24-hour profile of serum sclerostin and its association with bone biomarkers in men.

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The osteocyte's role in orchestrating diurnal variations in bone turnover markers (BTMs) is unclear. We identified no rhythm in serum sclerostin (osteocyte protein). These results suggest that serum sclerostin can be measured at any time of day and the osteocyte does not direct the rhythmicity of other BTMs in men.; The osteocyte exerts important effects on bone remodeling, but its rhythmicity and effect on the rhythms of other bone cells are not fully characterized. The purpose of this study was to determine if serum sclerostin displays rhythmicity over a 24-h interval, similar to that of other bone biomarkers.; Serum sclerostin, FGF-23, CTX, and P1NP were measured every 2ăh over a 24-h interval in ten healthy men aged 20-65ăyears. Maximum likelihood estimates of the parameters in a repeated measures model were used to determine if these biomarkers displayed a diurnal, sinusoidal rhythm.; No discernible 24-h rhythm was identified for sclerostin (pă=ă0.99) or P1NP (pă=ă0.65). CTX rhythmicity was confirmed (pă<ă0.001), peaking at 05:30 (range 01:30-07:30). FGF-23 levels were also rhythmic (pă<ă0.001), but time of peak was variable (range 02:30-11:30). The only significant association identified between these four bone biomarkers was for CTX and P1NP mean 24-h metabolite levels (răă0.65, pă=ă0.04).; Sclerostin levels do not appear to be rhythmic in men. This suggests that in contrast to CTX, serum sclerostin could be measured at any time of day. The 24-h profiles of FGF-23 suggest that a component of osteocyte function is rhythmic, but its timing is variable. Our results do not support the hypothesis that osteocytes direct the rhythmicity of other bone turnover markers (CTX), at least not via a sclerostin-mediated mechanism.

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