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Contact structures and reducible surgeries.

We apply results from both contact topology and exceptional surgery theory to study when Legendrian surgery on a knot yields a reducible manifold. In particular, if the maximal Thurston-Bennequin number $\overline{tb}(K)$ is nonnegative, we show that any reducible surgery on K must have slope at least $\overline{tb}(K)$; we also obtain strong restrictions in the case $\overline{tb}(K) < 0$. As an application, we will show that a reducible surgery on a non-cabled positive knot of genus g must have slope $2g - 1$, leading to a proof of the cabling conjecture for positive knots of genus 2. (Received January 18, 2015)