FRAX® WHO Fracture Risk Assessment Tool

Germany - The probabilities of a hip fracture in men

The following tables give the 10-year probability (%) of a hip fracture according to body mass index (BMI kg/m2), the number of clinical risk factors (CRF) and age. Each table provides a mean estimate and a range, based on the epidemiology of Germany. The range is not a confidence interval, but because the weight of different risk factors varies, is a true range.

Age = 50 years

Number of CRFs	BMI (kg/m²)						
	15	20	25	30	35	40	45
0	0.5	0.3	0.2	0.1	0.1	0.1	0.1
1	1.0 (0.7-2.0)	0.6 (0.4-1.1)	0.3 (0.2-0.6)	0.3 (0.2-0.5)	0.2 (0.1-0.4)	0.1 (0.1-0.3)	0.1 (0.1-0.2)
2	2.0 (1.0-4.1)	1.1 (0.6-2.4)	0.6 (0.3-1.3)	0.5 (0.2-1.0)	0.4 (0.2-0.8)	0.3 (0.1-0.6)	0.2 (0.1-0.5)
3	3.7 (1.5-7.2)	2.1 (0.9-4.1)	1.2 (0.5-2.3)	0.9 (0.4-1.8)	0.7 (0.3-1.4)	0.5 (0.2-1.1)	0.4 (0.2-0.8)
4	6.6 (2.6-11)	3.8 (1.5-6.3)	2.2 (0.8-3.5)	1.7 (0.7-2.8)	1.3 (0.5-2.1)	1.0 (0.4-1.7)	0.8 (0.3-1.3)
5	11 (5.2-15)	6.8 (3.1-9.0)	3.9 (1.7-5.2)	3.0 (1.4-4.0)	2.3 (1.0-3.1)	1.8 (0.8-2.4)	1.4 (0.6-1.9)
6	19	12	6.8	5.3	4.1	3.2	2.5

Ten year probability of hip fractures (%) according to BMI, the number of clinical risk factors (CRF) and age in men from Germany.

Age = 55 years

Number of CRFs	BMI (kg/m²)						
	15	**20**	**25**	**30**	**35**	**40**	**45**
0	0.7	0.4	0.2	0.2	0.1	0.1	0.1
1	1.3 (0.9-2.4)	0.8 (0.5-1.4)	0.4 (0.3-0.8)	0.3 (0.2-0.6)	0.3 (0.2-0.5)	0.2 (0.1-0.4)	0.2 (0.1-0.3)
2	2.4 (1.3-4.6)	1.4 (0.8-2.8)	0.8 (0.4-1.6)	0.6 (0.3-1.2)	0.5 (0.3-1.0)	0.4 (0.2-0.7)	0.3 (0.2-0.6)
3	4.3 (2.0-7.9)	2.6 (1.2-4.8)	1.5 (0.7-2.8)	1.2 (0.5-2.2)	0.9 (0.4-1.7)	0.7 (0.3-1.3)	0.5 (0.2-1.0)
4	7.4 (3.5-12)	4.6 (2.1-7.3)	2.7 (1.2-4.3)	2.1 (0.9-3.3)	1.6 (0.7-2.6)	1.2 (0.6-2.0)	1.0 (0.4-1.5)
5	12 (6.5-16)	7.8 (4.1-10)	4.7 (2.4-6.1)	3.6 (1.9-4.7)	2.8 (1.4-3.7)	2.2 (1.1-2.8)	1.7 (0.9-2.2)
6	20	13	7.9	6.2	4.8	3.7	2.9

Age = 60 years

Number of CRFs	BMI (kg/m²)						
	15	**20**	**25**	**30**	**35**	**40**	**45**
0	1.1	0.7	0.4	0.3	0.2	0.2	0.1
1	2.0 (1.5-3.2)	1.2 (0.9-1.9)	0.7 (0.5-1.1)	0.5 (0.4-0.9)	0.4 (0.3-0.7)	0.3 (0.2-0.5)	0.2 (0.2-0.4)
2	3.4 (2.0-5.9)	2.1 (1.2-3.7)	1.2 (0.7-2.2)	1.0 (0.6-1.7)	0.7 (0.4-1.3)	0.6 (0.3-1.0)	0.4 (0.3-0.8)
3	5.9 (3.0-10)	3.7 (1.9-6.5)	2.2 (1.1-3.9)	1.7 (0.9-3.0)	1.3 (0.7-2.3)	1.0 (0.5-1.8)	0.8 (0.4-1.4)
4	9.7 (5.3-15)	6.3 (3.3-9.7)	3.8 (2.0-5.9)	2.9 (1.5-4.6)	2.3 (1.2-3.5)	1.8 (0.9-2.7)	1.4 (0.7-2.1)
5	16 (9.4-19)	10 (6.2-13)	6.5 (3.8-8.3)	5.0 (3.0-6.4)	3.9 (2.3-5.0)	3.0 (1.8-3.9)	2.3 (1.4-3.0)
6	24	17	11	8.4	6.5	5.0	3.9

Ten year probability of hip fractures (%) according to BMI, the number of clinical risk factors (CRF) and age in men from Germany.

Age = 65 years

Number of CRFs	BMI (kg/m²)						
	15	20	25	30	35	40	45
0	1.8	1.1	0.7	0.5	0.4	0.3	0.2
1	3.0 (2.3-4.3)	1.9 (1.5-2.8)	1.2 (0.9-1.7)	0.9 (0.7-1.3)	0.7 (0.5-1.0)	0.5 (0.4-0.8)	0.4 (0.3-0.6)
2	4.9 (3.0-7.5)	3.3 (2.0-5.1)	2.0 (1.3-3.3)	1.6 (1.0-2.5)	1.2 (0.7-1.9)	0.9 (0.6-1.5)	0.7 (0.4-1.1)
3	7.9 (4.6-13)	5.4 (3.1-8.8)	3.4 (1.9-5.7)	2.6 (1.5-4.4)	2.0 (1.1-3.4)	1.6 (0.9-2.6)	1.2 (0.7-2.0)
4	12 (7.6-18)	8.7 (5.4-13)	5.7 (3.4-8.5)	4.4 (2.6-6.6)	3.4 (2.0-5.1)	2.6 (1.5-3.9)	2.0 (1.2-3.0)
5	19 (13-23)	14 (9.3-17)	9.3 (6.3-11)	7.2 (4.8-8.9)	5.6 (3.7-6.9)	4.3 (2.9-5.3)	3.3 (2.2-4.1)
6	27	21	15	12	8.9	6.9	5.3

Age = 70 years

Number of CRFs	BMI (kg/m²)						
	15	20	25	30	35	40	45
0	3.0	2.1	1.3	1.0	0.8	0.6	0.5
1	5.2 (3.8-6.3)	3.6 (2.7-4.4)	2.4 (1.8-2.8)	1.8 (1.4-2.2)	1.4 (1.1-1.7)	1.1 (0.8-1.3)	0.8 (0.6-1.0)
2	8.6 (5.7-13)	6.3 (4.1-9.0)	4.2 (2.7-5.9)	3.2 (2.1-4.5)	2.5 (1.6-3.5)	1.9 (1.2-2.7)	1.4 (0.9-2.1)
3	14 (8.6-21)	11 (6.8-15)	7.3 (4.8-11)	5.6 (3.7-8.2)	4.3 (2.8-6.3)	3.3 (2.2-4.8)	2.5 (1.6-3.7)
4	22 (14-30)	17 (11-24)	12 (8.4-18)	9.5 (6.4-14)	7.4 (4.9-11)	5.7 (3.8-8.3)	4.3 (2.9-6.4)
5	32 (26-39)	26 (22-33)	20 (17-25)	16 (13-20)	12 (10-16)	9.5 (7.8-12)	7.3 (5.9-9.6)
6	43	38	31	25	20	16	12

Ten year probability of hip fractures (%) according to BMI, the number of clinical risk factors (CRF) and age in men from Germany.

Age = 75 years

Number of CRFs	BMI (kg/m²)						
	15	**20**	**25**	**30**	**35**	**40**	**45**
0	4.7	3.5	2.4	1.8	1.4	1.1	0.8
1	8.5 (5.6-15)	6.5 (4.4-11)	4.6 (3.1-8.0)	3.5 (2.4-6.2)	2.7 (1.8-4.8)	2.0 (1.4-3.6)	1.5 (1.0-2.8)
2	14 (8.3-24)	11 (6.5-19)	8.3 (4.7-14)	6.4 (3.6-11)	4.9 (2.7-8.4)	3.8 (2.1-6.5)	2.9 (1.6-5.0)
3	23 (12-36)	19 (10-30)	15 (7.8-23)	11 (6.0-18)	8.8 (4.5-14)	6.8 (3.4-11)	5.2 (2.6-8.6)
4	34 (20-47)	29 (16-41)	24 (13-35)	19 (10-28)	15 (7.8-23)	12 (5.9-18)	9.0 (4.5-14)
5	47 (31-56)	42 (27-52)	36 (22-45)	30 (17-38)	24 (13-31)	19 (10-25)	15 (8.0-20)
6	60	55	50	43	36	29	24

Age = 80 years

Number of CRFs	BMI (kg/m²)						
	15	**20**	**25**	**30**	**35**	**40**	**45**
0	6.6	5.1	3.8	2.9	2.2	1.6	1.2
1	11 (7.7-20)	9.1 (6.2-16)	6.9 (4.7-12)	5.2 (3.6-9.5)	4.0 (2.7-7.3)	3.0 (2.1-5.6)	2.3 (1.6-4.3)
2	18 (11-30)	15 (9.2-26)	12 (7.1-20)	9.1 (5.4-16)	7.0 (4.1-12)	5.4 (3.1-9.6)	4.1 (2.4-7.3)
3	28 (16-41)	23 (13-35)	19 (11-30)	15 (8.2-24)	12 (6.3-19)	9.1 (4.8-15)	7.0 (3.6-11)
4	39 (23-51)	34 (20-45)	29 (16-40)	24 (13-33)	19 (9.7-27)	15 (7.4-21)	12 (5.6-17)
5	51 (35-60)	46 (30-56)	41 (26-50)	35 (20-43)	28 (16-36)	23 (12-29)	18 (9.5-24)
6	63	59	54	47	40	33	27

Ten year probability of hip fractures (%) according to BMI, the number of clinical risk factors (CRF) and age in men from Germany.

Age = 85 years

Number of CRFs	BMI (kg/m²)						
	15	20	25	30	35	40	45
0	8.1	6.4	4.8	3.7	2.8	2.1	1.6
1	14 (9.6-24)	11 (7.7-20)	8.7 (6.0-15)	6.6 (4.5-12)	5.1 (3.4-9.2)	3.8 (2.6-7.1)	2.9 (1.9-5.4)
2	22 (14-36)	18 (11-30)	15 (8.9-25)	11 (6.8-20)	8.8 (5.2-15)	6.7 (3.9-12)	5.1 (2.9-9.2)
3	32 (20-46)	28 (16-41)	23 (13-35)	18 (10-28)	14 (7.8-23)	11 (6.0-18)	8.7 (4.5-14)
4	44 (28-56)	39 (24-51)	34 (20-46)	28 (15-38)	23 (12-32)	18 (9.1-26)	14 (7.0-20)
5	55 (40-63)	52 (35-61)	47 (30-56)	40 (24-49)	33 (19-42)	27 (15-35)	22 (12-28)
6	64	63	60	53	46	39	32

Age = 90 years

Number of CRFs	BMI (kg/m²)						
	15	20	25	30	35	40	45
0	7.9	6.2	4.7	3.6	2.7	2.1	1.5
1	13 (9.3-23)	11 (7.4-19)	8.5 (5.8-15)	6.5 (4.4-12)	4.9 (3.3-9.0)	3.8 (2.5-6.9)	2.8 (1.9-5.3)
2	21 (13-35)	18 (11-30)	14 (8.6-24)	11 (6.6-19)	8.6 (5.0-15)	6.6 (3.8-12)	5.0 (2.9-9.0)
3	31 (19-45)	27 (16-40)	23 (13-34)	18 (10-28)	14 (7.6-22)	11 (5.8-17)	8.4 (4.4-14)
4	42 (27-54)	38 (23-50)	33 (19-45)	27 (15-37)	22 (12-31)	17 (8.8-25)	14 (6.8-20)
5	53 (38-60)	50 (34-59)	46 (29-55)	39 (24-48)	32 (19-41)	26 (15-34)	21 (11-27)
6	60	60	58	51	45	38	31