

What Is Your Player's Fuel Efficiency?

Fuel efficiency can mean more than just getting the most mileage from your car. Helping your players conserve valuable energy can also help them achieve optimal results on court. **By Sarah Morante**

We hear a lot of talk about efficiency but it's generally in relation to the kilometres travelled on that tank of expensive petrol. However, discussion of efficiency in tennis is far less common despite its significant impact on performance. The efficiency of a tennis player works according to the same principle as your car – the longer the player can work before becoming fatigued, the higher the efficiency. This has obvious benefits for both training and competition, and therefore efficiency should be considered by coaches as a method of improving a player's performance.

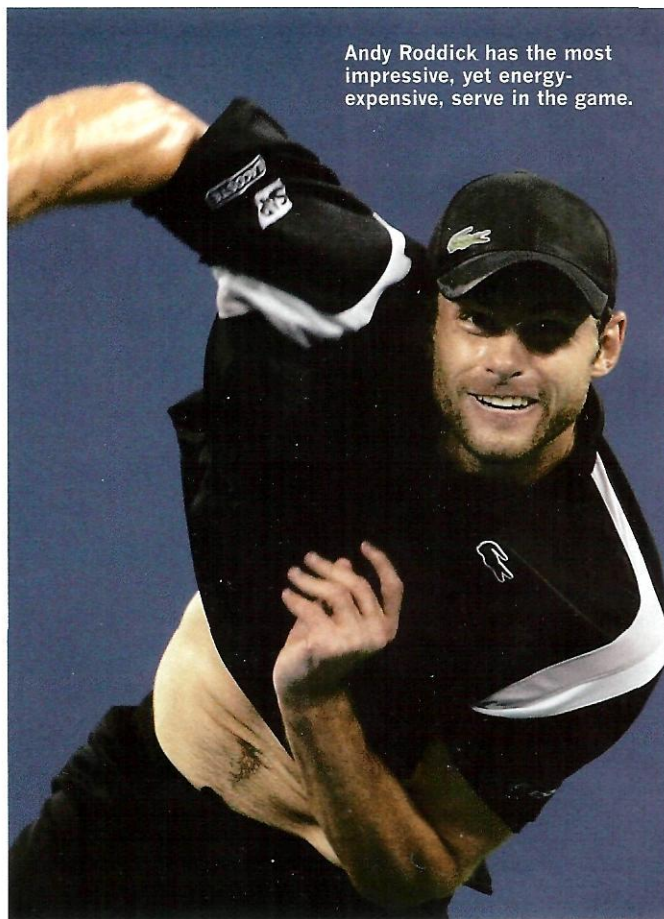
Tennis Efficiency

Energy is consumed for muscular contraction during all physical activities, with the amount of energy burned increasing proportionally to the intensity and duration of the activity. Consequently, individuals exercise when wanting to lose weight and increase the intensity and/or duration as they get fitter.

However, efficiency aims to minimize the amount of energy consumed during physical activity as non-essential energy consumption is wasted and impairs performance. Therefore, tennis efficiency aims to achieve desired outcomes – serving, volleying and moving around the court – whilst using as little energy as possible. Specialists can determine the exact energy cost and efficiency of a particular movement or activity by measuring responses like oxygen consumption, heart rate, power production and perceived exertion. However, these technical methods are not essential and often simply give numbers to the obvious.

The efficiency of a player is generally clear to an observer, and particularly an experienced coach. Players who appear smooth and effortless, and almost slow-motion are most likely to possess a high tennis efficiency since little energy is wasted on unnecessary movements. Some obvious examples include the infamous backhand of Justine Henin, the serve of Chris Guccione, and every single stroke in addition to the court coverage of Roger Federer.

Improved efficiency is a general feature of the autonomous stage of learning, and is therefore more common among better players. However, tennis efficiency is not limited to the elite. A complete beginner may demonstrate good tennis efficiency through various innate skills or skills learned from other activities. These traits will be evident through a style resembling a more experienced player. In contrast, poor tennis efficiency is characterized by a rushed, busy style of game with strokes that are disjointed or short. Overall, poor tennis efficiency has less co-ordination of body segments and bad balance.



Andy Roddick has the most impressive, yet energy-expensive, serve in the game.

Professional players in the autonomous stage demonstrate generally good efficiency, yet there are still some examples where improvements could be made. For instance, Andy Roddick owns one of the best serves in tennis, however the effort involved in his action is exhausting even to watch. More obvious is poor efficiency among recreational tennis players, particularly older adults who have engrained bad technique over years of tennis or have lost the strength and flexibility required to execute correct technique.

Benefits of efficiency

Good efficiency in strokes and movement not only makes players appear more controlled but also provides players with a number of additional benefits:

1. Players with high efficiency have a lower overall energy

