VI CURSO DE EGRESADOS

ACTIVIDAD FÍSICA, CAÍDAS Y FRACTURAS

SANTA MARTA - COLOMBIA
25-28 de febrero de 2020

1

CAÍDAS Y FRACTURAS, UNA RELACIÓN MÁS ALLÁ DE CAUSA Y CONSECUENCIA. IMPLICACIONES EN EL ABORDAJE.

Eduardo Sosa-Tinoco *(México)*

2

Contenido temático.

- Definición de caída y caída lesiva.
- Caídas y fracturas en personas 60+ de ALC.
- Factores de riesgo para caídas en ALC y México.
- Clínica de caídas y fracturas (Australia y Colombia).
- Implicaciones para el manejo.

3

Definición de caída y caída lesiva.

4

Caída y caída lesiva

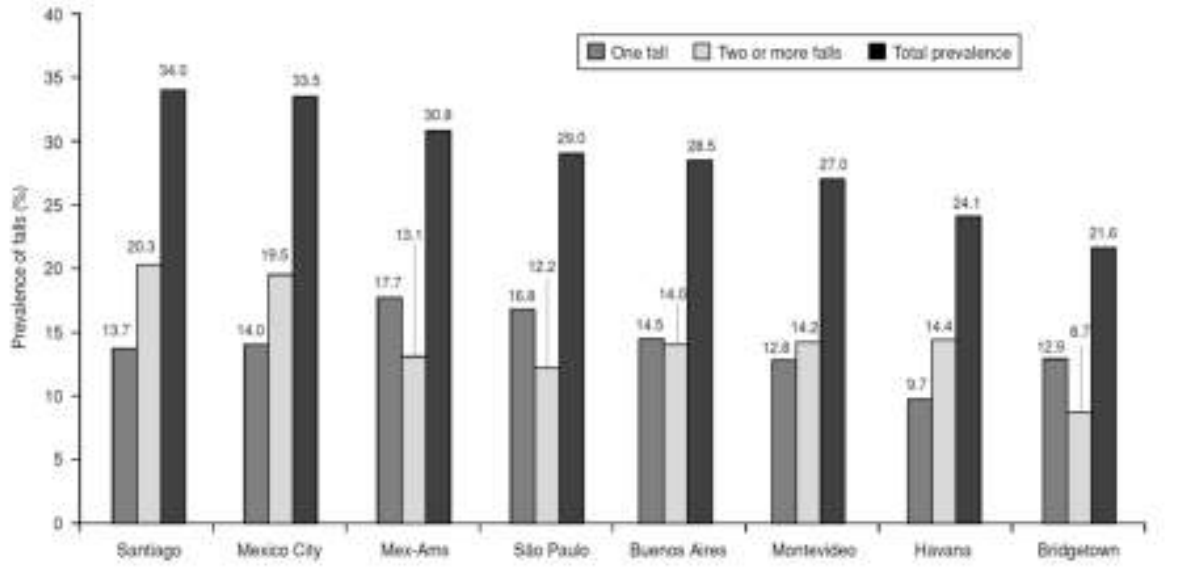
- Acontecimiento involuntario que hace perder el equilibrio y dar con el cuerpo en el suelo u otra superficie firme que lo detiene.
- Un evento inesperado en el que los participantes se detienen en el suelo, el piso o un nivel inferior.
- ¿Ha tenido alguna caída, incluyendo resbalón o tropiezo en el que perdió el equilibrio y aterrizó en el piso, en el suelo o en un nivel inferior?
- Fracturas periféricas confirmadas con estudios de imagen.

Lamb SE, et al. J Am Geriatr Soc. 2005;53(9):1618. doi: 10.1111/j.1532-5415.2005.53455.x
Schwenk M, et al. BMC Med Res Methodol. 2012;12:50. doi: 10.1186/1471-2288-12-50.

5

Caídas y fracturas en ALC

6

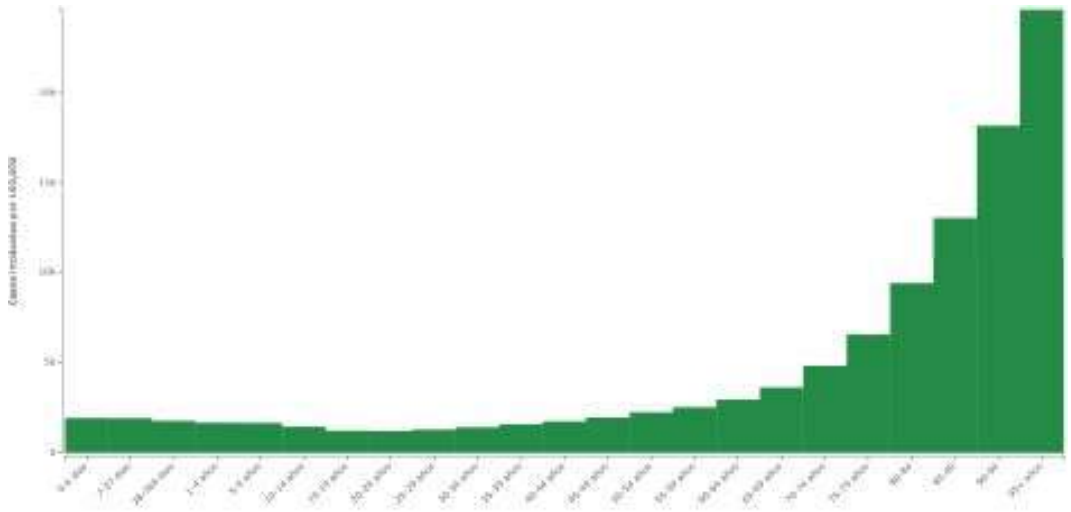


Reyes-Ortiz CA, et al. Rev Panam Salud Publica. 2005;17(5-6):362-9. doi: 10.1590/s1020-49892005000500008

@ESosaTinocoMD

7

Incidencia de caídas

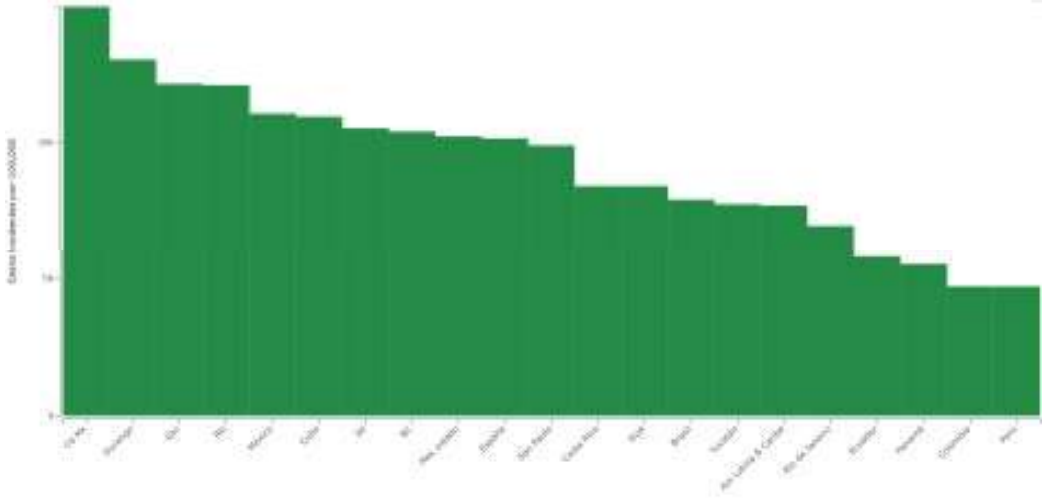


IHME. GBD compare. América Latina y el Caribe. 2017. http://ihmeuw.org/51e9

@ESosaTinocoMD

8

Incidencia de caidas en 70+

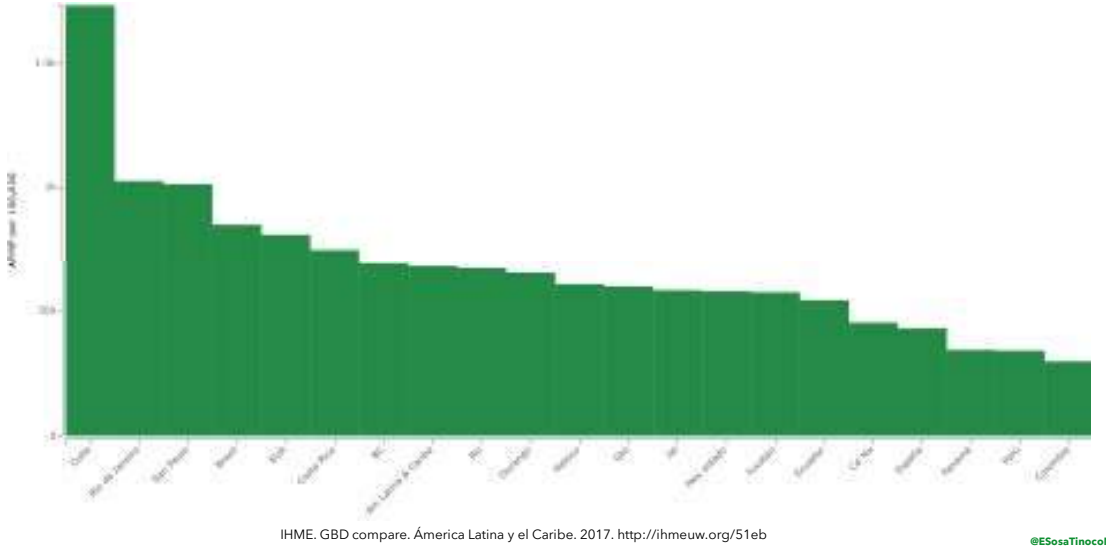


IHME. GBD compare. América Latina y el Caribe. 2017. http://ihmeuw.org/51ea

@ESosaTinocoMD

9

Muertes prematuras por caídas en 70+

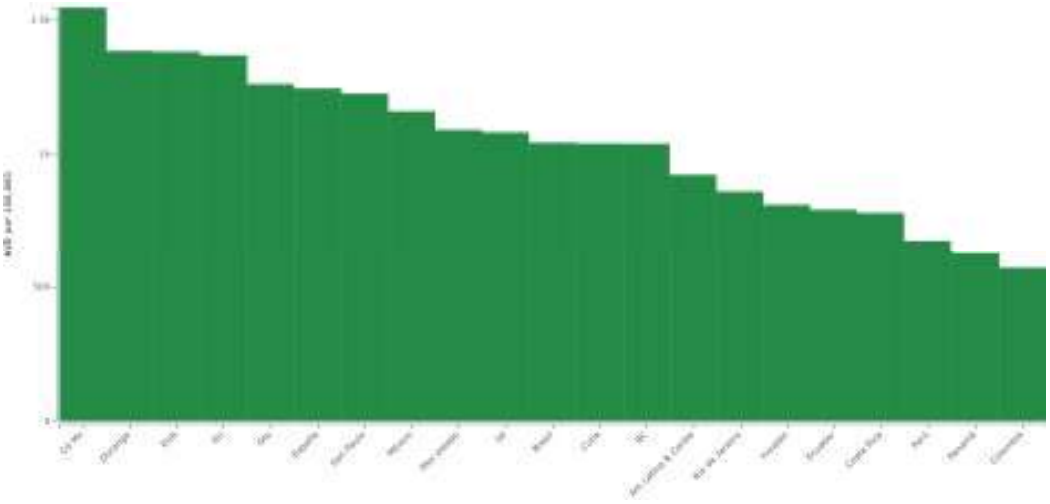


IHME. GBD compare. América Latina y el Caribe. 2017. http://ihmeuw.org/51eb

@ESosaTinocoMD

10

Discapacidad por caídas en 70+

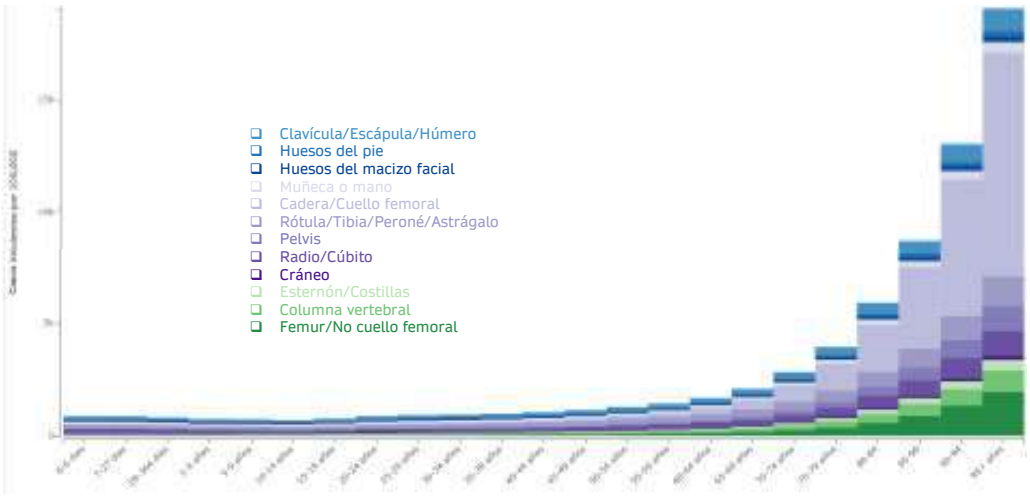


IHME. GBD compare. Ámerica Latina y el Caribe. 2017. http://ihmeuw.org/51ec

@ESosaTinocoMD

11

Incidencia de fracturas

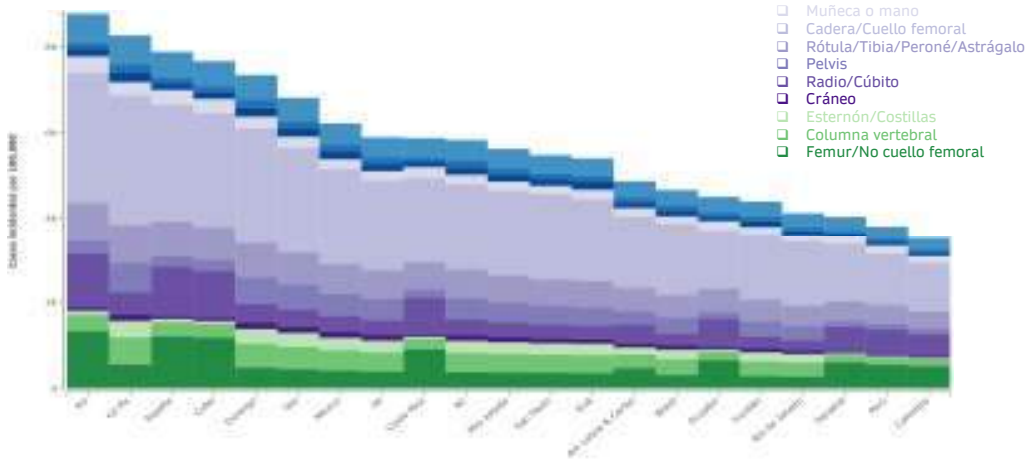


IHME. GBD compare. Ámerica Latina y el Caribe. 2017. http://ihmeuw.org/51e8

@ESosaTinocoMD

12

Incidencia de fracturas en 70+

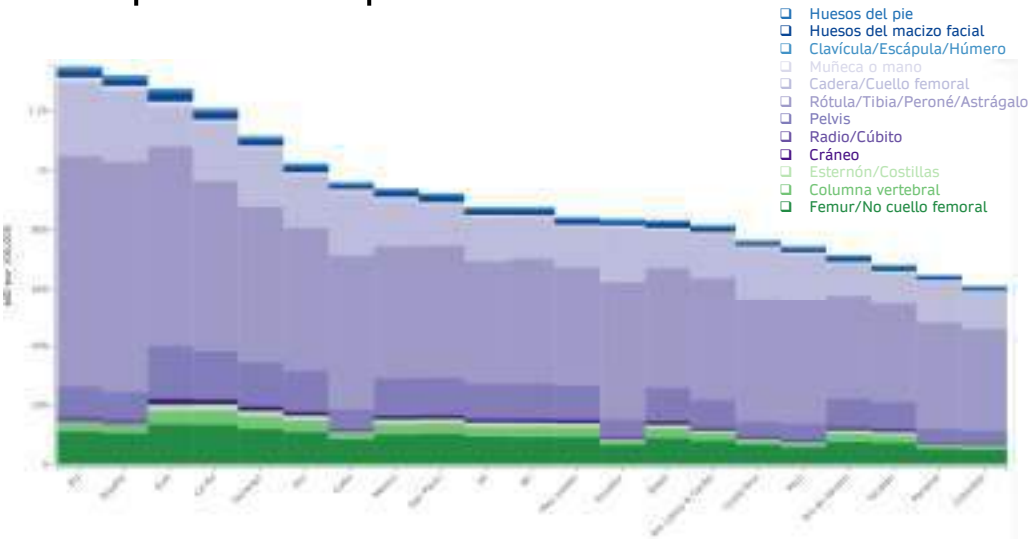


IHME. GBD compare. América Latina y el Caribe. 2017. http://ihmeuw.org/51e6

@ESosaTinocoMD

13

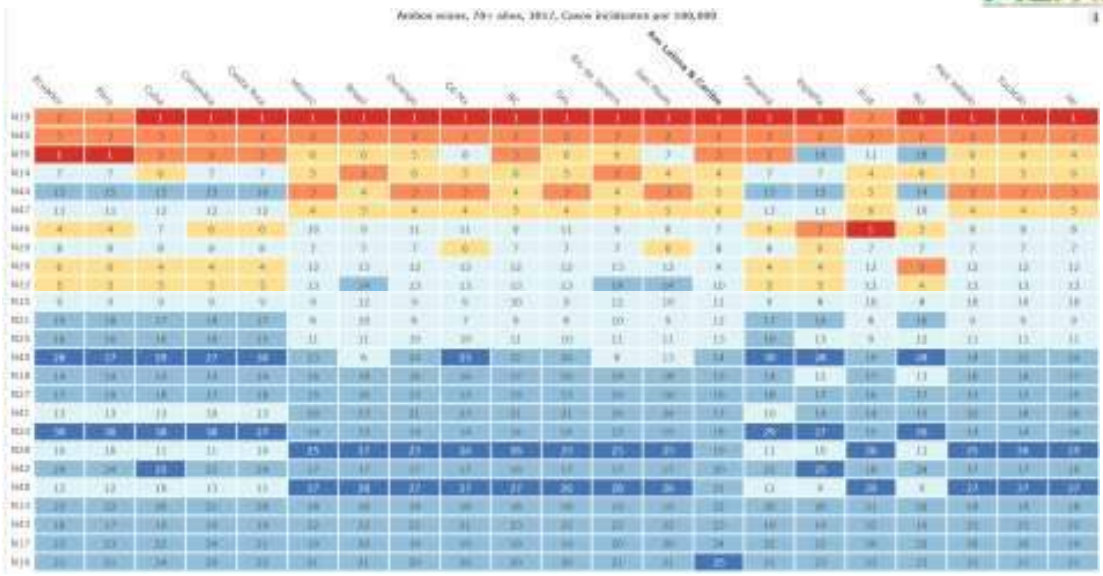
Discapacidad por fracturas en 70+



IHME. GBD compare. América Latina y el Caribe. 2017. http://ihmeuw.org/51e7

@ESosaTinocoMD

14



IHME. GBD compare. América Latina y el Caribe. 2017. http://ihmeuw.org/51e4

@ESosaTinocoMD

15

Factores de riesgo de caídas en ALyC

@ESosaTinocoMD

16

Characteristic	Buenos Aires, Argentina (*n* = 964)		Bridgetown, Barbados (*n* = 1 635)		São Paulo, Brazil (*n* = 1 777)		Santiago, Chile (*n* = 1 205)	
	Fallers (*n* = 275)	Nonfallers (*n* = 689)	Fallers (*n* = 353)	Nonfallers (*n* = 1 282)	Fallers (*n* = 516)	Nonfallers (*n* = 1 261)	Fallers (*n* = 410)	Nonfallers (*n* = 795)
Age (yr) (mean ± SD)[a]	71.4 ± 7.0[c]	69.9 ± 6.7	73.0 ± 7.9[c]	71.5 ± 7.7	69.4 ± 6.9[c]	68.3 ± 6.8	71.3 ± 7.6[c]	69.6 ± 7.7
Female (%)	74.2[c]	57.6	70.8[d]	56.9	68.4[c]	54.9	68.7[c]	54.8
Married (%)	95.1	94.5	80.0	83.4	95.4	95.6	94.1	93.1
Arthritis (%)	62.1[c]	50.2	59.2[d]	45.0	39.6[c]	30.1	37.8[c]	24.9
Diabetes (%)	14.8[b]	10.3	29.2[d]	20.8	22.1[b]	17.0	14.9	12.8
Heart attack (%)	22.7	18.9	13.9	10.9	23.0[c]	18.0	42.2[c]	27.9
Hypertension (%)	56.4[b]	48.0	55.2[c]	47.0	55.7	51.8	60.2[c]	47.7
Stroke (%)	7.9[c]	2.6	6.5[b]	4.0	6.9	4.9	9.0[c]	4.8
Cancer (%)	6.3	5.1	4.8	3.5	2.6	3.2	4.0	3.5
Urinary incontinence (%)	19.0[c]	6.8	12.8[c]	7.5	23.5[c]	15.3	29.9[c]	17.6
Depression score (mean ± SD)[e]	3.3 ± 3.2[d]	2.4 ± 2.7	2.0 ± 2.1[d]	1.6 ± 1.6	3.7 ± 3.2[d]	3.0 ± 3.1	4.2 ± 3.6[d]	3.7 ± 3.5
Cognitive test (mean ± SD)[f]	16.6 ± 2.2[b]	17.0 ± 2.0	17.3 ± 2.2	17.5 ± 2.1	16.8 ± 2.1	16.9 ± 2.3	15.6 ± 3.6[c]	16.2 ± 3.6
Any ADL limitation (%)[g]	25.0[c]	11.4	20.4[d]	9.1	21.6[c]	13.5	27.3[c]	14.3
Distant-vision problem (%)	49.0	47.9	60.9[d]	49.1	62.0[c]	55.5	59.3[c]	50.3
Near-vision problem (%)	78.2	77.0	73.9[b]	68.4	84.7	84.2	82.1[b]	76.0
Hearing problem (%)	21.6[b]	13.7	23.0[c]	16.2	32.5[c]	25.7	32.3	29.6

[a] SD = standard deviation.
[b] $P < 0.05$.
[c] $P < 0.01$.
[d] $P < 0.001$.
[e] Depression: the Geriatric Depression Scale (GDS) was used for these four Latin America and Caribbean cities.
[f] Cognitive test: the abbreviated Mini-Mental State Examination was used for these four Latin America and Caribbean cities.
[g] ADL = activity of daily living.

Reyes-Ortiz CA, et al. Rev Panam Salud Publica. 2005;17(5-6):362-9. doi: 10.1590/s1020-49892005000500008

17

Characteristic	Havana, Cuba (*n* = 1 727)		Mexico City, Mexico (*n* = 1 062)		Montevideo, Uruguay (*n* = 1 395)		Mexican-Americans (*n* = 1 483)	
	Fallers (*n* = 416)	Nonfallers (*n* = 1 311)	Fallers (*n* = 356)	Nonfallers (*n* = 706)	Fallers (*n* = 377)	Nonfallers (*n* = 1 018)	Fallers (*n* =195)	Nonfallers (*n* = 1 288)
Age (yr) (mean ± SD)[a]	72.1 ± 8.2[d]	69.8 ± 7.9	69.6 ± 7.2[c]	68.1 ± 6.8	71.9 ± 7.8[d]	70.4 ± 6.9	79.3 ± 5.7[d]	78.3 ± 5.1
Female (%)	73.9[c]	53.2	65.4[d]	50.8	79.3[d]	57.4	70.5[c]	57.9
Married (%)	97.0	97.3	96.1	96.3	98.0	95.9	40.5[c]	50.4
Arthritis (%)	71.1[c]	51.3	23.6	24.3	59.2[d]	43.7	60.4[c]	51.6
Diabetes (%)	19.9[c]	12.9	26.8[c]	18.2	16.1	13.1	31.1[c]	23.3
Heart attack (%)	31.4[c]	22.0	8.1	10.3	32.9[d]	20.1	3.9	4.9
Hypertension (%)	49.8[c]	42.2	44.9	41.9	51.2[c]	43.1	54.7[c]	47.2
Stroke (%)	10.9	7.8	6.0	4.8	3.1	3.3	5.9[c]	2.8
Cancer (%)	3.6	2.8	2.9	1.4	6.8	6.1	7.0	4.8
Urinary incontinence (%)	20.7[c]	10.5	26.8[d]	15.5	17.7[d]	10.1	37.6[d]	26.6
Depression score (mean ± SD)[e]	4.0 ± 3.8[c]	2.6 ± 3.1	3.7 ± 3.4[d]	2.4 ± 2.8	4.0 ± 3.8[d]	2.7 ± 2.9	8.3 ± 8.3[d]	6.1 ± 6.9
Cognitive test (mean ± SD)[f]	16.3 ± 2.6[d]	16.9 ± 2.2	15.3 ± 2.7[d]	16.1 ± 2.5	16.6 ± 2.2[d]	17.1 ± 2.0	20.4 ± 6.1[d]	21.9 ± 5.6
Any ADL limitation (%)[g]	29.2[c]	11.3	20.2[c]	12.9	26.1[d]	12.7	30.9[d]	16.2
Distant-vision problem (%)	68.6[c]	61.4	61.1[b]	54.3	62.9[c]	53.8	20.8[c]	11.0
Near-vision problem (%)	85.9	82.0	70.1	66.2	83.0[c]	78.1	4.2	3.7
Hearing problem (%)	29.4[c]	21.5	50.0[b]	42.8	20.8	20.1	18.6	21.8

[a] SD = standard deviation.
[b] $P < 0.05$.
[c] $P < 0.01$.
[d] $P < 0.001$.
[e] Depression: the Geriatric Depression Scale (GDS) was used for the three Latin America and Caribbean cities, and the Center for Epidemiologic Studies Depression Scale (CES-D) was used for the Mexican-Americans.
[f] Cognitive test: the Mini-Mental State Examination (MMSE) was used for the Mexican-Americans, and the abbreviated MMSE was used for the three Latin America and Caribbean cities.
[g] ADL = activity of daily living.

Reyes-Ortiz CA, et al. Rev Panam Salud Publica. 2005;17(5-6):362-9. doi: 10.1590/s1020-49892005000500008

18

Risk factor	Buenos Aires, Argentina OR (95% CI)	Bridgetown, Barbados OR (95% CI)	São Paulo, Brazil OR (95% CI)	Santiago, Chile OR (95% CI)	Havana, Cuba OR (95% CI)	Mexico City, Mexico OR (95% CI)	Montevideo, Uruguay OR (95% CI)	Mex-Americans OR (95% CI)
Age (years)	1.02 (0.99–1.04)	1.02 (1.00–1.03)	1.02 (1.00–1.03)	1.02 (1.00–1.04)	1.02 (1.01–1.04)	1.02 (1.00–1.04)	1.02 (1.01–1.04)	1.02 (0.99–1.04)
Female	2.01 (1.42–2.83)	1.58 (1.20–2.08)	1.60 (1.27–2.01)	1.36 (1.02–1.80)	1.82 (1.39–2.38)	1.82 (1.37–2.42)	2.34 (1.75–3.14)	1.42 (1.09–1.86)
Married	1.42 (0.72–2.82)	0.87 (0.64–1.19)	0.91 (0.55–1.50)	1.34 (0.79–2.27)	0.89 (0.44–1.81)	1.15 (0.58–2.32)	2.15 (0.97–4.79)	0.09 (0.69–1.16)
Arthritis	1.15 (0.83–1.57)	1.37 (1.06–1.77)	1.19 (0.94–1.49)	1.33 (0.99–1.77)	1.65 (1.26–2.14)	0.69 (0.50–0.97)	1.31 (1.01–1.70)	1.14 (0.90–1.45)
Diabetes	1.51 (0.96–2.36)	1.39 (1.05–1.84)	1.33 (1.02–1.74)	0.99 (0.69–1.44)	1.23 (0.89–1.69)	1.49 (1.08–2.06)	1.07 (0.75–1.52)	1.28 (0.98–1.67)
Heart attack	1.03 (0.70–1.50)	1.08 (0.74–1.56)	1.19 (0.91–1.55)	1.59 (1.22–2.07)	1.13 (0.86–1.50)	0.59 (0.36–0.97)	1.50 (1.12–2.00)	0.55 (0.31–0.99)
Hypertension	1.06 (0.78–1.45)	1.14 (0.88–1.47)	0.97 (0.77–1.20)	1.41 (1.09–1.83)	1.06 (0.82–1.36)	0.95 (0.72–1.26)	1.06 (0.81–1.37)	1.14 (0.89–1.45)
Stroke	3.37 (1.66–6.84)	1.25 (0.73–2.15)	1.23 (0.79–1.92)	1.16 (0.68–1.98)	1.10 (0.73–1.65)	1.20 (0.66–2.17)	0.57 (0.28–1.17)	1.59 (0.89–2.82)
Cancer	1.06 (0.56–2.00)	1.21 (0.69–2.18)	0.69 (0.36–1.32)	0.71 (0.36–1.40)	1.12 (0.58–2.15)	2.67 (1.03–6.93)	0.83 (0.50–1.37)	1.42 (0.88–2.30)
Urinary incontinence	1.96 (1.22–3.14)	1.20 (0.79–1.80)	1.16 (0.89–1.55)	1.42 (1.04–1.94)	1.39 (1.00–1.94)	1.40 (0.99–1.99)	1.21 (0.84–1.75)	1.26 (0.99–1.66)
Depression score[a]	1.05 (0.99–1.11)	1.08 (1.01–1.15)	1.04 (1.01–1.08)	1.03 (0.99–1.07)	1.05 (1.02–1.09)	1.10 (1.05–1.15)	1.09 (1.04–1.13)	1.02 (1.00–1.04)
Cognitive test score[b]	0.99 (0.92–1.07)	1.01 (0.95–1.07)	1.02 (0.97–1.07)	0.99 (0.95–1.03)	0.95 (0.90–0.99)	0.94 (0.89–0.99)	0.96 (0.90–1.02)	0.99 (0.97–1.01)
Any ADL limitation[c]	1.51 (0.99–2.29)	1.76 (1.24–2.51)	1.31 (0.98–1.74)	1.47 (1.03–2.10)	2.04 (1.52–2.75)	1.14 (0.77–1.67)	1.46 (1.04–2.04)	1.57 (1.17–2.01)
Distant-vision problem	0.84 (0.61–1.15)	1.20 (0.92–1.57)	1.14 (0.92–1.43)	1.17 (0.90–1.53)	0.98 (0.75–1.29)	1.02 (0.76–1.36)	1.13 (0.86–1.47)	1.73 (1.22–2.45)
Near-vision problem	1.07 (0.73–1.55)	0.98 (0.74–1.31)	0.87 (0.64–1.17)	1.30 (0.93–1.80)	1.11 (0.79–1.58)	1.19 (0.88–1.60)	1.11 (0.79–1.55)	0.61 (0.32–1.16)
Hearing problem	1.39 (0.92–2.06)	1.19 (0.87–1.64)	1.23 (0.97–1.56)	0.82 (0.61–1.10)	1.15 (0.87–1.52)	1.18 (0.89–1.56)	0.82 (0.59–1.13)	0.75 (0.56–1.01)

[a] Depression: the Geriatric Depression Scale (GDS) was used for the Latin America and Caribbean cities, and the Center for Epidemiologic Studies Depression Scale (CES-D) was used for the Mexican-Americans.
[b] Cognitive test: the Mini-Mental State Examination (MMSE) was used for the Mexican-Americans, and the abbreviated MMSE was used for the Latin America and Caribbean cities.
[c] ADL = activity of daily living.

Reyes-Ortiz CA, et al. Rev Panam Salud Publica. 2005;17(5-6):362-9. doi: 10.1590/s1020-49892005000500008

19

Predictor variables	Total N (%)	No falls N (%)	1 or more falls N (%)	p value
Total	6247 (100)	3683 (59.6)	2564 (40.4)	
Age (years), mean (SE)	69.6 (0.18)	69.1 (0.23)	70.4 (0.27)	0.0002
Gender (female)	3364 (51.8)	1715 (44.6)	1649 (62.6)	<0.0001
Marital status (married)	3878 (62.5)	2460 (67.9)	1418 (54.6)	<0.0001
Locality size (population)				
> 100,000	3629 (45.5)	2220 (47.2)	1409 (42.9)	0.1176
15,000–99,999	912 (13.2)	490 (13.8)	422 (12.4)	
2500–14,999	590 (13.8)	343 (12.8)	247 (15.4)	
< 2500	1116 (27.5)	630 (26.2)	486 (29.3)	
Education				
0 years	1897 (34.9)	1033 (31.0)	864 (40.6)	<0.0001
1–5 years	2357 (36.3)	1363 (36.2)	994 (36.3)	
6 years	973 (14.1)	623 (16.7)	350 (10.4)	
7 years or more	1016 (14.7)	661 (16.1)	355 (12.8)	
BMI (kg/m^2), mean (SE)	26.7 (0.17)	26.7 (0.21)	26.6 (0.30)	0.9802
BMI (kg/m^2) category				
< 18.5	109 (3.5)	66 (3.20)	43 (3.94)	0.9044
18.5 to < 25	1622 (37.0)	1013 (36.65)	609 (37.53)	
25 to < 30	1837 (38.1)	1133 (38.69)	704 (37.27)	
≥ 30	937 (21.4)	556 (21.44)	381 (21.27)	

20

Comorbid conditions				
Hypertension	2613 (40.9)	1412 (38.41)	1201 (44.79)	0.0070
Diabetes	1091 (16.9)	585 (15.63)	506 (18.86)	0.0723
Arthritis	1543 (24.6)	779 (19.85)	764 (31.71)	<0.0001
Fracture	1035 (16.6)	407 (12.04)	628 (23.21)	<0.0001
Heart attack	254 (3.2)	136 (3.03)	118 (3.38)	0.6398
Stroke	191 (2.6)	93 (2.34)	98 (2.96)	0.3284
Cancer	105 (1.6)	59 (1.39)	46 (1.84)	0.3806
Pain	2687 (44.0)	1329 (36.44)	1358 (55.22)	<0.0001
Vertigo	1562 (27.6)	697 (21.76)	865 (36.34)	<0.0001
Urinary incontinence	615 (10.9)	283 (7.9)	332 (15.48)	<0.0001
Vision impairment	3007 (49.1)	1647 (45.24)	1360 (54.90)	<0.0001
Any lower extremity functional limitation	3938 (63.6)	2098 (58.2)	1840 (71.62)	<0.0001
ADL disability	836 (11.1)	364 (8.09)	472 (15.51)	<0.0001
Physical activity	1809 (28.4)	1004 (28.42)	715 (28.41)	0.9947
Depressive symptoms, mean (SE)	3.9 (0.07)	3.4 (0.08)	4.6 (0.10)	<0.0001

Means and percents were obtained after adjusting for sampling weights used in the Mexican Health and Aging (MHAS) study

SE standard error, *BMI* body mass index, *ADL* activities of daily living

Valderrama-Hinds LM, et al. Aging Clin Exp Res. 2018;30(11):1345. doi: 10.1007/s40520-018-0950-9

@ESosaTinocoMD

21

Consecuencias de las caídas.

- Lesiones de cualquier tipo (22-60%).
- Lesiones graves (10-15%).
- Atención médica (~25%).
- Visitas a servicios de urgencias (14-40%).
- Hospitalizaciones.
- Estancias hospitalarias.
- Institucionalización.
- Costo de las caídas 0.85-1.5% P.I.B.

Newman AB, et al. The epidemiology of aging. Springer. 2012. doi: 10.1007/978-94-007-5061-6_17

@ESosaTinocoMD

22

Fracturas de cadera sin osteoporosis.

- ~50% fracturas de cadera en puntajes T mayores de -2.5 DE.
- ~6% fracturas de cadera en puntajes T normales (> -1.0 DE).

Name of the study	Type of population	Follow-up (mean ± SD)	Number of fractures	Fractured women with FN T-score > -1 (%)	Fractured women with T-score between -2.5 and -1 (%)
Menes cohort study [12]	Peri- and early postmenopausal	13.4 ± 1.4	145 major fractures	22.2%	50.7%
SOF study [13]	Postmenopausal women	Over 10 years	1011 major fractures	7.0%	56.2%
Rotterdam study [5]	Men and women	6.8	939 non-vertebral fractures	17.9% (men) and 12.6% (women)	61.4% (men) and 43.2% (women)

Lespessailles E, et al. Osteoporos Int. 2017;28(6):1771. doi: 10.1007/s00198-017-3921-7
Trémollieres FA, et al. J Bone Miner Res. 2010;25(5):1002. doi: 10.1002/jbmr.12

@ESosaTinocoMD

23

The **fall** itself

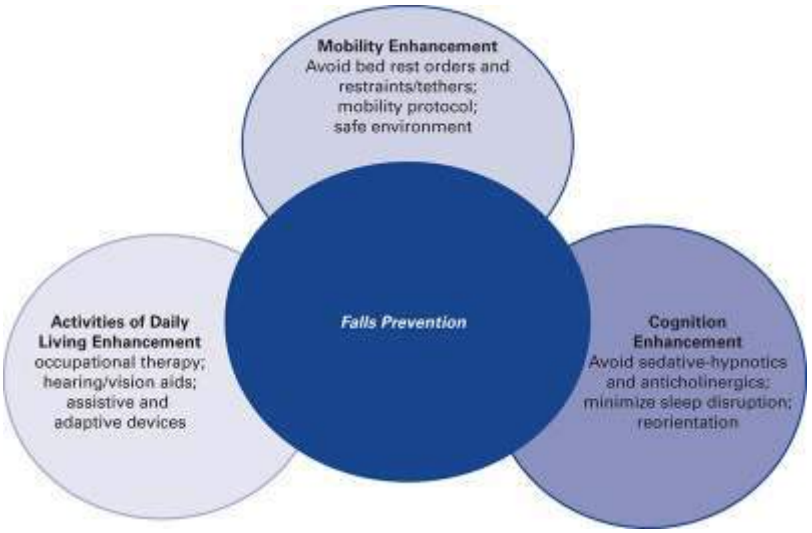
The **force** and direction of the fall

The **fragility** of the bone(s) that take the impact

The National Institutes of Health Osteoporosis and Related Bone Diseases. Preventing Falls and Related Fractures. December 2018.

@ESosaTinocoMD

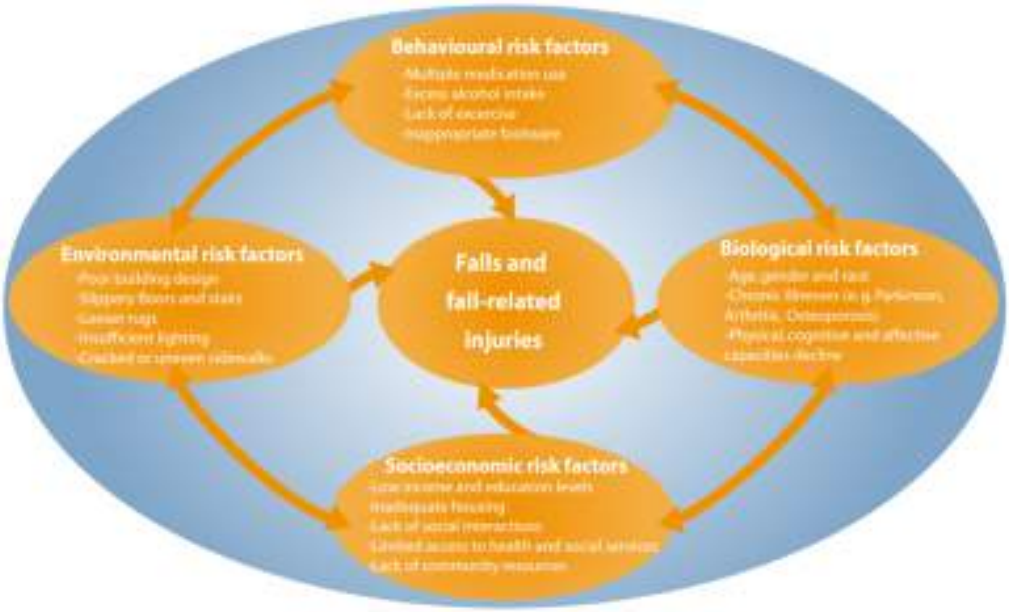
24



Mitra R. eds. Principles of Rehabilitation Medicine. McGraw-Hill. 2019

@ESosaTinocoMD

25

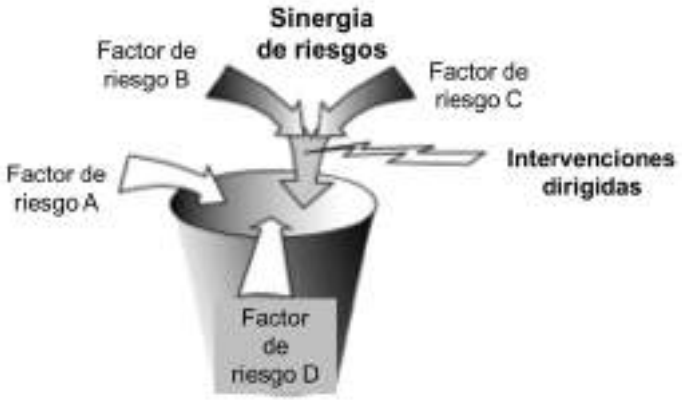


World Health Organization. WHO global report on falls prevention in older age. France. 2007.

@ESosaTinocoMD

26

Modelo concéntrico interactivo



Inouye SK, et ál. J Am Geriatr Soc. 2007;55:780. PMID: 17493201.
Decker S, et ál. Ann N Y Acad Sci. 2005; 1059:61. PMID: 16382044.

27

MODELO SINDÉMICO

Condiciones de **disparidad** que promueven el **agrupamiento** de **enfermedades**

Enfermedad 2

Enfermedad 1 | Interacciones adversas | Enfermedad *n*

Amplificación de la transmisión y la progresión de las **enfermedades** y de los **resultados negativos en salud**

Singer M, et ál. Lancet. 2017; 389(10072):941. PMID: 28271845

28

Mendenhall E, et ál. Lancet. 2017; 389(10072):951. PMID: 28271846

@ESosaTinocoMD

29

Clínicas de caídas y fracturas

@ESosaTinocoMD

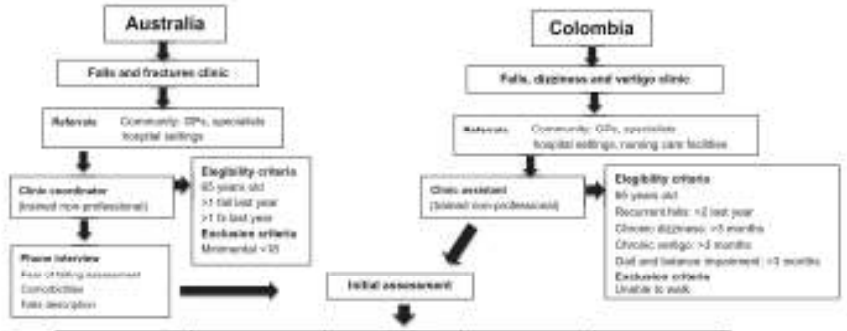
30

	Australia	Colombia
Organization		
Date of commencement	October 2008	April 2001
Base setting	University acute hospital	University subacute hospital
Frequency/duration of each clinic session	Weekly/4 hours	Weekly/4 hours
Referral (main source)	General practitioners	Specialists
Administration		
Mean number of new attendances per year	155	48
Staffing structure	Multidisciplinary	Multidisciplinary
Clinical staff (number)	9	4
Time for initial assessment (mean)	2 hours	2 hours
Waiting list for service (time)	2 weeks	4 weeks
Attrition (%)	25	20
Client characteristics		
Age, mean (years)	82 ± 12	74 ± 7.7
Female (%)	68	75
Eligibility (main criteria)	Falls and fractures	Falls and dizziness
Interventions		
Type of intervention	Multifactorial	Multifactorial
Most common type of intervention prescribed	Vitamin D supplementation	Individual supervised gentle balance exercise
Outcomes for follow-up	Recurrent falls, fractures	Relief of symptoms, falls percentage, injury falls

Gomez F, et al. Clin Interv Aging. 2013;8:61. doi: 10.2147/CIA.S40221

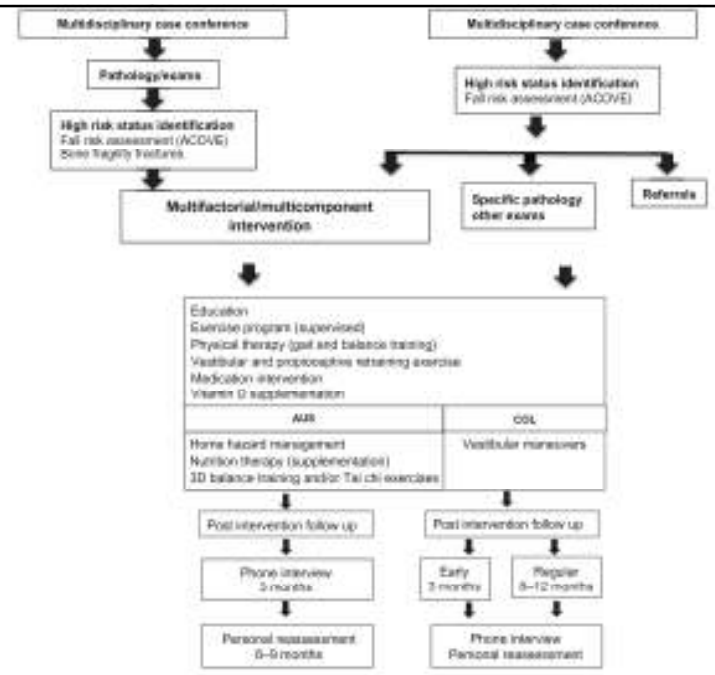
@ESosaTinocoMD

31



@ESosaTinocoMD

32



Gomez F, et al. Clin Interv Aging. 2013;8:61. doi: 10.2147/CIA.S40221

@ESosaTinocoMD

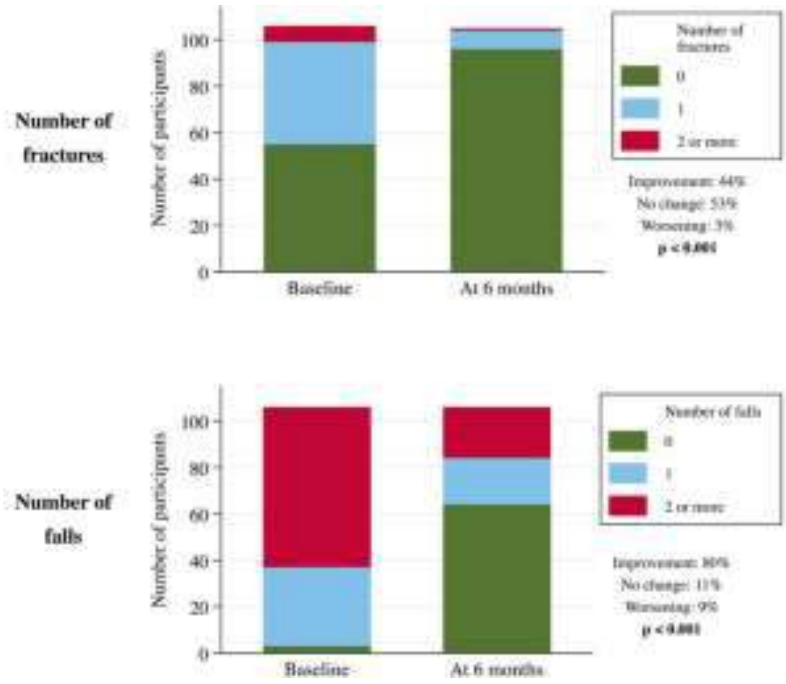
33

Domain	Data available n=	Baseline	6-month follow-up	P value
Falls risk				
Fear of falling, n (%)	40			0.10
None/mild (1–2)		8.0 (20.0)	14.0 (35.0)	
Moderate (3)		24.0 (60.0)	19.0 (47.5)	
High (4)		8.0 (20.0)	7.0 (17.5)	
Risk factors for falls				
Orthostatic hypotension	104	24 (23.1)	12 (11.5)	**0.002**
Depression	102	18 (17.7)	12 (11.8)	0.07
Proprioceptive*	103	86 (83.5)	85 (82.5)	1.00
Dizziness	103	26 (25.2)	18 (17.5)	0.06
Vasovagal symptoms or signs	100	8 (8.0)	1 (1.0)	**0.02**
Visual impairment	104	94 (90.4)	100 (96.2)	**0.03**
Hearing impairment	101	64 (63.4)	63 (62.4)	1.00
Malnutrition risk	101	26 (25.7)	25 (24.8)	1.00
Sarcopenia				
Met criteria†, n (%)	105	83.0 (78.3)	79.0 (74.5)	0.51

Gomez F, et al. BMJ Open. 2019;9(7):e027013. doi: 10.1136/bmjopen-2018-027013

@ESosaTinocoMD

34



Gomez F, et al. BMJ Open. 2019;9(7):e027013. doi: 10.1136/bmjopen-2018-027013

@ESosaTinocoMD

35

Intervention	Fractures risk N (%) improved	P value	Falls risk N (%) improved	P value	Number of fractures N (%) improved	P value	Number of falls N (%) improved	P value
Exercise programmes (n=99)								
Adherent (n=40)	13 (33%)	0.65	**30 (77%)**	**0.03**	18 (45%)	1.00	**37 (93%)**	**0.006**
Non-adherent (n=59)	16 (27%)		**32 (54%)**		25 (43%)		**41 (69%)**	
Vitamin D/calcium (n=100)								
Adherent (n=85)	27 (32%)	0.06	54 (64%)	0.57	38 (45%)	0.57	65 (76%)	0.18
Non-adherent (n=15)	1 (7%)		11 (73%)		5 (33%)1		14 (93%)	
Osteoporosis medications (n=66)								
Adherent (n=48)	**22 (46%)**	**0.01**	34 (71%)	0.14	29 (60%)	0.56	38 (79%)	1.00
Non-adherent (n=18)	**2 (12%)**		8 (47%)		12 (71%)		15 (83%)	
Medication changes (n=69)								
Adherent (n=44)	14 (32%)	0.40	28 (64%)	1.00	**16 (36%)**	**0.04**	32 (73%)	0.22
Non-adherent (n=25)	5 (20%)		16 (64%)		**16 (64%)**		22 (88%)	

Gomez F, et al. BMJ Open. 2019;9(7):e027013. doi: 10.1136/bmjopen-2018-027013

@ESosaTinocoMD

36

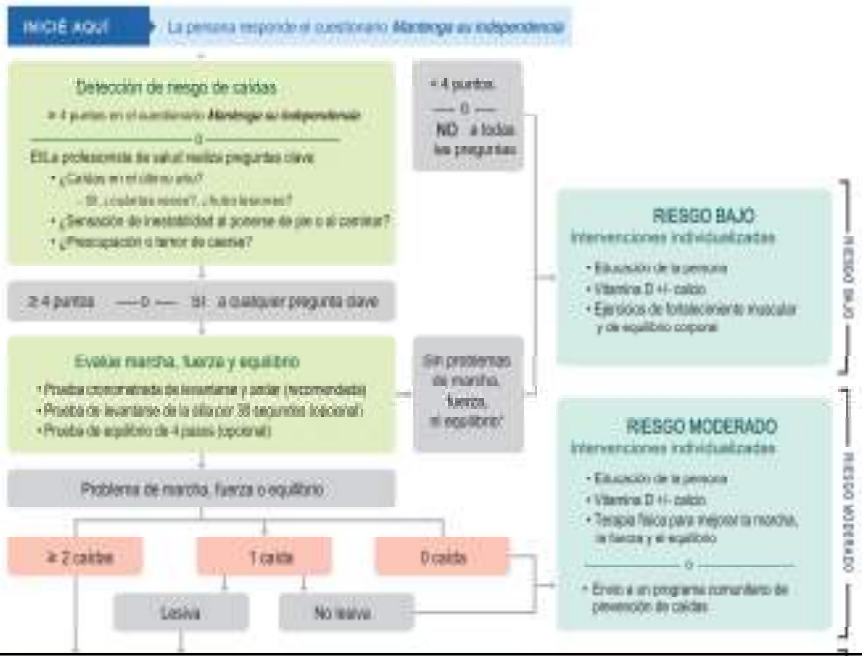
Factores de riesgo: fragilidad, sarcopenia y caídas.

- Aislamiento social y soledad.
- Falta de acceso a trasporte.
- Malos tratos en la vejez.
- Pobreza e inseguridad alimentaria.
- Fracaso para obtener alimentos por preferencia étnica.
- Imposibilidad para adquirir, preparar o ingerir alimentos.
- Consumo etílico.
- Distiroidismo.
- Insuficiencia cardiaca.
- Déficits sensoriales.
- Enfermedades bucodentales
- Enfermedades digestivas que afectan la ingesta o la absorción de nutrimentos.
- Trastorno de deglución o disfagia.
- Dolor o estreñimiento crónicos.
- Disminución del gusto y del olfato.
- Deterioro cognitive o demencia.
- Catabolismo aumentado.
- Gastritis.
- Cáncer.
- Depresión.
- Polifarmacia.

Hertz K, et al. Fragility Fracture Nursing. Springer; 2018. doi: 10.1007/978-3-319-76681-2_2

37

Algoritmo para la detección, evaluación e intervención del riesgo de caídas

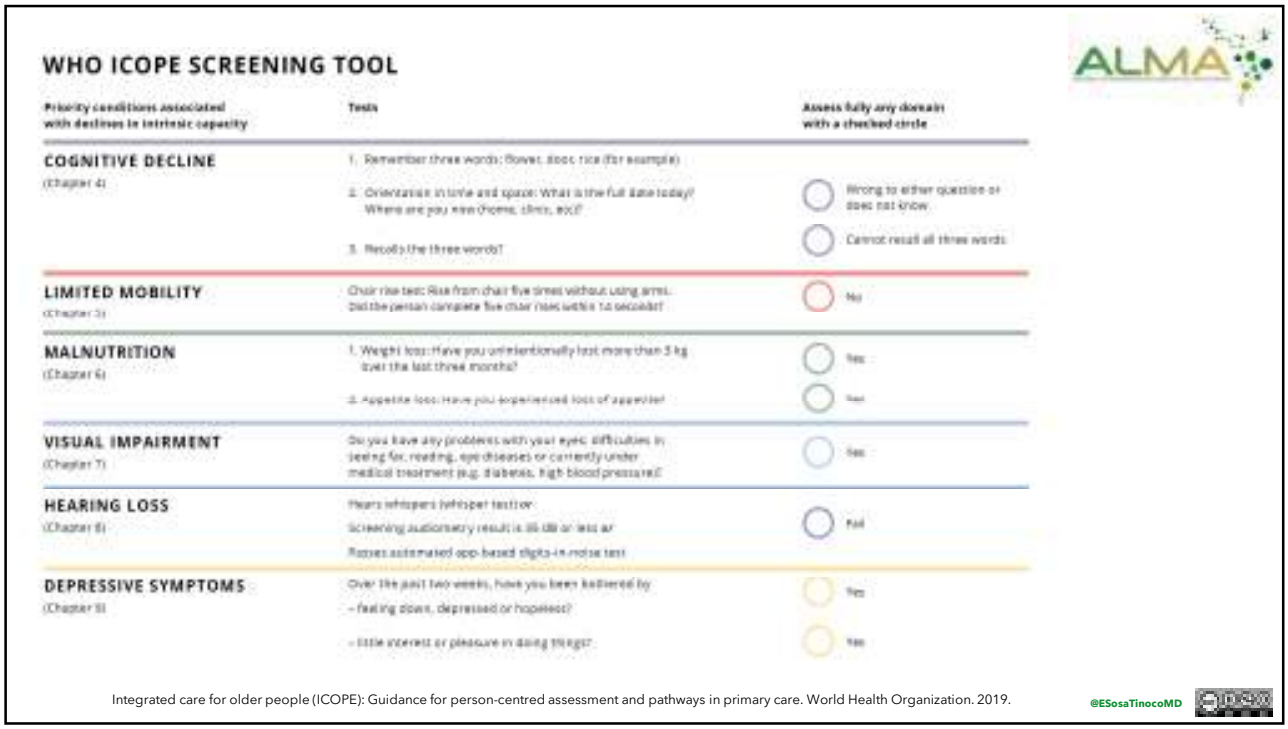


38

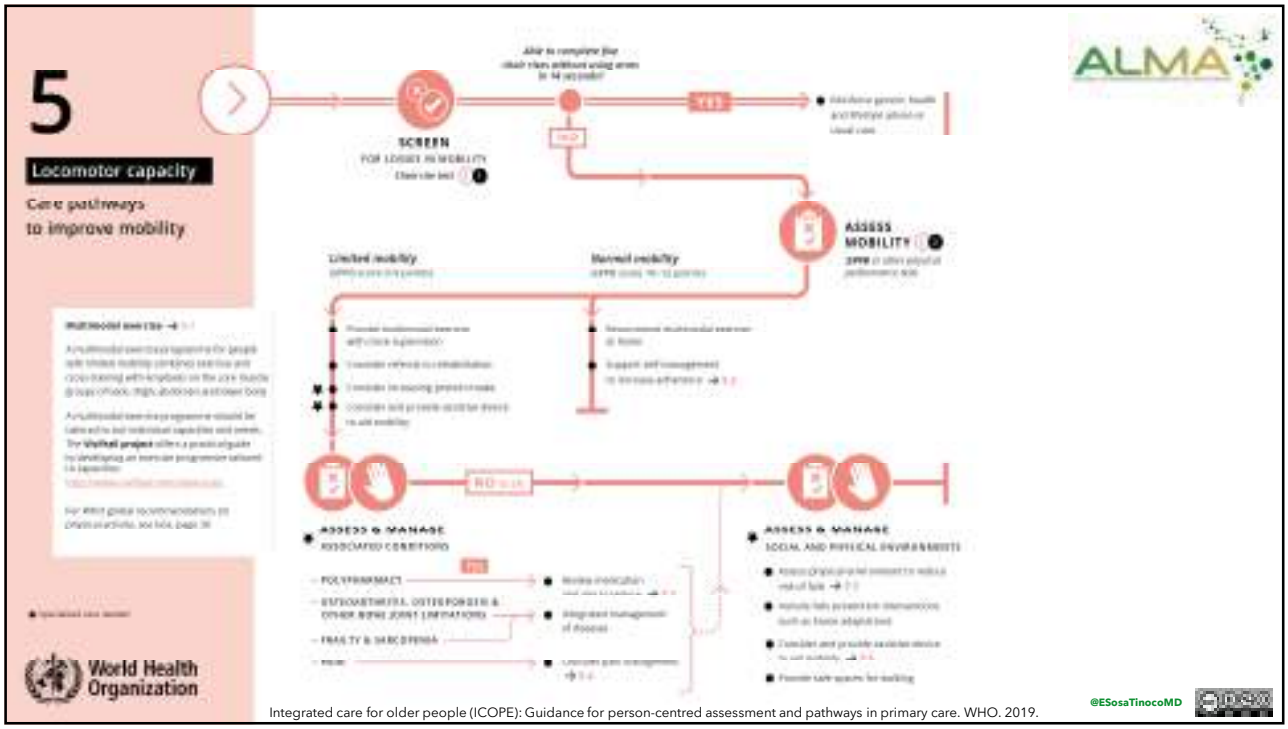
39

https://www.who.int/ageing/health-systems/icope/en/ [consulta 25/feb/2020]

40


WHO ICOPE SCREENING TOOL
Priority conditions associated with declines in intrinsic capacity
Tests
Assess fully any domain with a checked circle
COGNITIVE DECLINE
(Chapter 4)
1. Remember three words: (flower, door, rice (for example)
2. Orientation in time and space: What is the full date today? Where are you now (home, clinic, etc)?
3. Recall the three words?
Wrong to either question or does not know
Cannot recall all three words
LIMITED MOBILITY
(Chapter 5)
Chair rise test: Rise from chair five times without using arms. Did the person complete five chair rises within 14 seconds?
No
MALNUTRITION
(Chapter 6)
1. Weight loss: Have you unintentionally lost more than 3 kg over the last three months?
2. Appetite loss: Have you experienced loss of appetite?
Yes
Yes
VISUAL IMPAIRMENT
(Chapter 7)
Do you have any problems with your eyes: difficulties in seeing far, reading, eye diseases or currently under medical treatment (e.g. diabetes, high blood pressure)?
Yes
HEARING LOSS
(Chapter 8)
Hears whispers (whisper test) or
Screening audiometry result is 35 dB or less or
Passes automated app-based digits-in-noise test
Fail
DEPRESSIVE SYMPTOMS
(Chapter 9)
Over the past two weeks, have you been bothered by
– feeling down, depressed or hopeless?
– little interest or pleasure in doing things?
Yes
Yes
ALMA
Integrated care for older people (ICOPE): Guidance for person-centred assessment and pathways in primary care. World Health Organization. 2019.
@ESosaTinocoMD

41


5
Locomotor capacity
Care pathways to improve mobility
SCREEN
ASSESS MOBILITY
Limited mobility
Normal mobility
ASSESS & MANAGE
ASSESS & MANAGE
World Health Organization
ALMA
Integrated care for older people (ICOPE): Guidance for person-centred assessment and pathways in primary care. WHO. 2019.
@ESosaTinocoMD

42

Conclusiones

- Las caídas y las fracturas son más frecuentes en la vejez.
- La mayoría de las fracturas en personas mayores ocurren a consecuencia de caídas.
- La minoría de las caídas resultan en lesiones serias o graves.
- Una proporción sustancial de fracturas en personas mayores suceden sin osteoporosis definida por densitometría ósea.
- La prevención de fracturas no vertebrales implica incluir la prevención de caídas como parte del manejo multidimensional.
- Los modelos de atención en clínicas de caídas y de fracturas parecen ser efectivas para reducir caídas y fracturas en ancianos.

43

Recomendaciones

- Las intervenciones para reducir la morbimortalidad por caídas y fracturas deben ajustarse al contexto y la finalidad principal:
  - Comunidad.
  - Unidades ambulatorias de salud.
  - Servicios de urgencias y de hospitalización.
  - Residencias de personas mayores.
  - Prevención primaria, secundaria, terciaria y cuaternaria.
- La implementación de programas de prevención de caídas y fracturas requieren adaptación, monitorización, evaluación y ajustes de los components de las intervenciones con una perspectiva de mejora continua de la calidad de la atención (desenlaces, indicadores, evaluación económica, etc.).

44

Gracias

¿Preguntas o comentarios?

@ESosaTinocoMD