Parathyroid Hormone and its role in Bone Transfer, in Osteoporosis and Scleroderma  
  
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Abstract  
  
PTH or Parathyroid Hormone is a hormone in charge of Decalcification and transfer of Calcium from the bones to the blood stream to elevate serum Calcium Levels.

This referenced research [1] explains the negative correlation between Vitamin D levels and serum PTH: "Serum PTH correlated negatively with serum 25OHD (r = −0.25; P < 0.001). This significant negative correlation was observed in all regions. When serum 25OHD was less than 25, 25–50, or more than 50 nmol/L, respectively, mean serum PTH levels were 4.8, 4.1, and 3.5 pmol/L, respectively ". [1, 9-14]

Multiple Studies have shown a correlation between Vitamin D deficiency and Scleroderma [2-4] and Osteoporosis [1, 5-8].

In Osteoporosis Bone density deterioration possibly stems from Vitamin D deficiency and therefore from elevated PTH secretion, causing Decalcification of the bones to the bloodstream.

Scleroderma is more common in people with darker skin complexions, possibly as a result of lifestyle alterations or immigrations and in this case the calcium dismantled by the PTH from the bones to the blood stream reaches the skin and goes through re-calcification on the skin that stems from the higher melanin and vitamin D levels on the skin in darker skinned individuals.

It's therefore highly recommended to further examine Vitamin D levels and its effect on serum PTH and bone decalcification and recalcification, and its possible significance as treatment to the above mentioned diseases.

References

1. Paul Lips Tu Duong Anna Oleksik Dennis Black Steven Cummings David Cox Thomas Nickelsen. "**A Global Study of Vitamin D Status and Parathyroid Function in Postmenopausal Women with Osteoporosis: Baseline Data from the Multiple Outcomes of Raloxifene Evaluation Clinical Trial**". The Journal of Clinical Endocrinology & Metabolism, Volume 86, Issue 3, 1 March 2001, Pages 1212–1221. <https://academic.oup.com/jcem/article/86/3/1212/2847697>

2. Laura Groseanu, Violeta Bojinca, Tania Gudu, Ioana Saulescu, Denisa Predeteanu, Andra Balanescu, Florian Berghea, Daniela Opris, Andreea Borangiu, Cosmin Constantinescu, Magda Negru, and Ruxandra Ionescu. **"Low vitamin D status in systemic sclerosis and the impact on disease phenotype"**. Bucharest, Romania. 2016 <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC5042230/>

3. Vacca A1, Cormier C, Mathieu A, Kahan A, Allanore Y**. "Vitamin D levels and potential impact in systemic sclerosis**.". Cagliari, Italy. 2011  
<https://www.ncbi.nlm.nih.gov/pubmed/22011638>

4. Dilia Giuggioli, M. Colaci, G. Cassone, P. Fallahi, F. Lumetti, A. Spinella, F. Campomor, iA. Manfredi, C. U. Manzini, A. Antonelli, C. Ferri. "**Serum 25-OH vitamin D levels in systemic sclerosis: analysis of 140 patients and review of the literature**". University of Modena and Reggio Emilia, Modena, Italy; Department of Clinical and Experimental Medicine, Pisa, Italy. 2017   
<https://link.springer.com/article/10.1007%2Fs10067-016-3535-z>

5. D. HOSKING, K. LIPPUNER, J. M. NORQUIST, L. WEHREN, G. MAALOUF, S. RAGI-EIS, ,J. CHANDLER. "**The prevalence of vitamin D inadequacy amongst women with osteoporosis: an international epidemiological investigation**". Netherlands, England, Switzerland, USA, Lebanon, Brazil. 2006   
<http://onlinelibrary.wiley.com/doi/10.1111/j.1365-2796.2006.01685.x/full>

6. Alison Avenell, William J Gillespie, Lesley D Gillespie, Dianne O'Connell. "**Vitamin D and vitamin D analogues for preventing fractures associated with involutional and post-menopausal osteoporosis**". UK, New Zealand, Australia. 2009 <http://onlinelibrary.wiley.com/doi/10.1002/14651858.CD000227.pub3/full>

7. Jenifer Jowsey D.Phil, .Lawrence Riggs M.D. Patrick J. Kelly, M.D. David L. Hoffman M.D. **"Effect of combined therapy with sodium fluoride, vitamin D and calcium in osteoporosis".** Rochester, Minnesota, USA. 1972  
<http://www.sciencedirect.com/science/article/pii/0002934372901143>

8. Adachi JD, Bensen WG, Bianchi F, Cividino A, Pillersdorf S, Sebaldt RJ, Tugwell P, Gordon M, Steele M, Webber C, Goldsmith CH. "**Vitamin D and calcium in the prevention of corticosteroid induced osteoporosis: a 3 year follow-up**" The Journal of Rheumatology. 1996   
<http://europepmc.org/abstract/med/8782129>

9. Paul Lips, Tu Duong, Anna Oleksik, Dennis Black, Steven Cummings, David Cox, Thomas Nickelsen. "**A Global Study of Vitamin D Status and Parathyroid Function in Postmenopausal Women with Osteoporosis: Baseline Data from the Multiple Outcomes of Raloxifene Evaluation Clinical Trial".** The Journal of Clinical Endocrinology & Metabolism, March 2001  
<https://academic.oup.com/jcem/article/86/3/1212/2847697>

10. Juliana Sálvio Martins, Magda de Oliveira Palhares, Octávio Cury Mayrink Teixeira, and Mariana Gontijo Ramos. **"Vitamin D Status and Its Association with Parathyroid Hormone Concentration in Brazilians".** Brazil, 2017 <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC5318626/>

11. Muhittin A. Serdar, Başar Batu Can, Meltem Kilercik, Zeynep A. Durer, Fehime Benli Aksungar, Mustafa Serteser, Abdurrahman Coskun, Aysel Ozpinar, and Ibrahim Unsal. **"Analysis of Changes in Parathyroid Hormone and 25 (OH) Vitamin D Levels with Respect to Age, Gender and Season: A Data Mining Study**". Turkey, 2017  
<https://www.ncbi.nlm.nih.gov/pmc/articles/PMC5471662/>

12. Ifigenia Kostoglou-Athanassiou, Panagiotis Athanassiou, Anastasios Gkountouvas, Eleni Xanthakou, Ioannis Keramidas, Fotini Chatjimarkou & Philippos Kaldrymidis. "**Primary hyperparathyroidism and vitamin D deficiency. Therapeutic implications**". Greece, 2013  
<https://www.endocrine-abstracts.org/ea/0032/ea0032P134>

13. Mir Sadat-Ali, Dr Abdullah S Al-Omran, and Dr Haifa A Al-Turki. "**Parathyroid Glands response to Low Vitamin D levels in Healthy Adults: A Cross-Sectional Study**". Saudi Arabia. 2015  
<https://www.ncbi.nlm.nih.gov/pmc/articles/PMC4330802/>

14. Marjolein Visser, Dorly J. H. Deeg, Paul Lips. **"Low Vitamin D and High Parathyroid Hormone Levels as Determinants of Loss of Muscle Strength and Muscle Mass (Sarcopenia): The Longitudinal Aging Study Amsterdam**." The Journal of Clinical Endocrinology & Metabolism. 2003  
<https://academic.oup.com/jcem/article/88/12/5766/2661478>

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