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Study: Vitamin D Deficiency in Pregnancies During Lockdowns

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STORY AT-A-GLANCE

- Lockdowns during the pandemic confined people in their homes for extended periods of time, making it more difficult to get regular sun exposure — the best source of vitamin D
- Strict lockdowns increased the prevalence of vitamin D deficiency in pregnant women as a result
- Overall, 55.5% of pregnant women in the region studied were vitamin D deficient, but among those on strict lockdown the prevalence was significantly higher at 77.8%
- Research has linked vitamin D deficiency with adverse effects in pregnancy, including preeclampsia, gestational diabetes, preterm birth and caesarean delivery
- Other studies also suggest that lockdowns negatively affected pregnant women; in China, pregnant women who experienced a Level I lockdown had shorter gestational length and a higher risk of preterm birth than women who did not

Vitamin D is a critical nutrient for optimal health at all life stages, including during pregnancy. Exposure to sunlight is the ideal source of vitamin D. But during the COVID-19 pandemic, mandatory lockdowns interfered with many people's ability to get outdoors regularly.

The consequences of this among pregnant women are beginning to be realized, with research suggesting strict lockdowns led to vitamin D deficiency in this population.[1] Adverse effects on pregnancy and birth outcomes likely occurred as a result.

Strict Lockdown Led to Vitamin D Deficiency in Pregnant Women

In Spain, lockdowns during the pandemic confined people in their homes for extended periods of time. This led to a number of adverse effects, including alterations in physical activity and eating. During home lockdowns, for instance, one study found daily sitting time increased from five to eight hours per day, while meal patterns were less healthy.[2]

A team of Spanish researchers also looked into the effects of strict lockdowns on the prevalence of vitamin D deficiency in pregnant women, noting, "In Spain, a strict lockdown (SL) was declared, with the population being confined at home, therefore influencing their exposition to sunlight."[3]

For the study, vitamin D deficiency (VDD) is defined as a vitamin D level below 20 ng/mL, and vitamin D insufficiency defined as a level between 20 and 30 ng/mL. This is notable, since it represents an extremely low level of vitamin D. I've long recommended a vitamin D level of 40 to 60 ng/ml for optimal health and disease prevention.

However, higher levels of 60 to 80 ng/ml may be even better, while a level upward of 100 ng/mL appears safe and beneficial for certain conditions, **especially cancer**. If higher levels were used to define vitamin D deficiency in the study, even more women would have been deemed deficient.

Still, even using 20 ng/mL as the deficiency cutoff, 55.5% of pregnant women in the region were vitamin D deficient. Among those on strict lockdown (SL), however, the prevalence was significantly higher at 77.8%.[4] According to the researchers:[5]

> *"This VDD prevalence was greatly influenced by the quarantine, with a significant increase in the SL group (77.8%), as a consequence of the decreased exposure to sunlight due to the in-house confinement in this cohort of participants … Our data describe a concerning reality that should be addressed."*

Strict Lockdowns Likely Worsened Pregnancy Outcomes

While the study stopped short of examining the pregnancy outcomes of lockdown-driven vitamin D deficiency, past research has linked VDD with adverse effects in pregnancy, including preeclampsia, gestational diabetes, preterm birth and caesarean delivery.[6]

In fact, when pregnant women in another study were screened for vitamin D deficiency and given supplements to increase their levels if needed, preeclampsia decreased by 60%, gestational diabetes decreased by 50% and preterm delivery decreased by 40%.[7] Vitamin D insufficiency during pregnancy also affects neurocognitive development and led to language impairment in children.[8]

Other studies also suggest that lockdowns negatively affected pregnant women. In a study comparing women who experienced a Level I lockdown in China during the pandemic with women who did not, the lockdown group had shorter gestational length and a higher risk of preterm birth.[9]

COVID-19 lockdown was also associated with an increased risk of gestational diabetes, with risk increasing the longer the lockdown continued,[10] as well as an increased risk of preterm birth.[11] Meanwhile, while staying in lockdown under the false premise of reducing COVID-19 risk, declining vitamin D levels had the opposite effect of raising risk and worsening COVID-19 outcomes.

For instance, COVID-19 infection may increase the risk of pre-eclampsia during pregnancy, but vitamin D not only reduces the risk of preeclampsia but also helps ward off COVID-19:[12]

> *"Vit.D could have some protective properties against COVID-19 infection by enhancing cellular innate immunity through inducing the production of antimicrobial peptides, including defensins and cathelicidin, which reduce the survival and replication of viruses,"* explained researchers in the journal Medical Hypotheses.

Pregnant women who developed severe or moderate cases of COVID-19 were also found to have significantly lower vitamin D levels than women who developed mild

cases.[13] A 2022 study published in Nutrients also highlighted the importance of vitamin D during pregnancy "during the COVID-19 era," noting:[14]

> *"Our findings could be important to improve the management of the pregnant population: early pharmacogenetic analyses combined with vitamin D monitoring might in fact allow the identification of patients at risk of pregnancy-related complications that may benefit from personalized vitamin D supplementation."*

Vitamin D Protects Against COVID-19

The finding that lockdowns were associated with vitamin D deficiency in pregnant women is especially egregious in light of the importance of vitamin D for healthy pregnancy and birth — and its role in protecting against COVID-19.

I launched an information campaign to raise awareness about the use of vitamin D for COVID-19 back in June 2020. **My own vitamin D review** was published October 31, 2020, in the high-impact, peer-reviewed journal Nutrients.[15]

At the time, 14 observational studies suggested vitamin D levels are inversely linked with the incidence or severity of COVID-19, and my paper concluded, "The evidence seems strong enough that people and physicians can use or recommend vitamin D supplements to prevent or treat COVID-19."[16]

I was widely vilified and discredited in the media for bringing attention to vitamin D's potential for COVID-19,[17] but the truth is now coming out. Giving vitamin D to people with COVID-19 cut risk of death from SARS-CoV-2 by 51% and reduced risk of admission to the intensive care unit (ICU) by 72%.[18]

This was the finding of a meta-analysis and trial sequential analysis (TSA), the latter of which weighs errors in order to assess if further studies are needed[19] — or the results are so solid they're unlikely to be affected by other studies.

The TSA revealed "the protective role of vitamin D and ICU admission showed that, since the pooling of the studies reached a definite sample size, the positive association is conclusive."[20] To put it another way, the results suggest "a definitive association between the protective role of vitamin D and ICU hospitalization."[21]

Words like "conclusive" and "definitive" aren't typically used lightly in scientific research. So, this finding is indeed impressive — although not altogether surprising, since a wealth of other data also shows vitamin D's protective effect against COVID-19.

Not only did COVID-19 patients supplemented with vitamin D have lower rates of ICU admission and fewer mortality events, but they also had lower rates of COVID-19 infection, by 54%.[22]

Vitamin D Could Have Prevented 116,000 Deaths

Another study involved a large population of veterans, including 220,265 patients supplemented with vitamin D3 before and during the pandemic, 34,710 supplemented with vitamin D2 and 407,860 untreated patients.[23]

Those who took vitamin D2 supplements had a 28% lower risk of COVID-19 infection, while those taking vitamin D3 had a 20% lower risk. Death from COVID-19 was also lower among those taking vitamin D — 33% lower among those taking vitamin D3 and 25% lower among those taking vitamin D2.[24]

"In response to these findings, physicians might consider regularly prescribing vitamin D3 to patients with deficient levels to protect them against COVID-19 infection and related mortality. The 50,000 IU dosage may be especially beneficial," according to the study.[25]

When the results were extrapolated to the entire U.S. population in 2020, the researchers found supplementation with vitamin D3 would have prevented 4 million COVID-19 cases and 116,000 deaths.[26]

Missing Out on the Other Benefits of Sun Exposure

It's not only vitamin D that people miss out on when they don't get sun exposure. This means that when lockdowns forced people to stay indoors, they missed out on the full spectrum of benefits from sun exposure, many of which are only beginning to be understood.

During the day, near-infrared rays from the sun penetrate deep into your body and activate cytochrome c oxidase, which in turn **stimulates the production of melatonin** inside your mitochondria. While melatonin is best known for its role in sleep, it also mops up reactive oxidative species that damage your mitochondria.

Provided you get good sleep and plenty of sun exposure during the day, your mitochondria will be bathed in melatonin, thereby reducing oxidative stress. It's likely, in fact, that vitamin D serves as a marker for sun exposure, with many of the benefits due to factors other than vitamin D itself.

Pregnant? Find Out Your Vitamin D Level

Confining people indoors deprives them of basic needs, like access to sun exposure and an opportunity for outdoor physical activity. There's little doubt that lockdowns negatively affected physical and mental health. Adding insult to injury, the Brownstone Institute actually compiled more than 400 studies showing that lockdowns, restrictions and closures failed to do what was promised.[27]

Meanwhile, about half of the U.S. population has insufficient or deficient levels of vitamin D, and rates of vitamin D deficiency are even higher in people with darker skin, those living in higher latitudes in the winter, nursing home residents and people with reduced sun exposure. Among groups with low levels of vitamin D, rates of COVID-19 are higher.[28]

The only way to be certain you need a vitamin D supplement and know how much to take is to measure your vitamin D level, ideally twice a year — and this is especially

important during pregnancy.

Once you've confirmed your vitamin D levels via testing, adjust your sun exposure and/or vitamin D3 supplementation accordingly. Then, remember to retest in three to four months to make sure you've reached your target level.

I strongly recommend getting your vitamin D from proper sun exposure if at all possible. However, if supplementing, remember vitamins D and K2, calcium and magnesium all work together and must be properly balanced for optimal health.

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