Poor decision making

Horseriding – jumping a two-stride double combination

**-Jumping a two stride Double Combination**

**C1: Cause – Poor decision making**

For this particular skill when jumping a two stride double I lack in decision making skills which means that I get left behind on the second fence due to inefficiently judging the first fence. Memory is first used to identify a stimulus that comes from sense organs; the next stage in information processing is to make a decision about how to respond to the information that has been received. This is the response selection stage. This stage begins when the stimulus identification stage provides information about the nature of the environmental stimulus. The response selection stage has the task of deciding what movement to make given the nature of the environment. This is known as schema.

This is where the choice of what movement to do is made from a store available. These types of decisions are a part of the central mechanisms in the information processing model and consist of lots of processes which, when put together, make decision making.

Decision making can also be called the translation process. It has the idea that until one stimulus has had a decision made about it, another cannot be acted on. This idea is the single channel hypothesis. Although we can pick up many stimuli at once, we can only process one piece of information at a time. If I am in the middle of processing a stimulus when a second stimulus is received, it must wait until I have finished processing the first piece of information before it can be acted on. This delay in processing causes my reaction time to increase and this is known as the psychological refractory period. There is a delay as the brain has a limited capacity to deal with processing information and so it cannot produce a response to any other stimulus. An example of this is when I am jumping over the first phase of the two strided double. Once I have landed after the first element of the double, I am not always quick enough in sitting up. Therefore my first piece of information that I am dealing with is the stride into the first jump and preparing to fold. As the single channel hypothesis states I cannot focus on the second stimulus (sitting up) until the first stimulus (going into folding position) has been dealt with. This delay in processing, when sitting up after the jump, causes my reaction time to increase (this is my psychological refractory period) allowing my horse to get away from me on landing. Another example of this is as I come around the corner on the approach to the double, I do not always look at the first fence but the second. This means that I process the second element of the fence before I process and focus on the first fence. This means that I cannot set my horse up whilst keeping it between my hand and leg, again causing me to get left behind and not sit up quick enough when my horse lands. This means that my approach is not straight as I’m not looking for a straight correct line into a fence.

My decision making process can sometimes get overloaded as there are too many stimuli to think about e.g. where the first jump is, the stride into it and preparing to fold. This means that sometimes my reaction time can be slow e.g. when sitting up and regaining contact. The level of my knowledge of the related cues and my ability to detect these cues early influence the time I spend making a decision. A reason why Ben is better at this than me is because I am trying to take in too much information at once and so this means that my decision making when jumping a double is slow – information overload. As the number of choices increases, so does reaction time and this is Hicks Law. The more choices available, the slower my choice reaction time will be. This is linked to the idea that I won’t be as effective at ignoring the distractions around me like Ben (selective attention) meaning that I will have additional stimuli to consider. Selective attention is the process of picking out and focusing on those parts of the display that are relevant to our performance, it is basically the filtering process.

The time I spend making a decision is called my reaction time and this is a component of the decision making process. It is measured from the point in time from when the stimulus was given to the point in time where my response is initiated (the time taken for me to process stimulus information). My reaction time will be mostly genetically determined, however, it can also be impacted by the uncertainty of the skill i.e. a lack of knowledge – not knowing the stride into the double. The intensity of the stimulus (selective attention), previous experience (the experience of a skill of jumping a double will speed up my reactions), number of choices (the more choices that I am presented with the slower I will react i.e. Hicks Law, stating that the more choices that are available, the slower the choice reaction time) and anticipation (predicting the number of strides into the first fence, will decrease my reaction time) will all impact my reaction time, along with gender and age as males tend to have faster reactions and reaction time will decrease with age.

The time from when a movement is initiated e.g. going into a jumping position over the first fence, to the point when the movement is completed e.g. sitting up after the first fence, is the movement time. This is determined by my muscle fibre type and my strength, along with the stage of learning of my motor programme being used. I am slow at sitting up after the first fence due to my poor decision making as I am focused on too many stimuli. My movement time isn’t a component to worry about, however, my reaction time will be slower, therefore meaning that my response time will also be slower e.g. Reaction + Movement = Response.

Reaction time is made up of choice and simple reaction time. Choice is the time that I will take to respond correctly from a choice of many stimuli, when each one demands a different response, e.g. when riding the two strides in the double, deciding whether to push on or half halt to make the strides and distance to the second fence. Simple is much quicker and is the time taken to start a single response to a single stimulus.

Another component affecting my decision making skills is my anticipation which increases my reaction time as I am unable to anticipate the strides coming into the double, often causing me to get left behind when my horse jumps as I fold too late. A skill performer like Ben always appears to have more time when he is riding a double. This is because he uses his past experiences to anticipate what is going to happen and processes information before it is going to happen – saving time. Spatial anticipation is when a performer programmes a pattern of movements prior to the movement being needed. Temporal anticipation is when the performer predicts what is about to happen. Anticipation will give me more time to complete a skill.

## C2: Corrective measure – Improved selective attention

My lack of decision making skills can be improved by several factors. One is by improving my selective attention which will improve my reaction time, improving my decision making. The whole point of selective attention is to selectively attend to the most appropriate stimuli; if I can improve this it will make my performance much better. Also this could be improved by practicing jumping a double with more distractions than I would have in a competition. This also links to the DCR process which consists of the detection of the environmental stimuli, the comparison with information stored in my memory and the recognition of the environmental stimuli. By improving and speeding up my DCR process it will allow my decision making to become quicker reducing my reaction time, as I will be able to detect, make the comparison and recognise the correct response for the environmental stimulus (jumping a double) quicker.

The decision making process can be made more efficient if tasks can be dealt with one at a time, without clogging up the ‘system’. I can improve my selective attention through practice. Experience of jumping a two strided double will help me to pick out the appropriate cues from the display e.g. the stride count, when to go into my jumping position and when to sit back up after the fence. My coach can help me with this by assisting in this process by making the cues more obvious. The more that the cue stands out, the more it will attract my attention. Likewise if the cue is more distinct and unusual the more likely I am to attend to it e.g. by counting the strides out aloud. The more colourful the jump is will help as it will contrast with the background and so will be easier to focus on and identify. My coach can therefore help my selective attention by highlighting the cues when jumping a double and by pointing out my attention to the important cues, so that I am not focused on unimportant factors. I will be able to identify cues quicker if I am expecting those cues.

Improving my anticipation will improve my selective attention and will decrease my decision making time, making my reaction time quicker. My coach can help me further by directing me to the correct cues but also by encouraging me to ignore distracting stimuli e.g. the crowd, or inappropriate stimuli e.g. the other fences, that are unnecessary. As my skill level increases, outside interferences to my decision making will be ignored. These accomplishments can be achieved through physical practice i.e. keep practicing over two strided doubles and also mental rehearsal i.e. going through the process of jumping a double and counting the strides in my head. The more alert, motivated and aroused I am the better my selective attention will be, helping my reaction time to sitting up and riding the correct stride to increase.

Improving the speed of my decision making process is very important as it will help to improve my speed of thought allowing me to make changes in my horse’s stride in time for the next phase of the double. Like selective attention, the best way of improving my reaction time is through practice. This will give me the experience of detecting cues earlier and so speeding up my decision making process which will allow me to sit up on landing. Practicing this will strengthen my stimulus response bond (making jumping a double become grooved in my memory). Anticipating the cue will provide me with a warning signal that something is going to happen and this will improve the expectancy of this signal which means I will no longer have to concentrate on other cues, therefore improving my reaction time. There are limits to reaction time, as reaction time will deteriorate after a certain age. A heightened sense of expectancy will lead to me having higher arousal levels and this will improve my reaction time, along with selective attention, as mentioned above. The expectancy can also come from me mentally rehearsing the double. More practice gives more knowledge which in turn reduces uncertainty and reduces reaction time. The practice that I undergo must be realistic and varied to allow achievement and prevent boredom.

Rugby – side tackle

**C1-Slow response times during side tackle**

One of the main reasons why I am not able to complete the side tackle effectively is due to my slow response times. By improving my response times I can concentrate in more depth on my tackling technique, especially where to place my head during contact. The equation for response times is reaction times + movement times= response times (*diagram 10*)

The more experienced the performer, the more likely they are to have quicker reaction times compared to a beginner; this is because elite performers are able to anticipate where the opposition will be and where most of the action is likely to occur. There are three types of anticipation; they are effector, perceptual and receptor. Effector anticipation is the way that the pitch plays, for example if the forecast is wet, practising in wet conditions as they will be slower and muddier or if the environment is hot, practise indoors and on sprinting as the ground is likely to be fast. Perceptual anticipation is gaining prior knowledge of an opponent; for example if an opposition player such as a scrum half is known for making breaks around the breakdown ensuing that I am closer to the ruck so the player can’t break through. Receptor anticipation is picking information up throughout the game such as hand position when passing or types of breaks and passes throughout the game; by gaining knowledge in these areas I can anticipate where the opposition are likely to be so I can make the tackle easier. All of these factors are dependent upon experience, in particular, receptor anticipation.

Information processing is used when making decisions; we don’t simply do skills, we base our decisions according to the changing environment. In brief information processing consists of three different stages which are input, decision making and output.

*Diagram 10: Model of information processing*

All information is gathered from the environment around me; this includes both relevant and irrelevant information. All five senses are used in gathering different information; vision, touch, hearing, kinaesthetic and balance. Before the information from the display can be used and sorted all the stimuli must be processed; however this can often be a slow process, explained by the single channel hypothesis. The single channel hypothesis shows that all information travels down a single nerve, essentially a single channel. The brain however can only process one stimulus at a time so before the second stimuli can be processed it must wait for the stimuli before to be processed; this can cause a bottleneck and results in slow information processing and therefore reaction times. A further expansion of the single channel hypothesis is the psychological refractory period (PRP). This model suggests that if a second stimulus is presented before the first stimulus is processed it will cause a delay as all information is processed down a single nerve. It will slow down the time it takes for the response to occur, which is the final stage of information processing.

It is impossible to pay full attention to all the information we receive, a mechanism called selective attention (*diagram* *11*) is used, this is when the irrelevant information is filtered away so you are only left with the relevant information. The more experienced the performer the better their selective attention as they have had more practise in filtering the information due to being exposed to more game scenarios whether in matches or training. The relevant information that is left from selective attention can then be coded; from this you base all subsequent decisions. The coding of the information is known as the DCR process:

*Diagram 11: Selective Attention*

1. Detection
2. Comparison
3. Recognition

Detection is registering the relevant stimulus by the sense organs; comparison is comparing previous information stored in the long term memory to compare this against the presented stimuli, finally, recognition is finding the corresponding stimuli in memory. If I have more experience then I will be able to go through this process faster and more thoroughly. The more memories/information I have the faster I will be able to detect, the more chance of finding the most appropriate memory in my long term store, which leads to me being able to react to the situation quicker and with more success. This will also help the quality of my motor programmes.

There are further influences on reaction times, these include the intensity of the stimulus, gender (men have quicker reaction times but then lose them faster), the fitness of the performer as they have reduced response times and other illegal methods such as taking performance enhancing drugs increases reaction times.

As well as reaction times, movement time must also be reduced if I want to increase my response times; as movement + reaction times= response times. For this I have to improve my physical fitness levels, most importantly speed, power and cardiovascular endurance. Both this and reaction times therefore need to be improved on, there are a variety of different techniques which can be used for help this.

**C2- Techniques to improve my response times**

There are many different techniques I can use to increase my overall response time. For the best success the techniques will cover both reaction time improvement and also the decrease in movement time.

To improve/decrease movement time I will have to improve my physical fitness; in particular speed and power. The best training method for this would be fartlek training; fartlek training is a Swedish term meaning ‘speed play’ and is a form of interval training, it further encompasses changes in speed and also cardiovascular endurance. Fartlek training is applicable to rugby as one moment I may be involved in a sprint to a tackle, followed by a jog to a ruck on the other side of the pitch, then a sudden sprint to make another tackle. Along with improving my aerobic fitness the sprint training will help recruit fast twitch muscle fibres which will increase the power in my legs and increase the speed I can travel across the pitch. As well as the movement aspect of fartlek, incorporating game specific activities such as tackling a tackle tube, quick press ups or side rolls (as if rolling out of the ruck) will make the training more exciting but also make the activity more applicable to what would happen in a side tackle.

This is an example of a fartlek training programme which could be used in my training; I would complete this 5x at the start then 5 times at the end of a training session:

1. 20 metre sprint, followed by hitting a tackle tube
2. 20 metre jog, followed by 3 fast press ups
3. 20 metre walk
4. 20 metre sprint, followed by 5 sit-ups
5. 30 second rest

Before committing to activities which aim to improve reaction times it is also recommended that the performer is at optimum arousal levels; this means even if it is a training situation. According to the ‘Inverted U Hypothesis’ (*covered fully in later section*) each performer has their own level of optimal arousal where they perform better.

Practising the targeted skill in training helps improve the chance of success during a game scenario. By practising and repeating the side tackle I will create motor programmes stored in my long term memory which I can use in the game, and will know what the ‘perfect’ image looks like. This means when I do the skill in game play I won’t have to think about the parts as much because they will be already learnt. The only limitation with motor programmes are they are hard to use in open skills as the environment is constantly changing and is the not the same scenario to scenario. What it will help me do is help reacting to different stimuli of which I can store in my long term memory for when I need it. Schmidt’ schema theory suggests that identical skills can be used in different sporting contexts as a performer has developed a set of general concepts allowing skills to be adapted to suit the situation. Once again, experience is vital for schemas to work as this is how they develop. Recall schema is the initial conditions and response selections from the four overall steps of schema development. Initial conditions are pieces of information gained from the environment whilst response selections are deciding on the response based on the result of the initial conditions. The more experience I have in practising this, better the outcome is likely to be, as I can compare deeper into my long term memory stores. As well as this, breaking the skill down into its different components helps the rehearsal of the overall skill and will also help improve my movement time. Side tackles do not necessarily happen as a single phase, they can often occur after a previous tackle where I would be on the ground. Therefore getting off the ground, getting into the required sprint speed and then executing the tackle are all parts of the tackle. The whole-part-whole method will be a good method to use. At the start I will attempt the complete tackle, and then focus on the particular parts of the tackle before putting it all back together as the whole skill once more. Even if I improve the speed, accuracy and motor programmes of each slightly, it will all add up to both increased speed and quicker reaction times.

When information is received from the display organs, the irrelevant information needs to be filtered so I end up with only the relevant information I can use. This however can be tricky as all stimuli are processed down the same single nerve, single channel hypothesis. If I can manage to improve my selective attention, so that I take less time to process the information, I will end up being able to process more information which may help me improve my overall play and especially the side tackle. The only real way to improve selective attention is to put myself in as many relevant game scenarios during training so I have practise in doing so. A range of drills helps increase motivation and avoid tedium. Being task rather than outcome orientated helps focus in greater depth; thinking about the score or how I look compared to others are common distractions. The outcome only improves when you ignore it and attend to the immediate needs and circumstances. Matches can be very different to practise sessions, I often come fatigued or tired during a game where I wouldn’t in training. By practising selective attention when fatigued or in discomfort in training will be advantageous for when I become fatigued in the game, as I have practised the situation before so will make fewer mistakes.

Improving my response times will not only help me for the side tackle but also different aspects of the game resulting in more chance for turnovers as the opponents are on the floor. Also when my response times become reduced, I will save energy that can be used for the rest of the game due to not being as physically tired or mentally tired due to more efficient processing of irrelevant information.

Volleyball – Tipping the ball over

**C1- Poor Decision Making – the cause**

For this skill my main weakness is my decision making skills. When trying to identify the different stimuli that come in from our sense organs, we use memory. This stage is known as detection. The next stage of this process is information processing and this is what helps us make a decision on how we respond to the information which we have taken from our environment. The next stage is response selection. This begins when the stimulus identification stage provides the information from our different stimuli. Then the response selection stage has the task of deciding what movement we need to do after observing what is going on around us. This is where the choice of what movement we do is made available from our long term memory store.

Output

Response programming

Response selection

Stimulus

identification

Input

In that process we need to pick out and focus on the parts of our display that are relevant to my performance of the specific skill. This is known as selective attention. If my decision making process gets overloaded because there are too many stimuli to think about e.g. where is the ball being played on court?, is it being played to me?, or do I need to cover?, am I going to spike or tip?, etc. I need to be able to filter all of that information, so I can identify what is relevant and this is where my selective attention comes in. My level of knowledge and related cues and my ability to detect them early influence the time I will spend making a decision. One of the reasons this is a weaker skill is because I am trying to take in too much information at once and so this means that my decision making when changing from a spike to a tip is slow.

During perception and when the identification of the stimuli occurs. This has three main elements known as detection, comparison and recognition (DCR). Together this makes the DCR process. The process involves detecting the stimulus by the sense organs from my environment (detection), comparing those specific stimuli to the information stored in my memory (comparison) and finally recognising corresponding stimuli in the memory (recognition) and then carrying out an appropriate response based on feedback from my previous experiences.

As previously mentioned, the Comparison and Recognition stages of the DCR progress need previous experiences to be effective, it is therefore obvious that Memory plays a major part in decision making speed. Memory is mainly regarded as storage, where we hold our information with a set of processes that act on what is in the stores. The three main stores are short-term sensory stores, short-term memory and long-term memory store. The short-term sensory store has a large capacity but it is a temporary store for all of the information coming in from my environment e.g. team mates, ball, the court, net, opposing team, and referee. All of the information that I take in from the environment will automatically go into my sensory store before it goes through the process of selective attention. When the relevant information is found after going through selective attention it will be encoded (storing the information) into the short-term memory. The short-term memory is also known as the ‘working memory’. Only the information we have paid attention to will move into this memory store. Therefore, it is important when carrying out my skill that my attention is maintained whilst performing the skill e.g. keeping my eye on the ball. If the information is paid attention to it will go into the long- term memory. However, where this becomes my weakness is I don’t have many past experiences of this skill stored in my memory; therefore, this will affect my performance of this skill.

My decision making time can be improved by practice, and this can be speeded up through the help of my coach, as he can help identify the relevant ‘cues'. In this skill my action depends on how fast my decision making process is. The time I spend making my decision is called my reaction time. Reaction time is measured from the point in time from when the stimulus is given to the point in time where my response begins. My reaction time is genetically determined. However, it can also be affected by my uncertainty of the skill e.g. a lack of knowledge. Response time is reaction time added together with movement time. Movement time is the time taken from the start of the response of the movement to the end of the movement and response time is the time taken between the stimulus and the reaction.

Movement Time

Reaction Time

Response Time

Another factor affecting my decision making skills is my anticipation which increases my reaction time as I am unable to anticipate always where the ball is going to be played to on court. Whereas someone who is more advanced will always appear to have more time when they are preparing for an attack as they have already realised the ball is coming to them. This is because they use their past experiences to anticipate what is going to happen and processes information before it is going to happen – saving time. Spatial anticipation is when a performer programmes a pattern of movements prior to the movement being needed. Temporal anticipation is when the performer predicts what is about to happen. Anticipation will give me more time to complete a skill along with all the different factors which go along side decision making.

**C2- Corrective Measure- Decision making**

There are many ways to improve my decision making skills. One way of improving my decision making would be by refining my selective attention and this would then lead on to decrease in my reaction time. The reason we have selective attention is so that we can selectively use and find the most appropriate stimuli and avoid overloading; if I can improve this it will hopefully make my performance much better. The decision making process can be made more efficient if tasks can be dealt with one at a time, without clogging up the ‘system’. I can improve my selective attention through practice. Experience of where the ball will be played and the formation of the opposing team will have me pick out the appropriate cues from the display e.g. are the opposing team defending through position four or are they expecting the tip. My coach and teammates can help me by making the cues more obvious, for example if the setter is going to play the ball to me she calls my name. The more the cues stand out, the more it will attract my attention and hopefully have an improving effect on my selective attention. Likewise if the cue is more distinct and unusual the more likely I am going to pick it out and focus on it e.g. by shouting for the ball or the ball being played with at training is bright and colourful. This will help as it will contrast with the background making it easier to focus on and identify. My coach can therefore help my selective attention by highlighting important cues, so that I am not focused on unimportant factors. I will be able to identify cues quicker if I am expecting those cues. Also I could get my coach to create different distractions to help refine by selective attention therefore when I come to match situation I have experience different stimuli which I know to filter.

Another way in which I can improve my decision making skills is by gaining more experience. This can be done by mental rehearsal. After I have carried out a training session I can run this specific skill and timing of when to use it over in my head to hopefully encode it into the long term memory. This will help me in my game because when it comes to the DCR process I will be able to have past experiences to compare it to, which overall will help speed up the process and enable me to perform this skill more successfully.

Improving my anticipation will improve my selective attention and will decrease my decision making time by making my reaction time quicker. My coach can help me further by directing me to the correct cues but also encourage me to ignore distracting stimuli e.g. the crowd. As my skill level increases, outside interferences to my decision making will be ignored. These accomplishments can be achieved through physical practice. For example, keep practicing my run up, technique and placement on court along with mental rehearsal i.e. going through the process of tipping, in my head. The more alert, motivated and aroused I am the better my selective attention will be, helping my reactions to deciding whether to tip or spike to increase.