



## IS RACKET TENSION “FEEL” A MYTH?

Even advanced tennis players showed limited ability to detect differences in racket tension during play in tests reported in a paper in a forthcoming special tennis issue of the *Journal of Science and Medicine in Sport*, the scientific journal of Sports Medicine Australia (SMA).

This is despite the conviction among many players that changes in string tension have a significant effect on racket performance and feel.

Players' ability to identify string tension dropped considerably when they wore earplugs.

A decrease in string tension from 28 kg to 18kg results in an increase in ball speed of only 2%, which would be difficult to detect by players. The change in the force on the strings and hence in the force on the hand is about 2% and would also be difficult to detect.

The paper reporting these findings is entitled “Player sensitivity to changes in string tension in a tennis racket”. Its authors are Rob Bower of the University of Technology Sydney and Assoc. Prof. Rod Cross of the University of Sydney. The special tennis issue of the Journal is being published with the support of Tennis Australia.

“Factors such as ‘playability’, ‘tough’, ‘feel’ and ‘responsiveness’ are commonly used by players and string manufacturers to distinguish different strings but laboratory tests generally show no correlation with subjective assessments by players,” the paper says.

“Similarly, recent laboratory tests show that the amount of spin imparted to a ball is essentially independent of string type, string tension, string diameter and spacing between the strings, despite the commonly held views of players and string manufacturers that all these factors do have a strong effect on ball spin.

“Only 27% of the subjects tested were sensitive to a tension difference of 5 kg (11 lbs). When earplugs were added, the ability to correctly identify the tighter racket dropped considerably.

“These results are likely to surprise the many tennis players who are apparently quite particular about their string tension,” the paper says. But other evidence indicated that they are plausible and not entirely unexpected.

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**The abstract follows.**

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## **Player sensitivity to changes in string tension in a tennis racket**

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### **Abstract**

Forty-one advanced recreational tennis players were tested to determine their ability to detect differences in string tension in a tennis racket. Subjects were given pairs of rackets that varied in tension by up to 98 N (10 kg) and were asked whether they noticed a difference in tension and if so, which racket was strung at a higher tension. Only 11 (27%) of those tested could correctly identify a tension difference of 5 kg (11 lb) or less. Fifteen (37%) could not pick a difference of 10 kg (22 lb). To examine the importance of sound as a means of discrimination, an additional test was undertaken where participants wore earplugs. Of the 26 subjects undertaking this additional test, only 6 (23%) were successful. It was concluded that advanced recreational tennis players demonstrated limited ability to correctly identify differences in string tension and that impact sound was an important factor for those participants who were successful at various levels of discrimination.