

# FEATURES

## Sunshine, both good and bad



Health experts are divided on how much sunlight is safe and whether skin cancer or vitamin D deficiency is the greatest risk.

PHOTOS: TAIPEI TIMES AND REUTERS

*If you stay in the sun you run the risk of skin cancer; if you avoid the sun you end up with vitamin D deficiency and rickets. So just how much sunlight is safe for us?*

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**F**or any expectant mother, a brief stroll in the summer sunshine would seem a pleasant diversion from the rigors of pregnancy, a chance to relax in the warmth and to take in a little fresh air. It is a harmless — but unimportant — activity, it would seem.

But there is more to such walks than was previously realized, it emerged last week. In a new study, researchers at Bristol University revealed they had found out that sunny strolls have striking, long-lasting effects. They discovered that children born to women in late summer or in early autumn are, on average, about 5mm taller, and have thicker bones, than those born in late winter and early spring.

Nor was it hard to see the causal link, said team leader Jon Tobias. The growth of our bones, even in the womb, depends on vitamin D, which, in turn, is manufactured in the skin when sunlight falls on it.

Thus children born after their mothers have enjoyed a summer of sunny walks will have been exposed to more vitamin D and will have stronger bones than those born in winter or early spring. "Wider bones are thought to be stronger and less prone to breaking as a result of osteoporosis in later life, so anything that affects early bone development is significant," said Tobias.

The study is important, for it indicates that women should consider taking vitamin D supplements during pregnancy to ensure their children reach full stature. However, the team's findings go beyond this straightforward conclusion, it should be noted. Their work adds critical support to a controversial health campaign that suggests most British people are being starved of sunshine, and vitamin D — a process that is putting their lives at risk.

These campaigners point to a series of studies, based mainly on epidemiological evidence, that have recently linked vitamin D deficiency to illnesses such as diabetes, breast cancer, prostate cancer and tuberculosis. Last week also saw George Ebers, professor of clinical neurology at Oxford University, unveil evidence to suggest such a deficiency during pregnancy and childhood could increase the risk that a child would develop multiple sclerosis.

The studies require rigorous follow-up research, scientists admit — but they have nevertheless provoked considerable new interest in vitamin D. Indeed, for some health experts, the substance has virtually become a panacea for all human ills. Dietary supplements should be encouraged for the elderly, the young and the sick, while skin cancer awareness programs that urge caution over sunbathing should be scrapped, they insist. We need to bring a lot more sunshine into our lives, it is claimed.

But this unbridled enthusiasm has gone down badly with health officials concerned about soaring rates of melanomas in Britain, the result of over-enthusiastic suntanning by holidaymakers decades ago. Existing, restrictive recommendations for limits on sunbathing must be rigorously maintained, they argue, or melanoma death rates will rise even further.

So just how much sunlight is safe for us? And which is the greater risk: skin cancer or diseases triggered by vitamin D deficiency? Answers for these questions now cause major divisions among health experts.

In fact, vitamin D is not strictly a vitamin. Vitamins are defined as nutrients that can only be obtained from the food we eat and which are vital to our health. For example, vitamin C, which wards off scurvy and helps the growth of cartilage, is found in citrus fruits, while broccoli and spinach are rich in vitamin K, which plays an important role in preventing our blood from clotting. And while it is true that vitamin D is found in oily fish, cod liver oil, eggs and butter, our principal source is sunlight.

"Vitamin D should really be thought of as a hormone," said Peter Berry-Ottaway, of the UK's Institute of Food Science and Technology, and an adviser to the EU on food safety. "It forms under the skin in reaction to sunlight. We do get some from our food but our principal source is the sun."

The key component in sunlight that stimulates vitamin D production in our bodies is ultraviolet light of wavelengths between 290 nanometers and 315 nanometers. Crucially, this component of sunlight only reaches Britain during the months between April and October. "The rest of the year,

between November and March, the sun is low in the horizon. Its light has to

pass through much more of the atmosphere than in summer and doesn't reach the ground," said Cambridge University nutrition expert Inez Schoenmakers. "For half the year we cannot make vitamin D from sunlight, so what we make in summer has to do us for the whole year."

In relatively sunny southern England, this is not a problem but in the north and in the cloudier west, noticeable health problems build up — particularly among ethnic minorities. People with dark skin are less able to manufacture vitamin D than those with pale skin and in places with relatively gloomy skies the impact can be severe.

In 2007, the UK Department of Health revealed that up to one in 100 children born to families from ethnic minorities now suffer from rickets, a condition triggered by lack of vitamin D in which children develop a pronounced bow-legged gait. The disease once blighted lives in Victorian Britain but was eradicated by improved diets. Now it is making a major resurgence, a problem that has been further exacerbated in ethnic communities by women wearing hijabs that cover all of their bodies and block out virtually every beam of vitamin-stimulating sunshine.

A major health campaign, offering dietary advice and vitamin D supplements has since been launched. But for many doctors, it is not enough. The nation's health service needs to re-evaluate completely its approach to vitamin D as a matter of urgency; establish new guidelines for taking supplements; and scrap most of the limits on sunbathing currently proposed by health bodies.

These calls have been made not because of concerns about rickets, however. They follow the appearance of studies from across the globe that suggest vitamin D plays a key role in the fight against heart disease, cancer, tuberculosis, diabetes and multiple sclerosis. Vitamin D is not so much an important component of our diets as a miracle substance, they believe. It costs nothing to make, just some time in the sun, and lasts in the body for months.

A classic example of the potential of vitamin D was provided by a study published in a US journal, *Proceedings of the National Academy of Sciences*, last year. This revealed that people with higher levels of vitamin D were more likely to survive colon, breast and lung cancer. In the study, Richard Setlow, a biophysicist at the Brookhaven National Laboratory in the US and an expert on the link between solar radiation and skin cancer, calculated how much sunshine a person would get depending on the latitude on which they lived.

Setlow — who worked with colleagues at the Institute for Cancer Research in Oslo — also calculated the incidence and survival rates for various forms of internal cancers in people living at these different latitudes. Their results showed that in the northern hemisphere the incidence of colon, lung and breast cancer increased from south to north while people in southern latitudes were significantly less likely to die from these cancers than people in the north.

"Since vitamin D has been shown to play a protective role in a number of internal cancers and possibly a range of other diseases, it is important to study the relative risks to determine whether advice to avoid sun exposure may be causing more harm than good in some populations," Setlow warned. And then there is the impact of vitamin D levels on the

heart. In a study published last year in the journal *Circulation*, scientists at the Harvard Medical School in Boston found that a deficiency of vitamin D increased people's risk of developing cardiovascular disease. In addition, other studies have connected vitamin D deficiency to risks of succumbing to diabetes and TB.

And there was last week's publication of the study by Ebers which provided compelling evidence that lack of vitamin D triggers a rogue gene to turn against the body and attack nerve endings, a process that induces the disease multiple sclerosis. In each case, researchers urged that people ensure they take vitamin D supplements to help ward off such conditions.

But others believe such calls underestimate the problem. They point to a study, published in 2007, which indicates that more than 60 percent of middle-aged British adults have less than optimal levels of vitamin D in their bodies in summer, while this figure rises to 90 percent in winter. Given the links between deficiency and all those ailments, only a full-scale reappraisal of the vitamin's role in British health will work, says Oliver Gillie, of the Health Research Forum.

In a report, *Sunlight Robbery*, he calls for the scrapping of Britain's current SunSmart program; the setting up of an international conference of doctors and specialists to establish vitamin D's importance to health; promotion of the fortification of food with vitamin D; and the creation of a new committee whose membership would include representatives of groups of patients suffering from multiple sclerosis, cancer and other conditions linked to vitamin D.

But most controversial of all is his call for people to sunbathe far more frequently than currently advised. "It is time for the UK government to encourage people to sunbathe safely to reduce cancer risk," he said.

Not surprisingly, the notion horrifies many health advisers. "There are now 9,000 new cases of melanoma in Britain every year and 2,000 deaths because people have sunbathed without proper care," said Sara Hiom, director of health information for Cancer Research UK. "Figures have increased dramatically over the past 20 years and will continue to do so unless we are very careful."

However, Hiom acknowledged that new studies did indicate that vitamin D deficiency was now linked to an increasing number of cancers and other diseases. "That is no excuse for behaving irresponsibly, however. People must avoid getting sunburned; stay out of the sun between 11am and 3pm even in this country [the UK] in summer; and use factor 15 or stronger sunblock creams."

In addition, other scientists cautioned that links between vitamin D deficiency with diseases like multiple sclerosis had yet to be proved. "People with low vitamin D may be more likely to have MS but that might simply happen because their condition makes it difficult to get out in the sunshine and make vitamin D in their bodies. We have yet to distinguish cause and effect in many of these cases," said Schoenmakers.

These points are crucial and suggest we need to be cautious about claims that vitamin D is capable of triggering miraculous cures. On the other hand, enough evidence is now emerging from laboratories round the world to indicate that a nutrient once thought to be a bit-player in the battle against disease, clearly has a key role to play in helping to maintain the general health of large numbers of the population.

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— Richard Setlow, biophysicist

