Let $G$ be a connected reductive $\mathbb{Q}$-group and let $H \leq G$ be a subgroup with $H(\mathbb{R})$ compact. Under suitable assumptions, we use Lindenstrauss and Venkatesh’s method to prove a relative Weyl law, that is, an asymptotic formula for the number of eigenfunctions of the Laplacian on a locally symmetric space uniformized by $G$ weighted by the period of the eigenfunction over a locally symmetric subspace uniformized by $H$.

As an application, we use an idea of Rudnick and Sarnak and work of Gelbart, Rogawski and Soudry to prove the existence of automorphic representations with “large periods” in a situation involving an isotropic unitary group $G$. Finally, we explain how a very weak analogue of the conjectures of Sakellaridis and Venkatesh imply similar “large period” results in great generality.