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The different ways of selecting frequency, area of focus and low pass filters to produce a better MRI image are shown in this paper. A less ringing artifact was generated in the MRI image produced from the filter, which is narrow in frequency domain. However, the resolution was decreased as well. On the contrary, the image resolution can be improved by using a wider filter function; but doing so will cause inefficiencies such as an increase in execution time and ringing artifact to a degree. In this paper, to improve the resolution of the MRI images, several exponential functions using non-conventional algorithms were presented. An ideal low pass filter (LPF) frequency would be able to increase the resolution of the MRI image as well as decrease the Ringing Artifact. A huge amount of time and computational operation in the simulation is required for the process of transformation, from a physical spatial frequency to image domain. Time-efficiency is therefore resulted from manipulating the data to exclude certain amounts of high or low frequencies in k-space. This research strives to develop a better physical and computational algorithm that would not only enhance the quality of the final image, but also decrease the amount of time taken to produce the image. (Received February 02, 2016)