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Vitamin D level statistics analisis for argentina's central region

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Many recent research has shown that a large number of processes in the human body involve vitamin D (VD), which indicates its importance. Although there are international intake recommendations for normal bone development, there is currently no agreement regarding adequate VD levels for the rest of its metabolic roles.

As VD it is mainly synthesized in the skin by sun exposure we explore, in previous works, how these levels evolve during a year and geographically with the latitude.

Working with data from all over the country, we divided the territory into four zones, and the statistical tests found highly significant evidence of difference in the proportion of people with healthy levels of VD by both season and geographical region.

Besides that we develop time series techniques, including cross correlation calculations, that gave strong delayed correlations with daily sunlight hours amount, and allowed us to estimate that the maximum correlation is reached at lag of forty three days.

In this work we will analyze more specifically the data from the central regions, to compare the results for alternative VD levels. We use non-parametric correlation calculation to estimate delay with the daily amount of hours of sunlight when the zones with extreme variation data are removed.

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