

Technology and Sport The Case of the ITF, Spaghetti Strings, and Composite Rackets

J. Nadine Gelberg
Pennsylvania State University, University Park

Technological innovation often changes the nature of a sport, but it is rarely studied by either scholars of sport or technology. The plastic football helmet has allowed a new, more brutal style of game to emerge and severe spinal injuries have accompanied this new style. The fibreglass pole in pole vaulting increased jumping height and demanded a new, more skilled and less physically strong athlete. In golf, the Polara golf ball was outlawed because of its unusual flight pattern and the United States golf Association's fear that it compromised the integrity of the sport. Technological change in tennis was no less important in changing the game.

Sports organizations, such as the International Tennis Federation (ITF), are responsible for determining the balance between sport tradition, athletic challenge, and technological innovations. This case study shows how ITF policy reached two different conclusions regarding two different technologies, the spaghetti strings and composite rackets.

In the 1970s, the ITF reached opposite conclusions regarding two technologies, spaghetti strings and composite rackets. In the early 1970s Werner Fischer, a West German horticulturalist invented a new method for stringing tennis rackets dubbed "double stringing." During the summer of 1977, the ITF received numerous reports from various player and tennis associations regarding the new racket. The consensus was that the new stringing method imparted far more spin on the ball than had the conventional stringing pattern. Tournaments throughout the year, including the US Open, reported major upsets where top-ranked players lost matches to previously unranked players who used the double-strung racket. In 1978, after its own investigation, the ITF banned the spaghetti strung racket and defined, after seven centuries, the term tennis racket.

The new definition of a tennis racket did not exclude another technology that threatened to revolutionize the sport. While many tennis experts claim the game was more interesting and challenging when played with wood, the ITF allowed composite

rackets. For many tennis athletes, in particular females and older athletes, these new rackets allowed them to express their previously dormant athletic talents. These composite brought a new power to the woman's game and facilitated its growth in popularity.

Both primary and secondary sources are used in this analysis. Since the spaghetti string manufacturers sued the United States Tennis Association, the case transcripts and written documentation are in the public domain. The USTA offices in White Plains, NY and the ITF offices in London retain minutes to meetings and correspondence. Various tennis publications chronicled the story of the spaghetti strings because it was the first racket design to be outlawed. Interviews and editorials in tennis publications, coupled with the USTA and ITF records, are also used in this analysis.

The ITF reached two different conclusions as it balanced tradition, challenge, and innovation in the cases of the spaghetti strings and composite rackets. The spaghetti strings proved to compromise athletic challenge so dramatically that the ITF had to reestablish the balance in tennis by banning the new racket. The composite rackets, however, due to manufacturing techniques failed to dramatically disrupt the balance in tennis at the time of its introduction. In making these two different conclusions it shaped the nature of the sport, the type of athlete who was successful, the types of injuries that plague the game, and the cost of the sport. This study of the ITF's technological decisions regarding the spaghetti strings and composite rackets illuminates how technology affects sport and provides a better understanding of a powerful influence on sport that has previously been understudied in the scholarly literature.