Abstract. Let M be a compact, connected, orientable, hyperbolic 3-manifold whose boundary is a torus and which contains an essential closed surface S. It is conjectured that 5 is an upper bound for the distance between two slopes on ∂M whose associated fillings are not hyperbolic manifolds. In this paper we verify the conjecture when the first Betti number of M is at least 2 by showing that given a pseudo-Anosov mapping class f of a surface and an essential simple closed curve γ in the surface, then 5 is an upper bound for the diameter of the set of integers n for which the composition of f with the n^{th} power of a Dehn twist along γ is not pseudo-Anosov. This sharpens an inequality of Albert Fathi. For large manifolds M of first Betti number 1 we obtain partial results. Set

$$\mathcal{C}(S) = \{\text{slopes } r \mid \ker(\pi_1(S) \to \pi_1(M(r))) \neq \{1\}\}.$$

A *singular slope* for S is a slope $r_0 \in \mathcal{C}(S)$ such that any other slope in $\mathcal{C}(S)$ is at most distance 1 from r_0. We prove that the distance between two exceptional filling slopes is at most 5 if either (i) there is a closed essential surface S in M with $\mathcal{C}(S)$ finite, or (ii) there are singular slopes $r_1 \neq r_2$ for closed essential surfaces S_1, S_2 in M.