FRAX® WHO Fracture Risk Assessment Tool

South Africa (African) - The probabilities of a hip fracture in women

The following tables give the 10-year probability (%) of a hip fracture according to the T-score for femoral neck BMD, the number of clinical risk factors (CRF) and age. Each table provides a mean estimate and a range, based on the epidemiology of South Africa (African). The range is not a confidence interval, but because the weight of different risk factors varies, is a true range.

Note that the BMI is set at 24 kg/m²

Age = 50 years

Number of CRFs	BMD T-score (femoral neck)										
	-4.0	-3.5	-3.0	-2.5	-2.0	-1.5	-1.0	-0.5	0	0.5	1.0
0	6.6	3.4	1.8	0.9	0.5	0.2	0.1	0.1	0.0	0.0	0.0
1	10 (6.9-14)	5.5 (3.6-7.2)	2.8 (1.9-3.7)	1.5 (1.0-1.9)	0.7 (0.5-1.0)	0.4 (0.3-0.5)	0.2 (0.1-0.3)	0.1 (0.1-0.1)	0.1 (0.0-0.1)	0.0 (0.0-0.0)	0.0 (0.0-0.0)
2	16 (9.7-24)	8.6 (5.1-13)	4.5 (2.6-6.8)	2.3 (1.4-3.5)	1.2 (0.7-1.8)	0.6 (0.4-0.9)	0.3 (0.2-0.5)	0.2 (0.1-0.3)	0.1 (0.1-0.1)	0.0 (0.0-0.1)	0.0 (0.0-0.0)
3	24 (14-36)	13 (7.7-21)	7.0 (4.0-11)	3.7 (2.1-5.9)	1.9 (1.1-3.1)	1.0 (0.5-1.6)	0.5 (0.3-0.8)	0.3 (0.1-0.4)	0.1 (0.1-0.2)	0.1 (0.0-0.1)	0.0 (0.0-0.1)
4	35 (23-49)	20 (13-30)	11 (6.7-17)	5.7 (3.5-8.9)	3.0 (1.8-4.7)	1.5 (0.9-2.4)	0.8 (0.5-1.2)	0.4 (0.3-0.7)	0.2 (0.1-0.3)	0.1 (0.1-0.2)	0.1 (0.0-0.1)
5	48 (38-61)	29 (22-39)	16 (12-23)	8.7 (6.3-12)	4.5 (3.3-6.6)	2.4 (1.7-3.4)	1.2 (0.9-1.8)	0.6 (0.5-0.9)	0.3 (0.2-0.5)	0.2 (0.1-0.3)	0.1 (0.1-0.1)
6	62	41	24	13	6.9	3.6	1.9	1.0	0.5	0.3	0.1

Ten years probability of hip fractures (%) according to BMD, the number of clinical risk factors (CRF) and age in women from South Africa (African).

Age = 55 years

Number of CRFs	BMD T-score (femoral neck)										
	-4.0	-3.5	-3.0	-2.5	-2.0	-1.5	-1.0	-0.5	0	0.5	1.0
0	6.8	3.7	2.0	1.1	0.6	0.3	0.2	0.1	0.1	0.0	0.0
1	10 (7.1-13)	5.8 (3.9-7.1)	3.2 (2.1-3.9)	1.7 (1.1-2.1)	0.9 (0.6-1.1)	0.5 (0.3-0.6)	0.3 (0.2-0.3)	0.1 (0.1-0.2)	0.1 (0.1-0.1)	0.0 (0.0-0.1)	0.0 (0.0-0.0)
2	16 (9.9-22)	8.9 (5.5-13)	4.9 (3.0-7.1)	2.7 (1.6-3.9)	1.4 (0.9-2.1)	0.8 (0.5-1.1)	0.4 (0.3-0.6)	0.2 (0.1-0.3)	0.1 (0.1-0.2)	0.1 (0.0-0.1)	0.0 (0.0-0.1)
3	23 (15-34)	13 (8.2-20)	7.5 (4.5-12)	4.1 (2.4-6.5)	2.2 (1.3-3.5)	1.2 (0.7-1.9)	0.7 (0.4-1.0)	0.4 (0.2-0.6)	0.2 (0.1-0.3)	0.1 (0.1-0.2)	0.1 (0.0-0.1)
4	33 (24-47)	20 (14-29)	11 (7.5-17)	6.3 (4.1-9.7)	3.5 (2.2-5.4)	1.9 (1.2-2.9)	1.0 (0.7-1.6)	0.6 (0.4-0.9)	0.3 (0.2-0.5)	0.2 (0.1-0.3)	0.1 (0.1-0.2)
5	46 (38-58)	29 (23-39)	17 (13-23)	9.5 (7.4-13)	5.3 (4.1-7.5)	2.9 (2.2-4.1)	1.6 (1.2-2.2)	0.9 (0.7-1.3)	0.5 (0.4-0.7)	0.3 (0.2-0.4)	0.2 (0.1-0.2)
6	60	40	24	14	7.9	4.3	2.4	1.3	0.7	0.4	0.2

Age = 60 years

Number of CRFs	BMD T-score (femoral neck)										
	-4.0	-3.5	-3.0	-2.5	-2.0	-1.5	-1.0	-0.5	0	0.5	1.0
0	6.6	3.8	2.1	1.2	0.7	0.4	0.2	0.1	0.1	0.0	0.0
1	10 (7.0-12)	5.8 (4.0-6.8)	3.3 (2.2-3.9)	1.8 (1.3-2.2)	1.0 (0.7-1.2)	0.6 (0.4-0.7)	0.3 (0.2-0.4)	0.2 (0.1-0.2)	0.1 (0.1-0.1)	0.1 (0.0-0.1)	0.0 (0.0-0.0)
2	15 (9.8-20)	8.8 (5.6-12)	5.0 (3.2-6.9)	2.8 (1.8-3.9)	1.6 (1.0-2.2)	0.9 (0.6-1.2)	0.5 (0.3-0.7)	0.3 (0.2-0.4)	0.2 (0.1-0.2)	0.1 (0.1-0.1)	0.1 (0.0-0.1)
3	22 (14-31)	13 (8.4-19)	7.6 (4.8-11)	4.3 (2.7-6.5)	2.4 (1.5-3.7)	1.4 (0.8-2.1)	0.8 (0.5-1.2)	0.5 (0.3-0.7)	0.3 (0.2-0.4)	0.2 (0.1-0.2)	0.1 (0.1-0.1)
4	31 (23-43)	19 (14-28)	11 (7.9-17)	6.5 (4.5-9.7)	3.7 (2.6-5.6)	2.1 (1.4-3.2)	1.2 (0.8-1.8)	0.7 (0.5-1.1)	0.4 (0.3-0.6)	0.2 (0.2-0.4)	0.1 (0.1-0.2)
5	43 (37-54)	27 (23-36)	17 (14-23)	9.7 (8.1-14)	5.6 (4.6-7.8)	3.1 (2.6-4.5)	1.8 (1.5-2.6)	1.0 (0.9-1.5)	0.6 (0.5-0.9)	0.4 (0.3-0.5)	0.2 (0.2-0.3)
6	56	38	24	14	8.2	4.7	2.7	1.6	0.9	0.5	0.3

Ten years probability of hip fractures (%) according to BMD, the number of clinical risk factors (CRF) and age in women from South Africa (African).

Age = 65 years

Number of CRFs	BMD T-score (femoral neck)										
	-4.0	-3.5	-3.0	-2.5	-2.0	-1.5	-1.0	-0.5	0	0.5	1.0
0	6.4	3.8	2.2	1.3	0.8	0.4	0.3	0.2	0.1	0.1	0.0
1	9.6 (6.7-11)	5.7 (4.0-6.8)	3.4 (2.3-4.0)	2.0 (1.4-2.3)	1.1 (0.8-1.4)	0.7 (0.5-0.8)	0.4 (0.3-0.5)	0.2 (0.2-0.3)	0.1 (0.1-0.2)	0.1 (0.1-0.1)	0.1 (0.0-0.1)
2	14 (9.4-18)	8.5 (5.6-11)	5.1 (3.3-6.6)	3.0 (1.9-3.9)	1.7 (1.1-2.3)	1.0 (0.7-1.3)	0.6 (0.4-0.8)	0.4 (0.2-0.5)	0.2 (0.1-0.3)	0.1 (0.1-0.2)	0.1 (0.1-0.1)
3	20 (14-28)	13 (8.4-18)	7.5 (5.0-11)	4.5 (2.9-6.4)	2.6 (1.7-3.8)	1.5 (1.0-2.2)	0.9 (0.6-1.3)	0.6 (0.4-0.8)	0.3 (0.2-0.5)	0.2 (0.1-0.3)	0.1 (0.1-0.2)
4	29 (22-39)	18 (14-25)	11 (8.2-16)	6.6 (4.8-9.6)	3.9 (2.8-5.7)	2.3 (1.7-3.4)	1.4 (1.0-2.0)	0.8 (0.6-1.2)	0.5 (0.4-0.8)	0.3 (0.2-0.5)	0.2 (0.1-0.3)
5	39 (34-49)	26 (22-34)	16 (13-22)	9.7 (8.0-13)	5.8 (4.7-8.0)	3.4 (2.8-4.8)	2.1 (1.7-2.9)	1.2 (1.0-1.8)	0.8 (0.6-1.1)	0.5 (0.4-0.6)	0.3 (0.2-0.4)
6	51	35	23	14	8.4	5.0	3.0	1.8	1.1	0.7	0.4

Age = 70 years

Number of CRFs	BMD T-score (femoral neck)										
	-4.0	-3.5	-3.0	-2.5	-2.0	-1.5	-1.0	-0.5	0	0.5	1.0
0	6.3	3.9	2.4	1.4	0.9	0.5	0.3	0.2	0.1	0.1	0.1
1	10 (8.8-13)	6.4 (5.4-8.1)	3.9 (3.3-5.0)	2.4 (2.0-3.0)	1.5 (1.2-1.8)	0.9 (0.8-1.1)	0.6 (0.5-0.7)	0.4 (0.3-0.5)	0.2 (0.2-0.3)	0.1 (0.1-0.2)	0.1 (0.1-0.1)
2	17 (13-22)	10 (8.2-14)	6.5 (5.0-8.8)	4.0 (3.1-5.4)	2.4 (1.9-3.3)	1.5 (1.2-2.1)	0.9 (0.7-1.3)	0.6 (0.5-0.8)	0.4 (0.3-0.5)	0.2 (0.2-0.3)	0.1 (0.1-0.2)
3	26 (19-33)	17 (12-22)	11 (7.7-14)	6.6 (4.7-8.8)	4.0 (2.9-5.4)	2.5 (1.8-3.4)	1.6 (1.1-2.2)	1.0 (0.7-1.4)	0.6 (0.4-0.9)	0.4 (0.3-0.5)	0.2 (0.2-0.3)
4	38 (30-45)	26 (20-31)	17 (12-21)	11 (7.7-13)	6.6 (4.8-8.3)	4.1 (3.0-5.2)	2.6 (1.9-3.3)	1.7 (1.2-2.1)	1.0 (0.7-1.3)	0.7 (0.5-0.8)	0.4 (0.3-0.5)
5	53 (45-58)	38 (31-43)	26 (21-29)	17 (13-19)	11 (8.4-12)	6.8 (5.3-7.8)	4.3 (3.3-5.0)	2.7 (2.1-3.2)	1.7 (1.3-2.0)	1.1 (0.8-1.3)	0.7 (0.5-0.8)
6	68	54	39	26	17	11	7.0	4.5	2.9	1.8	1.1

Ten years probability of hip fractures (%) according to BMD, the number of clinical risk factors (CRF) and age in women from South Africa (African).

Age = 75 years

Number of CRFs	BMD T-score (femoral neck)										
	-4.0	-3.5	-3.0	-2.5	-2.0	-1.5	-1.0	-0.5	0	0.5	1.0
0	5.9	3.8	2.4	1.5	1.0	0.6	0.4	0.3	0.2	0.1	0.1
1	11 (8.3-23)	7.4 (5.3-15)	4.8 (3.4-10)	3.1 (2.2-6.5)	2.0 (1.4-4.2)	1.3 (0.9-2.7)	0.8 (0.6-1.8)	0.6 (0.4-1.2)	0.4 (0.3-0.8)	0.2 (0.2-0.5)	0.2 (0.1-0.3)
2	20 (12-36)	14 (7.5-25)	8.9 (4.8-17)	5.8 (3.1-11)	3.7 (2.0-7.3)	2.4 (1.3-4.9)	1.6 (0.8-3.2)	1.1 (0.6-2.1)	0.7 (0.4-1.4)	0.5 (0.2-0.9)	0.3 (0.2-0.6)
3	33 (17-49)	23 (11-37)	16 (7.3-26)	10 (4.7-17)	6.7 (3.0-12)	4.5 (2.0-7.8)	3.0 (1.3-5.2)	2.0 (0.8-3.5)	1.3 (0.6-2.3)	0.9 (0.4-1.5)	0.6 (0.2-1.0)
4	48 (26-62)	36 (18-49)	26 (12-36)	18 (7.5-25)	12 (4.9-17)	7.9 (3.2-12)	5.3 (2.1-7.9)	3.5 (1.4-5.3)	2.3 (0.9-3.5)	1.5 (0.6-2.3)	1.0 (0.4-1.5)
5	65 (39-72)	53 (28-60)	40 (19-46)	28 (13-33)	19 (8.4-23)	13 (5.6-16)	9.1 (3.7-11)	6.1 (2.5-7.4)	4.1 (1.6-5.0)	2.7 (1.1-3.3)	1.8 (0.7-2.2)
6	79	70	57	43	31	22	15	10	7.0	4.7	3.1

Age = 80 years

Number of CRFs	BMD T-score (femoral neck)										
	-4.0	-3.5	-3.0	-2.5	-2.0	-1.5	-1.0	-0.5	0	0.5	1.0
0	5.3	3.5	2.4	1.6	1.1	0.7	0.5	0.3	0.2	0.2	0.1
1	10.0 (6.9-21)	6.8 (4.6-14)	4.6 (3.1-9.9)	3.1 (2.1-6.7)	2.1 (1.4-4.5)	1.4 (1.0-3.1)	1.0 (0.7-2.2)	0.7 (0.5-1.5)	0.5 (0.3-1.0)	0.3 (0.2-0.7)	0.2 (0.2-0.5)
2	17 (9.6-32)	12 (6.5-23)	8.4 (4.4-16)	5.7 (2.9-11)	3.9 (2.0-7.8)	2.7 (1.4-5.5)	1.9 (0.9-3.8)	1.3 (0.6-2.7)	0.9 (0.4-1.8)	0.6 (0.3-1.3)	0.4 (0.2-0.9)
3	28 (14-44)	20 (9.7-33)	14 (6.6-24)	9.9 (4.4-17)	6.9 (3.0-12)	4.8 (2.1-8.5)	3.4 (1.4-6.0)	2.3 (1.0-4.2)	1.6 (0.7-2.9)	1.1 (0.5-2.0)	0.8 (0.3-1.4)
4	42 (21-55)	32 (15-44)	23 (10-33)	17 (7.0-24)	12 (4.8-17)	8.3 (3.3-13)	5.9 (2.3-8.9)	4.1 (1.6-6.3)	2.9 (1.1-4.4)	2.0 (0.8-3.1)	1.4 (0.5-2.1)
5	57 (32-65)	46 (23-54)	36 (17-43)	26 (12-32)	19 (8.0-24)	14 (5.6-17)	9.8 (4.0-12)	6.9 (2.8-8.8)	4.9 (1.9-6.2)	3.4 (1.3-4.4)	2.4 (0.9-3.0)
6	71	62	51	39	29	22	16	11	8.1	5.7	4.0

Ten years probability of hip fractures (%) according to BMD, the number of clinical risk factors (CRF) and age in women from South Africa (African).

Age = 85 years

Number of CRFs	BMD T-score (femoral neck)										
	-4.0	-3.5	-3.0	-2.5	-2.0	-1.5	-1.0	-0.5	0	0.5	1.0
0	4.8	3.4	2.4	1.7	1.2	0.9	0.6	0.5	0.3	0.2	0.2
1	9.0 (6.2-19)	6.4 (4.4-14)	4.6 (3.1-9.8)	3.2 (2.2-7.0)	2.3 (1.6-5.1)	1.7 (1.1-3.7)	1.2 (0.8-2.7)	0.9 (0.6-2.0)	0.7 (0.4-1.4)	0.5 (0.3-1.0)	0.3 (0.2-0.8)
2	15 (8.7-28)	11 (6.2-21)	8.2 (4.4-16)	5.9 (3.1-11)	4.3 (2.2-8.5)	3.2 (1.6-6.3)	2.3 (1.2-4.6)	1.7 (0.9-3.4)	1.2 (0.6-2.5)	0.9 (0.5-1.8)	0.6 (0.3-1.3)
3	25 (13-39)	19 (9.2-30)	14 (6.6-23)	10 (4.7-17)	7.5 (3.4-13)	5.6 (2.5-9.4)	4.1 (1.8-7.0)	3.0 (1.3-5.2)	2.2 (0.9-3.8)	1.6 (0.7-2.8)	1.2 (0.5-2.1)
4	37 (19-48)	29 (14-39)	22 (9.9-31)	16 (7.1-23)	12 (5.2-18)	9.4 (3.8-14)	7.0 (2.8-10)	5.2 (2.1-7.8)	3.8 (1.5-5.8)	2.8 (1.1-4.2)	2.0 (0.8-3.1)
5	50 (27-57)	42 (21-48)	33 (15-39)	26 (11-31)	20 (8.4-24)	15 (6.3-19)	11 (4.6-14)	8.6 (3.4-11)	6.4 (2.5-8.0)	4.7 (1.8-6.0)	3.5 (1.4-4.4)
6	64	56	47	38	30	24	18	14	10	7.8	5.8

Age = 90 years

Number of CRFs	BMD T-score (femoral neck)										
	-4.0	-3.5	-3.0	-2.5	-2.0	-1.5	-1.0	-0.5	0	0.5	1.0
0	4.2	3.1	2.3	1.7	1.3	1.0	0.8	0.6	0.5	0.4	0.3
1	7.8 (5.5-17)	5.9 (4.1-13)	4.4 (3.0-9.6)	3.3 (2.3-7.3)	2.6 (1.8-5.7)	2.0 (1.4-4.4)	1.5 (1.0-3.4)	1.2 (0.8-2.6)	0.9 (0.6-2.0)	0.7 (0.5-1.5)	0.5 (0.4-1.2)
2	13 (7.7-24)	10 (5.7-19)	7.8 (4.3-15)	6.0 (3.2-12)	4.7 (2.5-9.1)	3.6 (1.9-7.1)	2.8 (1.5-5.6)	2.2 (1.1-4.3)	1.7 (0.9-3.3)	1.3 (0.7-2.6)	1.0 (0.5-2.0)
3	21 (11-34)	17 (8.3-27)	13 (6.2-21)	10 (4.7-17)	8.0 (3.7-13)	6.3 (2.9-11)	4.9 (2.2-8.3)	3.8 (1.7-6.5)	3.0 (1.3-5.0)	2.3 (1.0-3.9)	1.8 (0.8-3.0)
4	32 (16-42)	26 (12-35)	21 (9.3-28)	16 (7.1-23)	13 (5.6-18)	10 (4.3-15)	8.2 (3.4-12)	6.4 (2.6-9.4)	5.0 (2.0-7.4)	3.9 (1.6-5.8)	3.0 (1.2-4.5)
5	44 (23-50)	37 (18-43)	31 (14-36)	25 (11-30)	20 (8.7-25)	17 (6.8-20)	13 (5.4-16)	11 (4.2-13)	8.3 (3.3-10)	6.5 (2.5-8.1)	5.0 (2.0-6.3)
6	57	50	43	36	30	25	21	17	13	10	8.2