

# ANZMUSC and Chiropractic Australia/COCA

## PhD RESEARCH PROJECT TOPIC SUBMISSION

*Complete all sections or indicate 'same as above' where applicable.*

<b>Project title:</b>	Vitamin D and Balance in Elderly Fallers (The ViDaBE Study)	
<b>Primary Supervisor (s)</b>	Professor Gustavo Duque	
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<b>Associate Supervisor (s)</b>	A/Prof. Tissa Wijeratne & Ms. Rita Kinsella	
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<b>Project description:</b> In 200-250 words (or less), please provide a synopsis of the project, highlighting the main features of the project (including the potential research question, aim, rationale).		Recent studies have reported an effect of vitamin D supplementation on muscle performance (grip strength) and muscle mass that may explain the beneficial effect of vitamin D on falls. However, there is still a proportion of elderly fallers that benefit of vitamin D without showing any changes in their muscle mass and function, suggesting that an additional mechanism may be involved. Amongst these mechanisms, vestibular and neurosensorial deficits have been associated with falls. We have recently demonstrated that vitamin D deficiency is associated with poor vestibular function and postural instability (Boersma et al., J Nutr Health Aging. 2012;16:270-5). However, the effect of vitamin D supplementation on balance performance in vitamin D deficient patients remains unknown. In this study, we hypothesise that, <b><i>in elderly fallers with balance/neurosensorial deficits, the response to balance/vestibular rehabilitation is enhanced by vitamin D supplementation</i></b> . Our aims are the elucidation of the role of vitamin D in the regulation of the vestibular/neurosensorial system and the identification of a novel mechanism of action of vitamin D in falls prevention.

<p><b>Methodological approach:</b> In 200-250 words (or less) describe the main methodological approach to be undertaken (quantitative or qualitative). Also detail the proposed type of data collection the student will be required to undertake. If the project uses existing data, clarify how this project will be unique.</p>	<p>This is a randomised, double blind, placebo-controlled trial. Patients will be recruited at the Falls and Fractures Clinic, Australian Institute for Musculoskeletal Science (AIMSS) and Western health (Melbourne, Australia). The following parameters will be evaluated at baseline: muscle strength, hand grip, balance performance measured by our 3D virtual reality Balance Rehabilitation Unit (BRU), gait parameters (GaitRITE), serum levels of vitamin D, calcium albumin, renal function, and parathyroid Hormone (PTH). Patients with poor balance performance (limits of stability &lt;170) and vitamin D deficiency (&lt;30 nmol/L) and normal PTH, will be then randomised to receive either vitamin D3, 50,000 IU orally or placebo followed by 1,000 IU/d. All participants will attend the standard balance rehabilitation program (BRU) twice a week for six weeks. Once patients complete 6 weeks of BRU, new balance, gait and serological assessment will be performed.</p> <p><b>Role of the PhD student:</b> The PhD student will participate in all phases of the study including recruitment, assessment, training, data collection and dissemination of the results.</p>
<p><b>Necessary skills/knowledge:</b> Outline the main skills and knowledge the student will need to undertake the project.</p>	<p>The student should be able to:</p> <ul style="list-style-type: none"> <li>• undertake clinical research (previous experience in clinical trials would be a plus)</li> <li>• perform a comprehensive literature review</li> <li>• play a leadership role in all phases of the study</li> <li>• work within a dynamic multi-disciplinary team</li> <li>• demonstrate a combination of clinical knowledge of the conditions under study and research design</li> <li>• perform clinical assessments in older persons</li> <li>• effectively communicate with older persons and their families</li> </ul>
<p><b>Ethics Approval</b> (please tick appropriate answer)</p>	<p>Yes X  No _____  If No: date of expected submission _____</p>
<p><b>Main site of project</b></p>	<p>Australian Institute for Musculoskeletal Science (AIMSS),  176 Furlong Road, St. Albans, VIC, 3021.  <a href="http://www.aimss.org.au">www.aimss.org.au</a></p>
<p><b>Number of students supervised to completion by supervisor (s)</b></p>	<p>Supervisor 1 <u>3</u>  Supervisor 2 <u>3</u>  Supervisor 3 <u>0</u></p>
<p><b>Supervisors Availability [hours pw]</b></p>	<p>3 h/week.</p>
<p><b>A/Supervisors availability [hours per week]</b></p>	<p>5 h/week</p>
<p><b>Research Timeframe:</b></p>	<p><b>Start date:</b> January 1<sup>st</sup>, 2017  <b>End date (recruitment):</b> April 30<sup>th</sup>, 2018  <b>Data analysis:</b> May 1<sup>st</sup>-July 31<sup>st</sup> 2018  <b>Publication date:</b> August – December 2018  <b>Completion of Thesis:</b> June 2019</p>

Please return to: [admin@anzmusc.org](mailto:admin@anzmusc.org) by Friday 4th November 2016