FRAX® WHO Fracture Risk Assessment Tool

The US (Asian) - The probabilities of a major osteoporotic fracture in women

The following tables give the 10-year probability (%) of a major osteoporotic fracture (hip, clinical spine, forearm or proximal humerus 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 the US (Asian). 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	2.2	2.0	1.9	1.7	1.5	1.3	1.1
1	3.5 (2.4-5.1)	3.2 (2.2-4.5)	3.0 (2.0-4.1)	2.6 (1.8-3.6)	2.3 (1.6-3.2)	2.0 (1.4-2.8)	1.8 (1.2-2.4)
2	5.6 (3.0-9.2)	5.0 (2.6-8.5)	4.7 (2.5-8.1)	4.1 (2.1-7.1)	3.6 (1.9-6.2)	3.1 (1.6-5.5)	2.7 (1.4-4.8)
3	8.8 (4.3-15)	7.7 (3.7-14)	7.1 (3.4-13)	6.2 (2.9-11)	5.4 (2.5-10)	4.7 (2.2-8.8)	4.1 (1.9-7.8)
4	14 (7.6-21)	12 (6.3-19)	11 (5.6-17)	9.2 (4.9-15)	8.1 (4.2-13)	7.1 (3.7-12)	6.2 (3.2-10)
5	21 (13-26)	17 (11-23)	16 (11-21)	14 (9.3-18)	12 (8.1-16)	10 (7.1-14)	9.1 (6.2-12)
6	31	25	22	20	17	15	13

Ten year probability of osteoporotic fractures (%) according to BMI, the number of clinical risk factors (CRF) and age in women from the US (Asian).

Age = 55 years

Number of CRFs	BMI (kg/m²)						
	15	**20**	**25**	**30**	**35**	**40**	**45**
0	3.5	3.2	3.1	2.7	2.3	2.1	1.8
1	5.5 (3.8-7.7)	5.0 (3.4-6.8)	4.7 (3.2-6.3)	4.1 (2.8-5.5)	3.6 (2.5-4.8)	3.2 (2.1-4.2)	2.8 (1.9-3.7)
2	8.7 (4.9-14)	7.7 (4.2-13)	7.2 (3.9-12)	6.3 (3.4-11)	5.5 (3.0-9.4)	4.8 (2.6-8.3)	4.2 (2.3-7.3)
3	13 (7.0-22)	12 (5.9-20)	11 (5.3-19)	9.5 (4.6-17)	8.3 (4.0-15)	7.3 (3.5-13)	6.4 (3.1-12)
4	20 (12-31)	17 (10-27)	16 (8.9-25)	14 (7.7-22)	12 (6.7-20)	11 (5.8-18)	9.4 (5.0-15)
5	30 (20-38)	25 (18-33)	23 (16-30)	20 (14-27)	18 (13-24)	16 (11-21)	14 (9.7-18)
6	43	36	32	29	25	22	19

Age = 60 years

Number of CRFs	BMI (kg/m²)						
	15	**20**	**25**	**30**	**35**	**40**	**45**
0	4.8	4.4	4.1	3.6	3.1	2.7	2.4
1	7.6 (5.5-10)	6.8 (4.7-9.0)	6.3 (4.4-8.2)	5.5 (3.8-7.2)	4.8 (3.3-6.3)	4.2 (2.9-5.5)	3.7 (2.5-4.8)
2	12 (7.0-18)	10 (5.9-16)	9.5 (5.3-16)	8.3 (4.6-14)	7.3 (4.0-12)	6.4 (3.5-11)	5.6 (3.0-9.4)
3	18 (10-29)	16 (8.4-26)	14 (7.3-24)	12 (6.3-22)	11 (5.5-19)	9.5 (4.8-17)	8.3 (4.1-15)
4	27 (17-39)	23 (14-35)	21 (12-32)	18 (11-28)	16 (9.1-25)	14 (7.9-22)	12 (6.8-20)
5	39 (28-47)	33 (24-41)	29 (22-38)	26 (19-34)	23 (17-30)	20 (15-26)	18 (13-23)
6	54	46	41	36	32	28	25

Ten year probability of osteoporotic fractures (%) according to BMI, the number of clinical risk factors (CRF) and age in women from the US (Asian).

Age = 65 years

Number of CRFs	BMI (kg/m²)						
	15	20	25	30	35	40	45
0	6.4	5.5	5.1	4.4	3.8	3.3	2.9
1	10 (7.5-13)	8.6 (6.2-11)	7.8 (5.5-9.9)	6.8 (4.7-8.6)	5.9 (4.1-7.5)	5.1 (3.6-6.6)	4.5 (3.1-5.8)
2	16 (9.8-22)	13 (7.9-20)	12 (6.8-18)	10 (5.8-16)	8.9 (5.0-14)	7.7 (4.3-13)	6.7 (3.8-11)
3	23 (15-35)	19 (11-31)	17 (9.5-29)	15 (8.2-25)	13 (7.0-22)	11 (6.0-20)	10 (5.2-17)
4	34 (23-47)	28 (19-41)	25 (16-37)	22 (14-33)	19 (12-29)	17 (10-26)	15 (8.6-23)
5	47 (37-56)	40 (31-49)	35 (27-44)	31 (24-39)	27 (21-35)	24 (18-31)	21 (16-27)
6	63	54	48	42	37	33	29

Age = 70 years

Number of CRFs	BMI (kg/m²)						
	15	20	25	30	35	40	45
0	8.9	7.3	6.4	5.6	4.8	4.1	3.6
1	14 (11-17)	11 (8.4-14)	9.5 (7.1-12)	8.2 (6.1-10)	7.0 (5.2-9.0)	6.1 (4.5-7.8)	5.2 (3.9-6.8)
2	21 (14-28)	17 (11-23)	14 (9.0-20)	12 (7.6-17)	10 (6.5-15)	8.9 (5.6-13)	7.6 (4.8-11)
3	32 (22-45)	25 (16-36)	21 (13-31)	18 (11-26)	15 (9.3-23)	13 (7.9-20)	11 (6.7-17)
4	47 (36-61)	37 (28-50)	30 (21-42)	26 (18-36)	22 (15-31)	19 (13-27)	16 (11-24)
5	63 (57-72)	52 (45-61)	42 (35-51)	37 (30-45)	31 (26-39)	27 (22-34)	23 (18-29)
6	78	69	58	51	44	38	33

Ten year probability of osteoporotic fractures (%) according to BMI, the number of clinical risk factors (CRF) and age in women from the US (Asian).

Age = 75 years

Number of CRFs	BMI (kg/m²)						
	15	**20**	**25**	**30**	**35**	**40**	**45**
0	13	10	8.5	7.2	6.2	5.3	4.5
1	21 (16-29)	16 (12-20)	13 (9.7-15)	11 (8.2-13)	9.2 (6.9-11)	7.8 (5.9-9.6)	6.6 (5.0-8.2)
2	33 (21-46)	25 (16-35)	19 (12-26)	16 (10-21)	14 (8.8-18)	12 (7.5-15)	9.8 (6.3-13)
3	48 (32-64)	38 (24-53)	29 (18-41)	24 (15-35)	21 (13-30)	17 (11-25)	15 (9.1-21)
4	65 (49-78)	54 (39-69)	43 (30-57)	36 (26-49)	31 (22-43)	26 (18-36)	22 (15-31)
5	78 (66-84)	71 (57-79)	60 (48-69)	52 (41-61)	45 (36-54)	38 (31-46)	32 (26-40)
6	86	84	77	70	62	54	47

Age = 80 years

Number of CRFs	BMI (kg/m²)						
	15	**20**	**25**	**30**	**35**	**40**	**45**
0	19	15	12	10	8.9	7.6	6.4
1	29 (22-41)	23 (17-30)	18 (14-22)	15 (12-18)	13 (9.9-15)	11 (8.4-13)	9.4 (7.1-11)
2	43 (30-58)	34 (23-48)	27 (18-37)	23 (15-31)	19 (13-26)	16 (11-22)	14 (9.0-18)
3	58 (43-72)	49 (34-64)	39 (27-52)	33 (22-45)	28 (19-38)	24 (16-33)	20 (13-28)
4	71 (57-80)	64 (49-76)	54 (40-68)	47 (34-60)	41 (29-53)	35 (25-46)	29 (21-39)
5	80 (70-85)	77 (65-83)	70 (58-78)	63 (51-71)	56 (44-64)	48 (38-57)	42 (33-50)
6	85	85	82	77	71	64	57

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Ten year probability of osteoporotic fractures (%) according to BMI, the number of clinical risk factors (CRF) and age in women from the US (Asian).

Age = 85 years

Number of CRFs	BMI (kg/m²)						
	15	20	25	30	35	40	45
0	22	17	14	12	10	8.8	7.5
1	33 (26-46)	26 (20-36)	22 (17-27)	18 (14-22)	15 (12-18)	13 (9.7-15)	11 (8.2-13)
2	47 (34-63)	39 (27-53)	32 (22-43)	27 (18-36)	23 (15-30)	19 (13-25)	16 (11-21)
3	61 (47-75)	54 (39-69)	45 (31-58)	39 (26-51)	33 (22-44)	28 (18-38)	23 (15-32)
4	73 (60-82)	68 (54-79)	60 (46-73)	53 (39-66)	46 (34-59)	39 (29-52)	34 (24-45)
5	81 (72-85)	79 (69-85)	74 (63-82)	68 (56-76)	61 (49-70)	54 (42-63)	47 (37-55)
6	85	85	84	80	75	69	62

Age = 90 years

Number of CRFs	BMI (kg/m²)						
	15	20	25	30	35	40	45
0	19	16	14	11	9.6	8.1	6.8
1	30 (22-43)	24 (18-34)	20 (15-26)	17 (13-21)	14 (11-18)	12 (8.8-14)	10 (7.4-12)
2	43 (30-58)	36 (25-49)	30 (20-40)	25 (17-34)	21 (14-28)	17 (11-23)	15 (9.5-19)
3	56 (42-70)	50 (36-64)	42 (29-55)	36 (25-48)	30 (20-41)	26 (17-35)	21 (14-29)
4	68 (54-78)	64 (49-75)	57 (43-69)	50 (37-63)	43 (31-55)	36 (26-48)	31 (22-41)
5	77 (67-82)	75 (63-81)	71 (58-78)	64 (51-73)	57 (44-66)	50 (38-59)	43 (33-52)
6	82	82	81	76	71	64	57