

<p>عنوان المشروع باللغة العربية - Title of the proposed project in Arabic</p>	<p>تعيين العلاقة بين مستوى العناصر الغذائية ومستوى فيتامين د في السعوديين المصابين بهشاشة العظام</p>
<p>Title of the proposed project in English</p>	<p>Association of Select Micronutrients and Minerals with Serum 25(OH)D and 1,25(OH)₂D in Saudi patients with Osteoporosis</p>
<p>المشرف الرئيس - PI</p>	<p>Prof. Nasser Al-Daghri</p>
<p>التخصص الدقيق للمشرف الرئيس - Specialty of PI</p>	<p>Clinical Biochemistry</p>
<p>المشرف المساعد - Co-PI</p>	<p>Dr. Sobhy Yakout</p>
<p>المدة المتوقعة لإنجاز البحث منذ الحصول على موافقة عمادة الدراسات العليا ((بالشهور - Expected time in month to finish</p>	<p>12 months</p>
<p>Abstract of the proposal (No more than 200 words)</p>	<p>It is evident that vitamin D intake can facilitate the absorption and assimilation of essential inorganic elements (such as calcium, magnesium, copper, zinc, iron, and selenium). The objective of this study is to explore known interactions between vitamin D and essential minerals in Saudi patents.</p>
<p>Hypothesis of the proposal</p>	<p>Vitamin D has been the point of discussion in almost all medical domain and it has been found to be strongly related with numerous systemic disorders.[1] Deficiency of vitamin D is a global health problem in all ages and gender [2]. despite abundant sunshine in middle-east countries, they have lower mean vitamin D levels especially in females due to their traditional clothing and outdoor time [3]. Studies come from Saudi Arabia shown vitamin D deficiency ranged from 50% to 100% in all ages for healthy and diseased individuals.[4-6] It is also evident that vitamin D does not act solely in isolation. Impaired vitamin D functioning and insufficient levels of essential minerals can have synergistic and cumulative adverse action on biological function with significant pathophysiological impact. For example, vitamin D metabolism is dependent on sufficient magnesium as a cofactor for vitamin D to bind to its transport protein and for this vitamin to convert into the active form via hydroxylation in renal and hepatic sites [7]. Furthermore magnesium</p>

deficiency may upregulate the 24(OH)ase enzyme in the kidney resulting in catabolism of active vitamin D [8]. Along with iron, boron, manganese, and copper, the essential mineral zinc is important as a cofactor in bone health. Specifically, zinc facilitates bone formation by stimulating the osteoblast [9]. The objective of study is to explore known interactions between vitamin D and essential minerals in Saudi patients with osteoporosis

Specific objectives	The objective of study is to explore known interactions between vitamin D and essential minerals in Saudi patients with osteoporosis
Methodology & Major Techniques to be used	Atomic absorption spectroscopy, UV spectrophotometer, cobase E 411
Availability of Samples	Yes
Availability of Chemicals	Yes
Availability of Instruments	Yes
Ethical Approval	Ethical approval is available

Recent References

[1] Attar SM and Siddiqui AM. Vitamin d deficiency in patients with systemic lupus erythematosus. *Oman Med J* 2013; 28: 42-47. [2] Wahl DA, Cooper C, Ebeling PR, Eggersdorfer M, Hilger J, Hoffmann K, Josse R, Kanis JA, Mithal A, Pierroz DD, Stenmark J, Stocklin E and Dawson-Hughes B. A global representation of vitamin D status in healthy populations. *Arch Osteoporos* 2012; 7: 155-172. [3] Al-Mogbel ES. Vitamin D status among Adult Saudi Females visiting Primary Health Care Clinics. *Int J Health Sci (Qassim)* 2012; 6: 116-126. [4] Fonseca V, Tongia R, el-Hazmi M and Abu-Aisha H. Exposure to sunlight and vitamin D deficiency in Saudi Arabian women. *Postgrad Med J* 1984; 60: 589-591. [5] Ardawi MS, Qari MH, Rouzi AA, Maimani AA and Raddadi RM. Vitamin D status in relation to obesity, bone mineral density, bone turnover markers and vitamin D receptor genotypes in healthy Saudi pre- and postmenopausal women. *Osteoporos Int* 2011; 22: 463-475. [6] Nabi G, Hobani Y and Sarwat M. High prevalence of vitamin D deficiency and cancer in Saudi Arabian populations: Can we hypothesize a link? *Med Hypotheses* 2015; 85: 117-119. [7]

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