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The isoperimetric problem inside a Euclidean convex body

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In a convex body Ω of \mathbb{R}^n we consider the isoperimetric problem of minimizing the perimeter under a volume constraint. In our context the perimeter measures the whole boundary area, including the contribution of $\partial\Omega$. By the classical isoperimetric inequality the minimizers are all round balls provided the enclosed volume is less than or equal to the volume of a largest ball in Ω . Though it is difficult to characterize minimizers of greater volumes, it seems reasonable to expect that they are always convex. This is an open question posed by Stredulinsky and Ziemer in 1997. In this talk we will review some old and new results in relation to this conjecture.

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