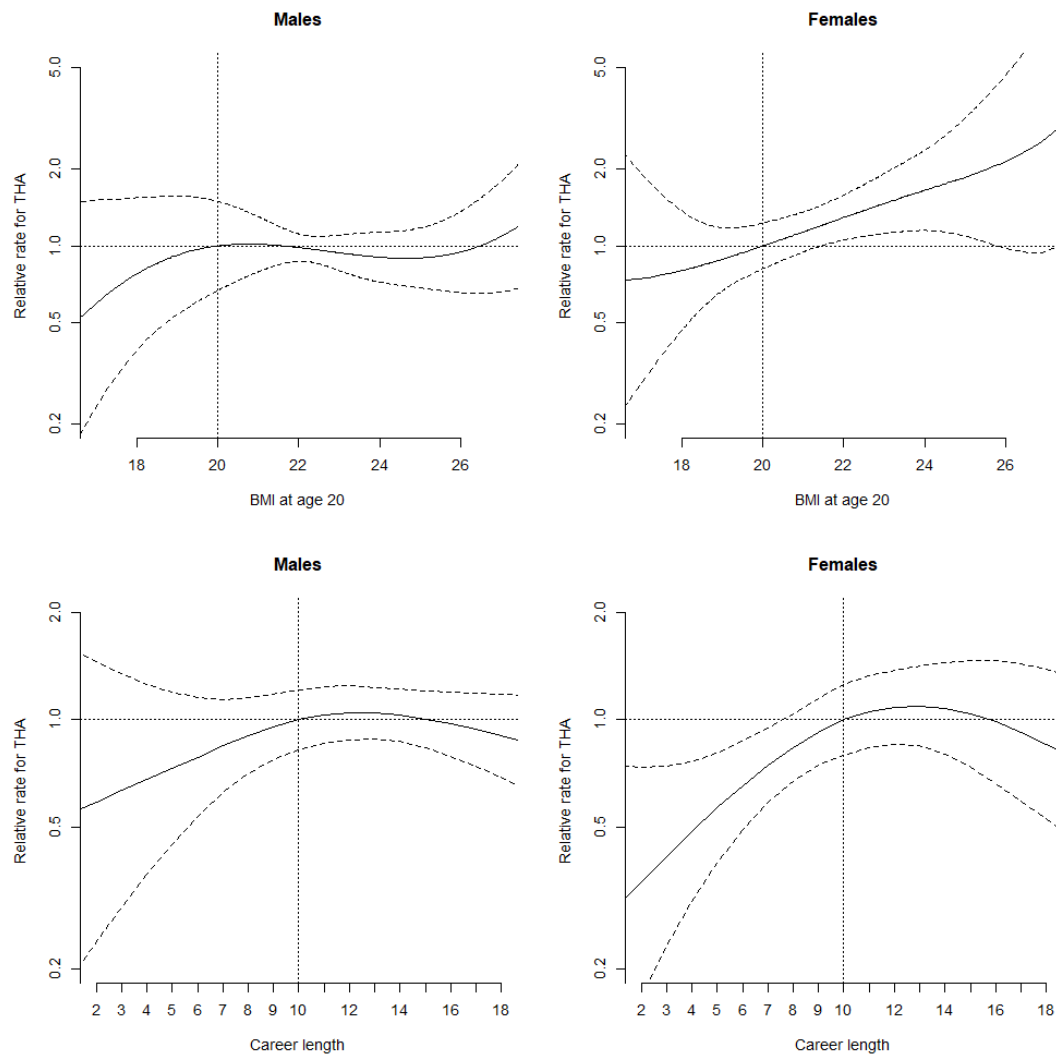
Supplement table 2: Relative Hazard Ratio (RHR) of THA in former elite female and male athletes. Handball is the sport of reference (Ref.).

	Female athletes			Male athletes	
	RHR (95% CI)	p		RHR (95% CI)	p
Handball	1.00	Ref.	Handball	1.00	Ref.
Volleyball	2.05 (0.73 - 5.74)	0.173	Football	0.40 (0.20 - 0.82)	0.012
Sprint	0.78 (0.25 - 2.45)	0.668	X.C. ski	0.41 (0.18 - 0.92)	0.031
Football	0.42 (0.05 - 3.48)	0.425	Ice hockey	0.69 (0.30 - 1.60)	0.385
X.C. ski	2.45 (0.73 - 8.17)	0.145	Skating	0.36 (0.13 - 1.00)	0.049
Skating	0.57 (0.16 - 2.00)	0.382	Volleyball	0.55 (0.16 - 1.92)	0.348
Throwing	1.18 (0.36 - 3.88)	0.785	Racewalking	0.35 (0.14 - 0.84)	0.019
Athletics	0.75 (0.25 - 2.31)	0.620	Sailing	0.20 (0.03 - 1.39)	0.104
Orienteering	1.11 (0.41 - 2.98)	0.835	Ski jumping	0.66 (0.24 - 1.82)	0.419
Long d. run	0.88 (0.17 - 4.48)	0.877	Alpine ski	0.21 (0.05 - 0.80)	0.023
Alpine ski	1.41 (0.42 - 4.76)	0.578	Orienteering	0.46 (0.13 - 1.61)	0.226
Racewalking	0*	-	Mushing	0.20 (0.05 - 0.82)	0.026
Basketball	1.53 (0.43 - 5.45)	0.509	Rowing	0.35 (0.11 - 1.14)	0.081
Swimming	0.53 (0.11 - 2.48)	0.418	Nordic combined	0.50 (0.06 - 3.97)	0.514
Floorball	0*	-	Basketball	0.74 (0.24 - 2.24)	0.591
Mushing	1.02 (0.26 - 3.93)	0.978	Weightlifting	0.86 (0.32 - 2.34)	0.768
Other < 30	0.76 (0.26 - 2.21)	0.615	Other < 40	0.35 (0.18 - 0.68)	0.002

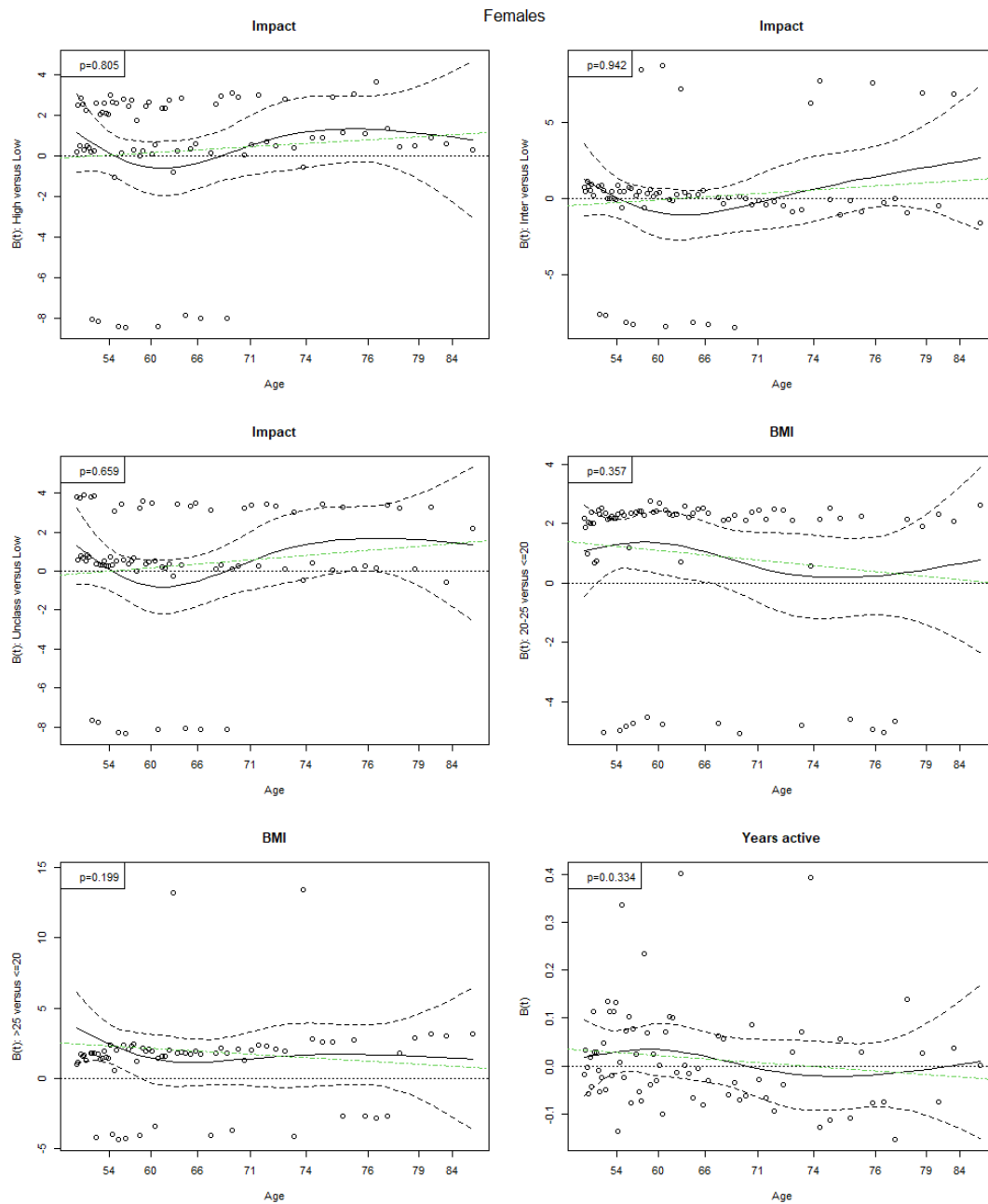
Abbreviations: d. = distance; X.C. ski = cross-country and biathlon;



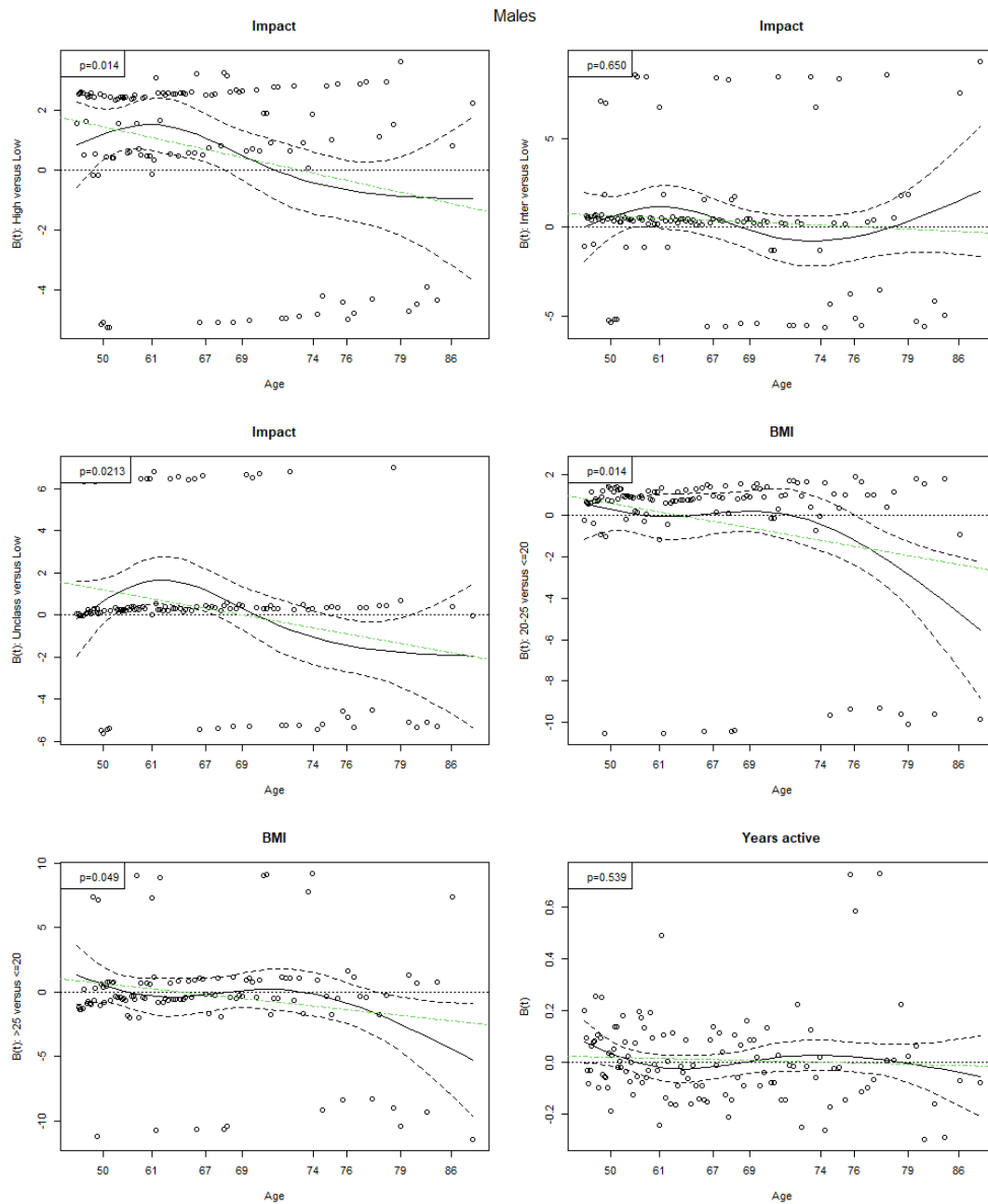
Supplement figure 1: timeline demonstrating the relationship of the Norwegian Arthroplasty Register (NAR), the cohort of Norwegian world-class athletes and follow-up timeframes.



Supplement figure 2: Relative rate for THA and BMI at age 20, and relative rate for THA and years active (Career length), for former elite female and male athletes.



Supplement figure 3: Schoenfeld test for proportionality of the variables (High impact, Intermediate impact, Unclassified impact, BMI and Years active) for female athletes in the present study.



Supplement figure 4: Schoenfeld test for proportionality of the variables (High impact, Intermediate impact, Unclassified impact, BMI and Years active) for male athletes in the present study.



