We show that asymptotic estimates for the growth in $L^p(\mathbb{R})$-norm of a certain subsequence of the basic wavelet packets associated with a finite filter can be obtained in terms of the spectral radius of a subdivision operator associated with the filter. We obtain lower bounds for this growth for $p \gg 2$ using finite dimensional methods. We apply the method to get estimates for the wavelet packets associated with the Daubechies, least assymetric Daubechies, and Coiflet filters. A consequence of the estimates is that such basis wavelet packets cannot constitute a Schauder basis for $L^p(\mathbb{R})$ for $p \gg 2$. Finally, we show that the same type of results are true for the associated periodic wavelet packets in $L^p[0,1)$.