A tournament is an orientation of the complete graph. We say that a tournament $G$ on $n$ vertices is regular if the indegree and outdegree of every vertex is $(n-1)/2$. A triangle-factor of $G$ is a collection of $n/3$ vertex-disjoint cyclic triangles. We prove that when $n$ is odd, divisible by 3, and sufficiently large every regular tournament on $n$ vertices contains a triangle-factor. For large tournaments, this resolves a conjecture made independently by Cuckler and Yuster. This result is best possible, because for every $n$ congruent to 3 modulo 18, there exists a tournament on $n$ vertices that does not contain a triangle-factor in which the indegree and outdegree of every vertex is either $(n-3)/2$, $(n-1)/2$, or $(n+1)/2$. We will discuss the proof of this theorem and some related work and conjectures. (Received July 25, 2017)