

Syllabus for the *Biomechanics Module* of the Advanced Coach Certificate



1.0 Introduction to the RDA Advanced Biomechanics Syllabus

Biomechanics is: the study of the mechanics of a living body; equine and human, and the influence of internal and external forces and the impact on form and function.

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Topic	Learning Outcome	Content	Examples of proficient ability
1.0 Day One - The horse			
1.1 Explaining what is meant by biomechanics for both horse and rider.	The coach is able to understand how the horse's body works and what influence the rider has on the horse and its way of 'going'. The coach will be able to assess a range of horses with particular emphasis on how conformation affects the soundness and strength in the role of an RDA horse.	<ul style="list-style-type: none"> • Talk about biomechanics and the relevance to the RDA horse & rider • Theory session: looking at horses conformation both static and dynamic in the classroom. • Practical – small groups go out into the arena with checklists to discuss and assess different horses 	Coach needs to have a good understanding of muscle development and identify good and bad development. A deeper understanding on how a horses' conformation can be good for one rider and not another.
1.2 Movement	Focusing on the horses way of going in relation to his conformation, age and stage of training. The coach will be able to reference different training techniques which will improve the horses strength and way of going in order to carry a range of riders.	<ul style="list-style-type: none"> • Work the horse in hand in walk and trot • Be able to analyse and make constructive comments to peers • Lunge the horse in walk, trot and canter using appropriate equipment. • Talk about other training aids (such as the pessoa or chambon) • Introduce lateral work 	Recognise lameness and its different causes. Show an understanding of correct way of going and to be able to recognise a horse using its body in a gymnastic way. Understand how the riders ability will impact on the horses movement being blocked or tense, relaxed and forward. To use a flexible approach in the training of the RDA horse by recognising the suitability for a particular role and able to discuss the training needed to make the horse fit and able to carry out that role.
1.3 Horse and rider selection	The coach should be able to choose the most appropriate horse for the rider. The coach should also check that the horse is fitted with suitable tack for the rider	<ul style="list-style-type: none"> • Look at different types of horses and assess for riders with different abilities. • Make sure the horse is sound, assess horse – is it a 'back or leg mover'. 	Identify the suitability of the horse for a role within RDA.

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	which does not inhibit the horse in any way.	<ul style="list-style-type: none"> • Make sure the horse's tack is suitable • The horse's temperament: check reactions to stimuli. • Talk about the forward training of the horse to improve its way of 'going'. • Check ability to give constructive advice. 	<p>Demonstrates an ability and knowledge when checking all equipment for fit, safety and suitability.</p> <p>Appreciates the importance of temperament of the horse for an RDA role.</p>
1.4 Reflection	Coaches should be able to use techniques discussed.	<ul style="list-style-type: none"> • General discussion about the day. • Learning resources. 	Able to reflect and join in discussion on biomechanics and understand the significance of maintaining a healthy fit equine workforce.
2.0 Day two – The Rider			
2.1 Human Development – why the early years are important	Deeper understanding of human development and the relationship between structure and function. How changes to the neurological and musculoskeletal systems can impact on participant performance.	<ul style="list-style-type: none"> • Overview of child development • Key features of frequently seen medical conditions in RDA. • Awareness of the difference between congenital and acquired medical conditions. 	<p>Be able to describe the key features of early development and how this can be affected by a medical condition.</p> <p>Have good working knowledge of the key features of frequently seen medical conditions in RDA and the likely impact on performance. Be able to describe the difference between a congenital and an acquired condition.</p>
2.2 Factors affecting activity selection and progression	Use their knowledge of neuro-typical and atypical development to establish whether riding, driving, vaulting or hippotherapy is advised. Show awareness of factors that may limit progression. Understand fundamental biomechanical principles, which underpin riding.	<ul style="list-style-type: none"> • Demonstration using a mechanical horse to show how balanced a rider should be in order to pursue riding to certain level • Demonstrate effective techniques to help a rider achieve a balanced position on the mechanical horse • Explain key points in an understandable way using a range of effective techniques and appropriate equipment 	Coach should be able to deliver a session on a mechanical horse with the balanced rider being the main aim – they should show a clear understanding of what they are seeing, looking for and how to improve balance and position. Be able to clearly describe the optimal riding position and evaluate the impact of alteration to this position and the relationship to rider biomechanics.

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2.3 Rider Assessment	Have a broad knowledge of social, emotional and physical difficulties and the influence on RDA activities. Know when to seek additional professional help and how to give appropriate advice to a rider.	<ul style="list-style-type: none"> • Use the Group pre-riding assessment form effectively • Identify key points and construct an agreed plan with a rider • Identify areas where you would need to seek help from another professional 	Make decisions based on experience but recognise when to seek advice. Show that this is preferable if ever there is doubt. Agree realistic goals for riders and regularly assess progress and achievements.
2.4 Horse and Rider Outcome	The Coach will know the correct aids for basic lateral movements and any artificial aids a rider may need.	<ul style="list-style-type: none"> • Individual session x 2 working with a physiotherapist and Trainer • One session with a therapeutic rider and another with a competition rider • Trainer will provide a session plan which will have been drawn up with the rider beforehand (which may be adapted as per the rider on the day) • Trainer will talk about further possible goals for the rider to aim for • Look at the rider's aids and effectiveness • Discuss aids for lateral movements and common mistakes • Aim to have relaxed rider and horse throughout the session with clear messages for the rider 	<p>Show an appreciation for the difficulties encountered when combining two biomechanical systems.</p> <p>Be able to discuss ways forward to improve the horse/rider combination with reference to using lateral work to develop the athleticism of the horse and co-ordination of the rider.</p> <p>Enhances the riding session by goal setting to measure progress and improvement.</p>
2.5 Feedback and Reflection	Coaches will have a broader understanding of horse and rider biomechanics, separately and harmonised. Each coach will leave with a development plan to research new learning techniques and develop their skills.	<ul style="list-style-type: none"> • Discussion in the classroom amongst the group about what has been learnt • Self-reflection and goal setting • Exchange learning resources 	The coach will show a keen appetite for life-long learning and will access conferences lead by other equestrian member bodies in order to fulfil continued professional development. The Advanced Coach will advocate best practice within their region and be available to give back as a coach mentor.

