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Δήλωση συμφερόντων

Καμία

Επιλογή άρθρων

- Δείκτης απήχησης (impact factor), βιβλιογραφικές παραπομπές

- Θέση στην πυραμίδα της τεκμηριωμένης ιατρικής (μετα-ανάλυση, τυχαιοποιημένη μελέτη, προοπτική μελέτη κοόρτης)

- Επίδραση στον τρόπο λήψης θεραπευτικής απόφασης

Μελέτες παρατήρησης

Osteoporosis International (2022) 33:1815–1821
https://doi.org/10.1007/s00198-022-06390-2

SHORT COMMUNICATION

Associations of components of sarcopenia with risk of fracture in the Osteoporotic Fractures in Men (MrOS) study

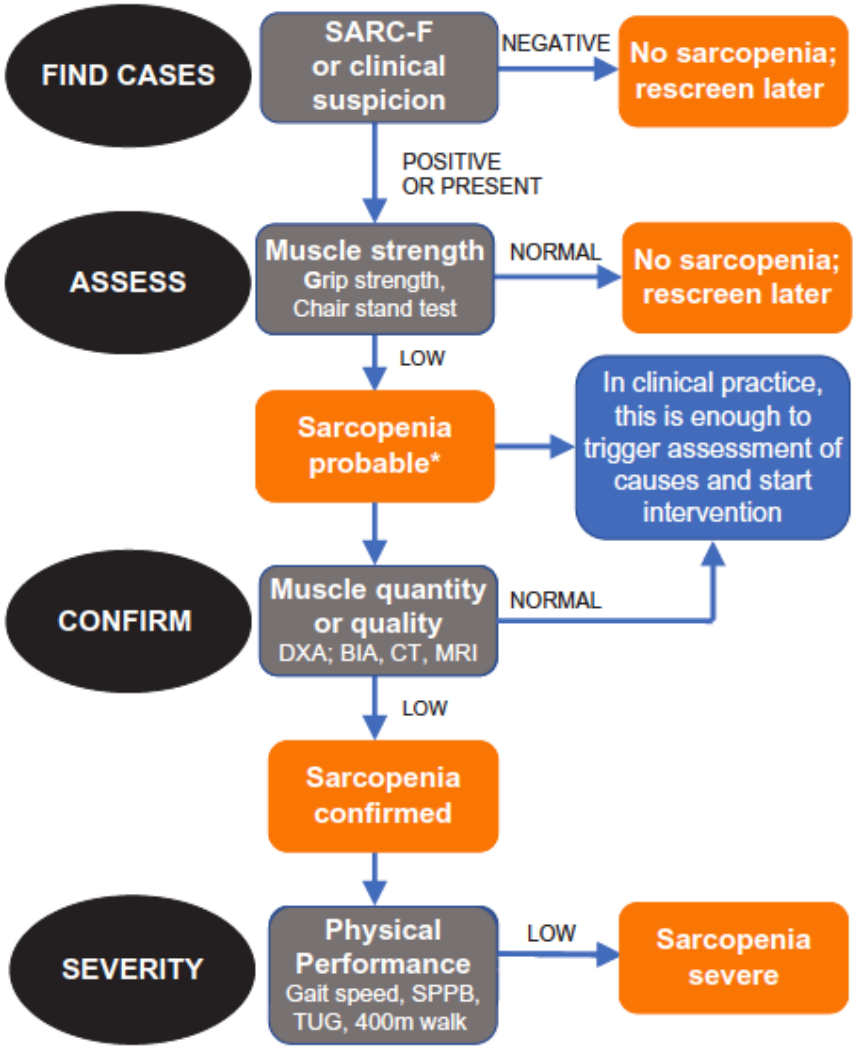
R.J. Harris[1,2] · N. Parimi[3] · P.M. Cawthon[3] · E.S. Strotmeyer[1] · R.M. Boudreau[1] · J.S. Brach[4] · C.K. Kwoh[5] · J.A. Cauley[1]

- The Osteoporotic Fractures in Men study (MrOS)
- 5995 men ≥ 65 years of age

We measured:

- **ALM** by DXA (low as residual value < 20th percentile for the cohort)
- **Walking speed** (< 0.8 m/s were low)
- **Grip strength** (< 30 kg were low)

Σαρκοπενία – διάγνωση



Age and Ageing 2019; 48: 16–31

Σαρκοπενία – διάγνωση

Table 3. EWGSOP2 sarcopenia cut-off points

Test	Cut-off points for men	Cut-off points for women
EWGSOP2 sarcopenia cut-off points for low strength by chair stand and grip strength		
Grip strength	**<27 kg**	**<16 kg**
Chair stand	**>15 s for five rises**	
EWGSOP2 sarcopenia cut-off points for low muscle quantity		
ASM	**<20 kg**	**<15 kg**
ASM/height^2	**<7.0 kg/m^2**	**<5.5 kg/m^2**
EWGSOP2 sarcopenia cut-off points for low performance		
Gait speed	**≤0.8 m/s**	
SPPB	**≤8 point score**	
TUG	**≥20 s**	
400 m walk test	**Non-completion or ≥6 min for completion**	

Age and Ageing 2019; 48: 16–31

Table 1 Baseline characteristics

	Whole cohort ($N = 5994$)	No fracture ($n = 4581$)	Fracture ($n = 1413$)	p-value
Age ($\bar{x} \pm \sigma$)	73.7 ± 5.9	73.5 ± 5.9	74.2 ± 5.9	**< 0.0001**
Caucasian (n, %)	5362 (89.5)	4047 (88.3)	1315 (93.1)	**< 0.0001**
Low lean mass (n, %)	1191 (20)	876 (19.2)	315 (22.6)	**0.0063**
Slow walking speed < 0.8 m/s (n, %)	273 (4.6)	208 (4.5)	65 (4.6)	0.92
Grip strength < 30 kg (n, %)	380 (6.4)	286 (6.3)	94 (6.7)	0.84
BMD T-score	−0.62 ± 1.07	−0.51 ± 1.06	−0.96 ± 1.01	**< 0.0001**
History of diabetes (n, %)	653 (10.9)	504 (11.0)	149 (10.5)	0.63
History of arthritis/gout (n, %)	2847 (47.5)	2183 (47.7)	664 (47.0)	0.66
History of a fall (n, %)	1268 (21.2)	908 (19.8)	360 (25.5)	**< 0.0001**

Table 2 Association between low lean mass, slow walking speed, and weakness with any fracture, hip fracture, and major osteoporotic fractures

	Any fracture		Hip fracture		Major osteoporotic fracture	
	HR (95% CI)		HR (95% CI)		HR (95% CI)	
	Base	Full	Base	Full	Base	Full
Low lean mass	***1.25 (1.10–1.42)****	1.10 (0.96–1.26)	1.23 (0.95–1.59)	0.91 (0.69–1.20)	***1.35 (1.12–1.62)****	1.16 (0.95–1.40)
Slow walking speed	**1.70 (1.32–2.20)***	**1.39 (1.05–1.84)***	**3.44 (2.33–5.07)***	**2.37 (1.54–3.63)***	***2.39 (1.73–3.29)****	**1.89 (1.34–2.67)***
Low muscle strength	**1.31 (1.06–1.63)***	1.20 (0.96–1.50)	1.01 (0.65–1.57)	0.81 (0.51–1.30)	1.12 (0.82–1.55)	0.97 (0.70–1.35)

Osteoporosis International (2023) 34:53–58
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ORIGINAL ARTICLE

The relationship between sarcopenia-related measurements and osteoporosis: The SARCOP study

Tülay Tiftik[1] · Murat Kara[2] · Esra Gizem Koyuncu[2] · Bayram Kaymak[2] · Ömer Faruk Çelik[1] · İrem Çiftçi[1] · Gizem Olgu Korkmaz[2] · Pelin Analay[2] · Mahmud Fazıl Aksakal[2] · Hasan Ocak[2] · Cevriye Mülkoğlu[1] · Hakan Genç[1] · Ayşen Akıncı[2] · Levent Özçakar[2]

- Cross-sectional study
- Community dwelling postmenopausal women from two physical and rehabilitation medicine outpatient clinics

- Anterior thigh muscle thickness (MT) at the midthigh level was measured sonographically using a linear probe.
- Grip strength was measured from the dominant side.
- Physical performance was assessed by chair stand test and gait speed.

Table 1 Distribution of demographic and clinical characteristics of the subjects ($N=546$)

Characteristic	*OP* ($N=222$)	No OP ($N=324$)	*p*
Age (year)	62.7 ± 7.4	59.0 ± 8.4	**< 0.001**
Weight (kg)	67.7 ± 10.8	75.7 ± 12.0	**< 0.001**
Height (cm)	155.8 ± 6.0	158.3 ± 5.6	**< 0.001**
BMI (kg/m^2)	27.9 ± 4.3	30.2 ± 4.9	**< 0.001**
Education (year)	5 (0–15)	8 (0–15)	**0.006**
Exercise			0.075
Mild	49 (22.1)	50 (15.4)	
Moderate	25 (11.3)	51 (15.7)	
Smoking status	53 (23.9)	71 (21.9)	0.591
Circumference (cm)			
Waist	92.8 ± 12.1	95.7 ± 12.1	**0.003**
Hip	107.4 ± 9.7	112.1 ± 10.3	**< 0.001**
Comorbidities			
Hypertension	112 (50.5)	137 (42.3)	0.060
DM	42 (18.9)	84 (25.9)	0.056
Hyperlipidemia	26 (11.8)	44 (13.7)	0.529
Hypothyroidism	44 (19.8)	72 (22.2)	0.500
BMD T scores			
L1-L4 vertebrae	-2.9 ± 0.7	-1.0 ± 1.1	**< 0.001**
Femoral neck	-1.8 ± 0.8	-0.9 ± 1.0	**< 0.001**
Outcome measurements			
Anterior thigh MT (mm)	32.8 ± 6.7	35.5 ± 6.5	**< 0.001**
Grip strength (kg)	22.3 ± 5.1	24.3 ± 5.0	**< 0.001**
CST (s)	11.2 ± 3.8	11.0 ± 3.3	0.545
Gait speed (m/s)	1.03 ± 0.24	1.08 ± 0.24	**0.019**

Table 2 Linear regressions (β) predicting T scores of bone mineral density

	L1-L4	*p*		Femoral neck	*p*
Age	-	-	Age	−0.229	**< 0.001**
Weight	0.271	**< 0.001**	Weight	0.354	**< 0.001**
DM	0.109	**0.008**	DM	0.112	**0.003**
Education	0.213	**< 0.001**	Exercise	0.070	0.073
Grip strength	0.129	**0.003**	CST	−0.133	**0.001**
Anterior thigh MT	0.096	**0.025**	Smoking	−0.092	**0.018**
R	0.452			0.510	
R^2	0.205			0.264	

Table 3 Binary logistic regression analyses for predicting osteoporosis

	RR	*CI*	*p*
Age	1.047	1.020–1.074	**0.001**
Weight	0.937	0.918–0.953	**< 0.001**
Education	0.942	0.897–0.986	**0.012**
DM	0.622	0.383–0.985	**0.047**
Low grip strength*	1.618	1.059–2.473	**0.026**

Calcified Tissue International (2022) 111:242–247
https://doi.org/10.1007/s00223-022-00986-w

ORIGINAL RESEARCH

Relationships Between Muscle Parameters and History of Falls and Fractures in the Hertfordshire Cohort Study: Do All Muscle Components Relate Equally to Clinical Outcomes?

Faidra Laskou[1,2] · Leo D. Westbury[1] · Nicholas R. Fuggle[1,3] · Mark H. Edwards[4] · Cyrus Cooper[1,2,5] · Elaine M. Dennison[1,6]

- 641 participants (322 males), mean age 69.3±2.6 years
- Muscle mass was assessed as cross-sectional area (CSA) by peripheral quantitative computed tomography of the calf
- Grip strength (GpS) by Jamar dynamometry
- Muscle function by gait speed (GtS)
- Falls and fractures were self-reported

Table 2 Odds ratios for outcomes per SD increase in predictors among males and females

P-ValuePre-dictor	Outcome	Males			
		Unadjusted		Adjusted*	
		OR (95% CI)	*P*-value	OR (95% CI)	*P*-value
Calf muscle area	Fallen since 45	0.97 (0.77, 1.23)	0.798	1.06 (0.79, 1.44)	0.691
	Fallen in last year	1.01 (0.72, 1.42)	0.941	1.13 (0.74, 1.72)	0.586
	No. falls in last year	1.04 (0.74, 1.47)	0.823	1.11 (0.72, 1.69)	0.643
	Fracture since 45	0.95 (0.70, 1.28)	0.722	0.96 (0.65, 1.42)	0.840
Muscle (Grip) strength	Fallen since 45	0.85 (0.68, 1.07)	0.167	0.87 (0.67, 1.12)	0.273
	Fallen in last year	0.75 (0.55, 1.03)	0.078	0.76 (0.54, 1.08)	0.129
	No. falls in last year	0.77 (0.56, 1.06)	0.105	0.78 (0.55, 1.11)	0.175
	Fracture since 45	1.33 (0.98, 1.81)	0.070	1.35 (0.95, 1.92)	0.098

Table 2 Odds ratios for outcomes per SD increase in predictors among males and females

P-ValuePre-dictor	Outcome	Males				Females			*P*-Value
		Unadjusted		Adjusted*		Unadjusted			
		OR (95% CI)	*P*-value	OR (95% CI)	*P*-value	OR (95% CI)	*P*-value	OR (95% CI)	
Calf muscle area	Fallen since 45	0.97 (0.77, 1.23)	0.798	1.06 (0.79, 1.44)	0.691	0.93 (0.73, 1.17)	0.534	0.79 (0.58, 1.06)	0.119
	Fallen in last year	1.01 (0.72, 1.42)	0.941	1.13 (0.74, 1.72)	0.586	0.79 (0.59, 1.06)	0.120	**0.66 (0.44, 0.97)**	**0.037**
	No. falls in last year	1.04 (0.74, 1.47)	0.823	1.11 (0.72, 1.69)	0.643	0.79 (0.59, 1.06)	0.112	**0.64 (0.43, 0.95)**	**0.025**
	Fracture since 45	0.95 (0.70, 1.28)	0.722	0.96 (0.65, 1.42)	0.840	1.03 (0.78, 1.36)	0.838	1.11 (0.78, 1.58)	0.552
Muscle (Grip) strength	Fallen since 45	0.85 (0.68, 1.07)	0.167	0.87 (0.67, 1.12)	0.273	**0.79 (0.63, 0.99)**	**0.045**	0.79 (0.61, 1.01)	0.060
	Fallen in last year	0.75 (0.55, 1.03)	0.078	0.76 (0.54, 1.08)	0.129	0.88 (0.67, 1.17)	0.382	0.82 (0.60, 1.11)	0.198
	No. falls in last year	0.77 (0.56, 1.06)	0.105	0.78 (0.55, 1.11)	0.175	0.85 (0.64, 1.13)	0.273	0.77 (0.57, 1.06)	0.109
	Fracture since 45	1.33 (0.98, 1.81)	0.070	1.35 (0.95, 1.92)	0.098	**0.74 (0.56, 0.97)**	**0.030**	**0.74 (0.55, 0.99)**	**0.042**

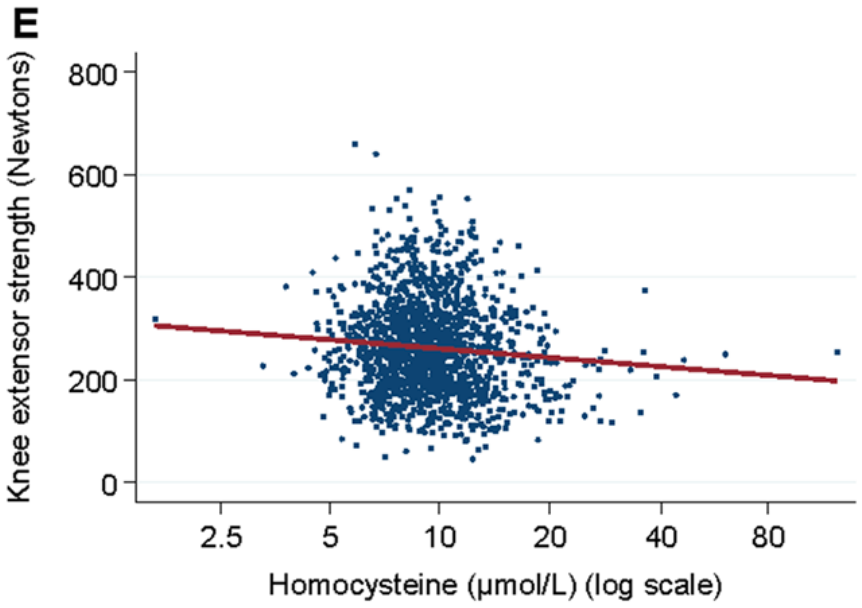
No association between gait speed and falls or fractures

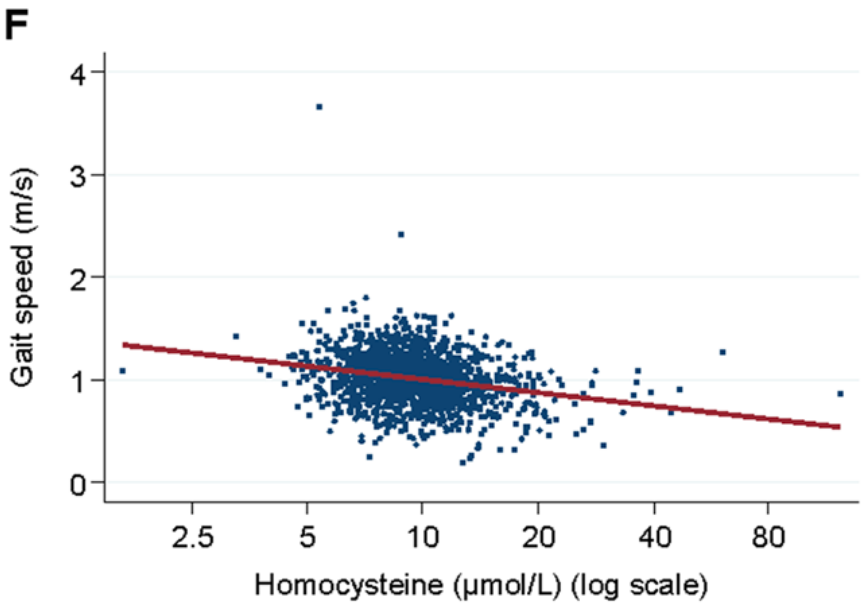
Calcified Tissue International (2023) 112:45–54
https://doi.org/10.1007/s00223-022-01037-0

ORIGINAL RESEARCH

Relationship Between Plasma Homocysteine and Bone Density, Lean Mass, Muscle Strength and Physical Function in 1480 Middle-Aged and Older Adults: Data from NHANES

Jatupol Kositsawat[1] · Sara Vogrin[2,3] · Chloe French[2,3,4] · Maria Gebauer[2,3,5] · Darren G. Candow[6] · Gustavo Duque[2,3] · Ben Kirk[2,3]





Calcified Tissue International (2023) 112:45–54
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ORIGINAL RESEARCH

Relationship Between Plasma Homocysteine and Bone Density, Lean Mass, Muscle Strength and Physical Function in 1480 Middle-Aged and Older Adults: Data from NHANES

Jatupol Kositsawat[1] · Sara Vogrin[2,3] · Chloe French[2,3,4] · Maria Gebauer[2,3,5] · Darren G. Candow[6] · Gustavo Duque[2,3] · Ben Kirk[2,3]

Homocysteine levels were borderline inversely associated with femur BMD (β = 0.84, 95% CI 0.69, 1.03, p = 0.086).

In the sub-group analysis of older adults (≥ 65 years), homocysteine was inversely associated with gait speed and femur BMD ($p < 0.05$) and the slope for knee extensor strength and whole-body BMD were in the same direction

Μελέτες παρέμβασης

Effect of maternal prenatal and postpartum vitamin D supplementation on offspring bone mass and muscle strength in early childhood: follow-up of a randomized controlled trial

Karen M O'Callaghan,[1] Shaila S Shanta,[2] Farzana Fariha,[2] Jennifer Harrington,[3] Abdullah Al Mahmud,[2] Abby L Emdin,[1] Alison D Gernand,[4] Tahmeed Ahmed,[2] Steven A Abrams,[5] Daniel R Moore,[6] and Daniel E Roth[1,3]

- RCT, healthy pregnant women (n=1300) were recruited at 17-24 weeks' gestation and randomly assigned to a prenatal/postpartum regimen of **0/0**, **4200/0**, **16,800/0**, **28,000/0**, **or 28,000/28,000 IU** cholecalciferol (vitamin D3)/wk until 26 wk postpartum.
- Additional follow-up at 4 y of age (n=642) for longer-term outcomes.
- Bone mineral content **(BMC)** and **aBMD, grip strength**
- The **primary comparison** was children of women assigned to 28,000 IU/wk prenatally compared with placebo.

Am J Clin Nutr 2022;115:770–780

TABLE 1 Maternal and child characteristics of participants in the MDIG trial and BONUSKids follow-up study, by vitamin D intervention group[1]

	Vitamin D (prenatal/postpartum IU/wk)					
	0/0 ($n = 121$)	4200/0 ($n = 137$)	16,800/0 ($n = 130$)	28,000/0 ($n = 129$)	28,000/28,000 ($n = 125$)	P[2]
Maternal characteristics						
Age at enrollment, y						
Median	23	23	23	23	24	0.31
Range	18–38	18–40	18–35	18–35	18–38	
Height at enrollment, cm	150.6 ± 5.8[3]	150.9 ± 5.2	150.3 ± 5.2	150.1 ± 5.5	151.8 ± 5.5	0.12
BMI at enrollment,[4] kg/m^2	24.1 ± 4.2	23.1 ± 4.2	23.6 ± 3.7	24.1 ± 3.8	24.5 ± 4.3	0.07
Gestational age at enrollment, wk	20.4 [3.1][5]	20.3 [3.1]	20.0 [3.3]	20.1 [3.1]	20.1 [3.3]	0.25
Educational level at enrollment, n (%)						0.87
Secondary school complete or higher[6]	25/117 (21)	31/131 (24)	26/122 (21)	23/124 (19)	28/122 (23)	
Household asset index quintile at enrollment[7]						0.68
Q1	26/121 (21.5)[8]	28/136 (20.6)	22/130 (16.9)	22/128 (17.2)	19/125 (15.2)	
Q2	22/121 (18.2)	30/136 (22.1)	32/130 (24.6)	22/128 (17.2)	20/125 (16.0)	
Q3	30/121 (24.8)	24/136 (17.7)	22/130 (16.9)	27/128 (21.1)	27/125 (21.6)	
Q4	22/121 (18.2)	23/136 (16.6)	30/130 (23.1)	31/128 (24.2)	33/125 (16.4)	
Q5	21/121 (17.4)	31/136 (22.8)	24/130 (18.5)	26/128 (20.3)	26/125 (20.8)	
Serum 25(OH)D at enrollment,[9] nmol/L	26.8 ± 14.5	27.5 ± 14.0	28.8 ± 13.4	26.0 ± 12.6	27.3 ± 13.1	0.55
Serum 25(OH)D at delivery,[10] nmol/L	21.2 ± 11.0[a]	70.2 ± 19.6[a]	97.9 ± 23.3[a]	112.2 ± 26.7[b]	110.0 ± 21.8[b]	<0.001

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TABLE 2 BMC, aBMD, body composition, and grip strength of children at 4 y of age whose mothers were randomly assigned to receive high-dose prenatal vitamin D supplementation (28,000 IU/wk) or placebo from 17–24 weeks' gestation to delivery[1]

	Prenatal vitamin D					
	0 IU/wk		28,000 IU/wk			
	n	Mean ± SD	*n*	Mean ± SD	Difference (95% CI)	*P*
Total-body-less-head						
TBLH BMC, g	114	276.2 ± 48.5	239	276.8 ± 52.8	0.61 (–10.90, 12.13)	0.92
TBLH aBMD, g/cm^2	114	0.438 ± 0.039	239	0.439 ± 0.043	0.0004 (–0.0089, 0.0097)	0.93
TBLH fat mass, kg	114	3.97 ± 1.17	239	3.94 ± 1.43	–0.03 (–0.33, 0.28)	0.85
TBLH fat tissue mass, %	114	31.7 ± 5.2	239	31.4 ± 5.4	–0.30 (–1.50, 0.89)	0.62
TBLH lean mass, kg	114	8.38 ± 1.20	239	8.34 ± 1.10	–0.04 (–0.29, 0.22)	0.78
Whole-body						
WB BMC, g	109	474.6 ± 65.5	223	481.4 ± 68.4	6.81 (–8.70, 22.32)	0.39
WB aBMD, g/cm^2	109	0.579 ± 0.045	223	0.584 ± 0.044	0.005 (–0.005, 0.015)	0.32
WB fat mass, kg	109	4.21 ± 1.09	223	4.26 ± 1.39	0.05 (–0.25, 0.35)	0.75
WB fat tissue mass, %	109	30.1 ± 4.6	223	30.0 ± 4.7	–0.09 (–1.15, 0.98)	0.87
WB lean mass, kg	109	9.65 ± 1.22	223	9.70 ± 1.16	0.05 (–0.22, 0.32)	0.71
Head only						
Head BMC, g	110	200.1 ± 24.5	226	201.8 ± 22.2	1.71 (–3.54, 6.96)	0.52
Head aBMD, g/cm^2	110	1.035 ± 0.095	226	1.054 ± 0.091	0.019 (–0.002, 0.040)	0.08
Functional strength						
Grip strength, kg	120	4.48 ± 1.26	247	4.50 ± 1.33	0.022 (–0.26, 0.31)	0.88

Am J Clin Nutr 2022;115:770–780

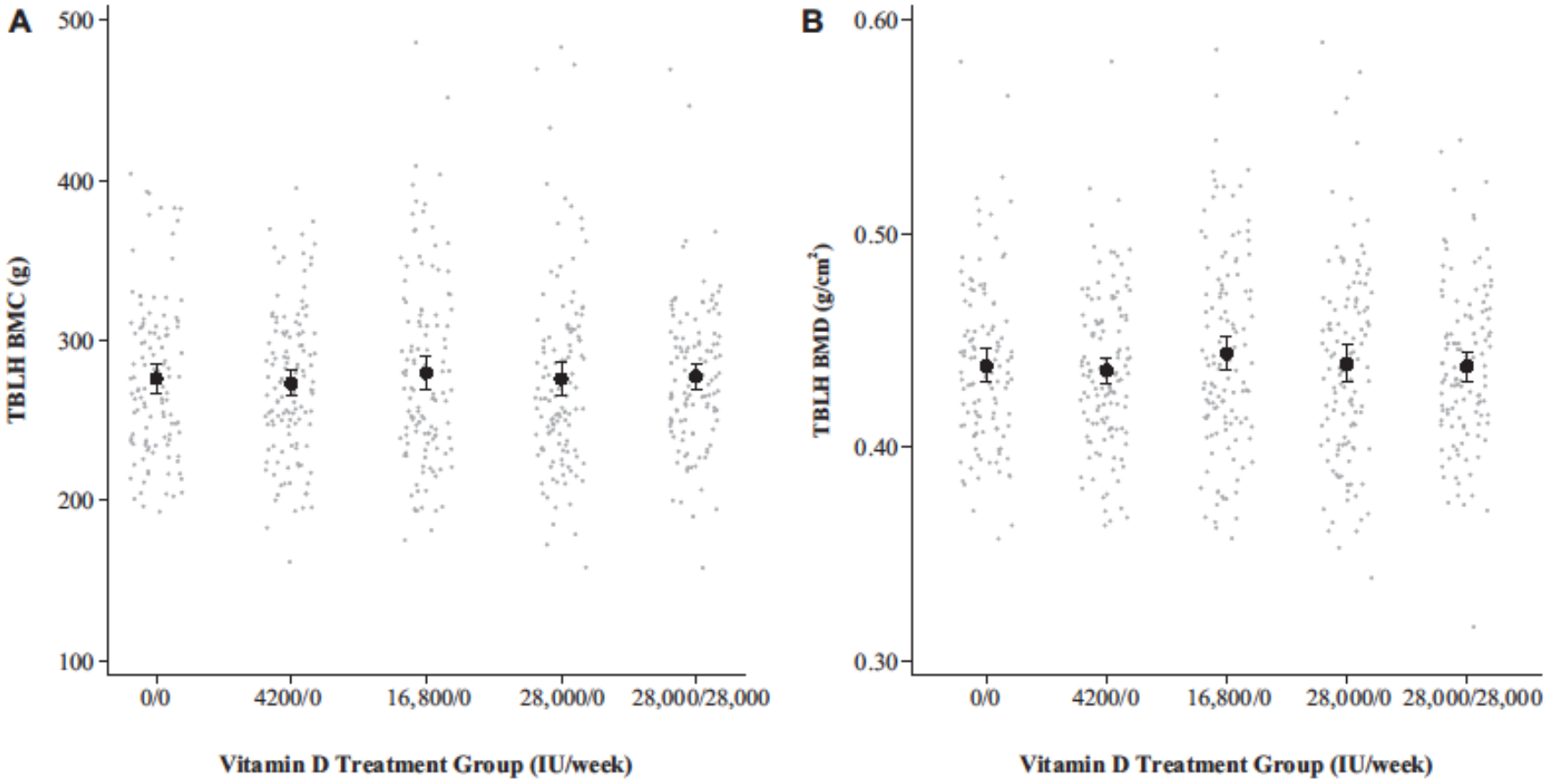
TABLE 3 Effect of maternal vitamin D supplementation on offspring BMC, aBMD, and grip strength at age 4 y in all maternal vitamin D intervention groups relative to placebo[1]

		Vitamin D (prenatal/postpartum IU/wk)				
		Mean (95% CI)	Mean difference (95% CI)[2]			
	n	0/0	4200/0	16,800/0	28,000/0	28,000/28,000
TBLH BMC,[3] g	599	276.2 (267.2, 285.2)	–2.9 (–15.0, 9.19)	3.6 (–9.7, 16.9)	–0.1 (–13.6, 13.4)	1.3 (–11.0, 13.6)
TBLH aBMD,[3] g/cm^2	599	0.438 (0.431, 0.445)	–0.002 (–0.013, 0.007)	0.006 (–0.005, 0.016)	0.0009 (–0.010, 0.012)	–0.00005 (–0.010, 0.010)
WB BMC,[4] g	565	474.6 (462.2, 487.0)	–0.96 (–16.0, 14.1)	7.2 (–10.8, 25.1)	3.8 (–15.4, 23.0)	9.9 (–6.1, 26.0)
WB aBMD,[4] g/cm^2	565	0.579 (0.570, 0.587)	0.0008 (–0.010, 0.012)	0.010 (–0.002, 0.022)	0.002 (–0.012, 0.015)	0.007 (–0.005, 0.018)
Head BMC,[5] g	572	200.1 (195.5, 204.7)	–0.9 (–6.6, 4.8)	2.1 (–3.7, 7.9)	–0.5 (–7.2, 6.2)	4.0 (–1.6, 9.6)
Head aBMD,[5] g/cm^2	572	1.035 (1.017, 1.053)	0.005 (–0.018, 0.027)	0.017 (–0.006, 0.041)	0.014 (–0.013, 0.040)	0.024* (0.0009, 0.047)
Grip strength,[6] kg	630	4.48 (4.25, 4.71)	0.004 (–0.31, 0.32)	0.13 (–0.23, 0.49)	–0.002 (–0.33, 0.33)	0.05 (–0.26, 0.35)

There was no interaction of maternal baseline 25(OH)D with intervention group for any outcome

Analysis restricted to offspring of women with vitamin D deficiency at enrollment also showed no effect of vitamin D on TBLH BMC

Am J Clin Nutr 2022;115:770–780



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Osteoporosis International (2022) 33:2177–2184
https://doi.org/10.1007/s00198-022-06470-3

ORIGINAL ARTICLE

Beneficial effects of denosumab on muscle performance in patients with low BMD: a retrospective, propensity score-matched study

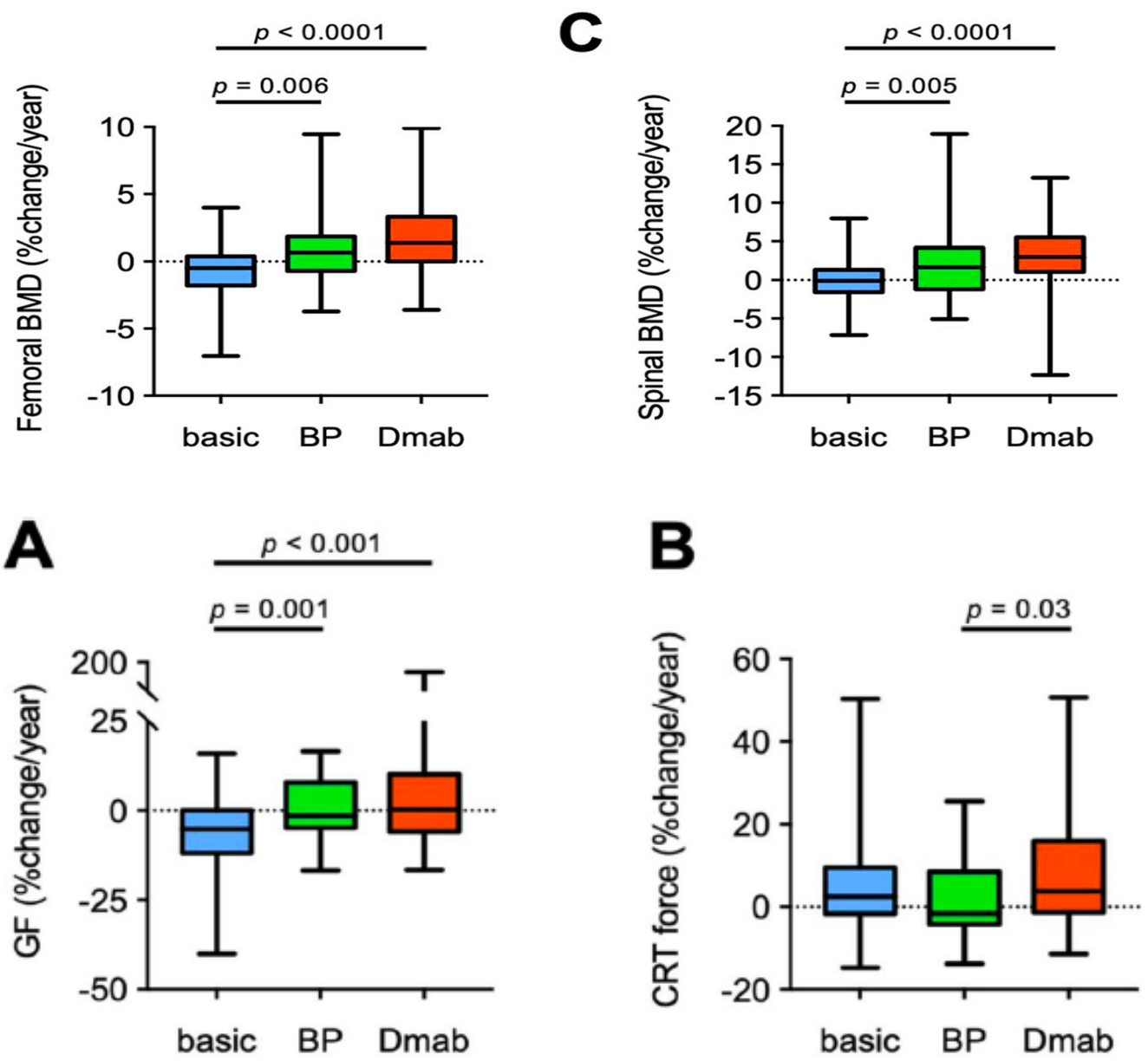
Tobias Rupp[1] · Emil von Vopelius[1,2] · André Strahl[2] · Ralf Oheim[1] · Florian Barvencik[1] · Michael Amling[1] · Tim Rolvien[2]

Retrospective, propensity score-matched (sex, age, BMI, follow-up time) cohort study

- 150 osteopenic or osteoporotic patients (20 men)
- Basic (n = 60), BP (n = 30, oral alendronate or i.v. ibandronate) or Dmab (n = 60) therapy
- Mean follow-up period of 17.6±9.0 months

Musculoskeletal assessment at baseline and follow-up, including:

- DXA
- laboratory bone metabolism parameters
- grip force
- chair rising test mechanography



Neither the changes in BMD nor in bone metabolic parameters were associated with changes in muscle performance

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Original Research

Does Zoledronic Acid Improve Appendicular Lean Mass in Older Women with Osteoporosis? A Sub-Analysis of a Randomized Clinical Trial

N.S. Haeri[1,2], *S. Perera*[1,3], *S.L. Greenspan*[1,2]

- A secondary analysis of a 2-year double-blind, randomized, placebo-controlled clinical trial.
- 62 postmenopausal women with osteoporosis.
- Participants either received 5 mg infusion of zoledronic acid (n=21) or placebo (n=41)
- ALM/Height^2, ALM, total hip and spine BMD were measured in 6, 12 and 24 months.
- Mean age: 86.7 years old; BMI: 27.4 kg/m^2

Figure 1. Mean Percent Change in BMD in Spine (A) and Total Hip (B) from Baseline to 24 Months

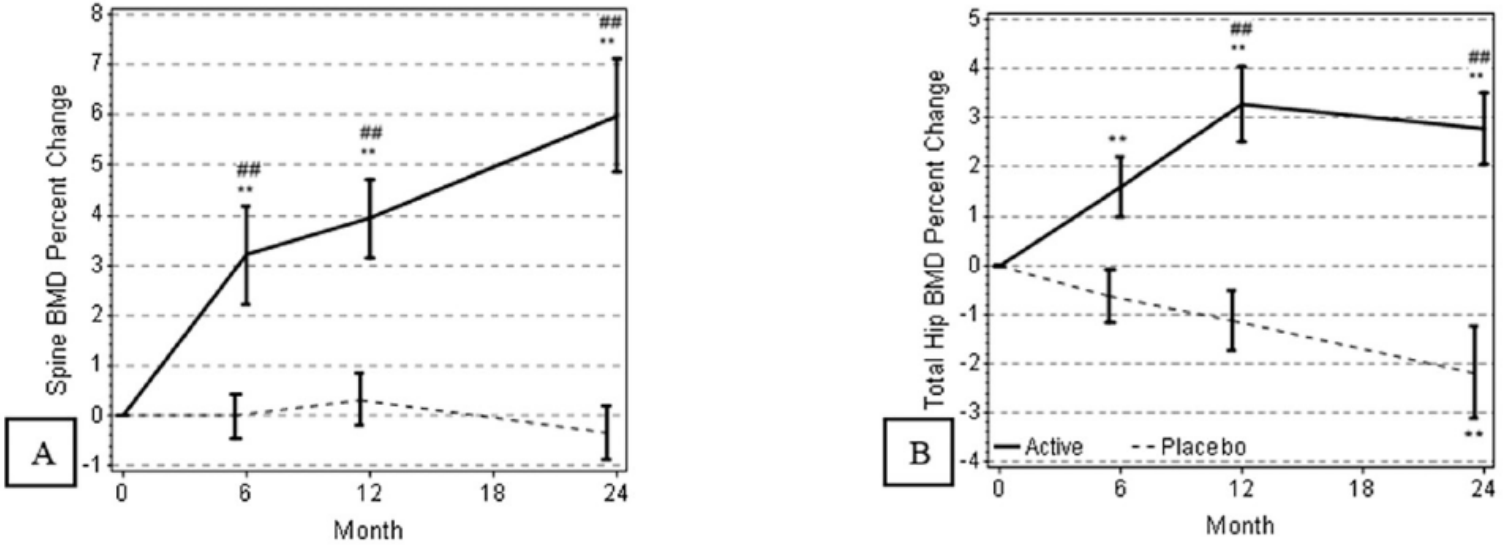
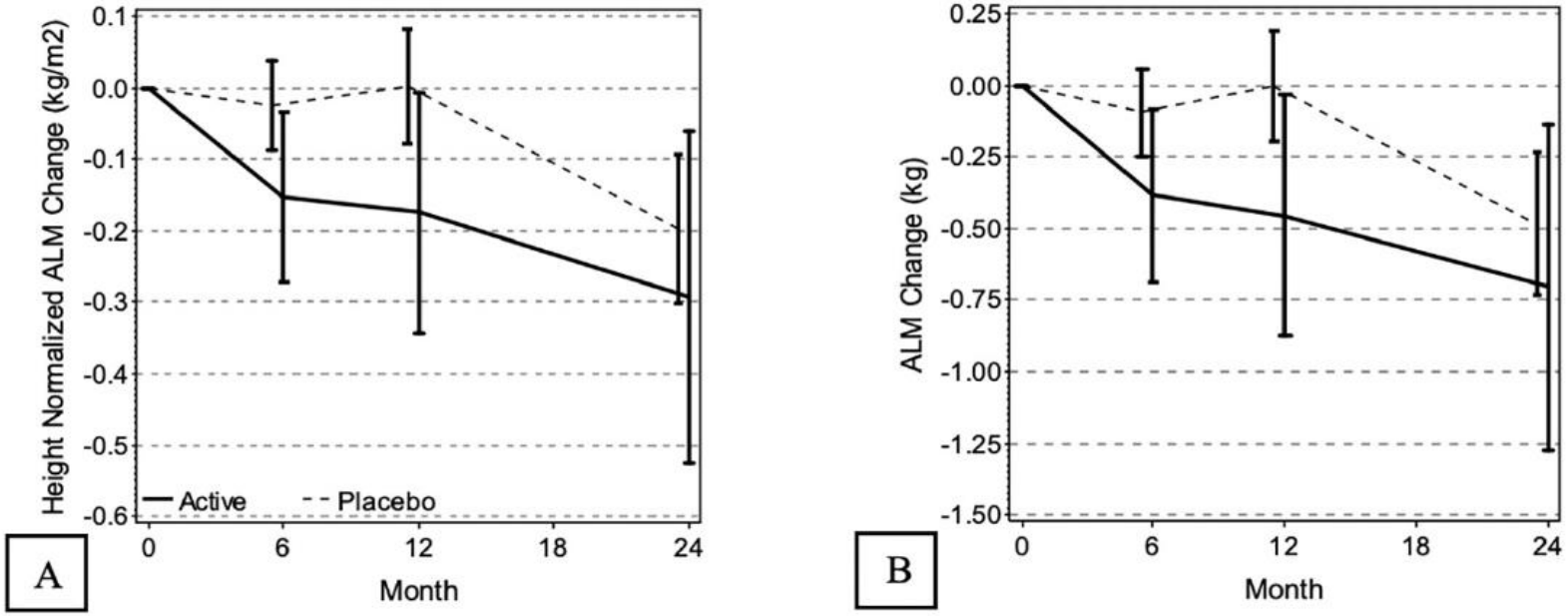


Figure 2. Mean Change in ALM/Height^2 (A) and ALM (B) from Baseline to 24 Months



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Denosumab's Therapeutic Effect for Future Osteosarcopenia Therapy : A Systematic Review and Meta-Analysis

I Gusti Putu Suka Aryana[1], Sandra Surya Rini[2], Siti Setiati[1,3]

Table 2. Characteristics of the studies included in the systematic review and meta-analysis

Study	Year	Design	Country	Population	Sex and mean age	Intervention	Control	Outcome	Follow-up duration
Bonnet et al.21)	2019	Single-blind RCT	Geneva, Switzerland	Post-menopausal osteoporotic women	Females only Mean age: Denosumab 64.9 ± 1.5 yr, control 65.7 ± 0.9 yr	Denosumab (n = 18)	n = 20 BPs: alendronate (n = 8), zoledronate (n = 12)	BMD-LS, ALM, handgrip strength	2.9 yr (range, 2.2–3.7 yr)
Miedany et al.22)	2021	Single-blind RCT	Egypt	Patients with osteoporosis	Male and female Mean ages: NA	Denosumab (n = 135)	n = 136 BPs: oral alendronate 70 mg once weekly, zoledronate once yearly 5 mg iv	Hip and spine BMD, calcium, vitamin D, FRAX, TUG, handgrip strength, gait speed	5 yr
Rupp et al.23)	2022	Retrospective cohort	Germany	Patients with osteopenia and osteoporosis	Male (n = 8) and female (n = 52) in both groups Mean age: Denosumab 68.9 ± 9.2 yr, control 68.0 ± 7.6 yr	Denosumab (n = 60)	n = 60 BPs: alendronate 70 mg once weekly oral, ibandronate 3 mg intravenously every 3 months	25(OH)D3 level, femoral and spinal BMD, handgrip strength, CRT force	17.6 ± 9 mo (range, 8–59 mo)
Phu et al.24)	2019	Cohort	Melbourne, Australia	Older adults ≥ 65 yr with history or risk of falls and/or fractures	Male and female Mean age: NA	Denosumab + vitamin D (n = 51)	n = 28 Zoledronic acid + vitamin D	Gait speed, TUG, FSST, SPPB score, ABC	6 mo

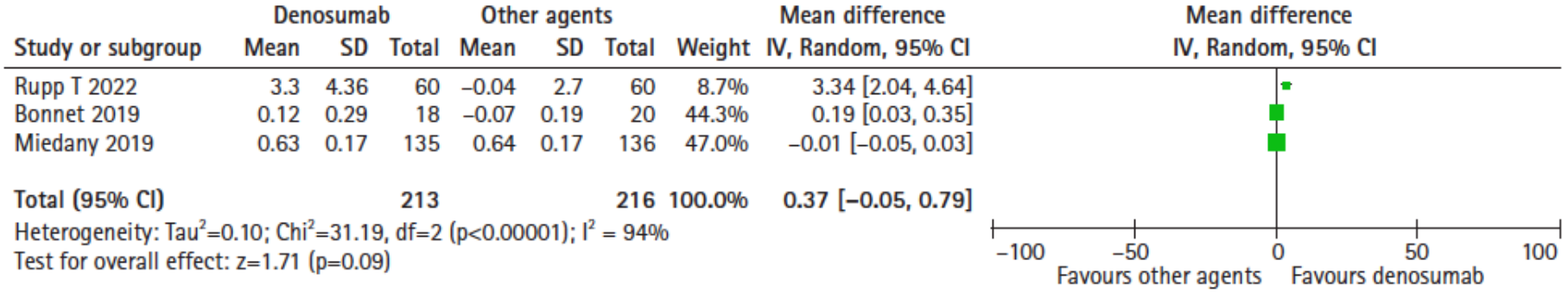

Fig. 2. Forest plot of denosumab's effect on lumbar spine bone mineral density change.

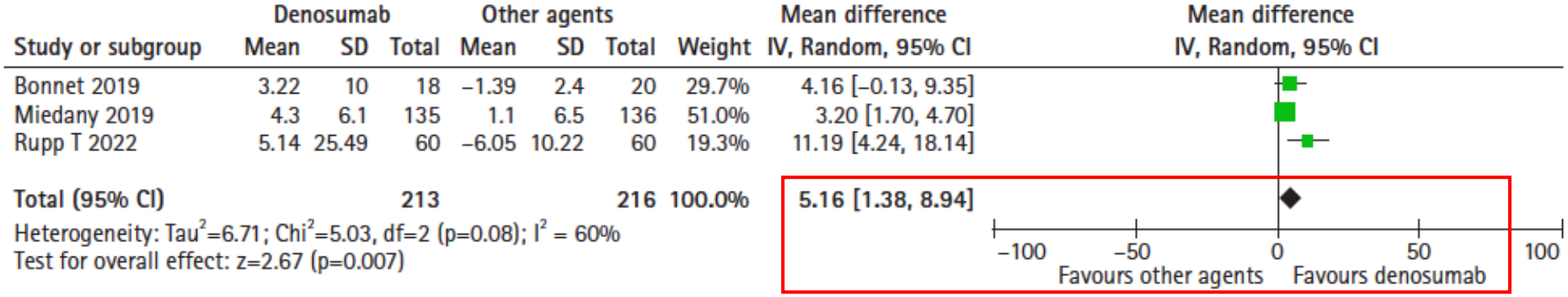

Fig. 3. Forest plot of denosumab's effect on handgrip strength change.

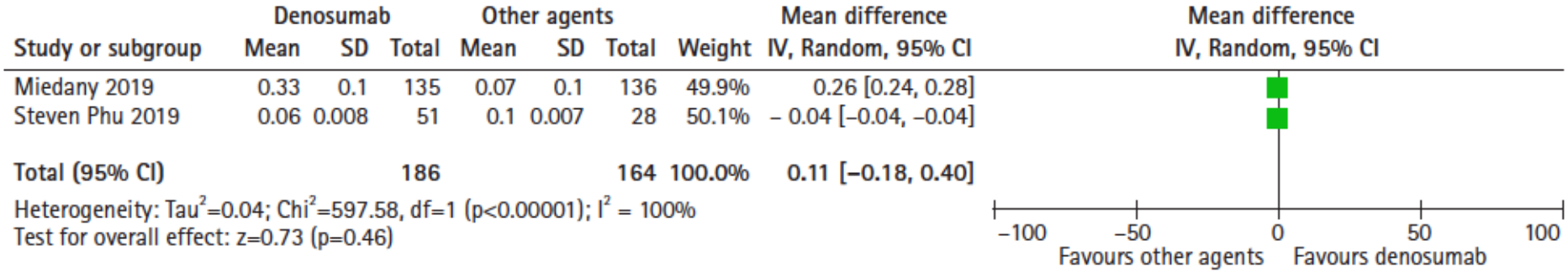

Fig. 4. Forest plot of denosumab's effect on gait speed change.

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Abnormal Trabecular Bone Score, Lower Bone Mineral Density and Lean Mass in Young Women With Premature Ovarian Insufficiency Are Prevented by Oestrogen Replacement

OPEN ACCESS

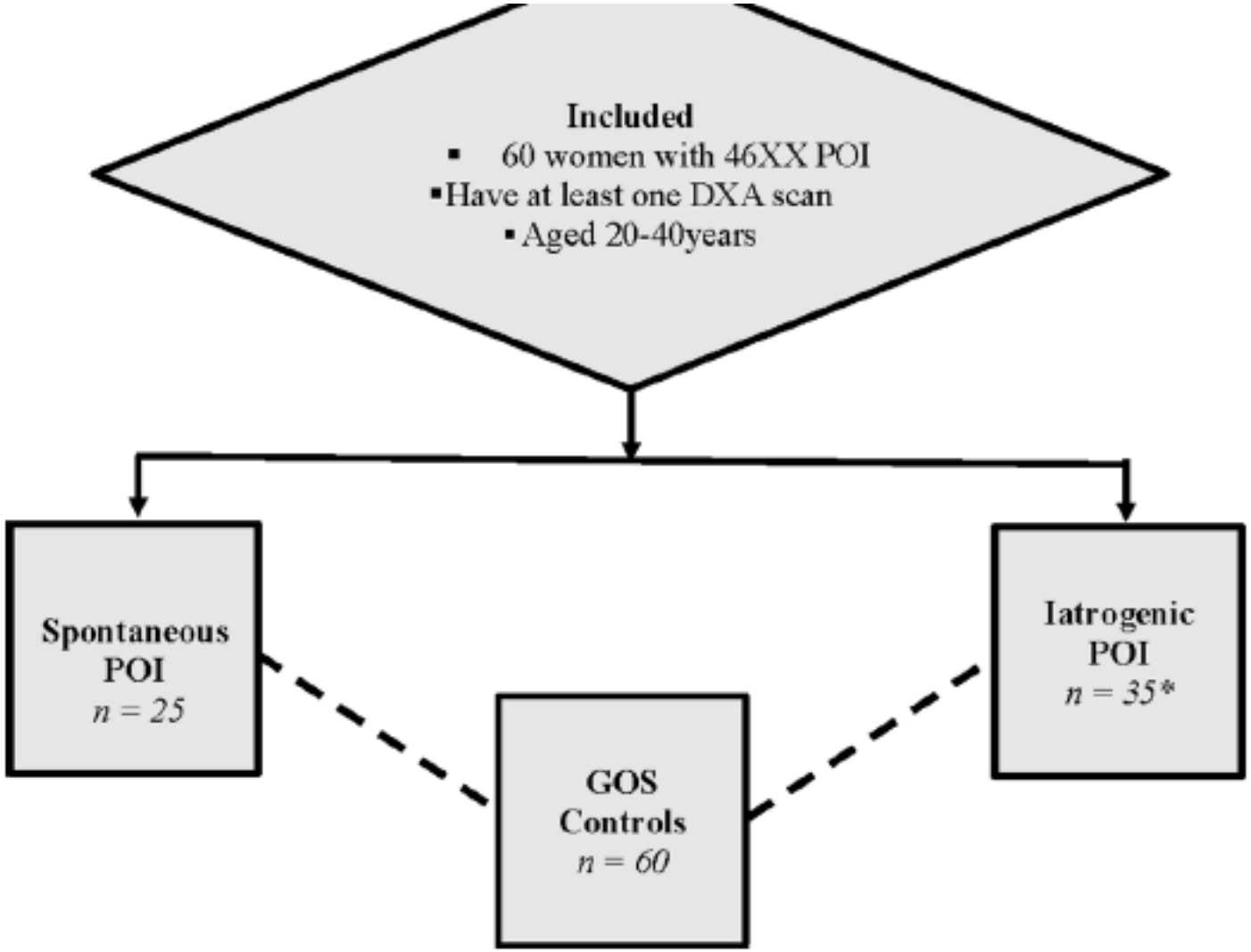
- 60 normal karyotype women with POI, aged 20-40 years, from 2005-2018

- DXA-derived spinal (LS) and femoral neck (FN) BMD, trabecular bone score (TBS), appendicular lean mass (ALM), total fat mass (TFM), and fracture prevalence were compared with 60 age-, and BMI-matched population-based controls.

- Longitudinal changes in bone and body composition variables and ERT effects were analysed using linear mixed models over a median duration of 6 years.

- Median(range) age of POI diagnosis was 34 (10-40) years with baseline DXA performed at median 1(0-13) year post-diagnosis.

- ERT was used by 82% of POI women (similar for both POI groups)


Included
▪ 60 women with 46XX POI
▪Have at least one DXA scan
▪ Aged 20-40years
Spontaneous POI
n = 25
GOS Controls
n = 60
Iatrogenic POI
n = 35*

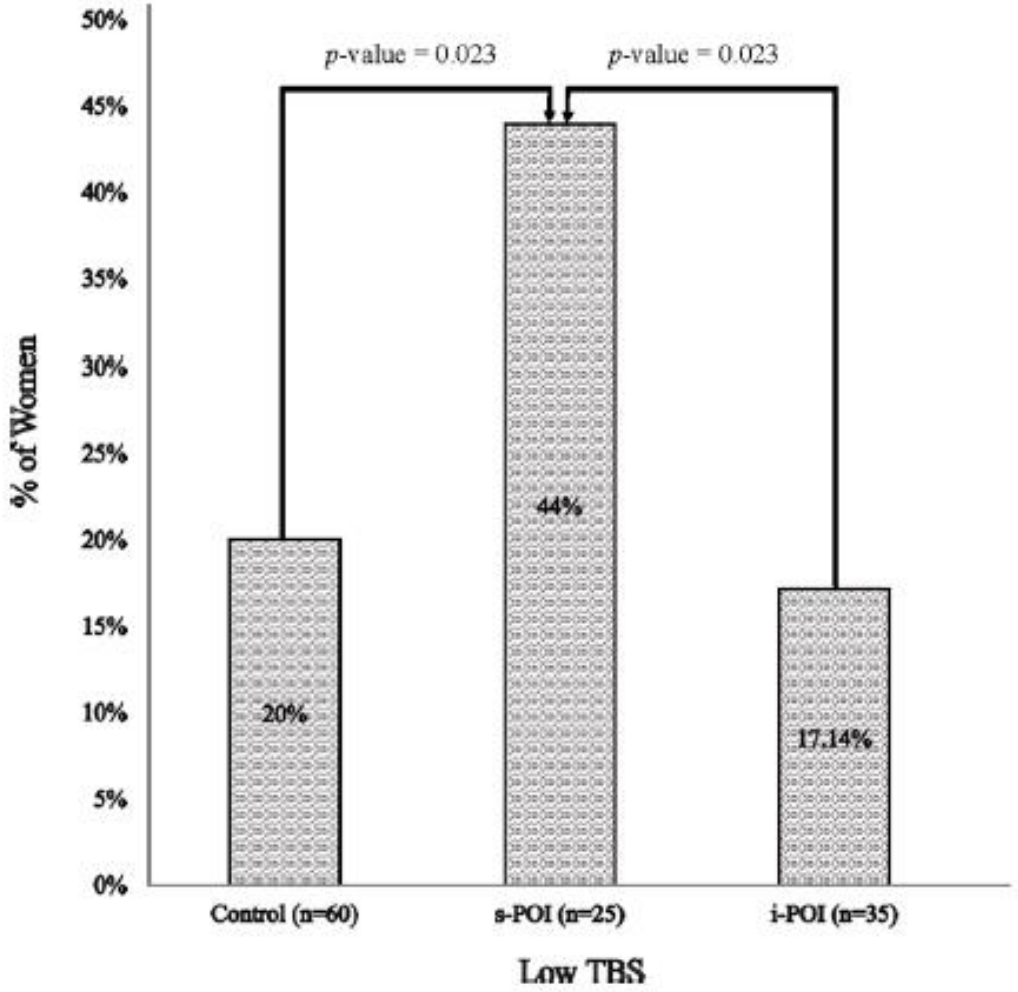
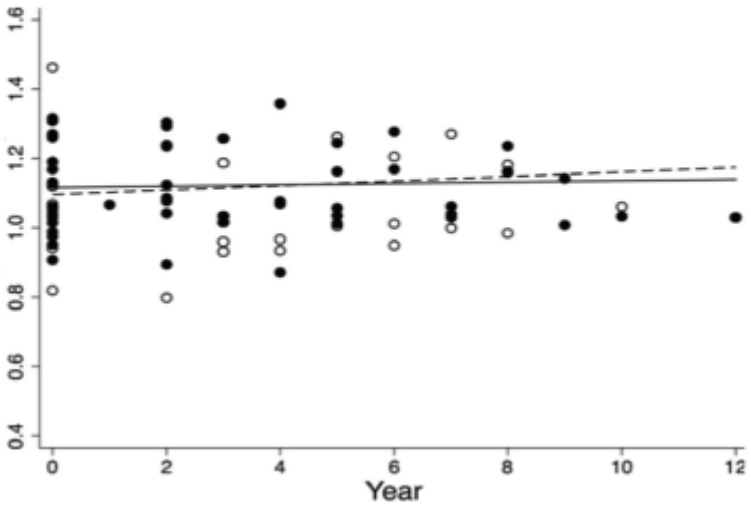


FIGURE 2 | Prevalence of low TBS. Low TBS was defined as TBS <1.302 [including both partially degraded & degraded TBS (18)].

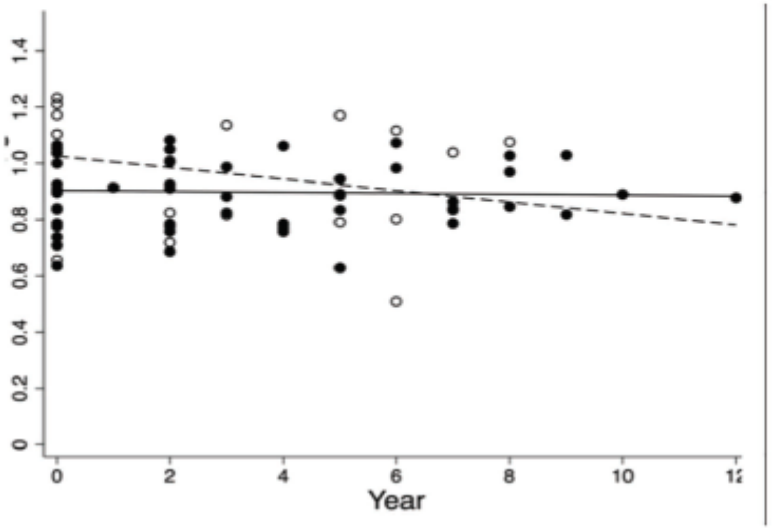
TABLE 1 | Demographics and baseline skeletal & body composition analysis of POI women and controls.

	Control n=60	s-POI n=25	i-POI n=35	P Value
Age (years)	34 (30-38)	35 (29-38)	33 (30-38)	0.72[a]
Fracture history	5 (8%)	5 (20%)	6 (17%)	0.275. [b]
ERT use*	NA	15 (68%)	29 (91%)	0.07[b]
Bone Density				
LS BMD (g/cm^2)	1.26 (01.18, 1.39)	1.07 (0.96, 1.20)	1.13 (1.05, 1.28	**<0.001[a]**
FN BMD (g/cm^2)	1.04 ± 0.13	0.91 ± 0.14	1.00 ± 0.16	**0.002[c]**
TBS				
TBS score	1.40 ± 0.11	1.36 ± 0.12	1.37± 0.10	0.19[a]
Low TBS (n)%	12 (20%)	11 (44%)	6 (17%)	**0.03[b]**
Body Composition				
ALM (g)	19627.50 (17718.00, 21360.00)	15891.00 (14063.50, 17247.00)	16952.00 (14613, 19029.50)	**<0.001[a]**
ALMI (g/m^2)	7077.83 (6452.79, 7740.68)	6172.69 (5472.46, 6638.57)	6154.71 (5645.69, 7100.59)	**<0.001[a]**
TFM (g)	26856.50 (17984, 40504)	20820.00 (18617.27, 31562.50)	26178.00 (20628, 35213)	0.29[a]
TFMI (g/m^2)	9823.08 (6404.68,14134.91)	8944.46 (7598.21, 1270.57)	9537.52 (7020.77, 13806.36)	0.28[a]

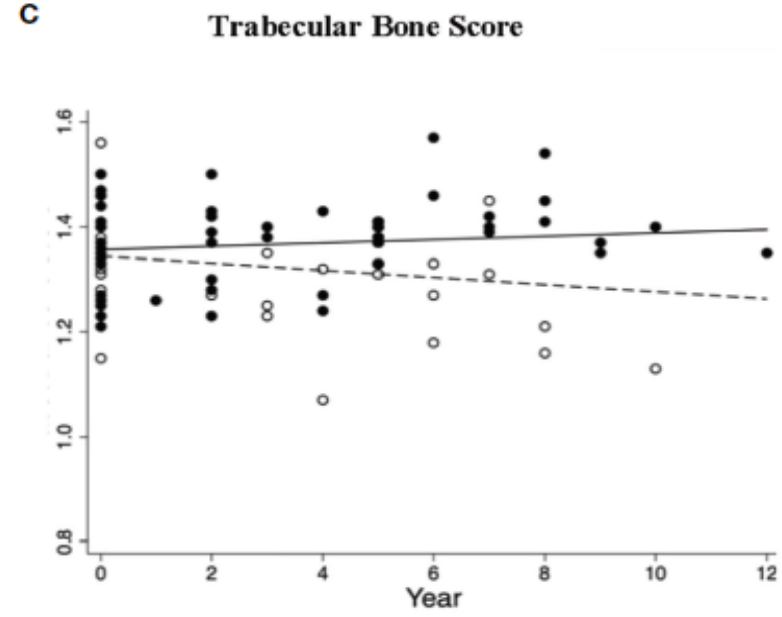
A


Lumbar spine BMD, g/cm²
0.4
0.6
0.8
1.0
1.2
1.4
1.6
0
2
4
6
8
10
12
Year

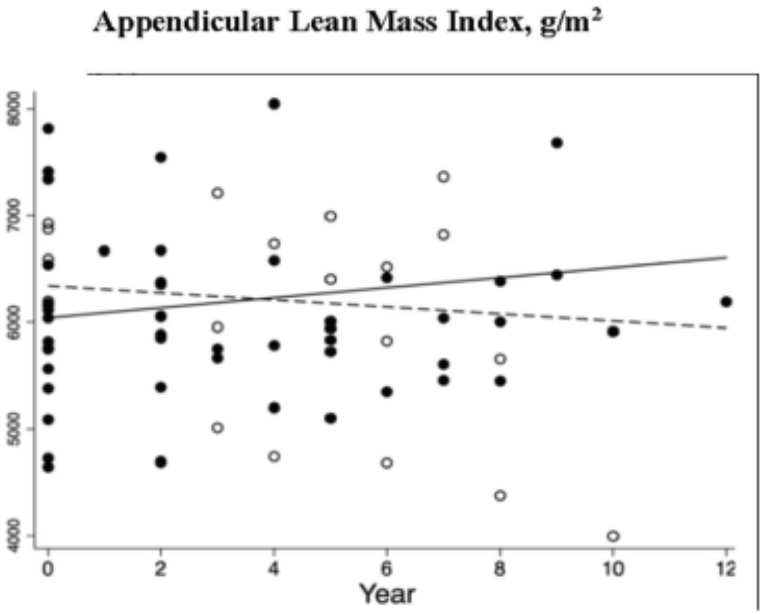
B


Femoral Neck BMD, g/cm²
0
0.2
0.4
0.6
0.8
1.0
1.2
1.4
0
2
4
6
8
10
12
Year

C


Trabecular Bone Score
0.8
1.0
1.2
1.4
1.6
0
2
4
6
8
10
12
Year

D


Appendicular Lean Mass Index, g/m²
4000
5000
6000
7000
8000
0
2
4
6
8
10
12
Year

Συμπεράσματα

- Στις μετεμμηνοπαυσιακές γυναίκες οι παράμετροι grip strength, anterior thigh muscle thickness & chair stand test σχετίζονται θετικά με την BMD (ΟΜΣΣ και αυχένα μηριαίου, αντίστοιχα)
  Τιμές μυϊκής ισχύος < 22 kg αυξάνουν τον κίνδυνο οστεοπόρωσης κατά 1.6 φορές

- Στους ηλικιωμένους άνδρες, ο κίνδυνος οποιουδήποτε, μείζονος ή κατάγματος ισχίου είναι μεγαλύτερος σε εκείνους με βραδύτερη ταχύτητα βάδισης σε σύγκριση με εκείνους με φυσιολογική ταχύτητα
  Δε βρέθηκε συσχέτιση κατάγματος με χαμηλή μυϊκή ισχύ ή μυική μάζα

- Σε άλλη μελέτη, η μεγαλύτερη μυϊκή ισχύς, στις γυναίκες, συσχετίστηκε με χαμηλότερο κίνδυνο πτώσεων και καταγμάτων από την ηλικία των 45 ετών Η μεγαλύτερη μυϊκή μάζα συσχετίστηκε με μειωμένο κίνδυνο πτώσεων το τελευταίο έτος

- Ανάστροφη συσχέτιση μεταξύ συγκεντρώσεων ομοκυστεΐνης ορού και μυϊκής ισχύος-λειτουργίας – οριακή συσχέτιση με BMD ισχίου

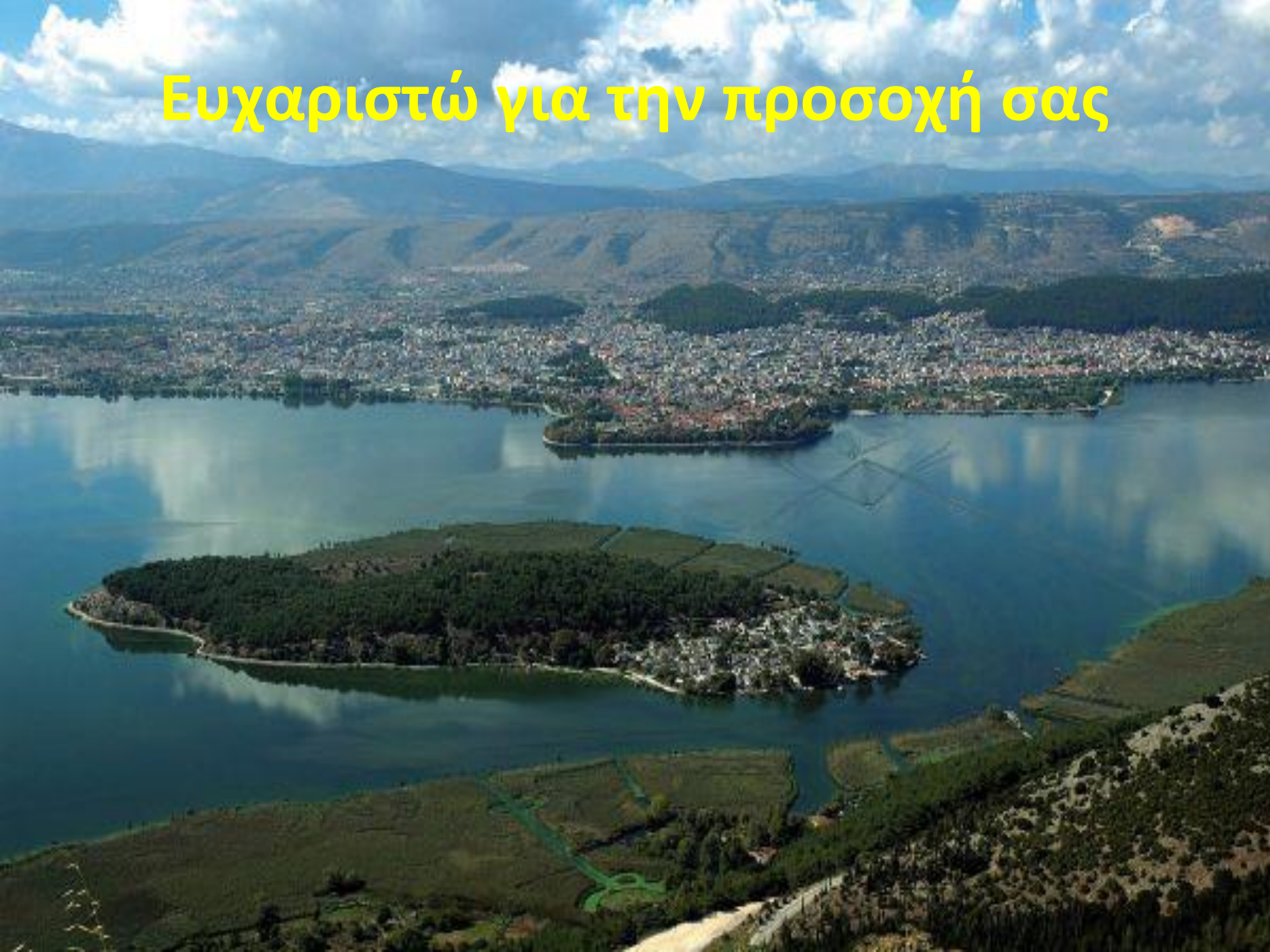
- Η **χορήγηση βιταμίνης D κατά τη διάρκεια της εγκυμοσύνης**, με ή χωρίς επέκταση μετά, δεν βελτιώνει την παιδική BMC και aBMD, ούτε τη μυϊκή ισχύ

- Η **χορήγηση denosumab** σχετίζεται με αύξηση μυϊκής ισχύος στα άνω και κάτω άκρα, σε συγκριση με τα διφωσφονικά, καταδεικνύοντας συστηματική παρά τοπική δράση

- Αντίθετα, η **χορήγηση ζολεδρονικού οξέος** (5 mg, εφάπαξ ετησίως) σε ηλικιωμένες γυναίκες δεν οδήγησε σε αύξηση των δεικτών ALM/Height^2 και ALM, παρά τη βελτίωση της BMD σε ολικό ισχίο και ΟΜΣΣ μετά από 2 έτη

- Σε **γυναίκες με ΠΩΑ**, παρατηρείται έλλειμμα σε BMD, μικροαρχιτεκτονική σπογγώδους οστού και μυϊκής μάζας.

- Η τακτική (και όχι η διακοπτόμενη) **χορήγηση ΘΟΥ** προλαμβάνει την οστική απώλεια και οδηγεί σε αύξηση ALM.


Ευχαριστώ για την προσοχή σας