A design is called $f$-pyramidal when it has an automorphism group fixing $f$ points and acting sharply transitively on the others.

We consider the problem of determining the set of values of $v$ for which there exists an $f$-pyramidal Steiner triple system of order $v$. Although this problem has been deeply investigated when $f = 1$, it remains open for a special class of values of $v$. For the next admissible value of $f$, which is $f = 3$, we provide a complete solution. However, for greater values of $f$ this problem remains widely open.

In this talk, we will present the most recent results on this subject. This is joint work with Marco Buratti and Gloria Rinaldi.