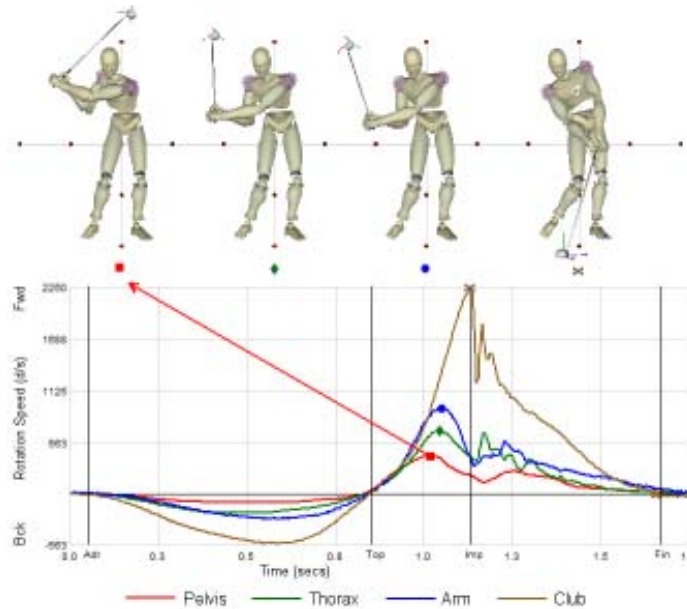


Where is Peak Pelvis Rotation Speed in the Kinematic Sequence?

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The Kinematic Sequence is an indicator of swing efficiency and speed. If you look at just the downswing phase of the swing (the center section) the graph above displays how fast you turn or swing each part of your body for about 0.25 seconds before impact. During the downswing each part accelerates then decelerates in a smooth and sequential order. In an efficient swing the red (pelvis) curve should peak first followed by the green (thorax) curve then the blue (lead upper arm) curve and finally the brown (shaft) curve hits maximum swing speed at impact. Also each curve should peak higher than the previous one.

One thing that is not obvious from the graph: What is the typical body position at each of these peaks? In this article we look at where the pelvis speed peaks. The strange thing from the graph is that it looks like it is about half way down in the swing. Well, in terms of time it may be; but in terms of body position it is not. In fact peak pelvis turning speed occurs surprisingly early in the downswing in terms of body and club position; look at the first image in the diagram above. That's because at the beginning of the downswing you are moving slow and at the end you are moving very fast.

Let's look at where 45 touring pros are at this point in the downswing. They are taken from the TPI 3D database. It is very instructive to look at their positions. Look at the angles of the shaft, lead arm, thorax and pelvis. I tried to group them with respect to

shaft angle. I couldn't group them with respect to thorax and pelvis angle but you can study that yourself.

One very important observation is that in most cases the club is still very close to, or before vertical, the pelvis looks pretty close to square, and as I said, peak pelvis speed occurs pretty early in the downswing. That's where the pelvis is turning the fastest, after this point the pelvis turning speed slows down. Notice that at this point there is still a good wrist set and in many cases also a good shoulder load.

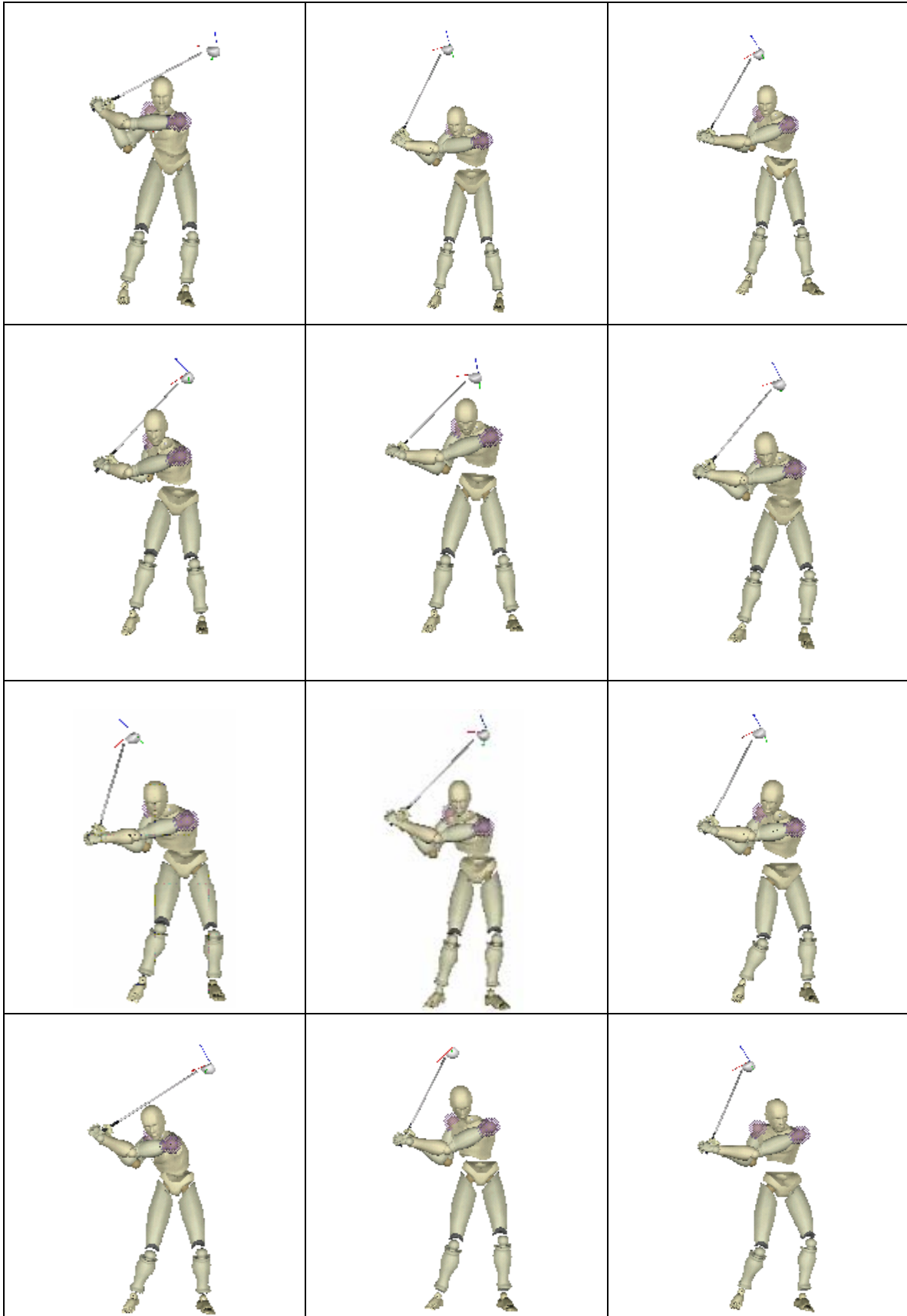
The last four images in this article are definitely the odd ones out.

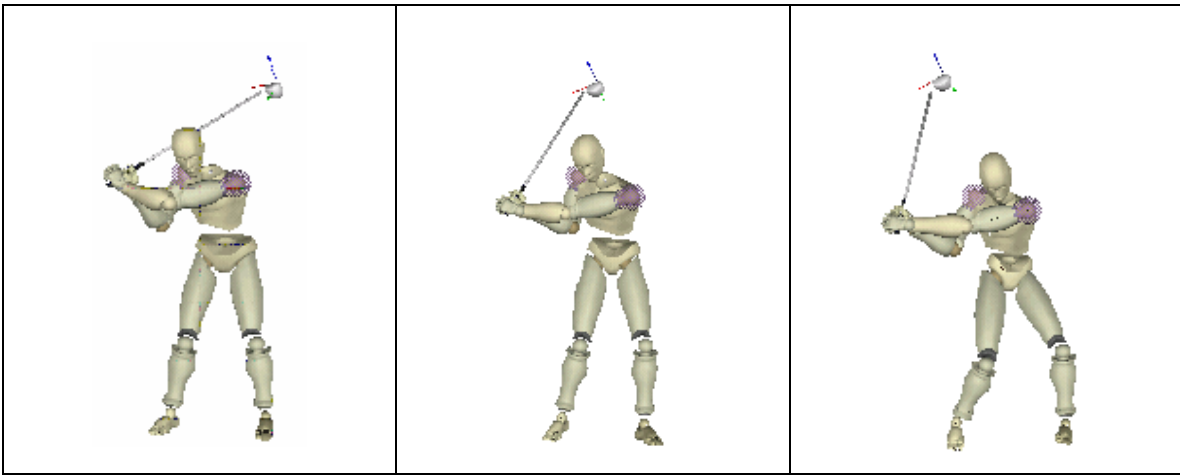
In a subsequent article I will look at the positions of high handicappers also at peak pelvis speed and you definitely won't see this consistency and "strength" of position; quite often will see a very late pelvis peak.

So when doing a 3D analysis, in my opinion, it is good to visualize what the golfer should look like at the specific points in the kinematic sequence, the first one being shown here; the point at which the pelvis reaches its peak turning speed.

This was not meant to be a rigorous scientific analysis and you can probably argue some of my groupings, however, it is just meant to give you a feel of where these top golfers are when their pelvis speed peaks and then begins to decelerate as the rest of the segments continue to accelerate. Enjoy studying the pictures on the next few pages.

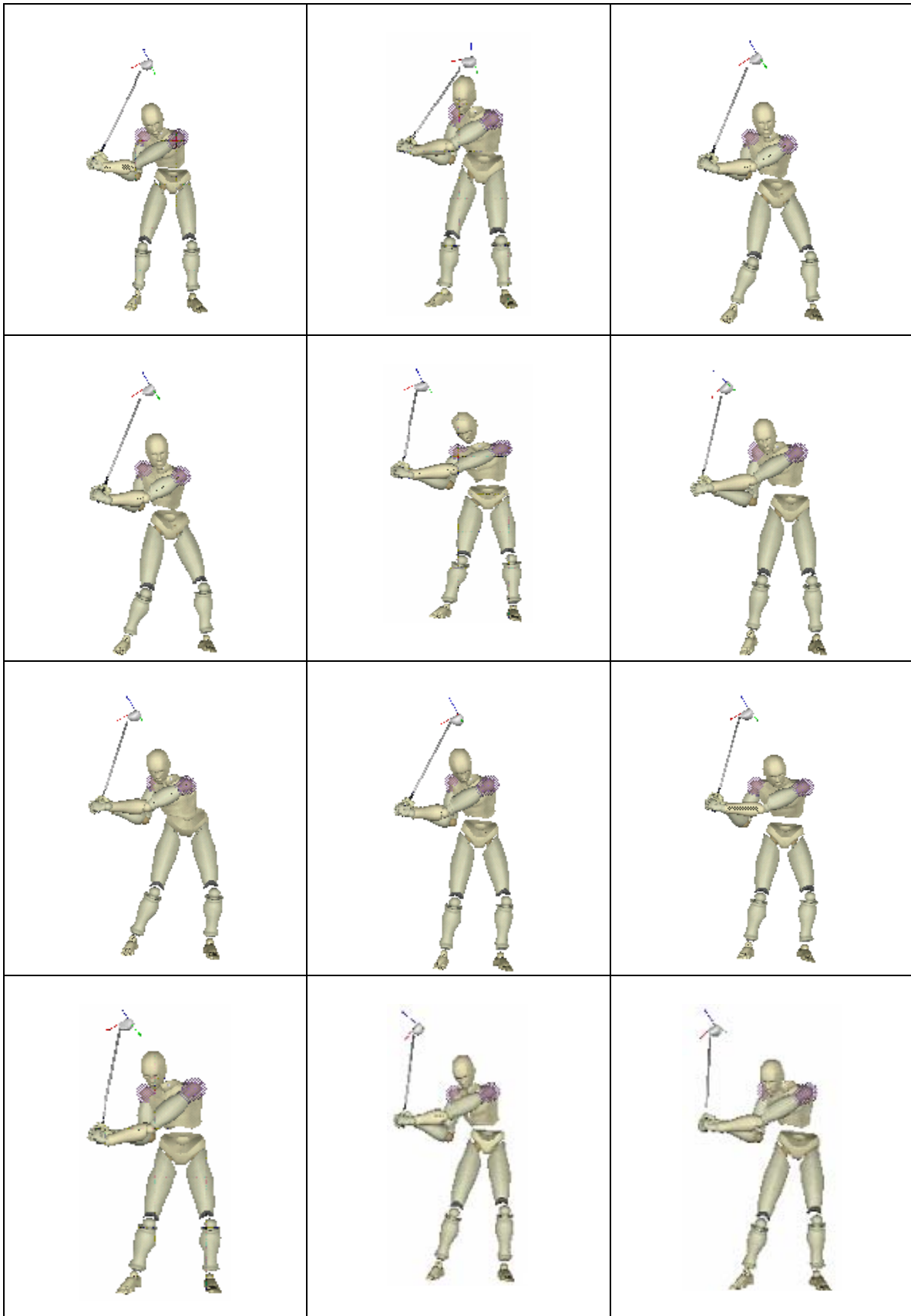
The first group has the club shaft well before vertical and the lead arm close to horizontal.

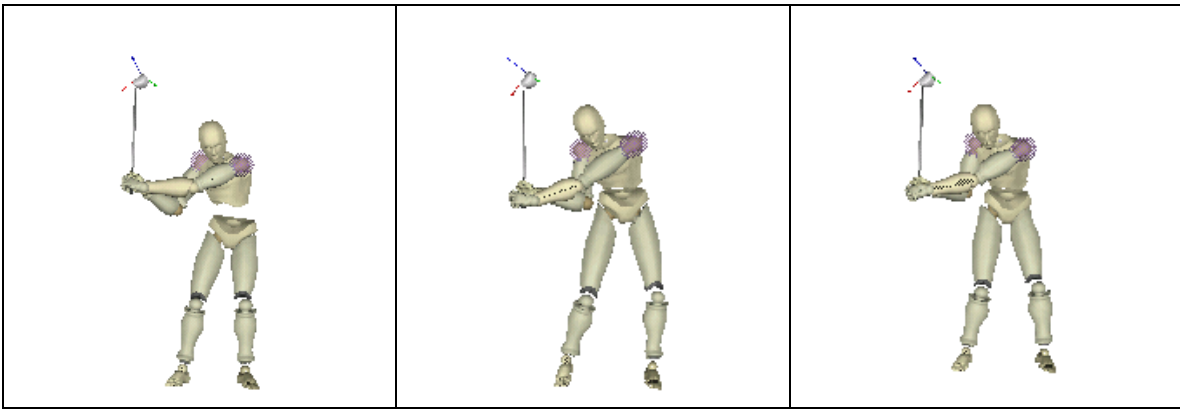




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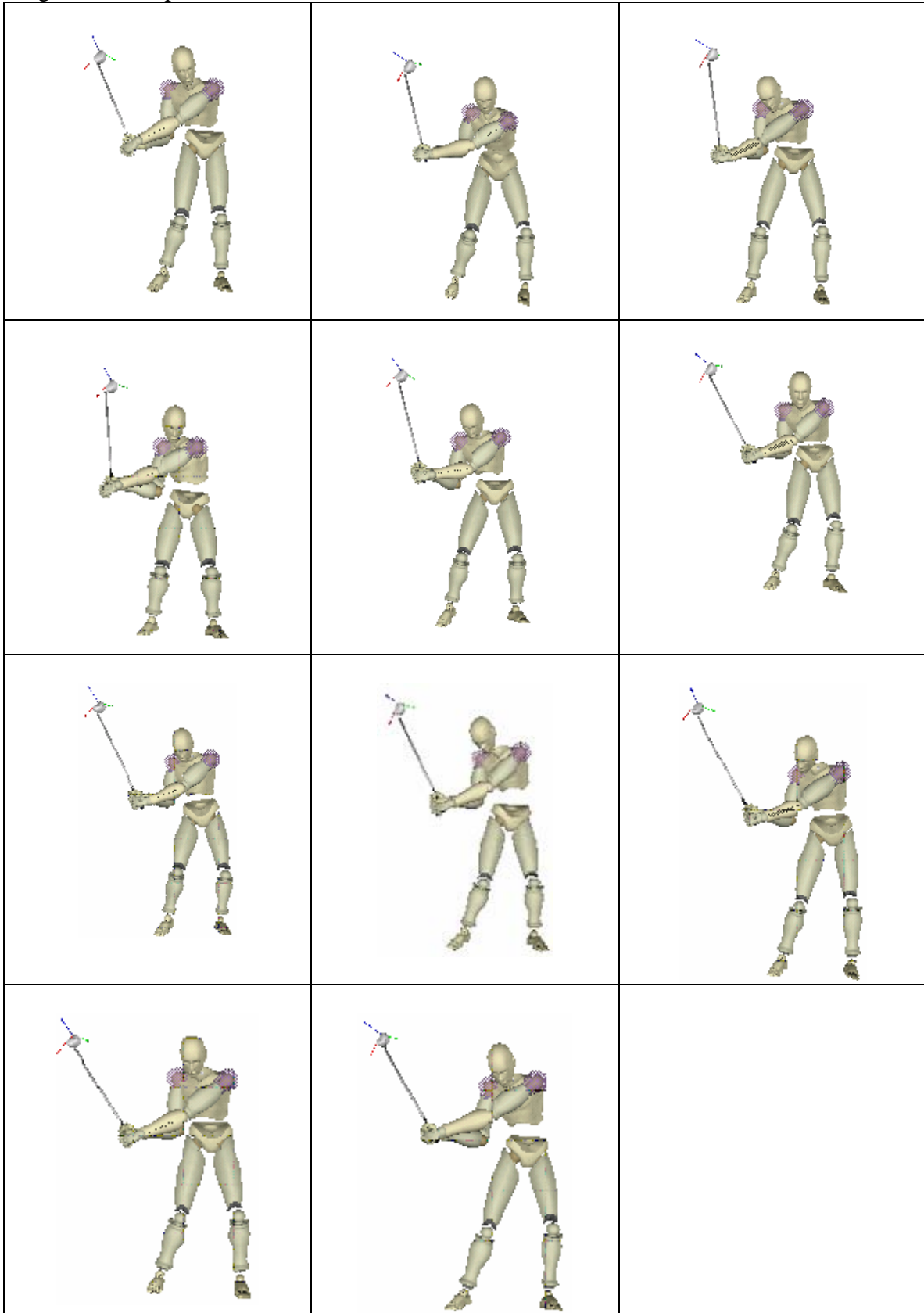
This next group has the club still before vertical but the arm is a little below horizontal.



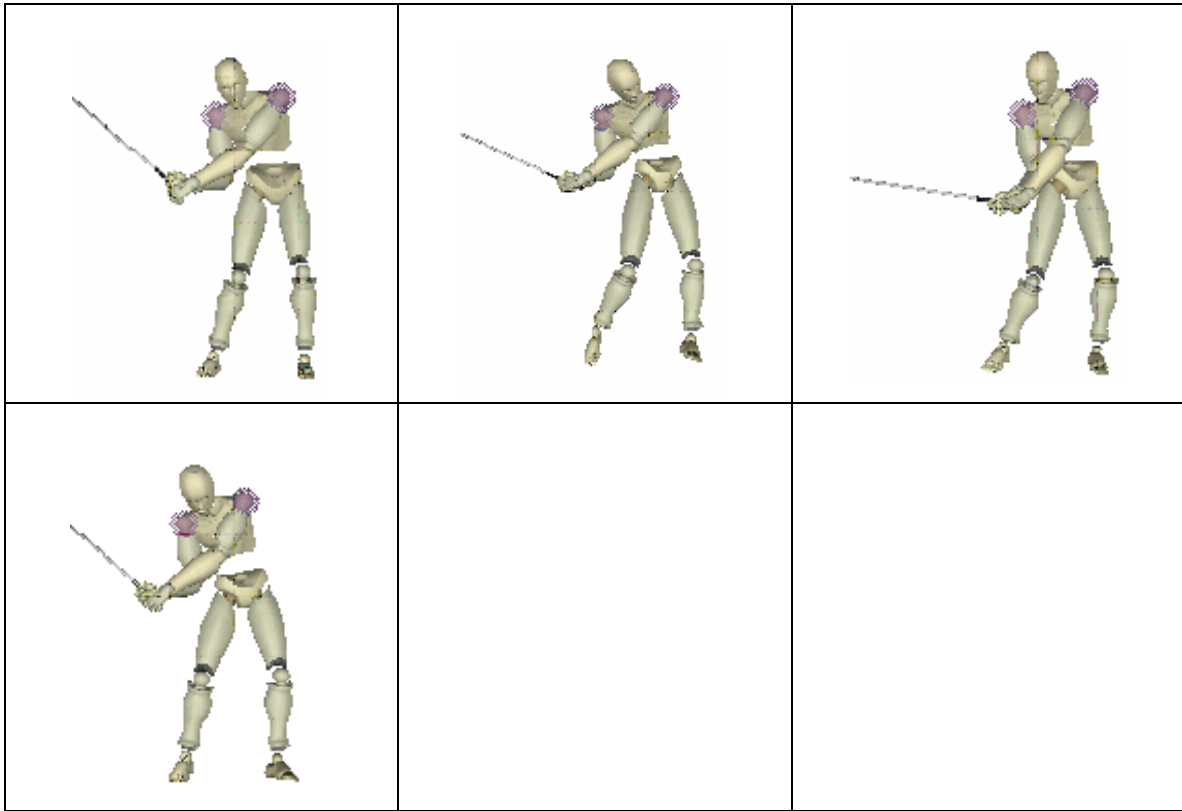


Next group is on the next page.

This next group has the club shaft a little past vertical and the arm is around 30 to 45 degrees below parallel



These last four have the latest point of peak pelvis speed and hence a larger more released wrist angle. These four guys are not the longest hitters on the tour.



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