

Solutions of geometric flows that can be extended infinitely far back in time, known as ancient solutions, play a fundamental role in studies of singularity formation. We consider flows that deform hypersurfaces in Euclidean space with pointwise normal speed equal to some function of the principal curvatures. Our main result, which applies to a natural class of concave speed functions, is a uniqueness theorem for convex ancient solutions that are noncollapsed and have type I curvature growth. The conclusion is that any such solution is a family of shrinking (generalised) cylinders.