This thesis studies questions related to the boundedness of the integral operator

$$T : f \mapsto \int_t^1 w f^*,$$

where w is a given non-increasing function and f^* is a non-increasing rearrangement of a function f. The main goal is to characterize the optimal range for the operator and a given domain and conversely optimal domain for a given range. These results are then illustrated on particular examples. Lastly, some necessary conditions for the existence of optimal space are given.