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47⇒21

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2007–2013, Human  
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2007–2013, Human  
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2007–2013, Human  
10⇒4

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⑨ “Calcium requirements” OR “Calcium absorption” AND “Elderly”  
2007–2013, Human  
24⇒6

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カルシウムのエビデンステーブル

乳児期のカルシウム必要量

内容	対象	観察期間	デザイン	介入	結果	結論	著者と掲載誌
1-4 歳のカルシウム出納	1-4 歳の子供、28 名	単回試験	ダブルアイソトープ法	なし	平均カルシウム摂取量：551mg、蓄積量は 161mg	Ca 吸収率= $-0.00031X+0.626$ Ca 蓄積量= $0.25X+23.6$ X:Ca 摂取量 (mg/day)	Lynch MF et al. Am J Clin Nutr 2007 85, 750-4
育児用粉乳飲用の乳児の Ca 吸収率	74 名の乳児 (56-70 日齢)	単回試験	ダブルアイソトープ法	プレバイオティクス入りの育粉 (PF)、なしの育粉 (CF)、母乳 (HM)	カルシウム摂取量：吸収率は、PF で 534mg : 56.8%、CF で 557mg : 59.2%、HM で 246mg : 76.0%	プレバイオティクスの効果はなし。(母乳の吸収率が高いの Ca 摂取量が異なるため。)	Hicks PD et al. BMC Pediatrics 2012 12, 118
VD 抵抗性くる病の子供の Ca 代謝、健康人のデータとの比較	HVDDR 患者、対照は健康人	単回試験	ダブルアイソトープ、DXA 法	なし	健常者のカルシウム吸収率：1.5 歳～17 歳は 57.3%、18～26 歳で 53.6%、	骨への Ca 蓄積量の推定式が記載されている。1.5～12 歳まで： $Y=11.25X^2-96.97X+1836$ 12-37 歳： $Y=-0.337X^3+29.92X^2-870.1X+8986$	Tiosano D et al. J Clin Endocrinol Metab 2011 96, 3701-09

成長期のカルシウム必要量

内容	対象	観 察 期 間	デザイン	介入	結果	結論	著者と掲載誌
成長期のカルシウム蓄積量の検討	9~18 歳の男子 85 人、女子 67 人		観察研究		9~18 歳で 1 日当たり男子 : 175.4mg、女子 : 121.8mg の Ca 蓄積	9~18 歳で 1 日当たり男子 : 175.4mg、女子 : 121.8mg の Ca 蓄積	Vatanparast et al. BJN 2010, 103, 575-580
成長期のカルシウム蓄積	中国系アメリカ人男子 12~15 歳、15 人、女子 11~15 歳、14 人		出納試験 ダブルアイソトープ			最大 Ca 蓄積量となる摂取量は男子で 1110mg、女子で 970mg	Wu L et al. JBMR 2010 25, 1842-49
総説						上記 Ref 1, 2 の紹介	Abrams SA Curr Opin Clin Nutr Metab Care 2011 14, 605-609

成人期のカルシウム必要量

内容	対象	観 察 期 間	デザイン	介入	結果	結論	著者と掲載誌
出納試験 による Ca 必要 量の検討	白人男性 19~64 歳 (平均 28.2 ± 7.7 歳) 82 名、女性 20~75 歳 (47.0 ± 18.5) 73 名		出納試験 いくつか の試験の まとめ		155 人から 373 のデー タを入手。Ca 摂取量は 415~1740mg の範囲	平 衡 維 持 量 は <b>741mg/day</b> 、 <b>9.39mg/kgbw/day</b> 、 <b>0.279mg/kcal/day</b>  後者 2 つは新しい表し 方。	Hunt and Johnson AJCN 2007 86, 1054-63

妊娠期のカルシウム必要量

内容	対象	観 察 期 間	デザイン	介入	結果	結論	著者と掲載誌
総説						1000mg/day を満たしていない妊婦では、付加量が必要である。	Hacker AN et al. Nutrition Reviews 2012 70, 397-409
総説						妊娠期の Ca 付加は不要。ただし摂取量が少ない妊婦ではさらに検討が必要。VD も重要。	Olausson H et al. Nutrition Resarch Reviews 2012 25, 40-67
総説			各国の微量栄養素の摂取量の比較。日本もある。			日本人妊婦の Ca 摂取量は DRIs よりも低値であり、他の国よりも低値である。	Blumfield ML et al. Nutrition Reviews 2013 71, 118-132



高齢期のカルシウム必要量

内容	対象	観察期間	デザイン	介入	結果	結論	著者と掲載誌
Ca、VD 補充の影響	70~80 歳の女性	5 年間	RCT	Ca1200mg 、 Ca1200mg+VD2 1000IU	大腿骨 BMD は CaD 群のみ維持。	Ca と VD の併用が効果あり	Zhu K et al. J Clin Endocrinol Metab 2008 93, 743-749
Ca、VD 補充の影響	平均年齢 77.2 ± 4.6 歳の女性、302 人	1 年間	RCT	Ca1000mg Ca1000mg+VD2 1000IU	大腿骨、全身の骨密度は両群とも増加、骨吸収マーカーは両群とも減少、群間に差はない。	短期間では VD 補充の効果はない	Zhu K et al. J Bone Miner Res. 2008 ; 23:1343-8.

マグネシウムのエビデンステーブル

Key words: requirement AND magnesium: #3

Mg metabolism in 4 to 8 year old children

(マグネシウム) 本文採用 #114

内容	対象	観察期間	デザイン	介入	結果	結論	著者と掲載誌
4~8歳のMg代謝	男児：22名平均6.9歳、女児：28名平均6.4歳 全体：平均6.6歳（4-8.9歳）		安定同位体を用いた試験	① $^{25}\text{Mg}$ を静脈より、 $^{26}\text{Mg}$ を経口で投与。 ② Mg摂取量、72時間蓄尿を解析	Mg%吸収率：男児 $67 \pm 12$ 、女児 $60 \pm 12$ で有意差あり ( $p=0.02$ )。 全体：Mg摂取量 $177 \pm 36\text{mg/day}$ 、血中Mg濃度 $2.1 \pm 0.1\text{mg/dL}$ 、尿中排泄量 $54 \pm 26\text{mg/day}$ 、Mg保持量 $37 \pm 32\text{mg/day}$ 。Mg摂取量 $133\text{mg/day}$ の場合、保持量は $10\text{mg/day}$ Mg吸収量と尿中排泄量は相関、摂取量と推定保持量は相関、Mg摂取量、総吸収量とBMC、BMDは相関。	通常の食事をしている米国の児童において、Mg摂取とその吸収は骨の健康に重要である。認知されていない因子が関与して可能性がある。	Adrams SA et al: <b>J Bone Miner Res</b> 2014, 29:118-122 2010年版文献75、76と同著者

**Key words: requirement AND magnesium: #125**

Analysis of magnesium contents in commonly consumed foods and evaluation of its daily intake in Korean independent-living subjects. (マグネシウム)

内容	対象	観 察 期 間	デザイン	介入	結果	結論	著者と掲載誌
韓国人の Mg 摂取量調査	男性: 100 名 平均 60.1 歳、 女性: 139 名 平均 59.5 歳 全体: 239 名 (30-94 歳)		韓国で日常的に食されている食品 366 品目について Mg 含有量を ICP-AES により分析。対象者の食事調査を実施して Mg 摂取量を評価。	対象者 239 名に対して 24 時間思い出し法により食事調査を実施。韓国 DRIs2005 において、30 歳以上の男性の Mg DRI は 350mg、女性は 280mg	1 日の Mg 摂取量: 男性 平均 306.5±137.7mg、 女性 259.1±202.1mg で有意差あり (p < 0.001)。摂取エネルギーあたりでは有意差なし。全体平均摂取量は 279.2 ± 178.9mg であり、これは DRI の 90.4% に当たる。しかし、全体の対象者の 54.8% が EAR を下回り、45.2% が DRI の 75% 以下の摂取量であった。	調査した 239 名の成人男女においては、54.8% が Mg が不足していた。国民に対する、適切な栄養教育と関連情報の普及啓発が必要である。	Yun-Jung Bae et al. <i>Biol Trace Elem Res</i> 2010 , 135:182-199.

**Key words: requirement AND magnesium: #142**

Calcium, magnesium, potassium, and sodium intakes in Japanese children aged 3 to 5 years.

(マグネシウム)

内容	対象	観 察 期 間	デザイン	介入	結果	結論	著者と掲載誌
3~5歳のCa,Mg,K,Na摂取量を食事でのミネラルを測定することで推定した。	90名 3-5歳 各々、 男児15 名、女児 15名	1999年 4月- 2000年 3月	1999- 2000年の うち、夏、 秋、冬の3 回食事調査 を実施。 各食事につ いて、各2 回採取した 試料につい てミネラル を分析。		Mgの摂取量:3歳中央値:108, 平均値 104±27.7 mg/d、4歳中央値:110, 平均値 115±31.1 mg/d、5歳中央値:115, 平均値 120±21.5 mg/dであり、推奨量に近似している。Mgの摂取量がEARを下回る者は全体の13.3%であった。	通常の食事をしている日本の3-5歳の児童では、Mgが欠乏している者もいるだろう。Ca摂取量はAIより低く、Naは過剰、Kの摂取量は適切であった。	Shibata T et al: Asia Pac J Clin Nutr 2008, 17(3): 441-445