
Performance Improvement: Energy Profile For The Sport Of Volleyball

Energy System requirements for success in the game

The energy systems are a type of energy that enable every cell, tissue and organ of our bodies to function properly and survive throughout the day. Without energy being supplied to the body through energy systems, our bodies would shut down and will not function properly. Our body works like a machine and like any machine it needs energy to power it in order for it to work. It is extremely important for a volleyball player to get the right amount of energy at the right time.

A game of volleyball lasts between 60 to 90 minutes which can be very intense and I will be talking about the functions of the systems that are required for success in a game of volleyball. Players involved in the game need all sorts of energy to keep them in the game and win the match. All three systems are used when playing a game of volleyball and all three play their own part. The ATP-PC and Anaerobic Glycolysis system are constantly being used and the Aerobic system is the dominant system being used.

ATP-PC system- This energy system provides the human body with immediate energy for a high intensity activity and a game of volleyball can be highly intense. The aerobic system produces the most ATP but it produces it slowly. The aerobic system uses fats, carbohydrates. To develop ATP PC system, it involves sessions of repeats up to 10-15 of maximum intensity activity. The ATP-PC system plays a huge role in a game of volleyball. The basic elements in a game of volleyball use the ATP-PC like, spiking, blocking and diving. All of these motions only last for a short 2-5 seconds when moving into positions and coming in contact with the ball. A player who has developed this system well will not struggle to spike and block.

Spiking in volleyball uses most of the ATP-PC system. Jumping high in the air and hitting the volleyball at the same time at a great force requires power. A player must use momentum in different steps to reach the net. All of this movement happens in around 3-4 seconds. The combination of speed and power when hitting the volleyball tell us the ATP-PC system is working.

Aerobic system- The aerobic system produces the most ATP but it produces it much slower. Human body can only use this fuel in low intensity exercises that are sustained over a long time like a game of volleyball which can last for 90 minutes. The Aerobic system uses fats, carbohydrates and proteins in order to produce most ATP. In volleyball, the aerobic system supplies the players with the energy that can be sustained throughout the whole game. A game of volleyball can last for several hours and the energy that is released by the aerobic system is slow and it enables a volleyball player to expend energy more slowly. The aerobic system also helps players with their recovery between points so the player is not fully tired.

The Anaerobic Glycolysis System- The anaerobic glycolysis system also known as the lactic system or the lactacid system. The anaerobic provides the bulk of ATP. Carbohydrates supply glucose that circulates in the blood and it can also be stored in your muscles and liver. The anaerobic glycolysis system produces more power than the Aerobic system but it produces less

power than the ATP-PC system.

Fuel for energy

We humans eat for many reasons, but food is fuel for our bodies and what we eat affects how energetic we feel throughout the day. An energy meal includes a mix of high quality carbohydrates for energy. Energy comes from calories in the form of glucose which can be found in carbohydrate containing foods and also from sleep. Energy balance can be achieved when dietary intake is equal to output total energy expenditure. A healthy diet must satisfy human needs for energy and all essential nutrients.

Carbohydrates is the main energy source which is used to fuel volleyball. When humans take carbohydrate foods, they are stored in the liver and in your muscles as a glycogen. The focus of the pre-match meal is to take a high carbohydrate meal which can be 2-3g/kg body mass so the energy is given slowly. It is important to start a match well fuelled and eating snacks like bananas, baked beans, fish, eggs and rice can give quick energy. Eating every two to three hours can help. Fats is related to the saturation of fatty acids. Saturated fatty acids contain all the hydrogen they are able to carry. Water can have major affects more than any other nutrients. It is important to drink water for formal cell function.

Heart rate and intensity

My heart rate and intensity can be improved. Intensity can be improved by training sessions. Exercise intensity refers to how hard you are making your body work during any type of activity. In a game of volleyball, intensity can be easily be improved. The easiest way to increase intensity training is to raise the tempo of your trainings and activities. Adding more drills in a game of volleyball can be important for developing habits and if players are focussed on the drill, they will improve their intensity and their ability to focus in game. The drills our class did helped me improve on my intensity because I was consistent with my spikes and setting.

Fitness testing

Not only skill is required in a game of volleyball because fitness plays a very significant part. To improve my game and be more successful, I need to improve my power and speed. A fitness component I could look at is strength and power in which I could do vertical jumping to improve my leg power because leg power is very important for vertical jumping to move around the court. Jumping is mostly required around the net to spike and block. When our class would do warmups for spiking, I saw myself and my friends jumping too early or too late sometimes which would send the ball flying out and sometimes not over. Speed and agility is the other component which can improve my gameplay. Many times I couldn't get to the ball when it was close to me and this is why agility and acceleration are important for moving within balance and also moving quickly around the court.