

## Sports Science Article

STOP PRESS: North Shore C Grade Tailender found to have Bradman like reflexes!

What does it take to be a Don Bradman, Brian Lara, Sachin Tendulkar, or even a Kevin Pietersen (couldn't resist!). How do these immortals take on 90 miles an hour bowling and dispatch it to all parts? Surely they have the reflexes of a cat? From the time a fast bowler lets a ball go to the time it reaches a batsman is just under half a second. In that time, all batsman go through the same process whether they are Bradman or Lumley.

The stages are straightforward:

- Firstly, perception.....the physical reading by the eyes and transmittal to the brain.(ie reading the delivery)
- Secondly the receiving and interpretation of that information (a complex process inside the brain consisting of many sub stages).
- Thirdly, the decision as to what to do with that information. (shot selection, another complex process)
- Fourthly, the initiation and execution of the decision (ie.physical playing of the shot).

Most people assume that that the great players in all sports are great because of exceptional reflexes, the so called 'great eye'. In fact this is not the case. A test carried out on Don Bradman in his heyday showed that his pure reflex response was no more than average. Similar tests were said to be carried out on Bruce Lee in the sixties – now that guy would have made a great batsman! Interestingly, in terms execution of a physical act, Bradman, Lara and Tendulkar are or were reasonable athletes but nothing to set the world alight.

But what the greats have developed is excellence in reducing two stages down to a minimum.

1. The decision time on receiving of the information.
2. The initiation of the muscular movements.

How the greats have reduced these two aspects of time provide some key messages for all of us no matter what level we play at. Lets look the four most important ones:

1. Practice the decision process! – Practice is not only about co-ordination, it is about rehearsing the decision making process. In the nets, you can be more aggressive than you would normally be in a match but if you play different shots then you are developing two separate decision making processes and the one you bring out in a match will be no more developed than it was the previous match. This is not the same as varying your aggression...with the same array of shots, you can be more or less aggressive. Practice not only improves the decision process but optimizes the way that the nervous system co-ordinates the muscles – the so called synaptic response where the brain plays a reduced role in the decision process.

2. Choice reduction – the brain functions much better with a limited array of choices. Many of the greats have become that way by removing shots from their game, not adding them. Having a smaller range of shots reduces the amount of sifting of information the brain has to do when looking at its shot menu.
3. Pressure, tension and the mind – the effect on the body's systems. This affects both of the stages above and scientifically has a greater impact on the whole process than anything else. When a batsman goes to the wicket, he often feels nervous. This nervousness is the so called "fight or flight" response that is part of the human anatomy. Temperature rises, glands accelerate and a whole heap of chemicals are released into the blood stream, most pertinently adrenalin. Using this feeling positively is what helps the great players and allowing it to control you is what prevents people reaching their potential. Everybody can practice controlling this but to master it takes time and effort – if you want to be better at controlling it, raise the pressure of your net sessions by setting yourself goals, imagining that you are in a game or by telling the clubs fastest bowler to stick it up you (I'm serious here).
4. Pressure, tension and muscles – the most common physical result of this for batsman is over tensioning of the muscles. Limb muscles are formed in groups and each group has both an antagonist and an agonist that work in opposite directions. When a batsman is unable to control his adrenalin, he will overgrip the bat. While the muscles for this are contained in the wrist, the effect of such an overtightening extends through the forearm affecting the bicep/tricep combo and all the muscles surrounding the shoulder joint. This tension slows down the muscular initiation considerably – a boxer needs a loose hand to throw a jab and tension only enters the arm once the punch is on the way – the same is true for batsmen.

## **Conclusion**

The process of becoming a world leading batsman often starts at a very early age and no amount of practice for some older people is going to open up a new career in test cricket but we can all improve our response by the following actions:

Practice – practice how you play...don't develop one array of shots for the nets and another for the game.

Pressure and tension – learn to control it when at the crease through deep breathing and keeping your feet moving. Relax, enjoy your surroundings, think positively.

Pressure and tension – loosen that grip a little! How many times to players recall 'The zone'? It is no coincidence that this is when players feel most relaxed and allow there muscles to move optimally.

Watch the ball onto the bat – you don't need to be a sports scientist to figure this one out – you'd be surprised at how quickly and late you can react and watching the ball onto the bat ensures you can use all the other skills you have developed.