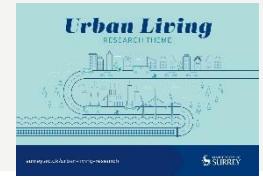


State of the art review on the impact of urban living, including lifestyle and social factors, on vit D status for UK ethnic populations

Project Team:

Miss Marcela Mendes, Dr Andrea Darling, Dr Kath Hart, Prof Steve Morse, Prof Richard Murphy and Prof Susan A Lanham-New.

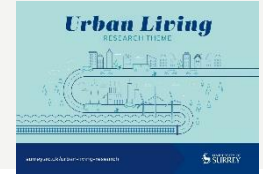
2018



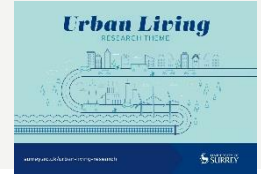
Why Urban Living and Vitamin D?

- » Due to an increasing global population residing in urban areas, the effects of urban living on health are becoming increasingly important.
- » Vitamin D deficiency is a global epidemic, including in high latitude countries (latitudes above 40 degrees North or South, e.g. Canada, Europe, New Zealand) whereby vitamin D cannot be made in the skin for a large proportion of the year.
- » In addition to latitude-related factors (e.g. season, climate), factors related to urban living may detriment 25(OH)D due to lower production of vitamin D in the skin.

Why Urban Living and Vitamin D?

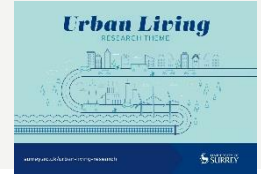


- » Therefore multidisciplinary approaches are required from engineers, skin photobiologists, town planners, social scientists and nutritionists to prevent vitamin D deficiency in urban areas.



- » Abstract submission to International Conference
- » Full paper submission to top rated International Scientific Journal
- » Multi-disciplinary one-day workshop

Outcomes



» Abstract has been presented as a poster at the aimed International Vitamin D Conference in Barcelona on 18th May, by Miss Marcela Mendes and presented Dr Andrea Darling.

Poster presented at International Vitamin D Conference 2018

Introduction

Addressing health issues in the context of urban living and globalization is of the utmost importance. Sunlight availability is directly related to environmental conditions and urban settings consequently affect the maintenance of adequate vitamin D status.

A multidisciplinary approach is required to prevent vitamin D deficiency (25OHD < 25 nmol/l¹) in all populations.

Aim

This study aims to further the debate on the role of urban living in vitamin D deficiency, particularly in different ethnic groups.

Methods

Data on women living in the Southern England from the D-FINES (Caucasians and South Asians) and D-SOL (Latin Americans) studies were analysed for a pilot investigation of lifestyle and environment factors affecting vitamin D status.

Pilot analysis

Table 3. Differences in vitamin D levels according to potential lifestyle and environmental factors, D-FINES dataset (n=387)

T-test/ANOVA	Vitamin D levels	P
Ethnicity	Caucasian > South Asian	<0.001
Years lived in the UK	Longer residency (+)	0.038
Body part exposure	Hand and face only (-)	<0.001
Winter holiday	Yes > No	0.001
Education level	At least A-levels (+)	0.062
Sunscreen use	Yes > No	<0.001
Sunscreen factor	≥ 30 SPF (-)	0.014
Physical activity	Sedentary (-)	0.011
Smoke	Yes > No	0.037

(+) higher levels / (-) lower levels

Table 4. Differences in vitamin D levels according to potential lifestyle and environmental factors, D-SOL dataset (n=56)

ANOVA test	Vitamin D levels	P
Years lived in the UK	Longer residency (-)	<0.001
Body part exposure	No difference	0.594

D-FINES study (2008) follow-up:

- significantly higher 25OHD concentrations than the 2007 measurement (p=0.021).
- Reports from the UK's Met Office:
 - 2007: sunshine below normal in 2007

Classic determinants of vitamin D status

Reported determinants of vitamin D status include: age, gender, adiposity, latitude of residency, season, skin pigmentation, dietary intake and use of supplements.^{1,2}

These classic determinants, however, appear to be country and culturally specific.³

Table 1.

Pearson's correlations between vitamin D levels and classic determinants, D-FINES dataset. (n=387)	r	p
Vitamin D intake	-0.129	0.028
Age	-0.083	0.119
BMI	-0.283	<0.001
Body fat	-0.275	<0.001

Table 2.

Pearson's correlations between vitamin D levels and classic determinants, D-SOL dataset. (n=56)	r	p
Vitamin D intake	0.340	0.015
Age	0.109	0.422
BMI	-0.144	0.289
Body fat	-0.062	0.652

POTENTIAL IMPACT OF URBAN LIVING

LIFESTYLE AND ENVIRONMENTAL FACTORS



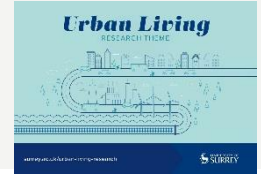
Discussion and further investigation

Vitamin D status of ethnic groups living in high latitude countries is significantly lower than native populations.⁴

We observed in this pilot study that years living in the UK, sunscreen use and factor, body part exposure, physical activity, smoking and winter holidays were correlated to vitamin D status in Caucasians and South Asians. In order to establish and predict the impact of potential lifestyle and environmental determinants on vitamin D levels, further comparative analysis of several regression models from diverse datasets are required.

This pilot study aimed to contribute to the development of further full-scale research projects, with improved study designs, to assess the impact of ethnicity and urban environment on risk of vitamin D deficiency. It will, concomitantly, help promote urban living as an important factor for consideration in the development of effective recommendations for adequate vitamin D status, particularly for ethnic populations in the UK.

Outcomes



» Manuscript submitted to the Journal of Steroid Biochemistry and Molecular Biology (good impact factor of 4.5) and is currently under revision:

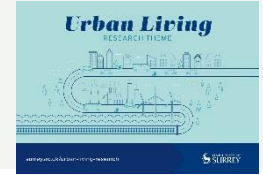
“Impact of urban living, including lifestyle and environmental factors, on 25-hydroxyvitamin D status in high latitude countries.”

Marcela M Mendes¹, Andrea L Darling¹, Kath Hart¹, Steve Morse², Richard J Murphy² and Susan A Lanham-New¹

¹ Department of Nutritional Sciences.

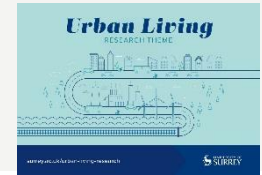
² Centre for Environment and Sustainability, University of Surrey, UK)

Outcomes



» URBAN LIVING AND VITAMIN D SYMPOSIUM

Multi-disciplinary symposium to offer the opportunity to further discuss the proposed topic together and stimulate further collaborative research to assess the impact of high latitude, urban environment and ethnicity on the risk of vitamin D deficiency.



URBAN LIVING AND VITAMIN D SYMPOSIUM

Activities

Welcome by Professor Sue Lanham-New (University of Surrey)

Introductory talk by Professor Matt Leach (University of Surrey)

Panel discussion – Preliminary thoughts on Urban Living and Vitamin D

Workshops (mind maps on Urban Living and Vitamin D theme)

Workshops outcomes discussion

Lunch (and poster viewing)

Keynote 1 Professor Ann Webb (University of Manchester)

Keynote 2 Dr Andrea Darling (University of Surrey)

Panel discussion- Future Directions and Collaborations

Event close- Closing remarks by **Professor Susan Lanham-New**

Thank you

Urban Living

RESEARCH THEME



surrey.ac.uk/urban-living-research