We prove that if $p$ is an odd prime, $G$ is a solvable group, and the average value of the irreducible characters of $G$ whose degrees are not divisible by $p$ is strictly less than $2(p + 1)/(p + 3)$, then $G$ is $p$-nilpotent. We show that there are examples that are not $p$-nilpotent where this bound is met for every prime $p$. We then prove a number of variations of this result. (Received August 18, 2015)