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*Getting to the top: less pain, more gain.*

Many hikers have experienced switchbacks zig-zagging their way up the side of a mountain. The grade of the switchbacks are often much less than the alternative grade of attempting to hike directly towards the top. In real life, switchbacks' grades and lengths are often determined by the local topography. But what if you could design the switchbacks with any parameters to work their way up a broad steep hill? How many would you use and, more importantly, what grade would you choose to minimize the total energy output of the hiker in getting to the top? This talk takes this seemingly complicated problem and presents a solution using nothing more than differential calculus methods. The result is surprising and has an unexpected simple connection to horizontal and vertical energy output. (Received September 19, 2018)