Roma, 8-11 novembre 2018

ITALIAN CHAPTER

17° Congresso Nazionale AME

Joint Meeting with AACE Italian Chapter

Update in Endocrinologia Clinica

8-11 novembre 2018
Roma

This year in... metabolismo osseo

Discussants:

C. Marcocci, F. Vescini

Conflitti di interesse

Ai sensi dell'art. 3.3 sul conflitto di interessi, pag 17 del Regolamento Applicativo Stato-Regioni del 5/11/2009, dichiaro che negli ultimi 2 anni ho avuto rapporti diretti di finanziamento con i seguenti soggetti portatori di interessi commerciali in campo sanitario:

- GILEAD SCIENCES LTD
- ABIOGEN PHARMA SPA
- SHIRE

Osteoporosis International (2018) 29:1933–1948
https://doi.org/10.1007/s00198-018-4534-5

REVIEW

Benefits and safety of dietary protein for bone health—an expert consensus paper endorsed by the European Society for Clinical and Economical Aspects of Osteopororosis, Osteoarthritis, and Musculoskeletal Diseases and by the International Osteoporosis Foundation

R. Rizzoli[1] · E. Biver[1] · J.-P. Bonjour[1] · V. Coxam[2] · D. Goltzman[3] · J. A. Kanis[4,5] · J. Lappe[6] · L. Rejnmark[7] · S. Sahni[8] · C. Weaver[9] · H. Weiler[10] · J.-Y. Reginster[11]

In older people with osteoporosis, higher protein intake (≥ 0.8 g/kg body weight/day, i.e., above the current RDA) is associated with higher BMD, a slower rate of bone loss, and reduced risk of hip fracture, provided that dietary calcium intakes are adequate. Intervention with dietary protein supplements attenuate age-related BMD decrease and reduce bone turnover marker levels, together with an increase in IGF-I and a decrease in PTH. There is no evidence that diet-derived acid load is deleterious for bone health. Thus, insufficient dietary protein intakes may be a more severe problem than protein excess in the elderly.

Effects of teriparatide and risedronate on new fractures in post-menopausal women with severe osteoporosis (VERO): a multicentre, double-blind, double-dummy, randomised controlled trial

Lancet 2018; 391: 230–40

David L Kendler, Fernando Marin, Cristiano A F Zerbini, Luis A Russo, Susan L Greenspan, Vit Zikan, Alicia Bagur, Jorge Malouf-Sierra, Péter Lakatos, Astrid Fahrleitner-Pammer, Eric Lespessailles, Salvatore Minisola, Jean Jacques Body, Piet Geusens, Rüdiger Möricke, Pedro López-Romero

- At 24 months, new vertebral fractures occurred in 28 (5.4%) of 680 patients in the teriparatide group and 64 (12.0%) of 680 patients in the risedronate group (risk ratio 0.44, 95% CI 0.29–0.68; p <0.0001).
- Non-vertebral fragility fractures occurred in 25 (4.0%) patients in the teriparatide group and 38 (6.1%) in the risedronate group (hazard ratio 0.66; 95% CI 0.39–1.10; p =0.10).

Osteoporosis International
https://doi.org/10.1007/s00198-018-4674-7

14 August 2018

ORIGINAL ARTICLE

Tight control: a new therapeutic strategy in the management of osteoporotic patients

A. Halasi[1] · G. Kincse[2] · J. Varga[3] · J. Kéri[4] · J. Gaál[2,4]

- We intended to ascertain whether tight control (i.e., follow-up visits and BTM/PTH monitoring at 3-month intervals) strategy achieves a statistically greater increase in BMD over the observation period than standard follow-up care (i.e., bone densitometry at 1-year intervals, without BTM monitoring).

- The relative changes of the bone mineral density of the femoral neck was significantly ($p = 0.041$) higher in patients under tight control than in those receiving routine care; however, BMD changes in the lumbar spine were not statistically different.

2017;318(24):2466-2482

Research

JAMA | Original Investigation

Association Between Calcium or Vitamin D Supplementation and Fracture Incidence in Community-Dwelling Older Adults

A Systematic Review and Meta-analysis

Jia-Guo Zhao, MD; Xian-Tie Zeng, MD; Jia Wang, MD; Lin Liu, MD

In this meta-analysis of randomized clinical trials, the use of supplements that included calcium, vitamin D, or both compared with placebo or no treatment was not associated with a lower risk of fractures among community-dwelling older adults. These findings do not support the routine use of these supplements in community-dwelling older people.

- ✓ **Association Between Calcium or Vitamin D Supplementation and Fracture Incidence in Community-Dwelling Older Adults. A Systematic Review and Meta-analysis**:
  - In this meta-analysis of randomized clinical trials, the use of supplements that included calcium, vitamin D, or both compared with placebo or no treatment was not associated with a lower risk of fractures among community-dwelling older adults. These findings do not support the routine use of these supplements in community-dwelling older people. (*Zhao JG. et al. JAMA. 2017;318(24):2466-2482*)

Dichiarazione dell'ASBMR (29/12/2017):

… anche se lo studio riporta come non vi sia alcuna prova che i supplementi a base di calcio e vitamina D prevengano le fratture negli adulti di età superiore a 50 anni che non vivono in ospedali, case di cura o altre strutture, è fondamentale tenere presente che **questa analisi si è concentrata sugli adulti sani**.

Di conseguenza, i risultati di questo studio **non si applicano alle persone affette da osteoporosi o da altre malattie metaboliche dell'osso** né a coloro che assumono farmaci protettivi dell'osso.

Commento del Presidente della SIOMMMS (10/01/2018):

Il raggiungimento di adeguati livelli di vitamina D è di particolare importanza nei soggetti affetti da osteoporosi, in quanto, come ci ricorda la Nota AIFA 79, una **carenza di vitamina D riduce in maniera significativa l'effetto dei farmaci anti-fratturativi**, sia anti-riassorbitivi che anabolici.

… nei pazienti osteoporotici, e/o con elevato rischio fratturato, la supplementazione con calcio e vitamina D **non può in nessun modo sostituire il trattamento farmacologico specifico**.

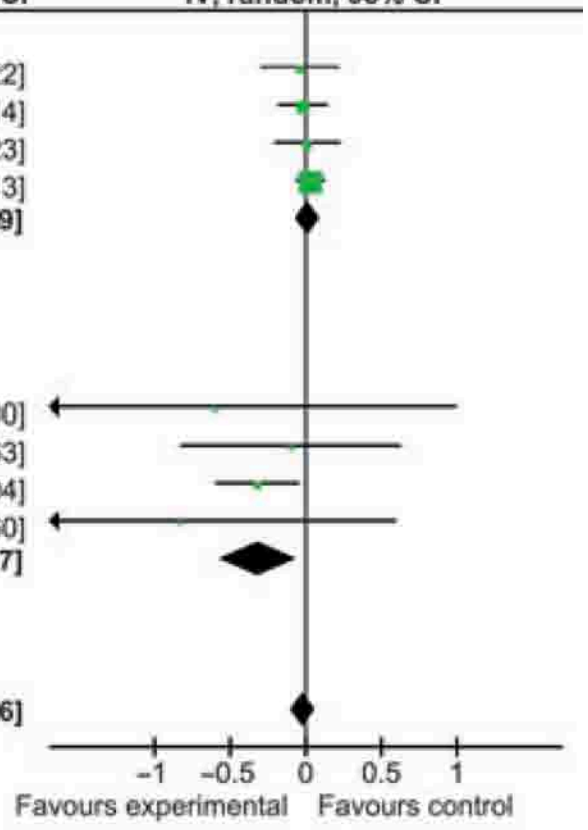
Review Article

Effect of vitamin D supplementation on glycaemic control and insulin resistance: a systematic review and meta-analysis

P. S. George, E. R. Pearson and M. D. Witham

Diabet. Med. 29, e142–e150 (2012)

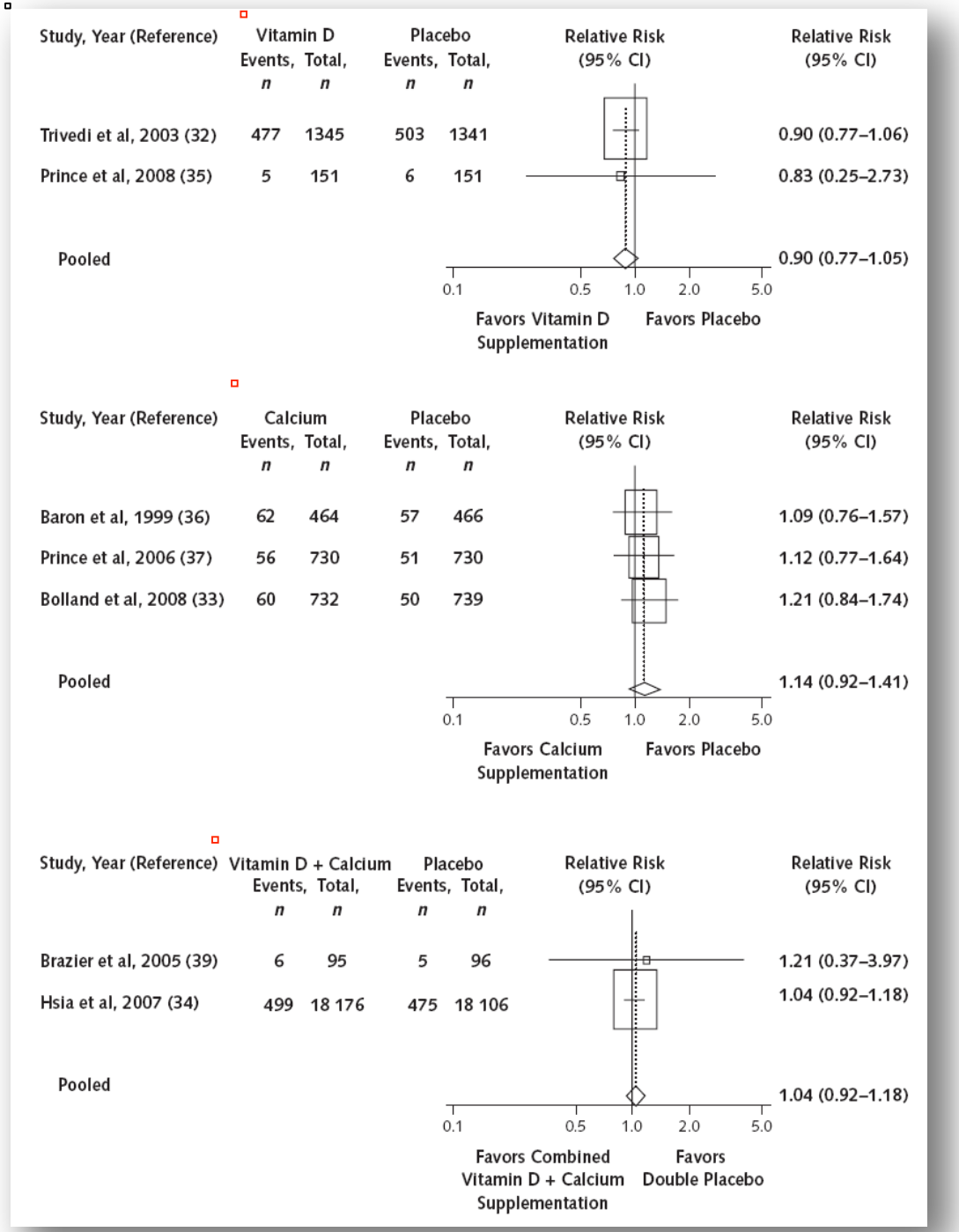
Study or subgroup	Vitamin D Mean	SD	Total	Placebo Mean	SD	Total	Weight	Mean difference IV, random, 95% CI
Normal fasting glucose								
de Boer 2008	0.22	1.25	172	0.26	1.22	178	8.8%	−0.04 [−0.30, 0.22]
Major 2006	−0.13	0.37	30	−0.11	0.28	33	20.8%	−0.02 [−0.18, 0.14]
Nilas 1983	0.13	0.5	25	0.12	0.5	103	12.2%	0.01 [−0.21, 0.23]
Pittas 2007 NFG	0.15	0.31	108	0.12	0.43	114	48.8%	0.03 [−0.07, 0.13]
Subtotal (95% CI)			**335**			**428**	**90.6%**	**0.01 [−0.06, 0.09]**
Heterogeneity: tau² = 0.00; Chi² = 0.43, d.f. = 3 (*P* = 0.93); *I*² = 0%								
Test for overall effect: *Z* = 0.29 (*P* = 0.77)								
Abnormal glucose tolerance								
Jorde 2009	−0.2	3.1	16	0.4	1	16	0.2%	−0.60 [−2.20, 1.00]
Ljunghall 1987	0	1.55	33	0.1	1.45	32	1.2%	−0.10 [−0.83, 0.63]
Pittas 2007 IFG	0.02	0.6	45	0.34	0.75	47	7.7%	−0.32 [−0.60, −0.04]
Witham 2010	0.41	2.47	33	1.24	2.63	20	0.3%	−0.83 [−2.26, 0.60]
Subtotal (95% CI)			**127**			**115**	**9.4%**	**−0.32 [−0.57, −0.07]**
Heterogeneity: tau² = 0.00; Chi² = 0.96, d.f. = 3 (*P* = 0.81); *I*² = 0%								
Test for overall effect: *Z* = 2.47 (*P* = 0.01)								
Total (95% CI)			**462**			**543**	**100.0%**	**−0.02 [−0.10, 0.06]**
Heterogeneity: tau² = 0.00; Chi² = 7.37, d.f. = 7 (*P* = 0.39); *I*² = 5%								
Test for overall effect: *Z* = 0.54 (*P* = 0.59)								
Test for subgroup differences: Chi² = 5.99, d.f. = 1 (*P* = 0.01), *I*² = 83.3%								



Annals of Internal Medicine
Established in 1927 by the American College of Physicians

Vitamina D o/e supplementazione calcica nella prevenzione degli eventi cardio-vascolari

Wang et al, Ann Intern Med, 2010



Cardiovascular disease and vitamin D supplementation: trial analysis, systematic review, and meta-analysis[1–4]

John A Ford, Graeme S MacLennan, Alison Avenell, Mark Bolland, Andrew Grey, and Miles Witham for the RECORD Trial Group

Am J Clin Nutr 2014;100:746–55

The RECORD trial: Estimated effects of vitamin D on outcomes

Outcome	Vitamin D (n = 2649)	Placebo (n = 2643)	HR (95% CI)[1]	P
No. of fatal and nonfatal events				
Cardiac failure	102	136	0.75 (0.58, 0.97)	0.027
MI[2]	114	117	0.97 (0.75, 1.26)	0.84
Stroke	160	149	1.06 (0.85, 1.32)	0.61
Composite outcome	339	363	0.92 (0.80, 1.08)	0.32
No. of fatal events only				
Cardiac failure	89	127	0.70 (0.53, 0.91)	0.009
MI	87	88	0.99 (0.73, 1.33)	0.92
Stroke	102	101	0.99 (0.75, 1.30)	0.94
Composite outcome	256	291	0.87 (0.73, 1.03)	0.11

[1] Cox regression adjusted for age (<80 or ≥80 y), sex, time since fracture (previous ≥3 mo), type of fracture (proximal femur, distal forearm, clinical vertebral, or other), diabetic status, and smoking status.

Cochrane Library

Cochrane Database of Systematic Reviews 2016, Issue 9. Art. No.: CD011511.

DOI: 10.1002/14651858.CD011511.pub2.

Vitamin D for the management of asthma (Review)

Martineau AR, Cates CJ, Urashima M, Jensen M, Griffiths AP, Nurmatov U, Sheikh A, Griffiths CJ

Vitamin D for the management of asthma

Cochrane Library

Adrian R Martineau[1], Christopher J Cates[2], Mitsuyoshi Urashima[3], Megan Jensen[4], Alex P Griffiths[1], Ulugbek Nurmatov[5], Aziz Sheikh[6], Chris J Griffiths[1]

Analysis 1.1. Comparison 1 Vitamin D versus placebo (all studies), Outcome 1 Rate ratio, exacerbations requiring systemic corticosteroids.

Review: Vitamin D for the management of asthma

Comparison: 1 Vitamin D versus placebo (all studies)

Outcome: 1 Rate ratio, exacerbations requiring systemic corticosteroids

Intervention: vitamin D3 administered orally over study duration of 4 to 12 months

Evidence based primarily on adults with mild to moderate asthma

Study or subgroup	Vitamin D N	Placebo N	log [Rate Ratio] (SE)	Rate Ratio IV,Random,95% CI	Weight	Rate Ratio IV,Random,95% CI
Castro 2014	201	207	-0.5816 (0.2537)		45.3 %	0.56 [0.34, 0.92]
Jensen 2016	11	11	-0.3857 (0.4175)		16.7 %	0.68 [0.30, 1.54]
Martineau 2015	125	125	-0.3535 (0.277)		38.0 %	0.70 [0.41, 1.21]
Total (95% CI)	**337**	**343**			**100.0 %**	**0.63 [0.45, 0.88]**

Heterogeneity: $Tau^2 = 0.0$; $Chi^2 = 0.41$, df = 2 (P = 0.82); $I^2 = 0.0\%$

Test for overall effect: Z = 2.71 (P = 0.0068)

Test for subgroup differences: Not applicable

Vitamin D for the management of asthma

Cochrane Library

Adrian R Martineau[1], Christopher J Cates[2], Mitsuyoshi Urashima[3], Megan Jensen[4], Alex P Griffiths[1], Ulugbek Nurmatov[5], Aziz Sheikh[6], Chris J Griffiths[1]

Analysis 1.5. Comparison 1 Vitamin D versus placebo (all studies), Outcome 5 People with one or more exacerbations requiring ED visit or hospitalisation or both.

Review: Vitamin D for the management of asthma

Comparison: 1 Vitamin D versus placebo (all studies)

Outcome: 5 People with one or more exacerbations requiring ED visit or hospitalisation or both

Intervention: vitamin D3 administered orally over study duration of 4 to 12 months

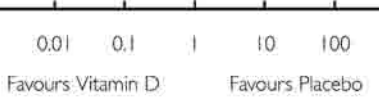
Evidence based primarily on children and adults with mild to moderate asthma

Study or subgroup	Vitamin D N	Placebo N	log [Odds Ratio] (SE)	Odds Ratio IV,Random,95% CI	Weight	Odds Ratio IV,Random,95% CI
Castro 2014	201	207	-1.194 (0.5806)		38.6 %	0.30 [0.10, 0.95]
Jensen 2016	11	11	0 (0.8864)		16.6 %	1.00 [0.18, 5.68]
Majak 2009 (1)	18	18	0 (0)			Not estimable
Majak 2011 (2)	24	24	0 (0)			Not estimable
Martineau 2015	125	125	-0.9671 (0.6058)		35.4 %	0.38 [0.12, 1.25]
Tachimoto 2016	54	35	-1.6032 (1.1762)		9.4 %	0.20 [0.02, 2.02]
Urashima 2010 (3)	51	59	0 (0)			Not estimable
Total (95% CI)	**484**	**479**			**100.0 %**	**0.39 [0.19, 0.78]**

Heterogeneity: $Tau^2 = 0.0$; $Chi^2 = 1.63$, df = 3 (P = 0.65); $I^2 = 0.0\%$

Test for overall effect: Z = 2.65 (P = 0.0081)

Test for subgroup differences: Not applicable

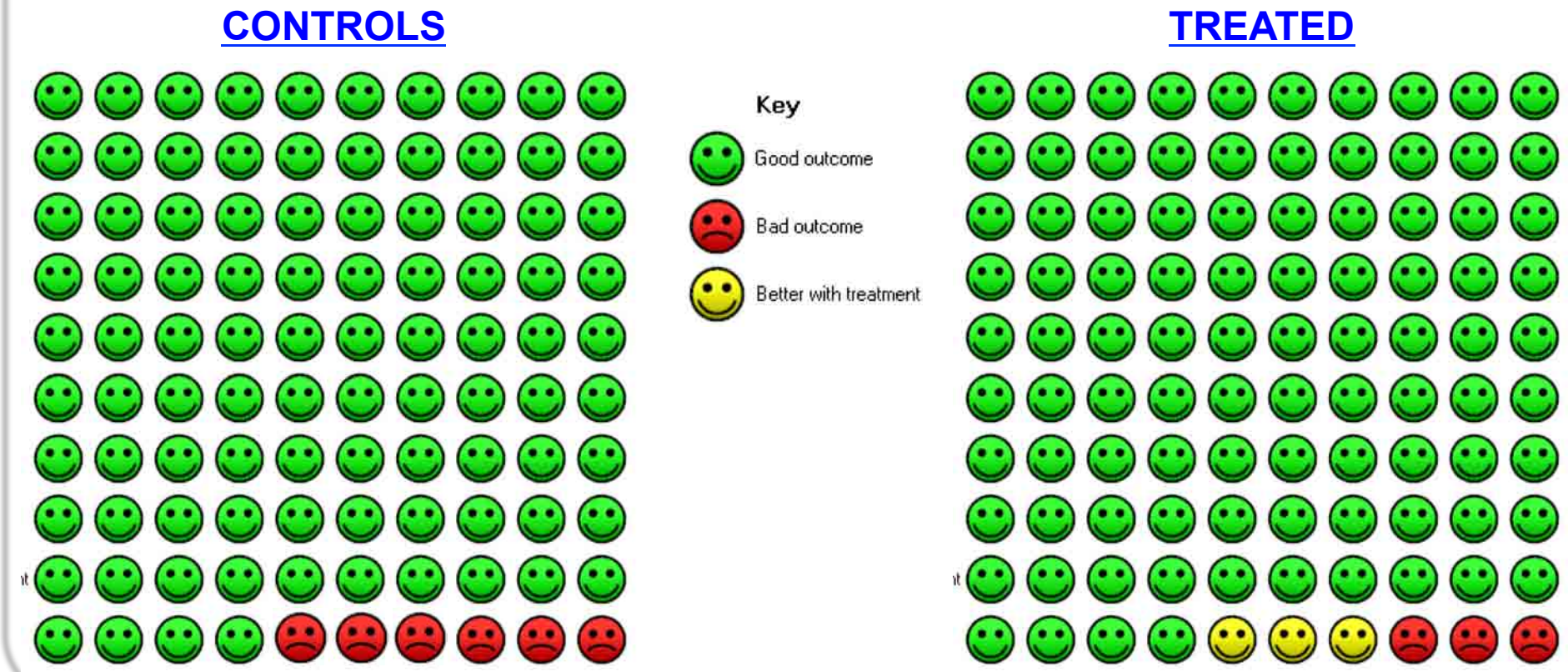


Vitamin D for the management of asthma

Cochrane Library

Adrian R Martineau[1], Christopher J Cates[2], Mitsuyoshi Urashima[3], Megan Jensen[4], Alex P Griffiths[1], Ulugbek Nurmatov[5], Aziz Sheikh[6], Chris J Griffiths[1]

Figure 5. In the control group 6 out of 100 people had a visit to ED or hospitalisation over 8 months, compared to 3 (95% CI 1 to 5) out of 100 on vitamin D.



Wu et al. Journal of Orthopaedic Surgery and Research (2018) 13:194
https://doi.org/10.1186/s13018-018-0865-3

Denosumab compared to bisphosphonates to treat postmenopausal osteoporosis: a meta-analysis

Jiaqi Wu, Qingsheng Zhang, Guanghui Yan and Xianhui Jin*

Lancet Diabetes Endocrinol

Published online April 6, 2018 http://dx.doi.org/10.1016/S221[illegible]

Denosumab versus risedronate in glucocorticoid-induced osteoporosis: a multicentre, randomised, double-blind, active-controlled, double-dummy, non-inferiority study

Kenneth G Saag, Rachel B Wagman, Piet Geusens, Jonathan D Adachi, Osvaldo D Messina, Ronald Emkey, Roland Chapurlat, Andrea Wang, Nicola Pannacciulli, Willem F Lems

SHORT REPORT

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Clinical Features of 24 Patients With Rebound-Associated Vertebral Fractures After Denosumab Discontinuation: Systematic Review and Additional Cases

Athanasios D Anastasilakis,[1] Stergios A Polyzos,[2] Polyzois Makras,[3] Berengere Aubry-Rozier,[4] Stella Kaouri,[5] and Olivier Lamy[4]

Wu *et al. Journal of Orthopaedic Surgery and Research* (2018) 13:194
https://doi.org/10.1186/s13018-018-0865-3

Journal of Orthopaedic Surgery and Research

RESEARCH ARTICLE Open Access

Denosumab compared to bisphosphonates to treat postmenopausal osteoporosis: a meta-analysis

Jiaqi Wu, Qingsheng Zhang, Guanghui Yan and Xianhui Jin*

Current evidence suggested no higher benefit of denosumab for reducing risk of fracture than bisphosphonates

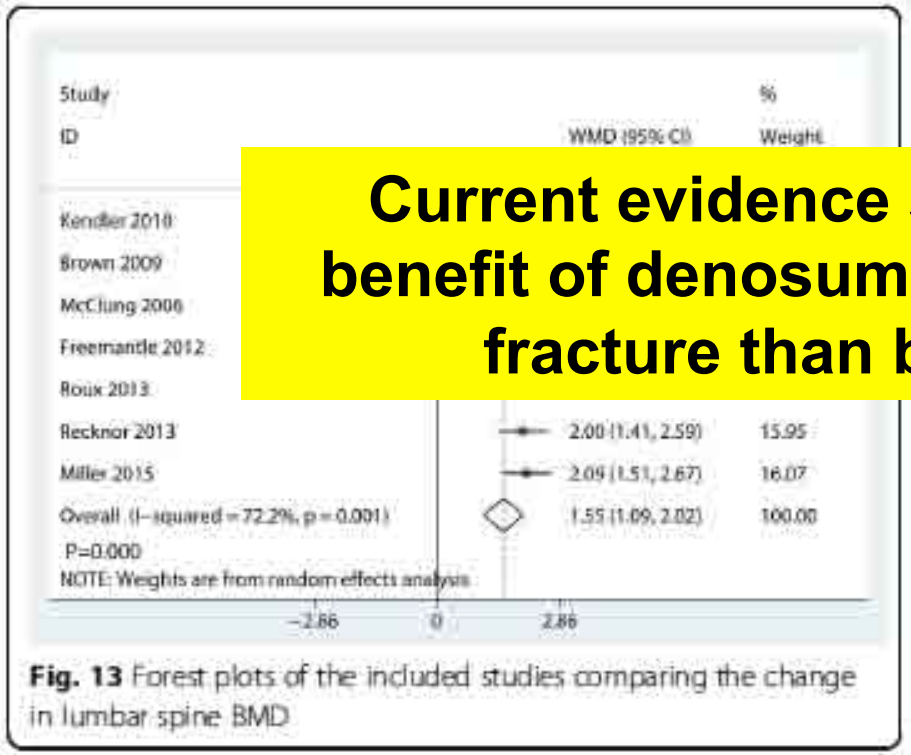
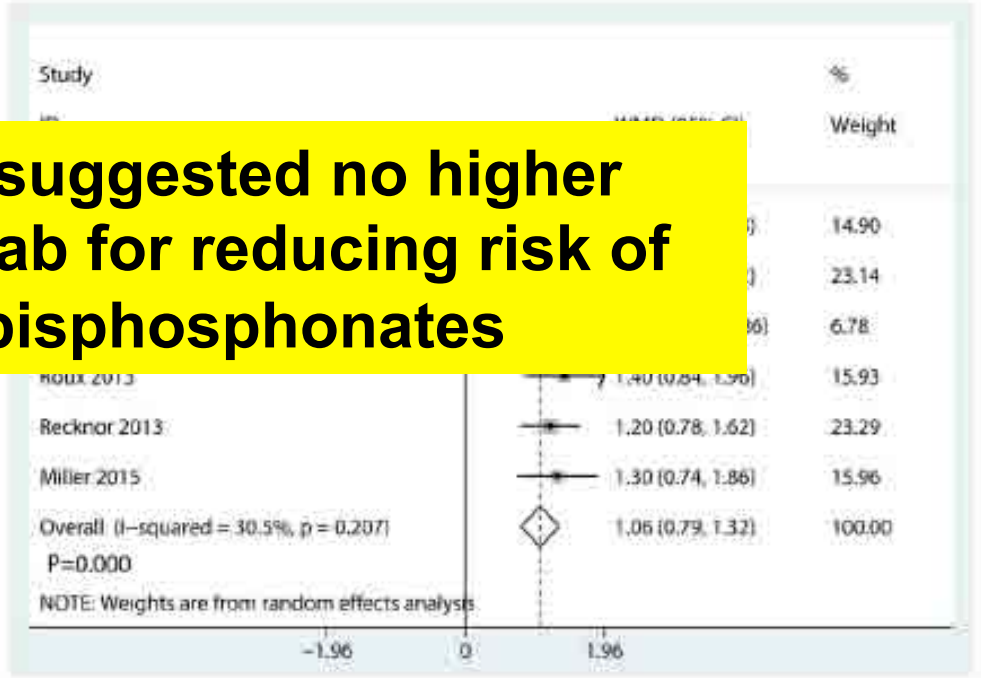


Fig. 13 Forest plots of the included studies comparing the change in lumbar spine BMD



Lancet Diabetes Endocrinol Published online April 6, 2018 http://dx.doi.org/10.1016/S2213-8587(18)30075-5

Denosumab versus risedronate in glucocorticoid-induced osteoporosis: a multicentre, randomised, double-blind, active-controlled, double-dummy, non-inferiority study

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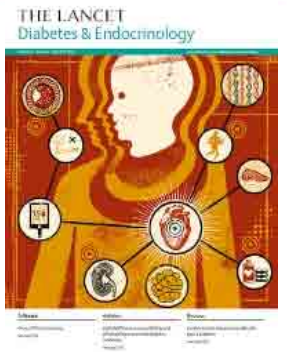

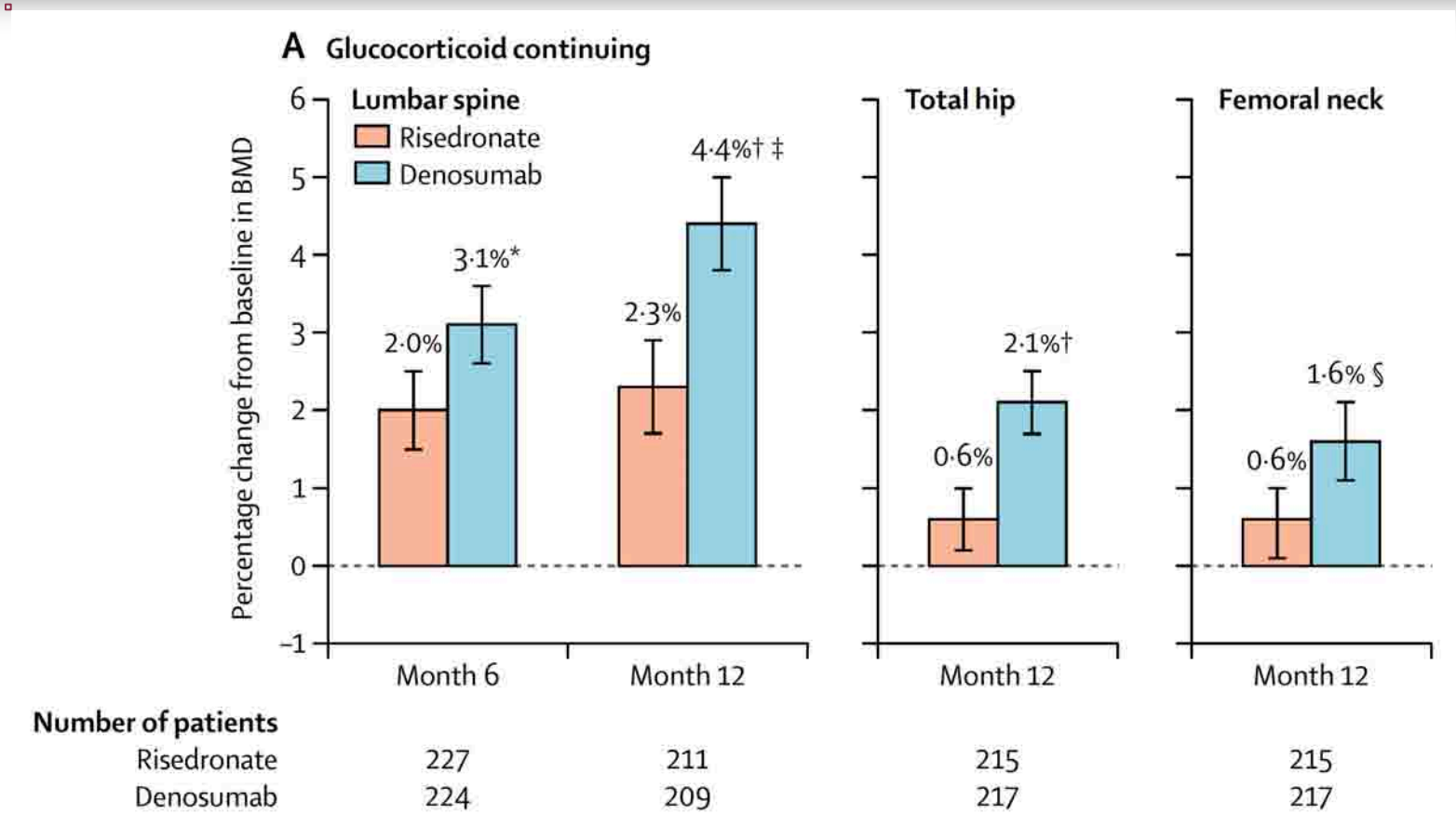

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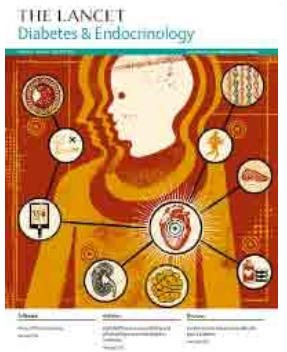

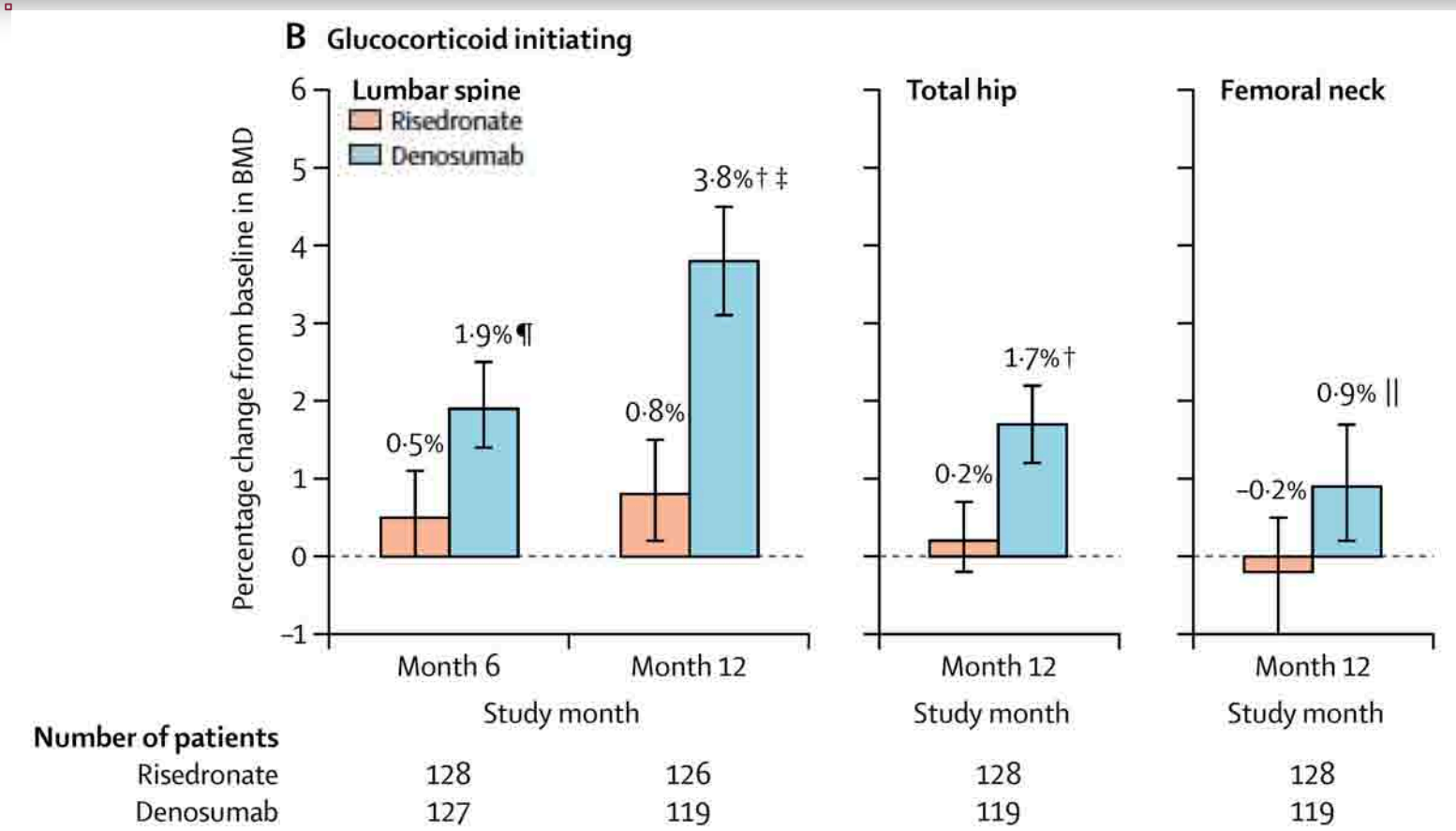

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Denosumab versus risedronate in glucocorticoid-induced osteoporosis: a multicentre, randomised, double-blind, active-controlled, double-dummy, non-inferiority study

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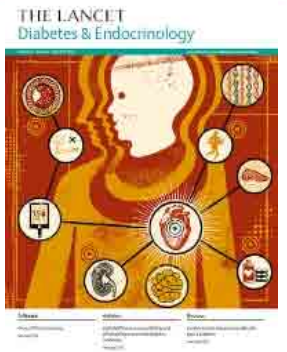

	Risedronate (n=384)	Denosumab (n=394)
Osteoporosis-related fractures	23/397 (6%)	26/398 (7%)
New and worsening vertebral fracture† (men)	3/100 (3%)	1/98 (1%)
New and worsening vertebral fracture† (women)	12/242 (5%)	9/235 (4%)
Premenopausal women	1/29 (3%)	0/33 (0%)
Postmenopausal women	11/209 (5%)	9/199 (5%)
Unknown	0/4 (0%)	0/3 (0%)
Non-vertebral fracture (low trauma)	10/397 (3%)	17/398 (4%)

SHORT REPORT Journal of Bone and Mineral Research, Vol. 32, No. 6, June 2017, pp 1291–1296

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Clinical Features of 24 Patients With Rebound-Associated Vertebral Fractures After Denosumab Discontinuation: Systematic Review and Additional Cases

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WHY?

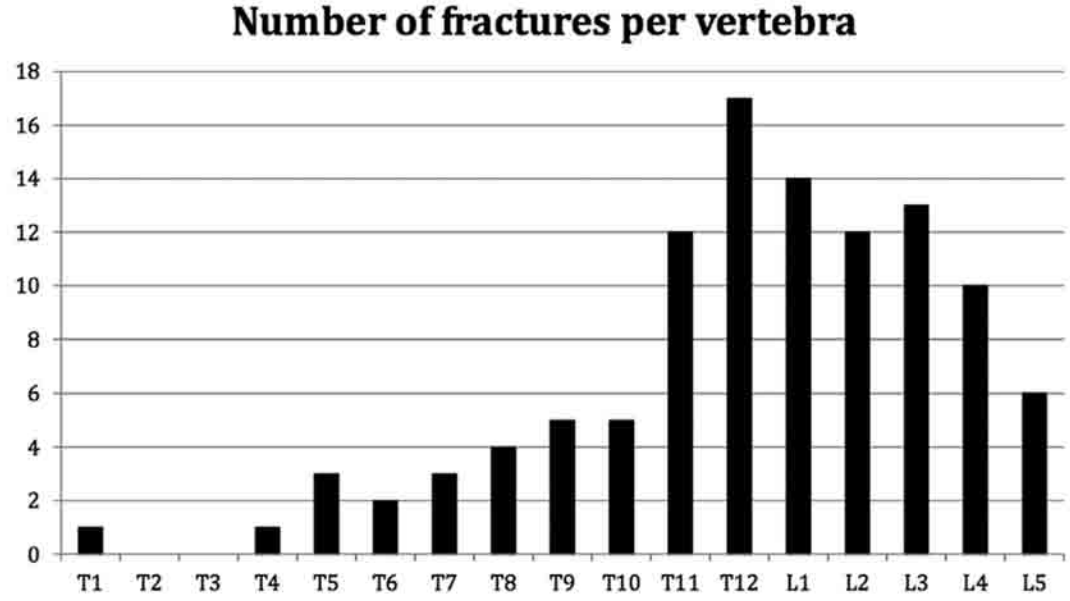


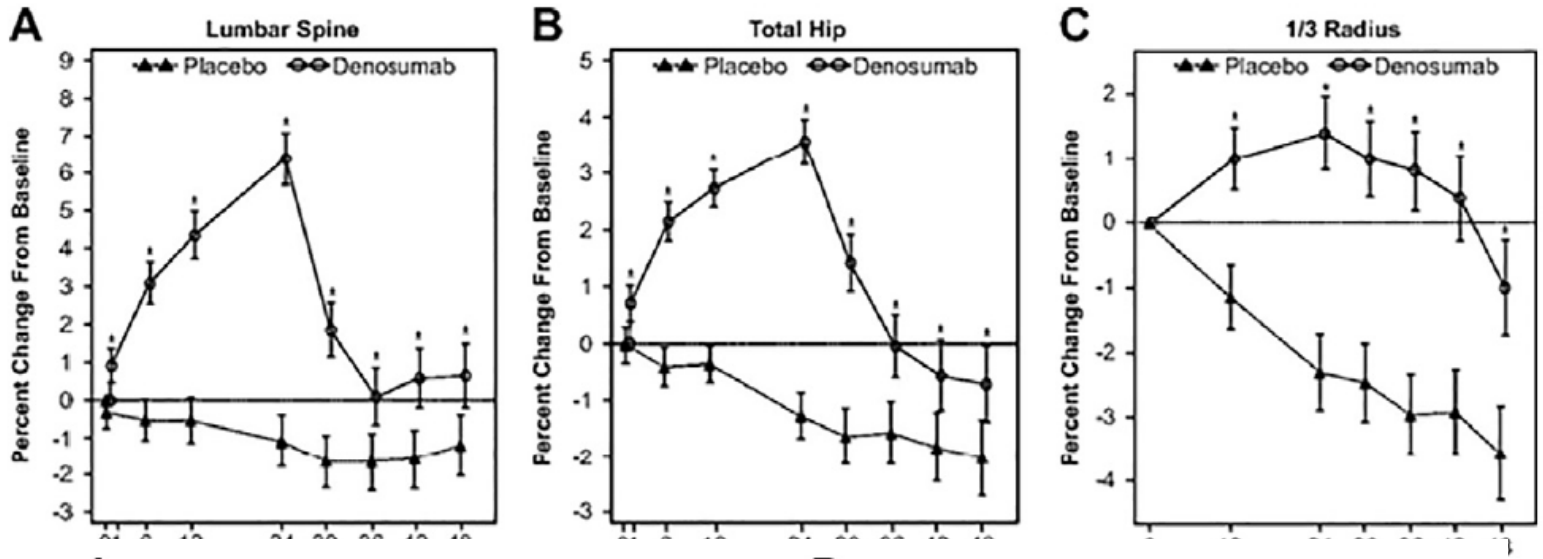
Fig. 1. The distribution of fractures among vertebrae in the sum of the patients ($n = 24$).

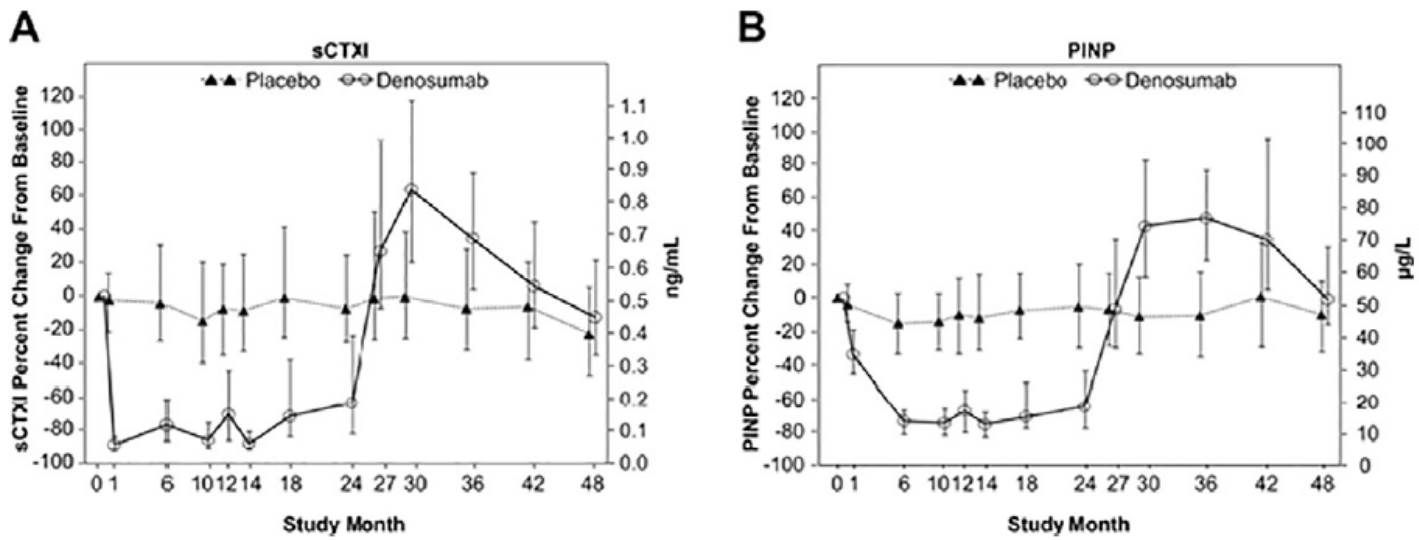
- **The most prevailing hypothesis is that of markedly increased bone turnover. It has been speculated that the rebound effect is more prominent as the number of denosumab doses increases.**
- **A second concern with denosumab discontinuation is the marked decrease of BMD, whose magnitude may be linked to the duration of denosumab treatment.**

Effects of Denosumab Treatment and Discontinuation on Bone Mineral Density and Bone Turnover Markers in Postmenopausal Women with Low Bone Mass

Henry G. Bone, Michael A. Bolognese, Chui Kin Yuen, David L. Kendler, Paul D. Miller, Yu-Ching Yang, Luanda Grazette, Javier San Martin, and J. Christopher Gallagher

J Clin Endocrinol Metab 96: 972–980, 2011

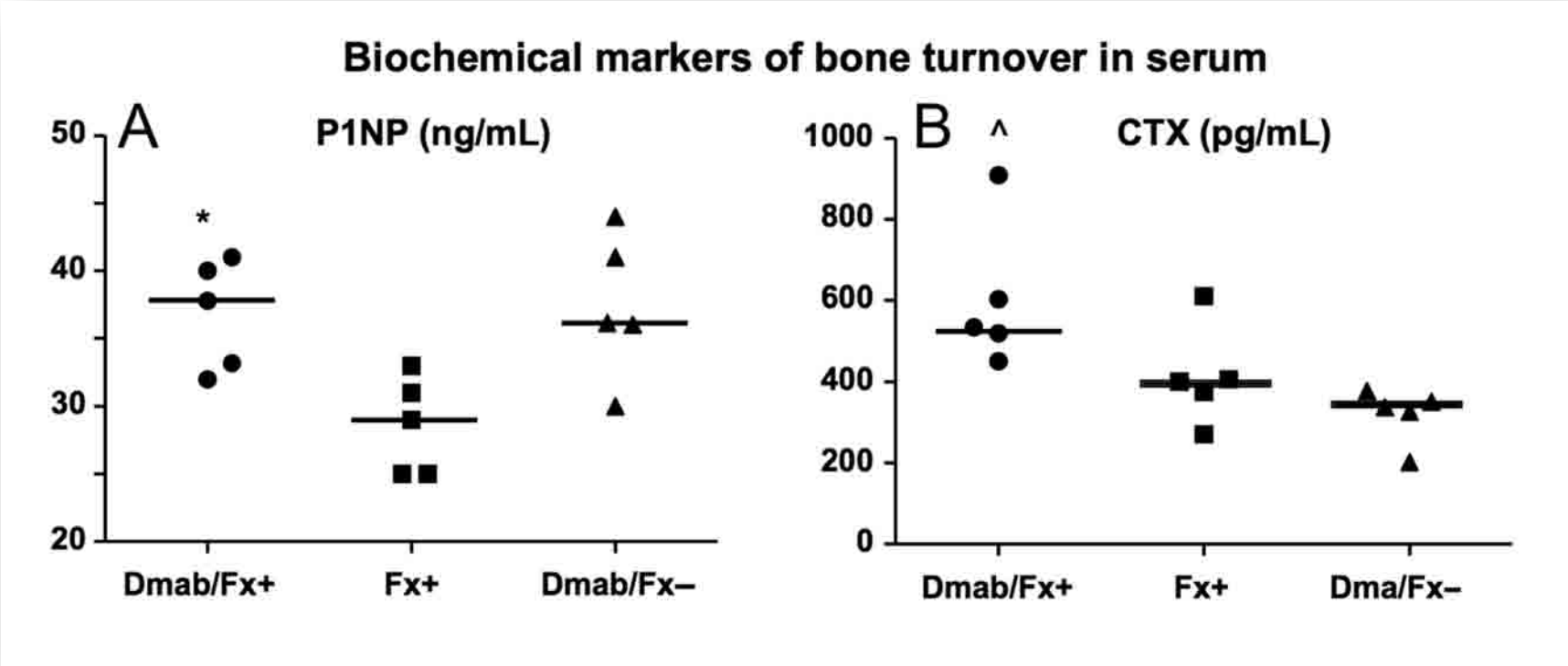




Increased osteoclastogenesis in patients with vertebral fractures following discontinuation of denosumab treatment

Athanasios D Anastasilakis[1], Maria P Yavropoulou[2], Polyzois Makras[3], Grigorios T Sakellariou[4], Fotini Papadopoulou[5], Spyridon Gerou[6] and Socrates E Papapoulos[7]

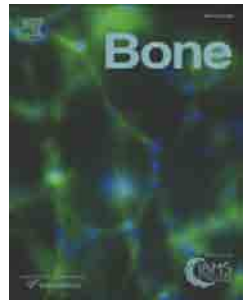
European Journal of Endocrinology (**2017**) 176, 677–683



Bone fragility in women with clinical vertebral fx after stopping denosumab is pathophysiologically different from that of treatment-naive women with osteoporosis and clinical vertebral fx and is associated with upregulation of markers of osteoclast activity

Discontinuation of Denosumab therapy for osteoporosis: A systematic review and position statement by ECTS

Elena Tsourdi [a,b], Bente Langdahl [c], Martine Cohen-Solal [d], Bérengere Aubry-Rozier [e], Erik Fink Eriksen [f], Nuria Guañabens [g], Barbara Obermayer-Pietsch [h,i], Stuart H. Ralston [j], Richard Eastell [k], M. Carola Zillikens [l,*]



Bone 105 (2017) 11–17

Table 1
Effects of Denosumab Treatment Discontinuation on Bone Turnover Markers, Bone Mineral Density and Fracture Risk.

Design	Phase	No	Duration of Treatment (months)	Duration of Discontinuation (months)[c]	↑BTMs	↓BMD LS	↓BMD Hip	↑Vertebral Fx or ↑ multiple vertebral Fx	↑ Non-vertebral Fx	Reference
Open-label single arm in postmenopausal women with osteopenia/osteoporosis	2	200	24	24	+	+	+	N/A	N/A	[16]
Randomized blinded placebo controlled in postmenopausal women with osteopenia	3	256	24	24	+	+	+	–	–	[17]
Observational follow-up study after 8 years of denosumab treatment in patients with osteoporosis	N/A	82	96	12	N/A	–	+	N/A	N/A	[14]
Observational follow-up study after 10 years of denosumab treatment in women with osteoporosis	N/A	9[a]	120	12	+	N/A	+	+	–	[18]
Observational follow-up study after 7 to 10 years of denosumab treatment in women with osteoporosis	N/A	38	84–120	10–14	+	+	+	+	+	[19]
RCT blinded placebo controlled in postmenopausal women with osteopenia/osteoporosis	2	307	24	24	+	+	+	–	–	[20]
Retrospective analysis of participants of FREEDOM trial [12]	N/A	797	12–30	24	N/A	N/A	N/A	–	–	[27]
Case report	N/A	1	36	2	+	N/A	N/A	+	–	[28]
Case series	N/A	3	30–36	4–10	N/A	N/A	N/A	+	–	[29]
Case report	N/A	1	36	6	+	+	+	+	–	[30]
Case series	N/A	9	12–48	3–10	N/A	N/A	N/A	+	–	[31]
Case series	N/A	2	12–24	6–8	N/A	N/A	N/A	+	–	[32]
Case series	N/A	24[b]	12–30	2–10	N/A	N/A	N/A	+	–	[33]
Retrospective analysis based on administrative claims data	N/A	7.855	N/A	>6	N/A	N/A	N/A	+	+	[34]
Retrospective analysis of participants of FREEDOM and FREEDOM Extension trials [12,13]	N/A	1.001	>12	>7	N/A	N/A	N/A	+	–	[35]

Calcified Tissue International (2018) 103:44–49
https://doi.org/10.1007/s00223-018-0389-1

ORIGINAL RESEARCH

Vertebral Fractures Following Denosumab Discontinuation in Patients with Prolonged Exposure to Bisphosphonates

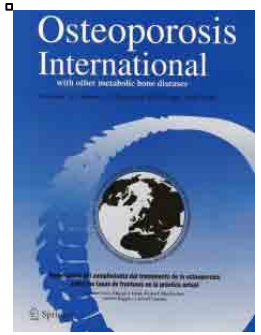
Liana Tripto-Shkolnik[1] · Vanessa Rouach[2] · Yonit Marcus[2] · Pnina Rotman-Pikielny[3] · Carlos Benbassat[4] · Iris Vered[1]

Table 2 DMAB treatment and fractures

Patients (P)	Number of DMAB doses	Time from the missed DMAB dose to RAVFs event, months	Reason for discontinuation	Fracture site	Treatment prescribed
P1	5	3	Bladder cancer surgery	D9, D10, D11, D12, L1, L2, L3, L4, L5	ZOL
P2	6	3	Administrative	D4, D8, D9, D10, D11, D12	DMAB resumed
P3	3	15	Lack of response	L1, L2, L4	ZOL
P4	3	8	Non-ST elevation MI	D11, L3	DMAB resumed
P5	8	3	"Drug holiday"	T12	DMAB resumed and switched to TPT
P6	4	12	Dentist recommendation	D6, D11, D12, L2	ZOL
P7	4	9	Elective knee replacement	T5, T7	DMAB resumed
P8	5	5	Unknown	L1, L3, L4, L5	DMAB resumed
P9	6	1	Advanced age	L3; post vertebroplasty: D8, D12, L1, L2	ZOL

Osteoporos Int (2016) 27:1677–1682
DOI 10.1007/s00198-016-3553-3

EDITORIAL



Cancel the denosumab holiday

M. R. McClung[1]

Conclusion

It is very plausible, given the rapid increase in bone remodeling and bone loss upon stopping denosumab, that a rebound increase in fracture risk ensues. So, until further notice, cancel the denosumab holiday.

J Clin Endocrinol Metab, September 2018, 103(9):3183–3193

A Phase III Randomized Placebo-Controlled Trial to Evaluate Efficacy and Safety of Romosozumab in Men With Osteoporosis

E. Michael Lewiecki,[1] Tomasz Blicharski,[2] Stefan Goemaere,[3] Kurt Lippuner,[4] Paul D. Meisner,[5] Paul D. Miller,[6] Akimitsu Miyauchi,[7] Judy Maddox,[8] Li Chen,[8] and Stephane Horlait[9]

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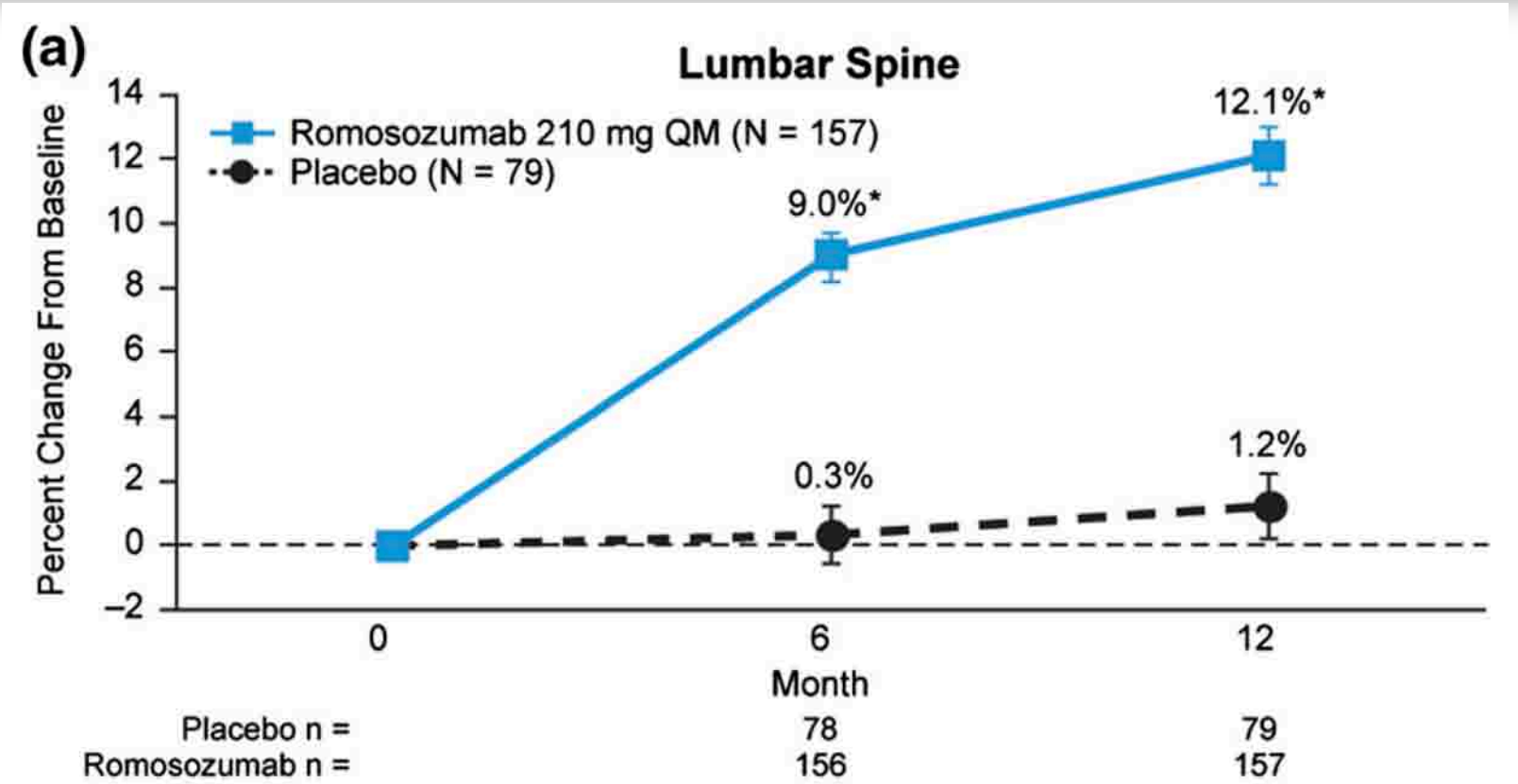

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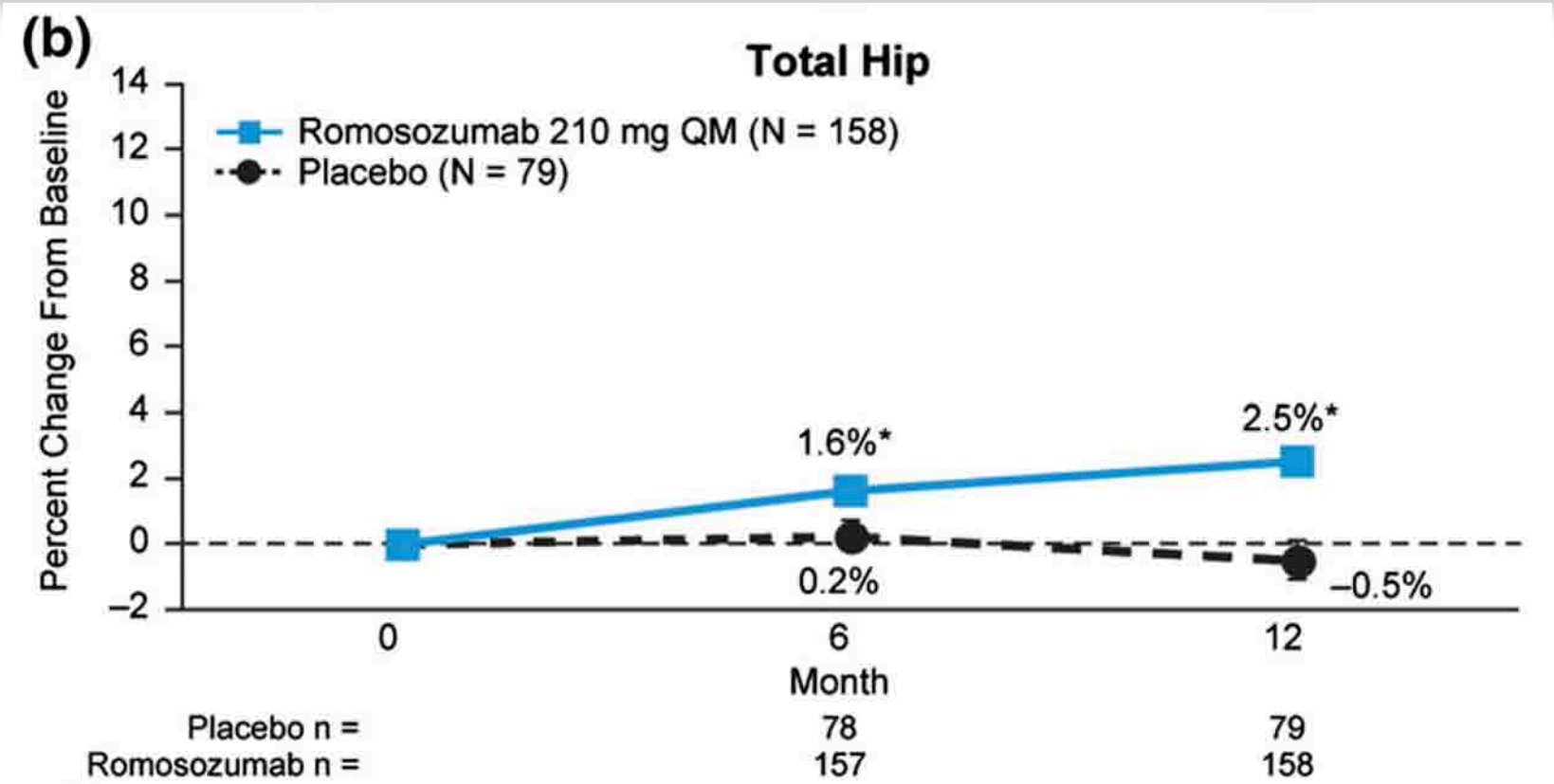

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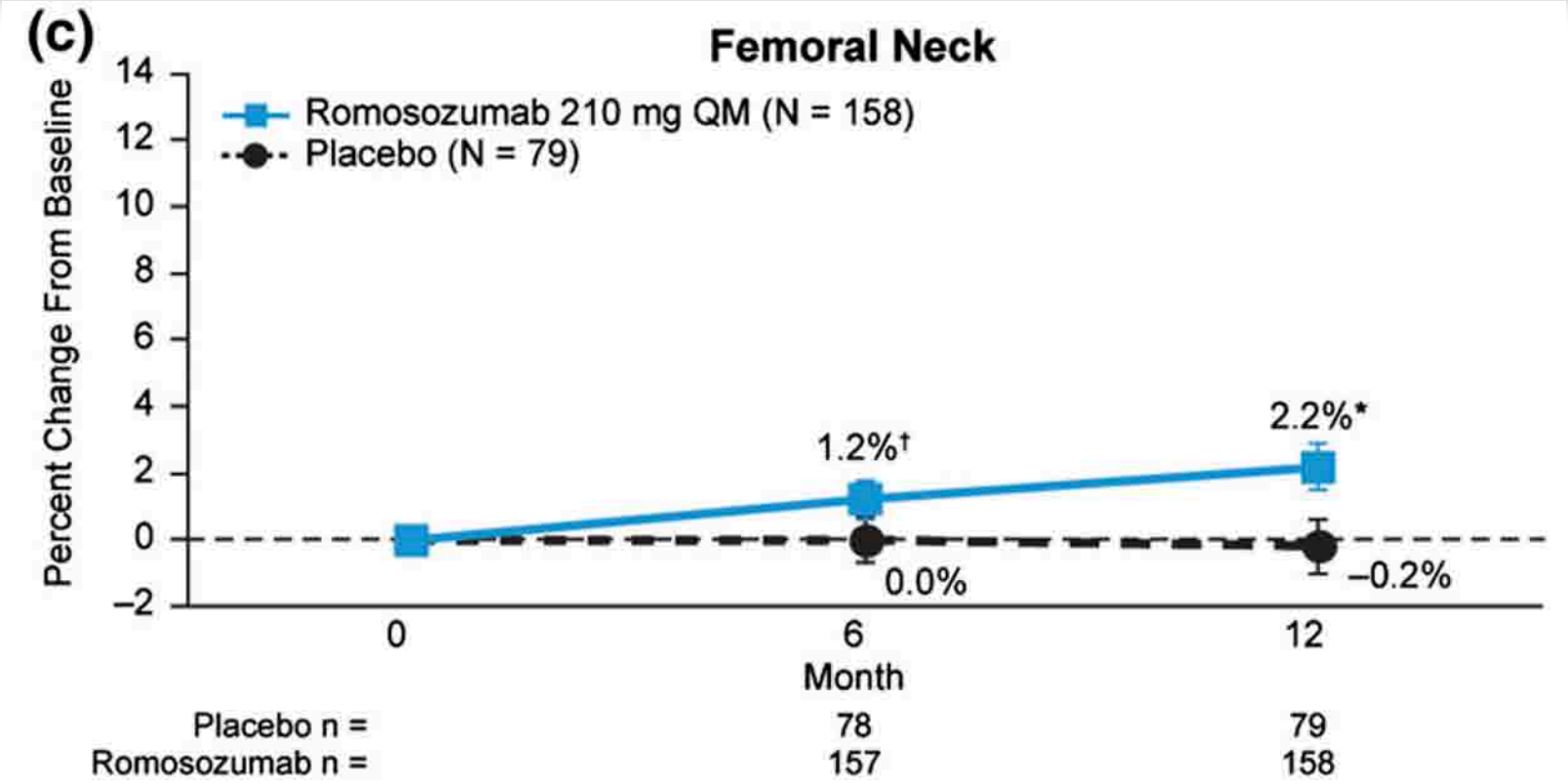

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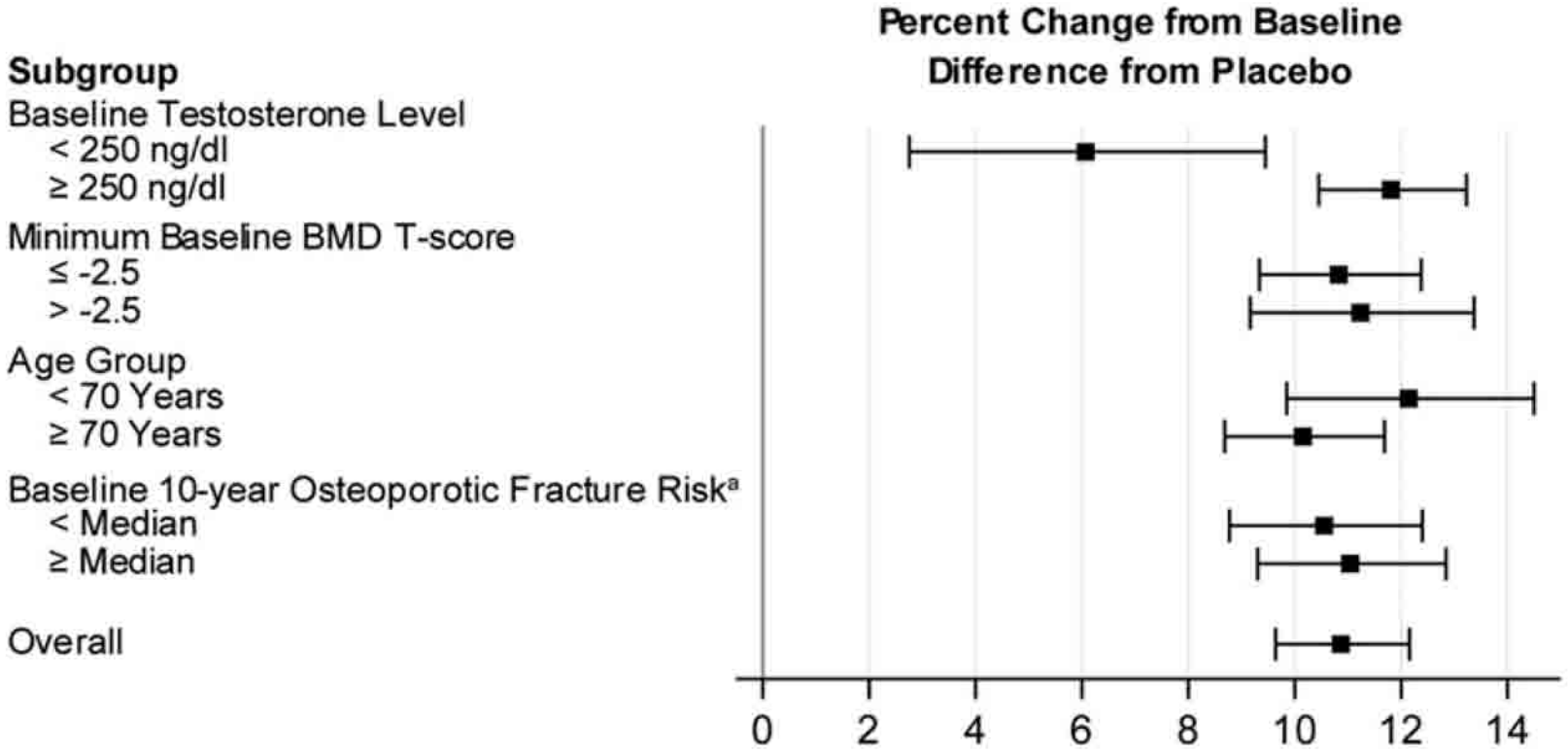
Lumbar spine BMD by DXA



The NEW ENGLAND JOURNAL of MEDICINE

ORIGINAL ARTICLE

Romosozumab in Postmenopausal Women with Low Bone Mineral Density

Michael R. McClung, M.D., Andreas Grauer, M.D., Steven Boonen, M.D., Ph.D.,*
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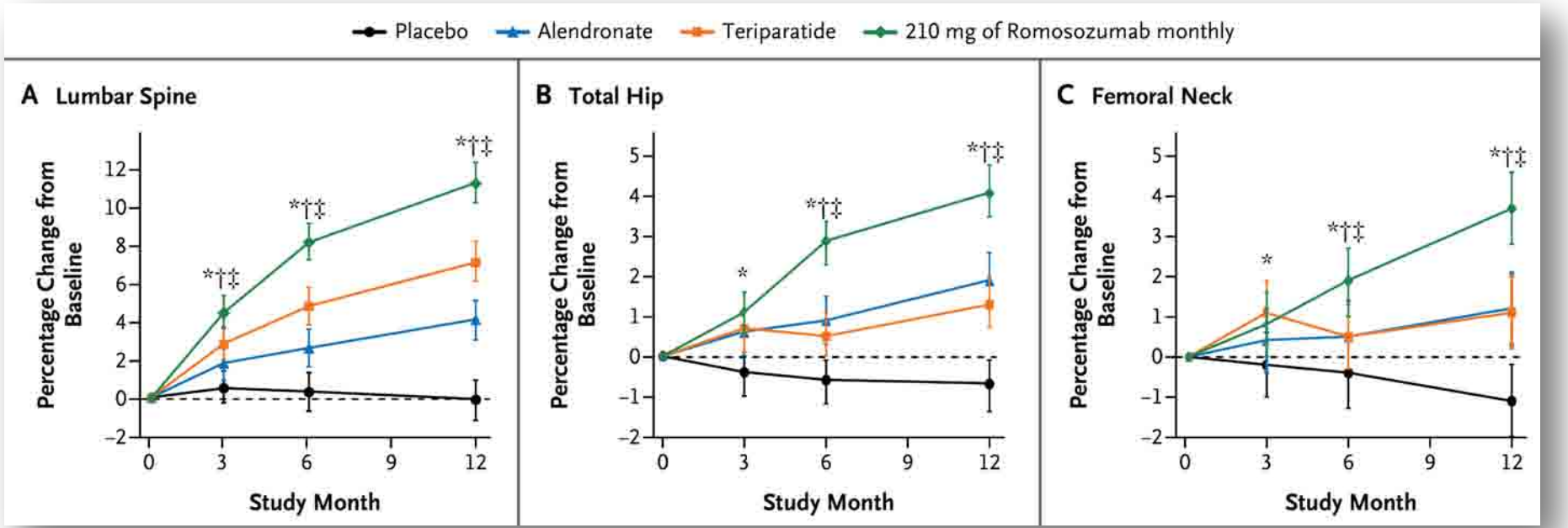

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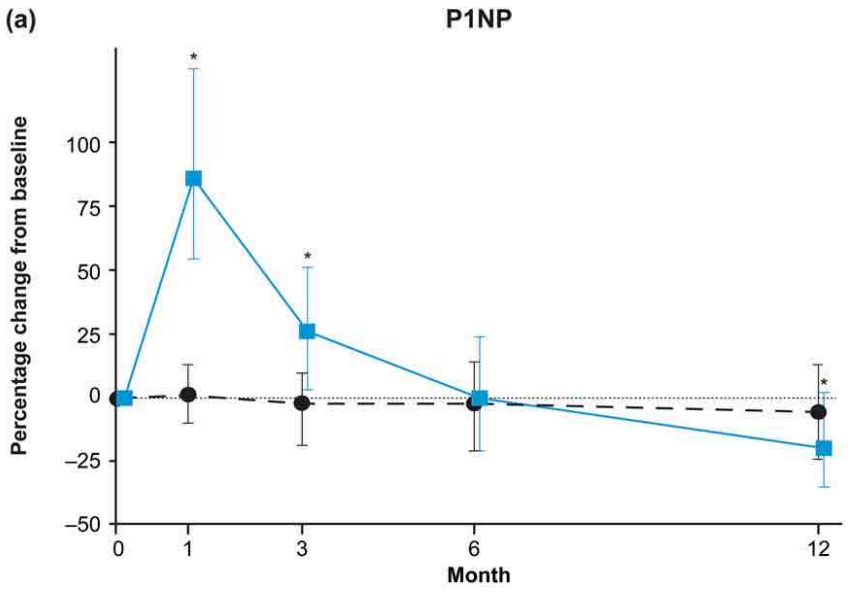

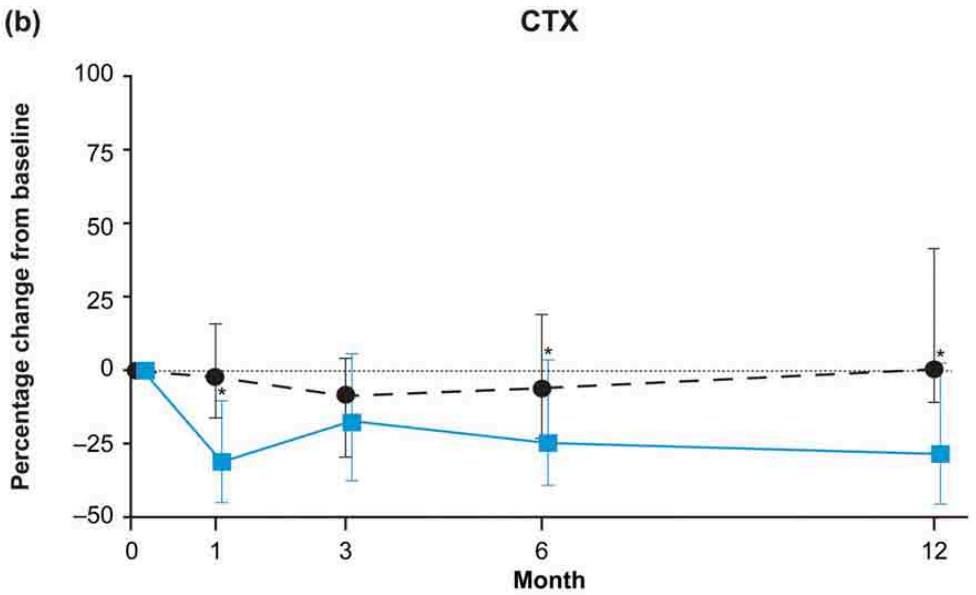

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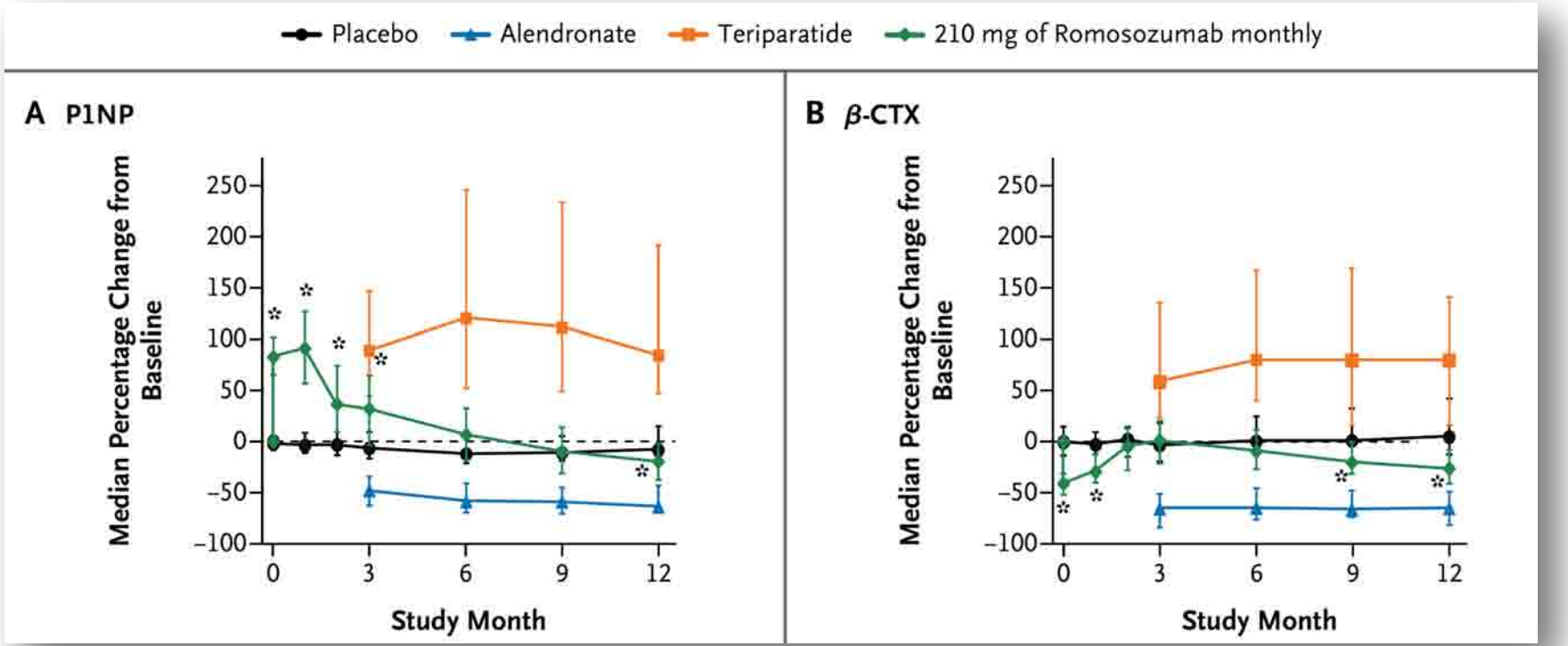


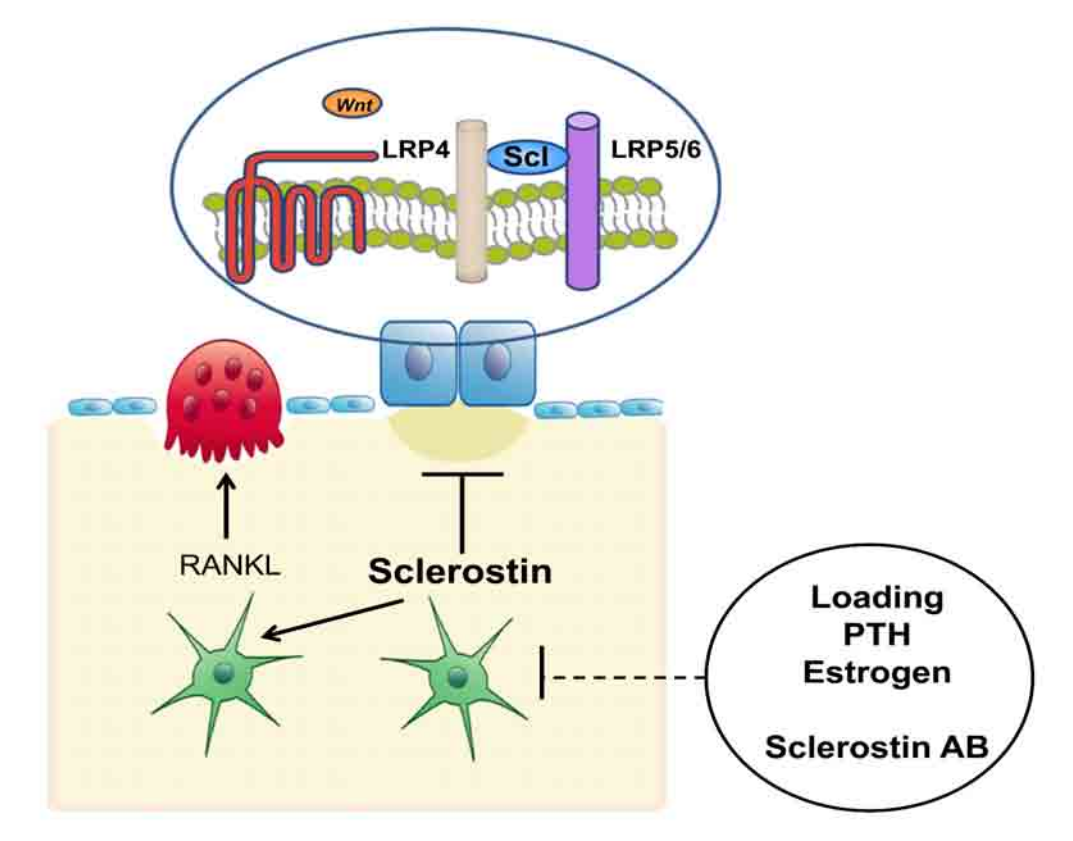
N Engl J Med 2014;370:412-20.

Drugs (2015) 75:1049–1058
DOI 10.1007/s40265-015-0417-7

LEADING ARTICLE

Modulating Bone Resorption and Bone Formation in Opposite Directions in the Treatment of Postmenopausal Osteoporosis

Natasha M. Appelman-Dijkstra[1] · Socrates E. Papapoulos[1]



Osteocyte-produced sclerostin inhibits the proliferation, differentiation, and survival of osteoblasts and reduces bone formation; it also stimulates the production of RANKL by neighboring osteocytes and bone resorption.

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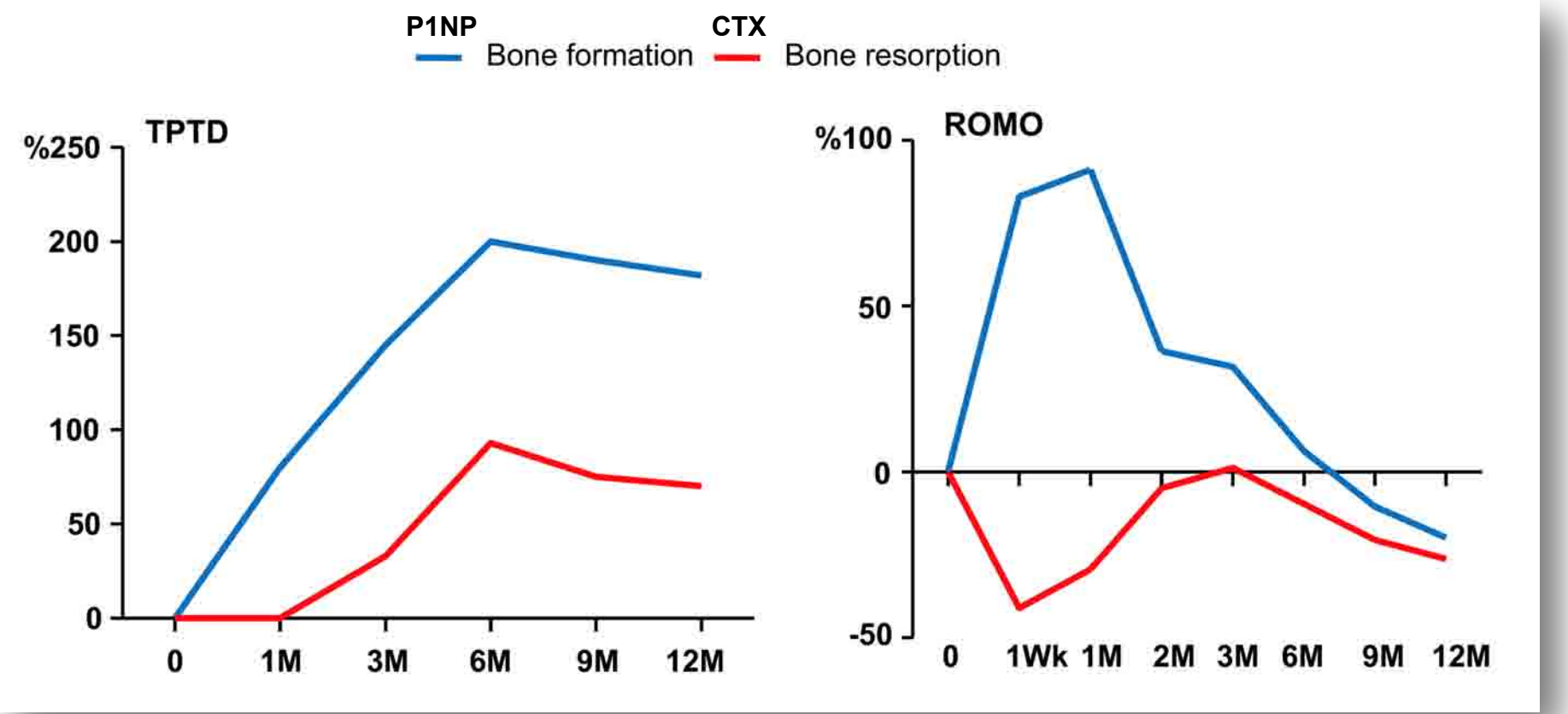

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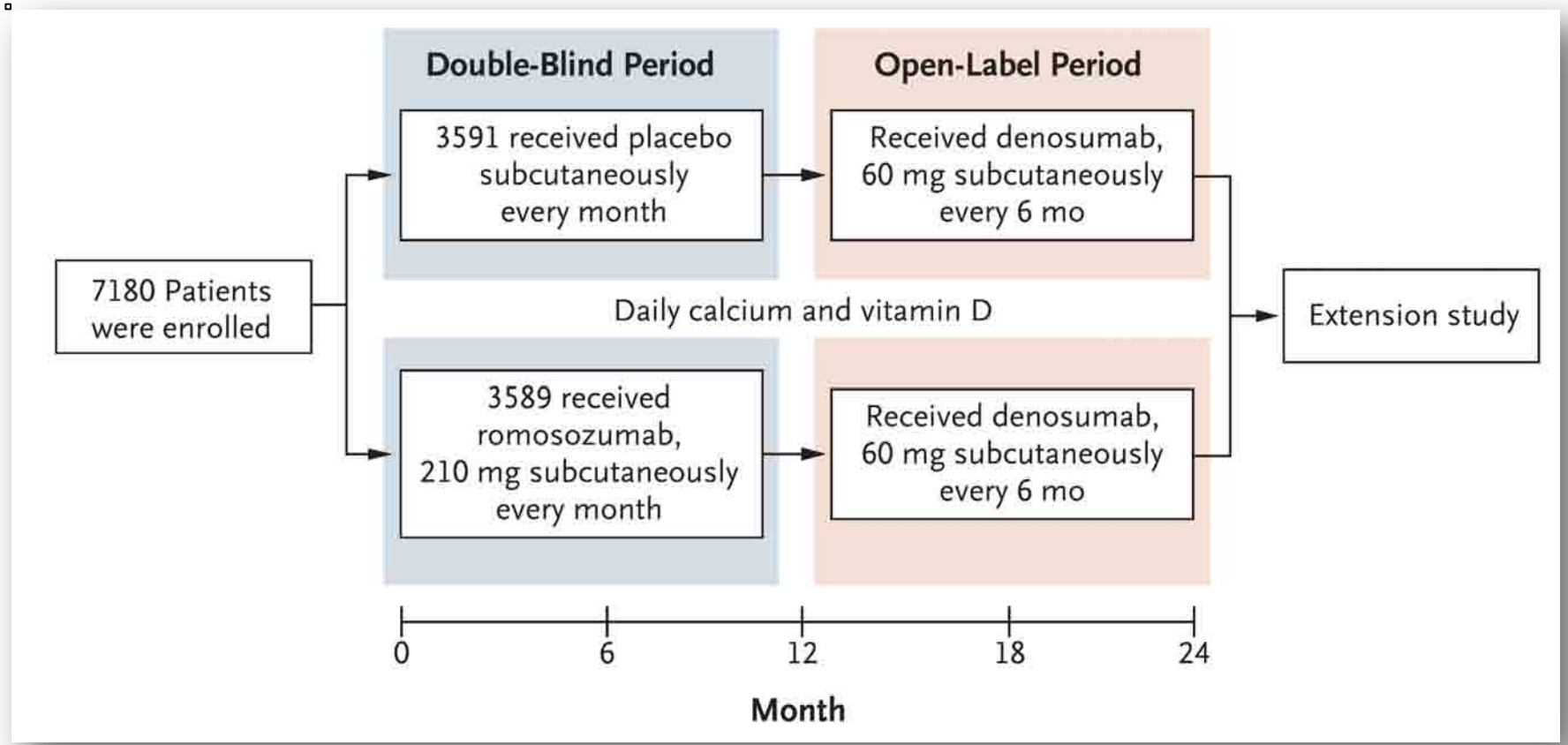

N Engl J Med 2016;375:1532-43

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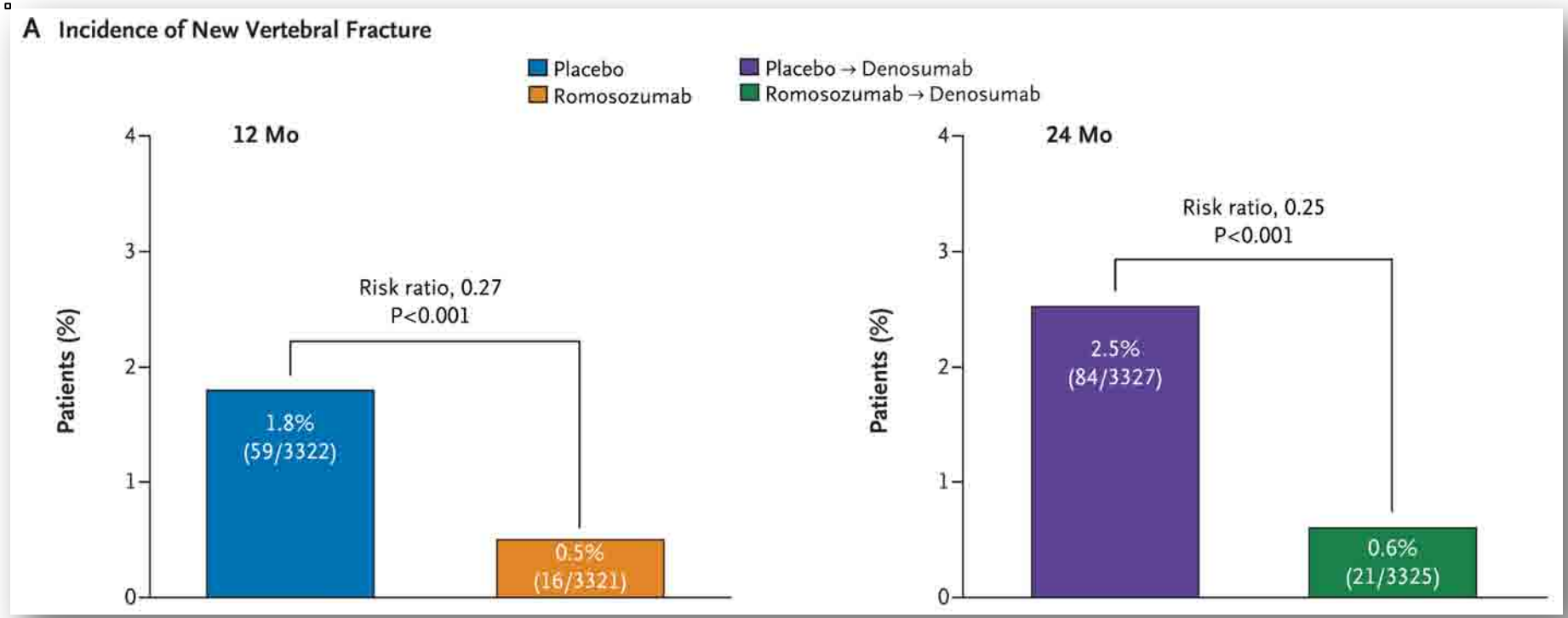

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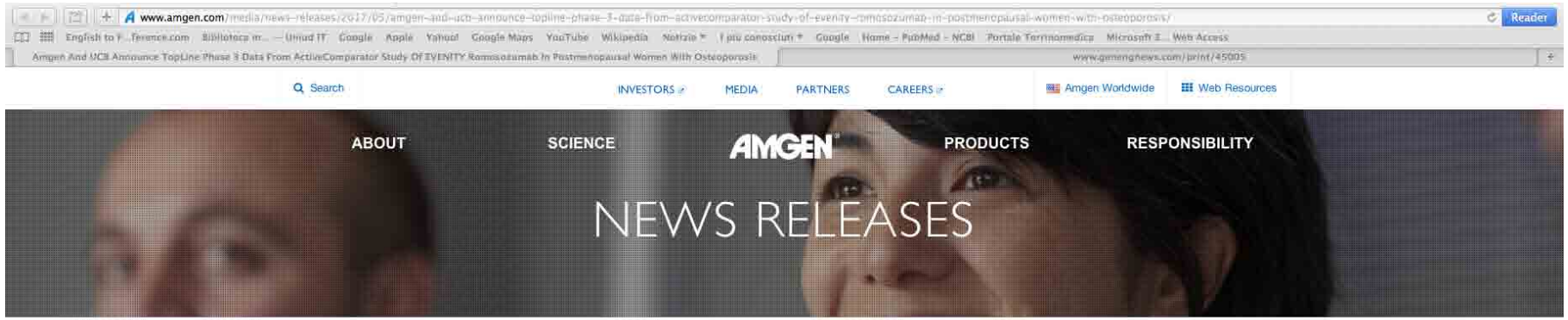

HOME | MEDIA | NEWS RELEASES

AMGEN AND UCB ANNOUNCE TOPLINE PHASE 3 DATA FROM ACTIVECOMPARATOR STUDY OF EVENITY ROMOSOZUMAB IN POSTMENOPAUSAL WOMEN WITH OSTEOPOROSIS

Amgen And UCB Announce Top-Line Phase 3 Data From Active-Comparator Study Of EVENITY™ (Romosozumab) In Postmenopausal Women With Osteoporosis

ARCH Study Met Primary and Key Secondary Endpoints by Reducing the Incidence of New Vertebral, Clinical and Non-Vertebral Fractures

Imbalance in Cardiovascular Events Observed as New Safety Signal

The 4093-patient ARCH study compared therapy with Evenity (Romosozumab) for 12 months followed by alendronate treatment, with alendronate therapy alone, in postmenopausal women with osteoporosis who were at high risk of fracture.

An imbalance in positively adjudicated cardiovascular serious adverse events was observed as a new safety signal (2.5 percent EVENITY versus 1.9 percent alendronate at 12 months).

http://www.amgen.com/media/news-releases/2017/05/amgen-and-ucb-announce-topline-phase-3-data-from-activecomparator-study-of-evenity-romosozumab-in-postmenopausal-women-with-osteoporosis/

Amgen And UCB Resubmit Biologics License Application (BLA) For Evenity (romosozumab) To The US FDA

THOUSAND OAKS, Calif. and BRUSSELS, July 12, 2018 /PRNewswire/ -- Amgen (NASDAQ:AMGN) and UCB (Euronext Brussels: UCB) today announced the resubmission of the Biologics License Application (BLA) to the U.S. Food and Drug Administration (FDA) for Evenity™* (romosozumab), an investigational monoclonal antibody for the treatment of osteoporosis in postmenopausal women at high risk for fracture. Evenity increases bone formation and reduces bone resorption simultaneously to increase bone mineral density (BMD) and reduce the risk of fracture.

Evenity Approval Status

FDA Approved: No
Brand name: Evenity
Generic name: romosozumab
Company: Amgen Inc.
Treatment for: Osteoporosis

Evenity (romosozumab) is an anti-sclerostin monoclonal antibody in development for the treatment of osteoporosis in postmenopausal women at increased risk of fracture.

www.associazionemediciendocrinologi.it

ITALIAN CHAPTER

17° Congresso Nazionale AME

Joint Meeting with AACE Italian Chapter

Update in Endocrinologia Clinica

8-11 novembre 2018

Roma

Grazie per l'attenzione