

The reason iterators only support the `itertools.islice` but not the `[x:y]` method of slicing is because the method behind the list slicing method makes use of the lists' memory allocation. Because the list is stored in contiguous memory, we know where every element is located, and by simply copying an entire block of memory to another space in memory, it is significantly faster than iterating through the list and copying each element into a new list. This doesn't work with iterators since iterators do not store every value that it needs, and only gives back the value when you ask for it. Therefore, the memory allocation method used in list slicing won't work for an iterator.