The intermittent nature of badminton makes it hard to determine exactly what is happening physiologically, because so much is dependent of standard of players, the type of game being played (attacking versus defensive), the duration of the play, coordination, mental acuity and the environmental conditions encountered.

Competitive badminton is ranked as the world's fastest racket sport, featuring shuttle-cocks zooming off the surface of the lightweight rackets at speeds approaching 200 miles per hour. Elite badminton players work at a high percentage of their maximal aerobic capacity (high VO2max) work at or close to maximum heart rate (especially in singles), but have only a moderate energy yield from the anaerobic lactic system. Relative low blood lactate readings during competitive badminton can be explained by the role of myoglobin in acting as a store of oxygen to provide energy and the oxidation of muscle lactate in the rest periods between rallies. The explosive jumping movements in badminton gain their energy from the breakdown of high energy phosphates (ATP and creatinephosphate).

Badminton at the highest level put a great demand on the strength and endurance of the legs. Muscle biopsies from the legs show that intensive training over the years result in an increase in the number and size of ST-fibres, and the size of FTa-fibres. The changes are highest in the racket leg, which is in accordance with the demands placed on the muscles during a game and a relative imbalance between the racket leg and the non-racket leg in girth, muscle fibre area, muscle fibre composition, capillarisation and oxidative enzyme levels, which means significant peripheral aerobic adaptations to the racket leg.

Elite badminton is an intermittent sport of high intensity with a high demand for endurance and strength performed by means of high central as well as peripheral aerobic capacity. However there are for both sports scientists and coaches several gaps in scientific literature to obtain a complete understanding of, how to monitor functional and efficient training loads. For instance, if the increased oxygen consumption in a match is due to aerobic demands of the game or contribution to recovery of the anaerobic energy systems, if Asian players are more successful in energy cost from rapid eccentric contraction followed by rapid concentric contractions and how badminton specific tests can be used.

REFERENCES