THE SECRETS TO A BETTER SLEEP p50

WHY ALL THE FUSS OVER SONNY BILL? p53

NEW ZEALAND LISTENER

APRIL 21-27 2012

$4.20 inc GST

SUN VS SUPPLEMENTS

VITAMIN D-DAY

Are you getting enough Vitamin D?

It could be crucial for your heart, lungs, bones, muscles, skin & allergy resistance

Why Kiwis are at risk

SPECIAL REPORT The Muslim country that could be worth billions to New Zealand p23

9 414418 001282

The D Fac

tor

Nearly a third of New Zealanders have low vitamin D levels, which could be linked to cardiovascular disease, colorectal cancer, autoimmune disorders and even respiratory disease.

BY JENNIFER BOWDEN

Baltimore provided New Zealand-born paediatrician Dr Cameron Grant with an education in more ways than one. Grant lived in the US city during the 1990s while completing his postgraduate paediatric training at the Johns Hopkins University and hospital. "It was an absolute ghetto; the whole neighbourhood was just completely destroyed by crack cocaine and terrible violence and crime," he says.

But a more sobering realisation was yet to come. "I then came back to Auckland and realised that I'd almost forgotten how sick children could be. The children in Auckland were far sicker than the children in this totally impoverished environment. Which came as quite a shock."

Grant, now an associate professor at the University of Auckland and a consultant paediatrician at Starship Children's Health, thought hard about potential reasons for this gap, and one factor that struck him as being very different in the US was its attitude to children's nutrition. Since the 1950s and 60s, the US has targeted children with specific nutritional policies, such as providing free food for pregnant women and infants. It has also provided advice on how to avoid nutritional deficiencies in early childhood, as well as other general advice, and "just having a much better focus on it than we have here".

Together with his New Zealand colleagues, Grant decided to investigate the issue. What they found reveals some sad truths about the nutritional status of our children. Some 14% of New Zealand infants aged six to 23 months are iron-deficient – double the rate in Australia, the US and Europe. And 10% of New Zealand children aged under two have a vitamin D deficiency. For certain ethnic groups, that figure is much higher – a quarter of Pasifika children are vitamin D deficient.

In recent years, there has been growing interest in the role vitamin D plays in our health, and not just in children. It is already known it is crucial for good bone health and muscle function, as it maintains calcium and phosphate levels in our body.

In adults, a lack of vitamin D can lead to osteoporosis – a thinning of the bones that increases the risk of fractures. The relatively recent discovery of vitamin D receptors in organ tissues throughout the

GETTY IMAGES

body has also led to a wave of research investigating possible links between vitamin D and cardiovascular disease, colorectal cancer, auto-immune disorders and even respiratory disease.

Links between vitamin D levels and exposure to the sun are also well known. But as debate rages about how much sun is too much, many New Zealanders are turning to supplements. In 2007, about 84,000 people took such supplements. That number doubled to nearly 175,000 in 2010, including around 12,000 rest-home residents who took vitamin D tablets as part of ACC's falls prevention programme.

Grant is one of several researchers who are now examining these issues further, thanks to strong support from government bodies that are pouring millions of dollars into various studies on the subject.

NEW ZEALAND APPEARS TO HAVE A LOT OF DISEASE THAT COULD BE RELATED TO LOW LEVELS OF VITAMIN D.

In children, low levels of vitamin D can lead to bone conditions such as rickets, which can cause bowed legs and knock knees. "We have a steady stream of young children admitted [to Starship] with either rickets or with other complications from vitamin D deficiencies," says Grant. "Some wee babies won't present with rickets but they'll present with convulsions because the calcium levels in their blood are so low they get muscle spasms and convulsions."

In the developing world, vitamin D deficiency and rickets in children is associated with a greater risk of pneumonia. Hospital admission rates of children with pneumonia in Auckland are three to five times higher than in the US, the UK and Australia.

Grant and his colleagues thought that part of Auckland's pneumonia problem could be low vitamin D levels, and wanted to conduct a clinical trial to see whether giving vitamin D supplements to pregnant women and their infants would help. The problem was that no one yet knows how much extra vitamin D is required to reach an optimal level in the blood.

Grant's study, which has received Health Research Council funding, will consider what dose is required during pregnancy and infancy to safely and effectively increase vitamin D levels. The trial involves 270 pregnant women being randomly assigned either a low- or high-dose vitamin D supplement, or a placebo, and is being carried out in South Auckland.

The babies will continue to receive supplements until they are six months old, and will be regularly tested to measure their vitamin D levels. The trial will also examine their health, including any respiratory infections, in their first year of life. Thanks to extra funding, it will also examine any links between vitamin D levels and the development of allergies.

A recent Australian study found that children living in sunnier regions were less likely to develop eczema or food allergies, adding fuel to the debate about whether vitamin D plays a role in such conditions.

The three main sources of vitamin D for humans are exposure of the skin to ultraviolet B (UVB) radiation from sunlight, foods such as fatty fish and eggs, which provide small quantities, and dietary supplements.

Sunlight exposure is the main source of vitamin D for most people. But there is no scientifically validated safe level of UV exposure. This makes recommendations on sun exposure fraught with difficulty, as the risk of skin damage and skin cancer must be balanced against the risk of a vitamin D deficiency. What's more, the distance from the equator, sunscreen use, outdoor activity, clothing and skin pigmentation can also affect vitamin D levels.

"It's really hard to manage the vitamin D issue using sunlight alone; you just can't make recommendations that apply to every person – the weather's difficult, the country's so long and skinny," says Grant.

In New Zealand, your level of vitamin D is likely to depend on where you live. Research done three years ago showed people living in the north had noticeably higher levels than those in the south.

Vitamin D deficiency is also much more likely in late winter and early spring. Nearly a fifth of people living south of the Nelson-Marlborough district were found to be vitamin D deficient during these months. Overall, nearly 5% of New Zealand adults are vitamin D deficient, while a further 27% have vitamin D levels that fall below the recommended adequate level.

What they now say

Do the potentially cancerous rays of the sun help or hinder the health of most New Zealanders? It's an issue that has proved surprisingly tricky for public health officials.

For many years, New Zealanders heeded warnings that the sun was causing alarming rates of skin cancer, and covered up. But then came new warnings that we might be going too far, and that some of us were not getting enough vitamin D as a result.

Two years ago, the Cancer Society issued detailed guidelines about how much sun exposure was needed to generate adequate vitamin D levels. But some experts believed the advice was not based on sufficient evidence, and was putting people at risk of cancer and other problems.

Last month, the Ministry of Health, the Cancer Society and ACC released a new "consensus" statement on vitamin D and sun exposure. The statement acknowledged that many people were confused about what they should do, and that many GPs were concerned their patients might not be getting enough vitamin D.

The experts agree further research is needed, but their latest recommendations include:

- **Sunburn should always be avoided. Particular care should be taken between September and April, especially between 10am and 4pm. This advice may vary for different types of people as more evidence**

Dr Cameron Grant and Pamela von Hurst are investigating the link between low vitamin D levels and pneumonia, allergies, wheezing and asthma.

Taking a vitamin D supplement seems an easy solution that avoids the risks associated with sun exposure. And vitamin D, with or without calcium, has consistently been shown to reduce the risk of falls in older people living in residential care. However, more research is required to determine whether vitamin D supplements could reduce falls and fractures in other population groups, such as older adults living in the community.

Scientists and public health authorities also want to know whether vitamin D plays a significant role in cardiovascular health. A growing body of research has found that low levels of vitamin D are associated with atherosclerosis, heart attacks, stroke and other disorders such as hypertension and diabetes.

Sceptics note, however, this could mean vitamin D is simply a mark of a healthier lifestyle, perhaps because healthier people spend more time outside in the sun.

Another major study being conducted in Auckland, known as the Vitamin D Assessment (ViDA) study, should help answer these questions. The study is investigating whether vitamin D supplementation in adults aged 50 to 84 reduces the incidence of cardiovascular disease, respiratory infection and non-vertebral fractures.

About 3000 adults are already taking part and the goal is to get another 2000. According to its co-director, University of Auckland professor Robert Scragg, this would make it the largest clinical trial ever run entirely in New Zealand.

ViDA participants are randomly assigned to receive either a monthly vitamin D supplement or placebo for the duration of the four-year trial. Results are expected in 2016. The following year, another set of important results is also expected to be released from a large trial in the US known as the Vital (Vitamin D and Omega-3 Trial) study. According to Dr Carlos Camargo, a professor in epidemiology at the Harvard School of Public Health, this should determine whether vitamin D supplements prevent cardiovascular disease.

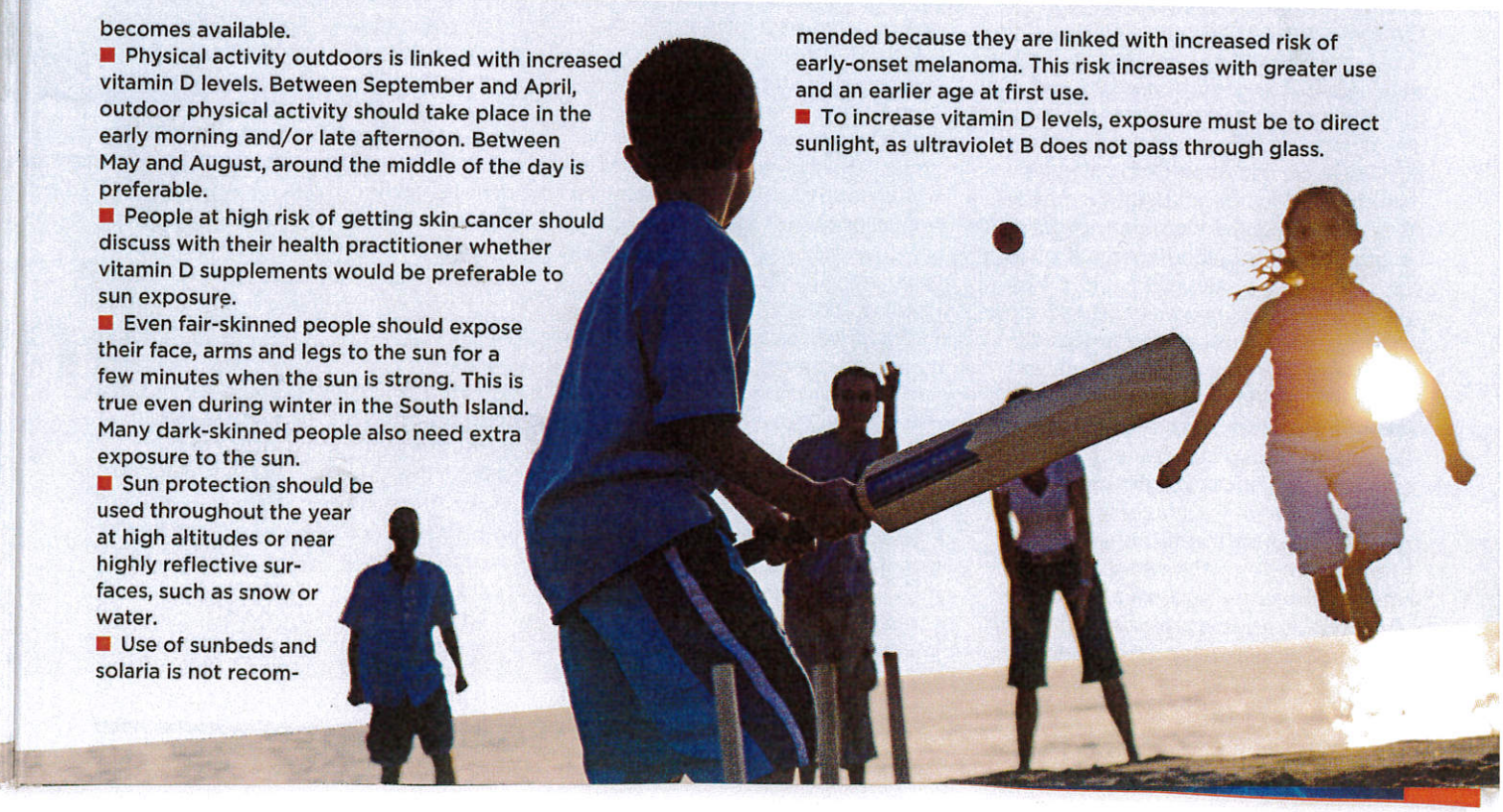
Camargo is widely considered a world authority on vitamin D and is collaborating with both Scragg and Grant on their studies.

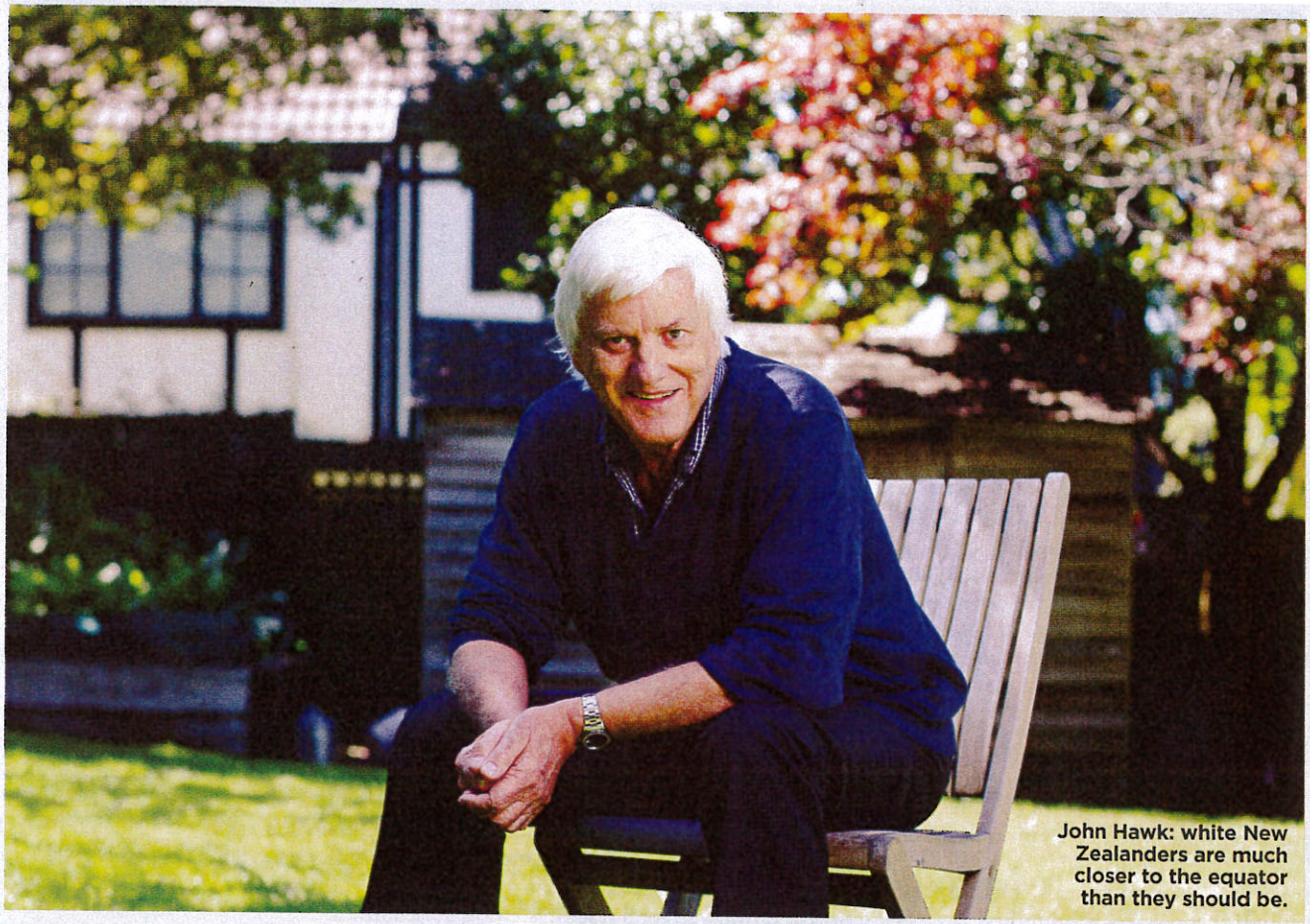
Other research is also being done in New Zealand. Professor David Murdoch, from the University of Otago, recently completed a clinical trial investigating the effect of vitamin D supplements on upper respiratory infections in adults. And Pamela von Hurst, co-director of Massey University's Vitamin D Research Centre, will begin recruiting preschoolers later this

DAVID WHITE; GETTY IMAGES

becomes available.

- Physical activity outdoors is linked with increased vitamin D levels. Between September and April, outdoor physical activity should take place in the early morning and/or late afternoon. Between May and August, around the middle of the day is preferable.
- People at high risk of getting skin cancer should discuss with their health practitioner whether vitamin D supplements would be preferable to sun exposure.
- Even fair-skinned people should expose their face, arms and legs to the sun for a few minutes when the sun is strong. This is true even during winter in the South Island. Many dark-skinned people also need extra exposure to the sun.
- Sun protection should be used throughout the year at high altitudes or near highly reflective surfaces, such as snow or water.
- Use of sunbeds and solaria is not recommended because they are linked with increased risk of early-onset melanoma. This risk increases with greater use and an earlier age at first use.
- To increase vitamin D levels, exposure must be to direct sunlight, as ultraviolet B does not pass through glass.





John Hawk: white New Zealanders are much closer to the equator than they should be.

DAVID WHITE

Too close to the sun

White-skinned New Zealanders are living in a high-risk UV environment, says one expert, and we don't need much sun exposure to keep our vitamin D levels up.

Professor John Hawk would be the first to admit that people are entitled to ignore health messages if they want to, including the ones he dispenses about sun exposure.

But the public should at least go to the trouble of reading the recommendations and understanding the consequences of ignoring them. For example, white-skinned people in New Zealand should know that if they regularly expose themselves unprotected to the peak summer sun, they will end up with dry, blotchy skin in older age, assuming skin cancer hasn't got them first.

A New Zealander, Hawk was until recently head of the Photobiology Unit at St John's Institute of Dermatology, St Thomas' Hospital, London. He is now an emeritus professor and honorary consultant dermatologist at that institution, as well as president of the European Society for Photodermatology. For three decades, he has been the go-to guy for matters photodermatological in his adopted British homeland.

It was he who launched the "Be Careful in the Sun" campaign in England in the 1980s. Around the same time he made one of the early links between sunbeds and skin cancer, writing a pioneering piece in the *British Medical Journal* in 1983, cautioning against sunbed use and predicting that they wouldn't last. "I said they would rapidly disappear, because I thought they were pretty boring and uncomfortable to lie on, but I seem to have made a slightly incorrect prediction there," he admitted during a visit to New Zealand.

Brazil has since banned sunbeds altogether, and other countries – including the UK, Germany and Canada, plus some US and Australian states – have banned under-18-year-olds from using them. In New Zealand, tanning clinics have a voluntary standard designed to prevent people under 18 from using a sunbed, although the Cancer Society, together with Consumer New Zealand, is lobbying to have those standards made mandatory. Regardless of the rules, Hawk points out that any use of sunbeds under the age of 35 nearly doubles the chance of developing a melanoma later.

He is a case study in the way we once worshipped the sun. He remembers the Coppertone and Qtol ads of his youth, and the annual family holidays to Mt Maunganui. "The idea then was that it was always a good idea to … be careful early and get a bit of a tan without burning too much so you won't burn at all later."

The theory was wrong. Hawk – now in his sixties – these days advises people to protect themselves as much as possible, with a high-factor sunscreen on all exposed areas. They work, he says, but only when they are applied and used

properly. The bigger the SPF number, the better, he believes. That's why he always advocates using sunscreens with an SPF rating of 50, along with a high UVA protection – usually noted on the bottle – of at least 30-plus.

There is a mathematical explanation for this rationale. People ordinarily apply enough sunscreen to benefit from only about a third of its potential; therefore, an SPF50 sunscreen will reap a sun protection factor of about 15, he explains.

"The other thing that people get wrong is they don't get around to putting sunscreen on until they've been at the beach for quite a while, and they don't reapply it" after swimming or exercise, or every two hours.

It's also important, he adds, not to

Hawk wants to bust the myth that a depleted ozone layer is to blame for our high skin cancer rates.

forget applying it to all the "easily forgotten bits" such as over the ears, at least in men with short hair, and to use it between the hours of 9am and 5pm in summer. But favouring shade over sun exposure, and wearing close-weave clothing including a hat are much more reliable and should always be used first, or as well as sunscreen.

Hawk left New Zealand 40 years ago. He took with him his medical degree from the University of Otago, a physics degree from the University of Auckland and a love of sport and languages – which he still puts to good use either professionally or privately.

Because he makes regular visits to New Zealand, he is familiar with what people think about sun exposure here, and he wants to bust the myth that a depleted ozone layer is to blame for our high skin cancer rates. A much more important factor than the ozone layer, he says, is that white-skinned New Zealanders are a thousand miles nearer the equator than they should be, with two to three times as much ultraviolet intensity as a result – so our skin is damaged much faster.

Hawk also does not subscribe to the often-advanced idea – frequently by the sunbed industry, he says – that we need a lot of exposure to ultraviolet rays to keep our vitamin D levels up. Recent careful research shows very small amounts are enough, but if you're worried, you can top up the levels in your diet: oily fish, egg yolks, margarine – cod liver oil if you must. If that doesn't suit, you could take over-the-counter supplements, although the Ministry of Health says supplements aren't necessary for people with no specific medical issue or risk factors.

All this was confirmed last year by a major US Institute of Medicine report. A similar report was also produced in the UK, and now in New Zealand. And according to Hawk, this approach is much safer than using sunbeds or resorting to unprotected middle-of-the-day summer-sun exposure.

"I've never been a person that says, 'Never go in the sun.' I'm a person who says, 'Just know about what to do in it to be safe, and once you know what you should do, you can of course do what you like – it's up to you.' The sun is bad for you between about 9am and 5pm in summer, even on cloudy, cool or fairly miserable days. But the rest of the time, although there's a little bit of ultraviolet about, it's not really enough to worry about, even in warm sunshine."

But he immediately emphasises that you need to be very aware that too much ultraviolet exposure is going to mess up your skin, particularly in New Zealand with its very strong midday summer ultraviolet levels but temperate climate, enabling us to stay out longer than in very hot parts of the world.

A new Sun Safety programme by the Health Sponsorship Council is now in use in New Zealand, replacing the old Ultraviolet Index – used in the form of a fire danger alert. The new UVI tool, the Sun Protection Alert, relies on data provided by Niwa and the MetService, and tells people what to do when the sun is at its strongest, as well as the actual time they need to protect themselves from the sun.

The new alert uses a simple oblong tag, which can incorporate sun-safety messages. Hawk sees huge value in such campaigns. It is important not to sound hectoring and moralistic, he says, but to let people make their own decisions, having first told them very simply "where it's at".

And where it's at here is a country with a very high incidence of potentially deadly melanoma.

"People are entitled to have that knowledge and then they can make their own decisions. But they are mad not to take sun-safety advice – otherwise, skin cancer is likely one day, and wrinkly, old, dry, blotchy skin almost inevitable."

– *Staff writers*

year for a study investigating the relationship between vitamin D and respiratory infections, wheezing, asthma and allergy. Von Hurst also plans to develop a vitamin D deficiency risk-assessment tool.

New Zealand is ideally suited for such research because of its shape, which extends narrowly across a range of latitudes, says Grant. We're also ethnically diverse and we appear to have a lot of disease that could be related to low levels of vitamin D.

He hopes that Camargo's involvement will mean the results help not only New Zealand but other countries, too. "He really is the world authority on this topic currently and we're just lucky he's got a bit

GRANT AND HIS COLLEAGUES THINK THAT PART OF AUCKLAND'S PNEUMONIA PROBLEM COULD BE LOW VITAMIN D LEVELS.

of a soft spot for New Zealand," Grant says.

Scragg also believes vitamin D research should be a high priority in New Zealand, particularly because of our large Pacific Island and South Asian populations.

According to the recently released results of the New Zealand Adult Nutrition Survey, which was carried out three years ago, Pasifika adults living in New Zealand are 2.3 times as likely to be vitamin D deficient than non-Pacific adults.

Not enough people of Asian origin provided blood samples for the survey to enable reliable estimates to be determined. However, von Hurst's research into the vitamin D status of South Asian women living in Auckland found that just 16% had adequate vitamin D levels.

In 2010, von Hurst suggested to the *Listener* that people with darker skin pigmentations living in New Zealand needed vitamin D supplements, and this suggestion appears to have been taken on board by the Ministry of Health, which last month released new recommendations relating to vitamin D and sun exposure.

Other groups the Ministry of Health considers at high risk of vitamin D deficiency include:

- people who completely avoid sun exposure (because of skin cancers, skin damage or photosensitising medications);
- people with low mobility, who are frail

Supplementary answers

A healthy diet that includes a wide variety of nutritious foods is preferable to the use of dietary supplements, as this reduces the risk of excessive or inadequate nutrient intake. But in certain situations, in addition to a diagnosed deficiency, the Ministry of Health recommends dietary supplements:

- Vitamin B12: Found in meat, fish, eggs and dairy products, it is used by the body for protein and DNA synthesis, and is crucial for cell repair and replacement. Regular vitamin B12 supplementation is recommended for vegans who do not eat animal-derived products, people with pernicious anaemia, and those who've had gastric surgery.
- Vitamin D: Our main source is sunlight exposure, as only a limited range of foods, such as oily fish and eggs, contain vitamin D. Supplementation with vitamin D is recommended in New Zealand for people who completely avoid sun exposure; are housebound; have very dark skin; have liver or kidney disease; take medications that affect vitamin D levels; or live in the southern regions of New Zealand and don't have regular midday sun exposure between May and August; and for exclusively breastfed infants of mothers with any of the above risk factors for vitamin D deficiency.
- Folate/folic acid: Folate is found in green leafy vegetables, legumes, liver, fruit, nuts, seeds and fortified cereals. Folate is required for cell growth and reproduction and is therefore crucial during pregnancy for the healthy growth and development of the unborn child. Folic acid supplements (0.8 or 5 milligrams) are recommended for women planning a pregnancy – from four weeks before conception until 12 weeks after conception – to reduce the risk of neural tube defects.
- Iodine: Essential for normal growth and metabolism and therefore crucial for the brain development and growth of the unborn child during pregnancy and during infancy. Mandatory fortification of bread with iodine was introduced in 2009 in New Zealand, but it's still difficult for pregnant and breastfeeding women to meet their increased iodine requirements through diet alone. Daily 0.15 milligram iodine supplements are recommended from confirmation of pregnancy through the remainder of pregnancy and while breastfeeding.
- Calcium: Milk and milk products are rich sources of calcium. Other good sources are fortified soy beverages, nuts, canned fish with bones, leafy vegetables and dried fruit. However, people who consume little or no milk or milk products may need a calcium supplement to meet their needs, according to the Ministry of Health.

or housebound;

- people who have liver or kidney disease, or take medications that affect vitamin D levels; and
- exclusively breastfed infants of mothers with any of these risk factors.

According to officials, such people may need vitamin D supplements, which are available on prescription from a doctor or lead maternity carer. People who live in the cooler southern regions of New Zealand and don't spend much time outdoors between May and August may also need supplements during these months, according to the Ministry of Health.

Some people feel the cold more than others, and this affects their exposure to the sun. Von Hurst's research with South Asian women living in Auckland revealed that although some cover up for religious reasons or to prevent their skin getting darker, many are simply trying to keep warm even in the middle of summer.

This got von Hurst thinking about another group who keep out of the sun: athletes who mostly train indoors. Observational studies have found a link between vitamin D levels and muscle strength, which raises the question: could vitamin D supplements improve athletic performance?

A few clinical trials have investigated the effect of vitamin D supplements on muscle strength in older adults, but so far no trials have been conducted in young people. So von Hurst and her colleagues at Massey University are recruiting Auckland-based ballerinas, aged between 13 and 18, for what they are calling their Sunflower Study. This study aims to gain a better picture of the health of young dancers, and to test whether taking a standard dose of vitamin D has any health or performance benefits.

SOME 14% OF NEW ZEALAND INFANTS AGED SIX TO 23 MONTHS ARE IRON-DEFICIENT – DOUBLE THE RATE IN AUSTRALIA, THE US AND EUROPE.

Yet another trial being done by Massey University will consider the effectiveness of vitamin D supplements for treating the common form of psoriasis, a chronic skin condition that usually results in red scaly skin. Current psoriasis treatments are less than ideal, with many having unfortunate side effects or health risks. Creams containing vitamin D have already been found to improve psoriatic lesions, and there may be a link between phototherapy treatment and improvements in psoriasis symptoms. The ViDA study will also consider whether oral supplements may help.

At this stage, there are more questions than answers concerning vitamin D. But as Scragg notes, the fact that so many investigations are under way could hold enormous hope for large numbers of people. "The Health Research Council has been very generous," he says. "There's been a willingness here to fund vitamin D research by research funders. And there's a pool of people working in the area in New Zealand. For our level of funding and number of researchers, we're pulling our weight internationally." ▮

VITAMIN D CLINICAL TRIALS

- *ViDA study: Is looking for Auckland residents aged between 50 and 84 who are not currently taking Cal-D-forte supplements. Phone 0800 843211 or email vida@auckland.ac.nz*
- *Sunflower Study: Is recruiting 13- to 18-year-old Auckland-based ballerinas. For more information, email sunflower@massey.ac.nz or visit its facebook page, www.facebook.com/sunflowerstudy*
- *Psoriasis Study: Massey University is looking for Auckland-based adults with psoriasis for its clinical trial. For more information, phone Michelle Ingram on 09-414 0800 ext 41173 or email m.ingram@massey.ac.nz*

GETTY IMAGES