Vitamin D Update

This is a report from a meeting held on December 9, 2010 on the occasion of the visit to London of Professor Robert Heaney, from Creighton University, USA.

The objective of this Vitamin D Update was to share information about:

- latest scientific evidence
- latest studies & trials
- current practice in UK
- problems of supply & pricing in UK

The meeting was held 10 days after the USA Institute of Medicine (IOM) issued a report on Dietary Reference Intakes for Calcium and Vitamin D.

Rufus Greenbaum gave a brief overview of the current situation in the UK.

Professor Robert Heaney gave an overview of the evidence linking lack of Vitamin D and many illnesses.

He then gave his comments about the IOM report.

Following this, about 20 members of the audience gave comments and examples of their experience in diagnosing, testing and treating illnesses due to lack of Vitamin D.

Formal Minutes were not written, so the following pages are extracts from comments written by the attendees both before and after the meeting, plus some comments from those who could not attend.

The meeting was held at the headquarters of the Royal College of Paediatrics & Child Health, although they did not endorse the meeting.

It was sponsored by Systems Biology Laboratories (www.sbl-uk.org) through the generosity of the Fischer Family Trust and their Director, Mike Fischer.

It was organised by Rufus Greenbaum, who had sent out Invitations to:

- Doctors and Pharmacists who had written to the BMJ about Vitamin D
- The Mailing List of the Vitamin D Council (www.vitamindcouncil.org)
- Members of DEQAS (www.deqas.org)
- Personal contacts

More than 50 people from all over Europe attended.

These documents are available on request from Rufus Greenbaum:
(Email: rufus@greenbaum.com)

- 2-page Overview & Summary
- 28-page Report of comments and inputs from people at the meeting
- List of attendees with copies of Business cards or contact information
- Presentation – Introduction to Vitamin D in the UK (By Rufus Greenbaum)
- Presentation & Notes – Introduction to Vitamin D in the UK (By Rufus Greenbaum)
- Presentation – State of the Evidence (By Professor Robert Heaney)

From: Rufus Greenbaum

Vitamin D Update – Overview & Summary

The USA Institute of Medicine recently issued a report that the blood serum level of Vitamin D should be above 50 nmol/L (20 ng/mL)

Many hospitals and doctors in the UK are seeing a significant number of patients below that level, leading to Osteomalacia in adults and Rickets, Stridor, Seizures and heart problems in children.

Health professionals in the UK have known how to avoid this for nearly 100 years, so this is a Public Health scandal.

Some doctors and researchers consider that lack of sunlight, and the resulting low levels of Vitamin D in the blood, may be implicated in over 60 illnesses.

There is strong evidence that increased levels of Vitamin D can reduce by 20-70% the incidence of about 10 illnesses and diseases, including many cancers, Multiple Sclerosis, Osteoporosis, Diabetes and heart attacks. There is good evidence for an additional 25 illnesses and a strong association for another 25 illnesses.

For example, there is evidence which shows that a higher blood serum level of Vitamin D in the mother has a great effect in Pregnancy, giving improvement of conception rates, easier pregnancy, reduced pre-eclampsia, reduced gestational diabetes, reduced chance of emergency C-section, an easier birth, less post-natal depression and a healthier baby.

There are different views about the optimum level of blood serum level required to avoid some of the major long-term illnesses and the consensus ranges from 75-150 nmol/L (30-60 ng/mL).

30+ eminent scientists world-wide have signed a "Call-To-Action" calling for blood serum levels to be tested and supplemented to 100-150 nmol/L (40-60 ng/mL).

Professor Robert Heaney is one of these scientists and a copy of his presentation is available.

A cohort study of over 7,400 English people aged 45 in 2003 showed that they had an average blood serum level of 35 nmol/L (14 ng/mL) in winter and 75 nmol/L (30 ng/mL) in summer. Results from a smaller study from Scotland showed that they had blood serum levels of 8 nmol/L (3.2ng/mL) in winter and 44 nmol/L (16.6 ng/mL) in summer.

If the target blood serum level of Vitamin D is set at 50 nmol/L (20 ng/mL), then the average person in England, Wales and N Ireland is deficient for 6 months of the year and everyone in Scotland is deficient all the time.

If the target blood serum level of Vitamin D is set at 100 nmol/L (40 ng/mL) then almost everyone in the UK is deficient all the time.

To achieve 100 nmol/L (40 ng/mL), the average person living in the UK would need to take 50 micrograms (2,000 IU) per day of Vitamin D3 in the summer and 100 micrograms (4,000 IU) per day in the winter.

There are currently no suitable Vitamin D3 products in the British National Formulary, so UK doctors do not have a suitable product to prescribe. Some doctors are sending patients to health-food stores to buy 25 microgram (1,000 IU) tablets of Vitamin D3.

Some UK doctors are prescribing a 500 microgram (20,000 IU) capsule to be taken 1 per week, which has better compliance than a daily capsule. However, this is a "special" that is imported from Germany and there is a wide variation in the pricing, from £15 to £570 for a years supply.

From: Dave Crooks, Solgar Technical Advisor) Comments combined
Katie Bolland, Nutritionist, Health on the Heath)

- One GP reported that she was observing that some women who were unsuccessful with IVF were becoming pregnant when their vitamin D levels were corrected into the optimal range without IVF.

- She also tests all her cancer patients for vitamin D, and she notices good results when the levels are corrected.

- It was suggested that before pregnancy women should ensure that their 25-OH vitamin D blood level is 120 nmol/L. Critical to have some explanation/reference for this recommendation.

- Another GP said that some patients with IBS improved when vitamin D levels were corrected.

- Another GP noticed good improvements in Crohn's disease when vitamin D levels are corrected. Patients were themselves reporting that vitamin D was helping them generally

- In some Asian countries vitamin D deficiency in utero is causing soft skulls in newborns (craniotabes) which has been misdiagnosed / mistaken as child abuse from the parents (highlighting the need for routine testing).

- Doctor from Burma now practising in the UK specialising in MS finds that people with MS almost always relapse towards the end of winter after Vitamin D levels have dropped to their lowest and then go into remission in July time after they have had 2 or 3 months of sunlight. He also stated that MS does not really exist in Burma!

- He noted that the practice of eating fish (source of vitamin D) with rice (no phytate that potentially inhibits absorption of nutrients) may be a beneficial practice that results in greater absorption of Vitamin D

- Babies born in Autumn/Early Winter have a lower incidence of MS in later life when the mother has had the whole summer to build up vitamin D levels. Babies born in Spring/Summer months have a higher risk of developing MS.

- Ministry of Defence (MOD) are carrying out trials correcting levels of new recruits to assess if it can reduce upper respiratory track infections, injury and to see if it can increase performance.

- The Chicago Blackhawks Ice Hockey team was mentioned who have had success using vitamin D (www.healthdiva.co.uk/2010/08/04/ice-hockey-players-secret-weapon-vitamin-d)

- 1,25 OH unlocks the DNA library in the cell. Every time DNA is expressed vitamin D is consumed. Autocrine function as opposed to calcium regulation

- Professor Heaney suggested D3 is twice as effective as D2

- Katie Bolland reported on her dissertation where she found that very few UK doctors had recommended vitamin D to patients who were pregnant, but many of the women were taking multi-vitamins on their own accord. The survey of pregnant women who were members of the National Childbirth Trust (NCT) carried out Nov/Dec 2009 revealed that only 8% had received advice from their Doctors to take vitamin D supplements during pregnancy. Only 8% were aware of the DoH recommendations to supplement during pregnancy. Fortuitously 70% were taking some vitamin D via a multivitamin probably in many cases to obtain their folic acid, even though they were not aware of the vitamin D recommendations. The most popular is Pregnacare by Vitabiotics which contains the DoH recommendation of 400IU (KB: not 800IU as I said at the meeting - apologies - I have checked the website today and it is still 400IU). Sanatogen 'Mother to be' contains 500IU.

- Rufus Greenbaum reported that he has asked many pregnant women in the UK if their doctor had advised them about Vitamin D and the answer was: ***none***

- D3 Pharma will be producing a high dose pharmaceutical grade vitamin D3 product free from excipients.

KB comment: Some of the independent companies like Solgar and Biotics I understand also produce pharmaceutical grade vitamin D products – some reasonably high dose certainly that would meet the requirements of maintenance ie 2000-4000 IU/day

- A video was shown by Dr Benjamin Jacobs of Royal National Orthopaedic Hospital of a lady with severe Vitamin D deficiency who struggled to stand up without supports either side, and then after several weeks of supplementation great improvement was noted.

- Discussion regarding different testing methods and labs.

Dr Heaney talked about a new paradigm of genetically determined individualized medicine as opposed to medicine based on outcomes solely on randomized controlled trials. This would mean individually testing both for genetic variations and for levels of nutrients. He reminded us that the medical approach to nutrients can not be the same as for drugs and that vitamin D was a nutrient not a drug.

Dr Hyponnen also commented that further trials would be useful looking at genetic differences within individuals and how this affects vitamin D status.

From: Dave Crooks Solgar Technical Advisor

Re: IOM (Institute of Medicine in the US) Report

- The increase in vitamin D intake (up from 200iu to 600iu) recommended by IOM is not high enough although others felt it was a good step forward and was adequate.

- It was carried out by people who were NOT experts in the field - the lead researcher on the Committee was a vitamin A expert (not a vitamin D expert)

- Evidence from 15 of the world's leading vitamin D experts/professors were excluded from the report.

- 15 experts were consulted after the report was written prior to publishing to provide their opinions. For some unknown reason the IOM committee did not publish the opinions of the vitamin D experts! (Due to this, Attorneys have been instructed by The Vitamin D Council to address this with the IOM under the Freedom of Information Act.)

- The IOM report basically stated that there are no other roles for vitamin D other than bone health.

- Unscientific - the science was simply ignored

- More randomised controlled studies are being called for by some but Professor Heaney stated that these are not necessarily suitable for nutrients.

- The key is what is an individual's blood level ? For example, if you carry out a study giving 400IU, 1000IU, 2000IU or placebo for 3 months to four groups, all of the participants may have very low levels at the beginning of the study and none of the participants may reach optimal blood levels at those dosages, so no benefits would be observed in any of the participants in that study. An individual patient approach needs to be taken whereby you bring everyone to the same optimal blood level.

- Good news – The IoM increased the upper tolerable level from 2000IU to 4000IU a day.

Kind regards

David

From: Dr Helen Macdonald
Senior Lecturer, Aberdeen University

I am currently running a trial (ISRCTN20328039) in which women are taking supplements of either 400IU or 1,000IU of Vitamin D3. (Results not yet available)

I agree that those that are deficient should be targeted to receive vitamin D supplements.

I agree with Elina Hypponen that more studies (particularly randomised controlled trials which include a placebo group) are required to determine:

- whether low vitamin D status is an important risk factor in other chronic diseases (independent of sunlight)
- what amounts of vitamin D are required for optimal health
- what circulating concentration of 25(OH)D would be recommended.

There is no reason to conclude that if a teaspoon is good for you that a bucketful will be better and high doses of vitamin D in particular need to be thoroughly tested with regard to potential adverse outcomes (not just those associated with hypercalcaemia).

Questions:

Why is there not a good dose response relationship between vitamin D and 25(OH)D ?

Why can sunlight only raise 25(OH)D to a mean of 75 nmol/L in those with outdoor lifestyle ? Although some can reach higher concentrations (100-150 nmol/L) they are few in number.

Are there toxic effects besides hypercalcaemia with high-dose vitamin D supplementation ?
- Certain subgroups may be hypersensitive to higher doses of vitamin D.

What about interactions with calcium?
- Professor Heaney says you still need sufficient calcium in the diet.

What about interactions with other food groups?
- Work on the vitamin D receptor show that the rapid responses can be turned on by cumin (work by Anthony Norman)

Are there other health benefits of sunlight besides the synthesis of vitamin D?

From: Professor David Alpers
William B Kountz Professor of Medicine, Washington University Medical School
(Co-director of the Nutrition unit at Washington University in St Louis
and author of the Manual of Nutritional Therapeutics (Lippincott)

I was interested in hearing how these issues are developing in the UK, so I did not offer any thoughts during the discussion. Had I done so, here are the major points that I would have made:

1. It is clear that whatever effect of vitamin D that has been demonstrated is correlated (although imperfectly) with serum 25OHD levels, not with dose. The variables that govern this response include (at least) the relative roles of skin and tissue production vs diet, the level and capacity of intraluminal micelles, the role of lipoproteins and/or vitamin D binding protein (DBP) in tissue delivery, the rate of transfer from chylomicrons to DBP, variable tissue uptake, first pass metabolism, formation of metabolites, enterohepatic circulation of metabolites, storage capacity of tissues, and rate of release from tissues. Thus, any study of vitamin D should be analyzed by pharmacokinetic data on plasma 25OHD levels creating the exposure cohorts, but not by dose alone. Very few of the randomized controlled studies have done this. My 13 years of experience working in drug development convinces me that vitamin D studies would be clarified by a consideration of correlating pharmacokinetics with pharmacodynamic effects, as it typically done with new drug entities. In this sense I think considering vitamin D as a drug would be useful.

2. I am not convinced that the difference between nutrients and drugs is as clear as Prof Heaney outlined. Most drugs reach a plateau of efficacy, which is then followed by a level that produces toxicity. In many drugs the therapeutic window (minimally effective dose vs toxic dose) is quite wide as it is with vitamin D, but in others it is much narrower. Moreover, the effect of many drugs is complicated by the production of active metabolites, just as with vitamin D.

3. Although it is assumed that the circulating vitamin D is distributed equally to the tissues, this has never been demonstrated. Moreover, the mixture of metabolites in tissues may not be the same, nor, as Prof Heaney pointed out, has the local production of metabolites been assessed. Thus, tissue biopsies of D-responsive tissues (e.g. muscle) would be very useful in working out whether studies looking for extra-osseous effects are truly negative. Moreover, some data on tissue levels may explain some of the variability between 25OHD levels and efficacy. Current emphasis is on genetic differences, which may be important as well, but serum and tissue PK differences are as or more likely to be important components of this variability, in my opinion.

4. Part of the problem encountered in getting recommendations translated into action is the desire to achieve a change related to the entire population. But the data for vitamin D are more compelling for subgroups of the population. Thus, it would be best to target those groups (those at risk for fracture, perhaps pregnant women), and for specific effects of vitamin D. Everyone agrees that deficient patients should be treated, but the experts argue that deficiency really is any level below ~32 ng/mL (80 nmol/L), whereas the current recommendations set the sufficiency level lower. As the data are best for bone health and fracture, I would concentrate on those issues. Once the claim that vitamin D works for all tissues is added, the data are much less good, as Prof Heaney points out, and the argument in diluted. Let's get the populations most at risk up to 32 ng/mL, and by then the data from some of the other populations will have caught up a bit. It may be a mistake to push for supplementation of the entire population, as the pharmacokinetics, pharmacodynamics, and biochemistry of vitamin D are so complex.

Best regards,
David

From: Christopher (Kim) Cheetham
Retired Paediatrician

Serious symptomatic bone disease in Asian immigrants has been known in the UK for at least 40 years.

As regards doing something about it we have done very little. Blaming those who came yesterday is like a vicar blaming his parishioners for poor church attendance, when those who hear him are those who have attended church!

I do think that we will have to be much more active if anything is to be achieved.

Calls for more research are appropriate as regards high dose vitamin D for those who do not have symptomatic bone disease.

As regards people with bone disease, we need a really vigorous plan of action now.

Nobody mentioned the widespread fear of the harm of sunlight and risks of melanoma. These need to be acknowledged and quantified in any general publication.

I have a particular hobby horse. Enamel hypoplasia of the primary dentition is one of the results of vitamin D lack in pregnancy. Of course, this is much more common in the infants of Asian immigrants. Dentists as a whole do not understand this, and blame the poor state of the teeth on too much sugar in the diet.

Again many thanks for a very stimulating afternoon.

Kim

From: Dr George Bhima, General Practitioner
Nye Bevan House, Maclure Road, Rochdale, OL11 1DN

Dear Rufus,

Thank you for your kind invitation to the meeting. My comments were as follows:

1. Vitamin D deficiency is common in the town of Rochdale and the Greater Manchester area. Members of certain ethnic groups such as Asians, Africans, Afro-Caribbeans have much lower levels in my practice population. Other groups at high risk are office workers and anyone who spends most daytime hours indoors for cultural reasons or reduced mobility.

2. There have been problems of availability of appropriate preparations of vitamin D especially ones suitable for children. There are significant cost variations which may impact drug budgets as pharmacies are free to charge as they see fit for non-standard or 'special' preparations.

3. Practical difficulties such as palatability of calcium/vitamin D tablets and religious objections to gelatine content of colecalciferol capsules may all result in fewer patients taking their treatment. The prospect of lifelong supplementation is another factor in reducing concordance.

4. There is a lack of coherent guidelines for treatment of vitamin D deficiency in the paediatric age group. Technical difficulties in obtaining samples to test for vitamin D levels may cause difficulties in monitoring response to treatment.

The following occurred to me after the meeting and may or may not be related to the issue of vitamin D deficiency. As a matter of interest, I would welcome any comments in relation to a news item that was probably not picked up by the rest of the media. In an interview on the BBC 'Today' programme a few weeks ago Sir Liam Donaldson, when asked about swine flu, said that of those who died a greater than expected proportion of the children were of Asian origin and that the Department of Health was looking into why this was so. I wonder whether this group who are known to be at much greater risk of vitamin D deficiency from the neonatal period onwards were unable to mount an adequate immune response to the infection partly due to concurrent vitamin D deficiency amongst other factors.

Another query is about football (soccer) teams regarding vitamin D levels among their players. There are many coloured football players, some of whom are from countries with sunny climates and who are now at risk of developing vitamin D deficiency within a few months of arriving in the UK. They engage in heavy physical training and exertion during games. Vitamin D deficiency has an impact on muscle, ligament and tendon strength/integrity and may perhaps influence susceptibility to musculo-skeletal injury. Does the FA have a policy similar to the Army which check recruits' Vitamin D levels, as one of their researchers said at the meeting? It would be interesting to know whether vitamin D levels are regularly checked and whether there are any studies showing correlation with rates of injuries such as fractures.

Regards

George

Dear Rufus,

As promised here is the list of prices for identical items.

Marked price variation is very evident.

BNF Name	Total Act Cost	Total Items	Quantity	Total Quant x items
Colecal_Cap 20,000u	£270.46	6	50	300
Colecal_Cap 20,000u	£22.12	1	50	50
Colecal_Cap 20,000u	£22.12	1	50	50
Colecal_Cap 20,000u	£18.90	1	50	50
Colecal_Cap 20,000u	£55.69	1	50	50
Colecal_Cap 20,000u	£14.94	1	50	50
Ergocalciferol_Soln 3,000u/ml	£690.29	1	60	60
Colecal_Cap 20,000u	£92.97	1	50	50
Ergocalciferol_Soln 3,000u/ml	£285.27	1	120	120
Ergocalciferol_Soln 3,000u/ml	£104.29	1	120	120
Colecal_Cap 20,000u	£1,436.00	76	50	3,800 *
Colecal_Cap 20,000u	£56.69	3	50	150
Colecal_Cap 20,000u	£4.56	1	12	12
Colecal_Cap 20,000u	£4.51	1	12	12
Colecal_Cap 20,000u	£32.27	2	50	100
Colecal_Cap 20,000u	£18.90	1	8	8
Colecal_Cap 20,000u	£18.90	1	50	50
Colecal_Cap 20,000u	£1.16	1	50	50
Colecal_Cap 20,000u	£18.90	1	50	50
Colecal_Cap 20,000u	£90.21	1	50	50
Zopiclone_Liq Spec 3.75mg/5ml	£355.70	2	280	560
Colecal_Cap 20,000u	£1,155.83	2	50	100
Colecal_Cap 20,000u	£138.72	1	12	12
Colecal_Cap 20,000u	£90.21	1	50	50
Colecal_Cap 20,000u	£111.37	2	50	100
Colecal_Cap 20,000u	£48.58	1	50	50
Colecal_Cap 20,000u	£18.90	1	50	50
	£5,178.46	*113*		*6,104*

Regards.

George

Dear Rufus,

Here is the list of prescriptions for Vitamin D

30 November 2010

With regards to our conversation earlier, here is a list of the common colecalciferol dosages we come across on prescriptions:

Age (Years)	Drug	Dose
31	Colecalciferol 20000unit Caps	1 twice a week
77	Colecalciferol 20000unit Caps	1 every 2 weeks
27	Colecalciferol 20000unit Caps	3 every week
90	Colecalciferol 20000unit Caps	1 twice a week
30	Colecalciferol 20000unit Caps	2 three times a week
55	Alfacalcidol 250mg Caps	1 three times a week (12)
70	Colecalciferol 20000unit Caps	1 weekly
23	Colecalciferol 20000unit Caps	2 a week for 6 weeks
59	Colecalciferol 20000unit Caps	1 twice a week
24	Colecalciferol 20000unit Caps	3 a week
39	Colecalciferol 20000unit Caps	1 on alternate days
90	Colecalciferol 20000unit Caps	1 twice a week
2	Ergocalciferol 3000unit/ml	1ml daily
5	Ergocalciferol 3000unit/ml	1ml daily
3	Ergocalciferol 3000unit/ml	1ml daily
13	Colecalciferol 20000unit Caps	1 on alternate days
26	Colecalciferol 20000unit Caps	1 daily
49	Colecalciferol 20000unit Caps	1 twice a week for 3 months
38	Colecalciferol 20000unit Caps	1 twice a week
46	Colecalciferol 20000unit Caps	2 once a week
69	Colecalciferol 20000unit Caps	1 three times a week
26	Colecalciferol 20000unit Caps	3 a week

Regards

George

From: Dr Adrian Martineau [a.martineau@qmul.ac.uk]
Senior Lecturer in Respiratory Infection and Immunity
Barts and The London Medical School, London, E1 2AT

My comments were to:

i) respond to Prof Heaney's comments regarding difficult of performing randomised controlled trials of vitamin D supplementation, that

a) UK ethics committees are happy to approve placebo arms to such studies, as they appreciate that vitamin D supplementation may carry potential risks as well as potential benefits

b) pharmacogenetic aspects can easily be examined in such studies, e.g. comparing responsiveness to vitamin d supplementation by VDR genotype
(Martineau et al, Lancet 2011 in press).

ii) ask Prof Heaney if he would recommend doses >2000 IU / day or equivalent for new RCTs of vitamin D supplementation for cancer prevention - his answer was yes - 100,000 IU / month

Best wishes

Adrian

From: Dr Elina Hypponen
Reader in Epidemiology and Public health
MRC Centre for Epidemiology of Child Health, London

Dear Rufus,

Thank you, yes found the meeting very interesting and can only congratulate you for being able to attract such a good crowd.

Good that Sue Lanham-New was there, as she now is the ears for SACN.

It was also good to meet your colleague Mike Fischer, as he had some interesting sounding ideas (& previous experience) how we might be able to help speed up the policy making process.

However, from me one can expect a fairly cautious approach, so I will not be likely to endorse massive leaps but moving on step by step.

All best,

Elina

From: Dr Helga Rhein, General Practitioner
Sighthill Health Centre, Edinburgh, EH11 4AU

1. In our GP practice in Edinburgh we offer all cancer patients to have their vitamin D status optimised by taking their 25(OH)D serum concentration, then prescribing capsules of 20,000 IU to try to elevate those levels to around 150 nmol/l.

Then regular blood checks to keep up that level.

Good results since starting 2 years ago.

2. We frequently find deficiency. Those treated feel significantly better - less tired, achy and depressed. We use the 20,000 IU capsules to treat deficiency.

Children are routinely prescribed Calceos® (as soon as they can chew) or Abidec® when younger. (Calceos® contain 1250mg of calcium carbonate, equivalent to 500mg or 12.5mmol elemental calcium, and 10 micrograms of colecalciferol, equivalent to 400 IU vitamin D3).

All pregnant women are also prescribed Calceos®. We use those mixed preparations because we don't have plain vitamin D preparations available on prescription.

3. My question was about advice on supplemental calcium.

Prof. Heaney replied to it: Intake of calcium in food stuff is important, especially when linked to proteins. Outside of this there is no need to take calcium supplements.

Best wishes
Helga

From: Avril Danczak
GP Tutor/Primary Care Medical Educator/Trainer
The Alexandra Practice, 365,Wilbraham Road, Manchester, M16 8NG

Dear Mr Greenbaum,

I am very interested in Vitamin D matters and convene a loose group of clinicians called "Vitamin D Northwest" who liaise about it.

I would very much like to attend the meeting on 9th Dec at the RCPCH, can you reserve a place for me?

Best wishes
Avril Danczak

From: Dr Julie Greeves,
Head of Research, Department of Occupational Medicine
HQ Army Recruiting and Training, Pewsey, Wiltshire, SN9 6BE

We have active research programmes on Vitamin D and bone health.

I supervise two PhD students; one on effects of Vitamin D status on skeletal adaptations to training, and the other on Vitamin D screening in British Army recruits, with the aim to develop policy on supplementation.

Our key issue is establishing threshold for Vitamin D deficiency in a young, otherwise healthy population.

My earlier study showed a high prevalence of Vitamin D deficiency and impaired bone health in young female recruits.

I am happy to share these preliminary findings.

Regards,

Julie

From: Dr Gordon Campbell BSc FRCP
Consultant Geriatrician, Dept of Medicine for the Elderly
Cambridge University Hospitals NHS Foundation Trust
Addenbrookes Hospital, Cambridge CB2 0QQ

Thank you so much for organising the meeting which I found invaluable.

I did not get round to asking a question but I think having read the IOM report on Ca and Vitamin D I think they make some valuable comments on the public health implications of recommending high dose Vitamin D.

I think perhaps most importantly what we don't know at present is the long term side effects (if any) of long term high dose Vitamin D therapy. As I am sure you are aware although in theory scientific evidence is thought to answer any question, the Vitamin D question is perhaps at present one of the most controversial, with eminent scientists taking opposing views especially with regards to the role of vitamin D in cancer prevention, cardiovascular mortality etc.

Even in the area of my own particular interest (falls and fracture prevention) different meta-analyses come to different conclusions eg the role of calcium.

I have also attached the URL of a recent open access editorial and papers on Vitamin D and cancer which you may find interesting. (http://aje.oxfordjournals.org/content/172/1.toc)

Again many thanks

Gordon

From: Dr David Llewellyn
Public Health and Epidemiology Group
Peninsula Medical School, University of Exeter, Exeter, UK

I am interested in the association between vitamin D and neurological conditions, and in particular dementia.

I've published several studies linking vitamin D to cognitive dysfunction and the first prospective study linking low levels to cognitive decline.

I'm now developing a trial to investigate whether vitamin D has therapeutic potential for the prevention of dementia.

Cheers,

David

From: Steven Bonn, Biomedical Scientist
Dumfries & Galloway Royal Infirmary

We analyse samples for Vitamin D from patients in the whole of South West Scotland covering one District General Hospital.

We get frequent requests for advice on significance of Vitamin D results

We are going to be involved in a study with our renal unit specifically 25 hydroxy vitamin D deficiency and replacement in dialysis patients.

Let me know if there is anything else you need.

Regards,

Steven

From: Sheree Bryant

Toward the end of the meeting, there was some discussion about testing.

I asked a question about testing protocols in the UK, as in the US there is a much simpler test available which is easier to administer, process and administer, is far less expensive and provides for a quick result.

This type of test is available to the public through GrassRootsHealth in the US.

I was told that the finger stick test, called a 'blood spot' test in the UK is, as far as participants were aware, unavailable in the UK. One physician said that she knew of the test.

Thanks again,
Sheree

From: Dr Francesco Colotta, MD
Senior Corporate Vice President and Chief Medical Officer
Diasorin

My comments during the meeting were:

1. DiaSorin data testing of Vitamin D levels in 9,000+ adult US population show that at least 50% have less than 30 ng/ml 25-OHVitD.

2. DiaSorin feels that the most appropriate strategy to manage the skepticism of Health Authorities is to provide prospective, randomized clinical evidence of VitD benefits beyond bone health. Accordingly, DiaSorin is sponsoring a large, randomized clinical study to demonstrate prevention of hypertension in pre-hypertension patients by VitD administration.

3. Most discussions are being focused on what should be considered adequate levels of VitD in adults, but only limited attention is being devoted to adequacy of VitD levels in pediatrics. Since pediatrics are not just small adults (e.g. different metabolism and bioavailability of nutrients as compared to adults), specific studies should be conducted in pediatrics to assess "sufficiency" in this specific context.

Thanks again for the interesting meeting.

My best regards,

Francesco

From: Angelika Dhanani, BioRad
UK Sales Manager - Clinical Diagnostics

The main interest for my colleague and myself to attend was to educate ourselves more about Vitamin D testing, supplementation etc, the reason being that Bio-Rad Laboratories recently launched a new Vitamin D2/D3 assay.

Quite a few of the current methodologies used in the lab still do not provide a separate measurement of 25-OH Vitamin D2 & D3.

Bio-Rad Laboratories new Vitamin D2/D3 assay by HPLC allows the customer to see the total picture through a reliable and easy to use method for quantitative measurement and 100% analytical recovery of both 25-OH Vitamin D2 & D3.

I am happy to provide you with more detailed information about our new assay to forward to anybody interested

Best regards and once again thank you for inviting us to this private meeting

Angelika

From: Tony Hirving
Dietitian
Guy's & St Thomas' NHS

Dear Rufus,

One of my jobs is on a medium-secure forensic mental health unit for adolescents, where I pushed for routine assessment of Vitamin D status of the patients

- in a sample of 17 patients since July last year, we found double the rates of deficiency and insufficiency compared with the general population.

I also work in primary care & recently met with GPs in one practice to discuss inadequate (and sometimes incorrect) treatment of Vitamin D deficiency. I am now drafting a protocol for managing Vitamin D deficiency and insufficiency (using Dekristol 20,000IU D3).

One issue I'm waiting to hear back from the PCT about is how they might help to procure Dekristol at a fair price for all practices across Lewisham. One pharmacy purchases Dekristol at £13.50 for 50 capsules and yet one high street pharmacist told me that he is being charged £279 for 50 capsules of Dekristol from his supplier, and another pharmacist can purchase at £78 for 50 capsules - which is still too much!

Best wishes
Tony

From: Dr Benjamin Jacobs
Consultant Paediatrician
Royal National Orthopaedic Hospital, Stanmore

Very many thanks for arranging such a successful meeting.

I showed a video of a teenage patient at the Royal National Orthopaedic Hospital with severe rickets/osteomalacia and muscle weakness, and the dramatic improvement she made with oral Vitamin D supplementation.

Thanks again

Benjamin

From: Lara Just
Nutrition Consultant (www.yourfoodanalyst.com)

My comments were around a patient that I currently have in clinic who presented with chronic pain in the hip bone from osteoarthritis symptoms, mood disorder / mood swings, as well as recurrent migraines and heartburn among other things (and overweight).

I talked about my concern and challenges to work together with his GP for diagnostic testing.

After the GP ran a whole load of tests after my recommendation (but NOT vitamin D as advised – bone connection etc) we did this privately with Biolab. Their test results showed deficiency (as well as for essential fatty acids – omega 3 and 6). This was again sent to the GP, who dismissed this reputable laboratory, and finally agree to send the patient to another hospital visit for a further Vitamin D blood test.

I have put the patient on 2000IU 2 x per day (2 drops of a liquid formula from Biocare, called BioEmulsion-D @ £10!). With dietary changes and supplements (anti-inflammatory nutritional supplements, fish oils, vitamin D and others), the patient managed to reduce his concurrent daily medication from 5 to only 1 irregularly – after only 6-8 weeks.

Patient now has no more recurrent migraines and heartburn. Some pain in the hip is still there but much more manageable on only occasional medication.

This is an example of the current frustration with some GPs. Since the patient was keen to get this through his health insurance company, the GP was not co-operative and did not want to refer to me despite the communication efforts. Also, privately, you get much better Vitamin D product formulas at very reasonable prices - that work better as they are generally better absorbed - than those that GPs currently can prescribe.

I am increasingly using Vitamin D, EFA (essential fatty acids) and Magnesium blood screening as standard procedure at my clinic (if patients can afford it).
- I have not received a vitamin D test result yet that was not deficient or insufficient.

As a further comment: The GP finally prescribed a tablet for the patient with only 400IU of Vitamin D3 and calcium carbonate (=chalk – not easily absorbed at all). I have put the patient on 4000IU per day at the moment and a special bone formula programme (citrate chelated calcium, magnesium and other).

We are now working on his weight loss goals in the new year.

Hope this is helpful

Thank you again for a great event.

Lara

From: Gary Lipman, Ergoline UK PLC
Chairman, The Sunbed Assocation

Thank you so much for organising the event today. I thoroughly enjoyed the event and was extremely impressed with the quality of speakers and indeed delegates.

I have heard Michael Holick and Oliver Gillie a few times and have been as frustrated as you at the UK Health Authority's stance on Vitamin D in general and sun exposure in particular.

I am the UK representative of ESA (European Sunlight Association) and also work with some American organisations to promote Vitamin D.

It seems that we are both working on the same goal and it would be wonderful to keep in touch.

With very best wishes

Gary

From: Dr John Osuku Opio
Integrated Medicine Consultant
Pearl Pharmacy, London, SW9 9AE

I work in London in the Stockwell area as a pharmacist

My experiences of obtaining large doses of vitamin D3 are amazing.

I think the issue of vitamin D3 - from benefits to supply chain - is a complex matter.

I took particular interest about vitamin D around 2000 when I had just registered to practice in the UK.

I like strange topics and this has been my nature right from student life.
To mention a few: free radicals, antioxidants, vitamins, minerals, amino acids, chemistry in drugs and many other things related to health.

Pharmacists have a lot of work to do here so as to bring to awareness of the public and other health professionals to vitamin D scenario.

I have worked a lot with the GPs in my areas in resourcing vitamin D3 of high strength and since practically all GPs still prescribe ergocalciferol both in tablets and injection.

I have taken a professional commitment to explicitly explain to my GPs the differences between vitamin D2 & D3 and why it is better to prescribe D3 not D2.

Just a lot to be done with such amazing supplement that nature has honoured us with.

I do recommend to a lot of patients high doses of vitamin D3 for a wide range of conditions. Patients always call back after a certain time that the thing is a miracle. I tell them that it is their connection to nature.

There is more and more to relate about this stuff.
See you on Thursday to share more

Best regards

Dr.John Osuku-opio
Ph.D medicinal chemistry

From: David Webber, Director of Studies
Public Advice International Foundation (www.pa-international.org)
Brussels, B-1000, Belgium

We are currently in a discussion with the WHO Europe about developing pan-European guidelines on vitamin D.

At the same time we are working with the "Shine on Scotland" campaign to develop a broader "Shine on Europe" awareness campaign and would like to discuss this with you and other interested colleagues.

I think we are at a turning point on Vitamin D and the IOM report may be the element that really triggers a societal reaction.

Kind regards,
David