

Dynamic Movement Screening and Motion Capture

Digital technology and modern software applications have made motion capture available to all. Once the preserve of sporting institutes and media corporations, it is now being used in clinical, coaching and educational environments, and has a varied range of applications within these fields.

A motion capture system is an ideal tool to accompany a dynamic movement screening (DMS) process.

In our own dynamic screening manual we impress that the system is a much more functional approach to neuro-musculo-skeletal assessment. More traditional assessment techniques have tended to employ isolated regional testing procedures of length, range and strength. Although useful, given that the motor cortex, body and environmental need deals primarily in movement patterns, the information gained may not always tell the full picture. Another option is to base our assessment upon breaking down and observing movement in common patterns that are fundamental to life. We can become familiar with observing and testing movement in this way, and we are better able to appreciate the asymmetries and imbalances that may exist and contribute to the development of poor performance, discomfort and injury.

In reality this is not always as easy as it seems.

Even quite simple full body movements will demand a complex interplay between the whole “kinetic chain”... put simply, there is a whole lot going on even in a basic movement such as a squat. Our manual and system hopefully simplify this process of movement observation and gives a structure to potential interpretations. However, other opportunities arise if this knowledge is combined with digital motion capture.

Live screening can provide a wealth of information, and reveal areas of strengths and weaknesses that can be acted upon. However the option of capturing this live motion, and then being able to manipulate it for further analysis can enhance this process.

- Real time, slow motion and frozen motion is instantly available.
- Comparison, split screening, etc reveal progress and changes instantly.
- Measurement tools give new insight into movement contributions.
- Drawing tools aid interpretation for both the observer and the observed.

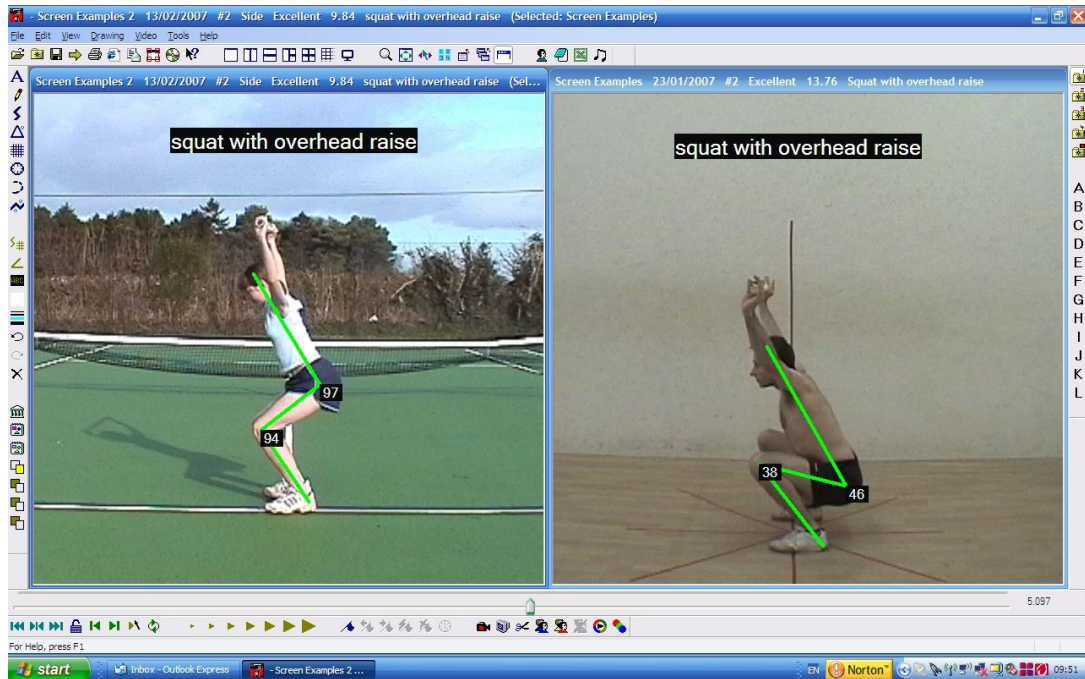


fig 1

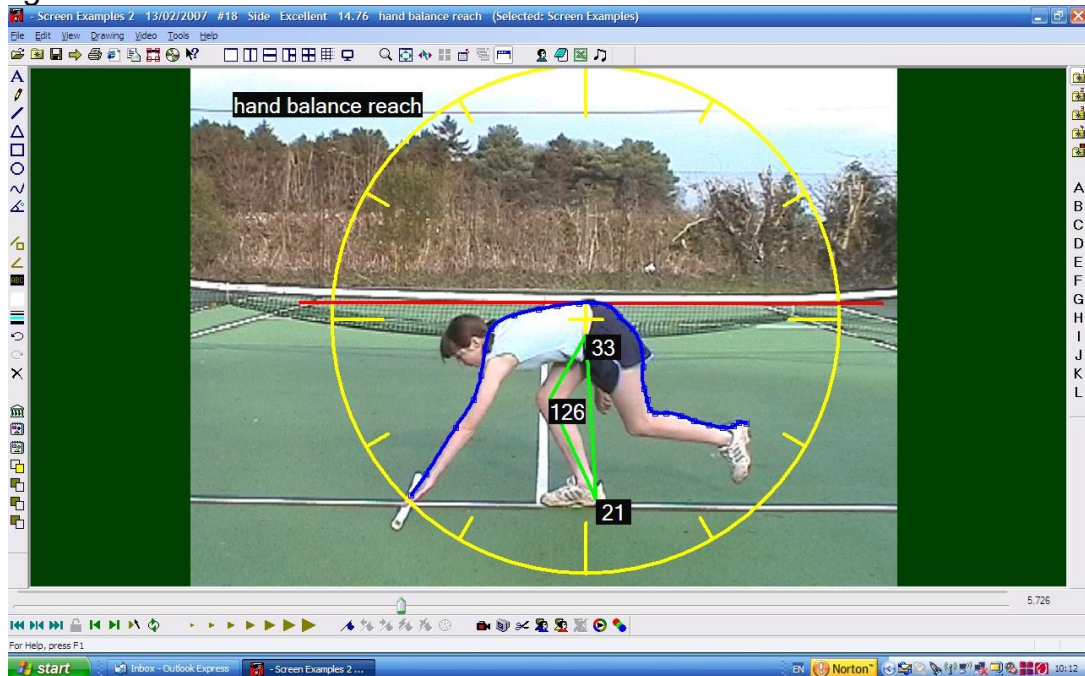


fig 2

Screen captures from a typical motion capture application.

Figure 1 shows a simple split screen comparison of two very different squat screen presentations.

Figure 2 shows how measurement tools and drawing overlay tools can offer a more “quantifiable” option to the essentially qualitative practice of movement screening.

Of course the captures can then be archived as an unequivocal record of presentation and progress, rather than trying the clumsy and ineffective alternative of trying to record movement on paper.

Motion capture can support the working practices of Dynamic Movement Screening from day one:

- We use the “Sports Motion” system in our presentations on our ratified DMS courses, “Ubersense” with IOS and “Coaches Eye” with Android. It helps to show why we have chosen the movements we have, and is a fantastic educational tool to help our students to become familiar with screening interpretation.
- We recommend that our students continue this where possible, especially when first using screening in practice. The motion “breakdown” encourages the new practitioner as it gives a comfort zone where potential dysfunction that may not have been observed “live” is revealed by using the software or apps.
- Captures can be shared and compared for inter professional dialogue, and of course with the client/athlete being screened. A client can actually see how they move, and understand why there is potential to make changes.
- When working with some clients reviewing captures becomes a vital tool. Clients often tell you that they feel like they are moving better, but if they can also see these improvements in a format that can be manipulated so that these observations are made instantly and easily recognisable, then the whole training or rehab process becomes more successful.

Within the fields of training, rehab and physical education, all tools and techniques are used selectively. It is quite possible to use DMS within your working practices and choose not to ally it with motion capture, likewise there are many establishments that have been using motion capture for performance and technical analysis, yet not incorporated it within their neuro-musculo-skeletal assessment. Even when familiar with using DMS and capture together you will still choose to use it selectively, however having the option, and being familiar with its overwhelming benefits to “best practice” will provide trainers, therapists, coaches and teachers involved in movement assessment a useful tool.

