

## Inside the



MARCH 2011



Hello Everyone!!

The Annual STMS World Congress made its way back to the United States last February, 2011 in San Jose, California in conjunction with the SAP-San Jose ATP tournament. The Program Director, and STMS President, Dr. Marc Safran brought together the world's leading experts in many aspects of tennis medicine as well as sports medicine. The meeting was conveniently held in February, just prior to the American Academy of Orthopaedic Surgery Annual Meeting in San Diego, California, which allowed many top orthopaedic specialists to participate in both important meetings. This international group of speakers and attendees were first treated to a welcome reception in a private suite overlooking the matches at the SAP-San Jose ATP tournament. The remainder of the weekend included 2 days of approximately 35 well-respected speakers from many countries and many different disciplines. The weather stayed beautiful enough for some of the attendees to apply their skills on the tennis court, while others chose to watch the exciting semifinal matches and even the finals matches for the ATP tournament.

An added bonus of this location, allowed Dr. Safran to include many top faculty from nearby Stanford Medical Center to provide updates in specific research areas. Dr. Allen Mishra and Dr. Jason Drago from Stanford provided their latest indications for PRP usage, and also analysis of different manufacturers of PRP (platelet rich plasma), while other speakers such as Lior Laver from Israel and Nicolas Maffuli from London provided perspective of their unique approach. As usual, the WTA, ATP, USTA, and ITF were well-represented. Kathleen Stroia, from the WTA revealed the new branding for the woman's tour as well as application of new cramping and heat rules and other scheduling changes. Dr. David Dines represented the ATP and also discussed similar medical updates and new changes to provide a little more of an off-season for the men's tour. Stuart Miles from the ITF gave an excellent talk on ITF perspective and particularly on the latest in equipment and biomechanics research. Dr. Marc Kovacs, from USTA again had wonderfully innovative information on injury and training trends in over 800 USTA junior players.

The Tennis Federation updates from France, Japan, Brazil, and Argentina all help to illustrate how the individual organizations are really progressing in innovations in tennis medicine at an impressive pace. Long time and active members Rogiera Silva, Bernard Montalvan, and Javier Mauirriaran again played intricate roles in the conference. A biomechanics section featured Dr. Savio Woo, and his many years of evolution of understanding of ACL injuries and where we may be headed in the future. Dr. Tom Andriacchi of Stanford revealed the basics of his innovative markerless system of biomechanical evaluation of tennis strokes. Issues related to heat stress especially in light of new heat cramp rules was presented by Dr. Michael Bergeron.

There was a well-done section on innovative techniques in rehabilitation in particular of the SI joint, shoulder, and for patellofemoral pain by local rehabilitation experts. Page Love, a nutritionist who consults with both professional tours highlighted carbohydrate needs of various foods and drinks in competitive tennis player. Dr. Neeru Jayanthi highlighted US junior tennis injury risks related to volume, while Dr. Peter Jokl summarized issues related to aging tennis player.

The wrist and elbow were not ignored as TFCC tears and DRUJ instability were covered by Dr. Bob Rhoades, Tournament Physician from Cincinnati, and Dr. Michael Redler. Dr. Giovanni Di Giacomo graced our presence from Italy to show us stunning videos of shoulder mechanics as well as summarizing elbow risks in the tennis player. The emergence of groin pain in tennis players and athletes made for interesting session covering athletic pubalgia and other causes of groin pain by Neeru Jayanthi, M.D., and hip arthroscopy by one of the leaders in the field, Dr. Marc Safran. The session concluded with the expert himself, Professor Per Renstrom who summarized muscle strains and findings related to sports hernias.

A research section included last year's Journal of Medicine and Science in Tennis Research award winner, Brian Kim's study on nutritional issues in different junior tennis training academies. Other presentations included the Risks of Rapid Growth and Sports Specialization by Neeru Jayanthi and dynamic talks by Donald Pompane and Jim McLennan on their personal perspectives of tennis medicine.

We look forward to the next STMS Annual World Congress in Paris, France November, November 10-12<sup>th</sup>, 2011. Start booking your schedules now. Also, please don't forget to renew your membership for 2011 at [stms.nl](http://stms.nl) to keep this organization strong and growing!

Neeru Jayanthi, MD  
Editor-in-Chief

**PRESENTED AT THE 2011 ANNUAL STMS CONGRESS**

**Kinematic and Kinetic Analysis of Three Tennis Serve Types Using a Markerless System**

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**Running Title:** Biomechanical evaluation of three serve types

**Disclosures:** No outside funding was received for this investigation

**Abstract**

**Purpose:** The tennis serve is commonly associated with musculoskeletal injury. We sought to evaluate the mechanics of the back, shoulder, elbow, and wrist during the flat, kick, and slice serves using a markerless system. We hypothesized that joints which show larger angles and/or velocities experience greater forces and torques. We further hypothesized that the elbow and wrist experience higher forces and torques during flat serves versus the kick and slice serves.

**Methods:** Seven NCAA Division I male tennis players performed three successful flat, kick, and slice serves. Serves were recorded using an eight camera markerless system. Laser scanning was utilized to accurately collect body dimensions and data was computed using inverse kinematic methods.

**Results:** The kick serve had a higher force magnitude at the back than the flat and slice (2974N vs. 2138N vs. 2568N;  $p < 0.05$ ) as well as larger posteriorly directed shoulder forces (1370 N vs. 809 N vs. 741 N;  $p < 0.03$ ). The slice demonstrated a lower magnitude of torque at the elbow (71.1 vs. 87.0 vs. 89.3 N-m;  $p = 0.13$ ) and wrist (20.9 vs. 33.5 vs. 27.9 N-m;  $p < 0.09$ ) compared to the flat and kick serves.

**Conclusion:** The kick serves may place higher stresses on the back and shoulder, potentially increasing the risk of injury. The slice serve has the lowest forces and torques at the elbow and wrist, suggesting the least risk of injury to these joints with this serve. This information may have injury prevention and rehabilitation implications.

**Key Words:** biomechanics, flat, kick, slice, injury

# In The World of Tennis



## Milos Raonic Captures His First SAP Open Championship

Milos Raonic, the fastest-rising star in men's tennis, captured his very first ATP World Tour title, stunning World No.9 Fernando Verdasco in a pair of tie-breaks in the SAP Open final.

Raonic, 20, had never been past the quarterfinals of an ATP World Tour event, but with stellar serving numbers and a big ground game to back those up, he powered his way through to the semifinals without losing a set. He had a reprieve in the semifinals as No.2 seed Gael Monfils had to withdraw from the tournament with a wrist problem, but the No.1 seed and defending champion, Verdasco, was waiting in the final - and he hadn't lost a set yet either.

The final featured a contrast in styles between the big hitting of Raonic and the more consistent attack of Verdasco, but neither player could make a dent in the other's service game in the first set, with none of the first 12 games even going to deuce. Verdasco came out on fire in the tie-break, building a 6-2 lead, but Raonic seemed to have composure beyond his years as he won six straight points, the first four set points against him, to clinch the set.

"It came down to a few points," Raonic said. "Once I won the first set and got to the second set, I felt much more confident."

The second set also went on serve through the tie-break, although Verdasco did get a look at one break point with Raonic serving 4-4. But again Raonic was too strong in the ensuing tie-break, scoring his first career title with a 76(6) 76(5) scoreline.

Verdasco fell to 5-9 in career finals and is now 9-1 in San Jose, having gone 5-0 to win here last year and 4-1 this year.

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## SAP OPEN 2011 Champions

### Singles

**Milos Raonic (CAN)**

d

**[1] Fernando Verdasco (ESP)**

**76 (6), 76 (5)**

### Doubles

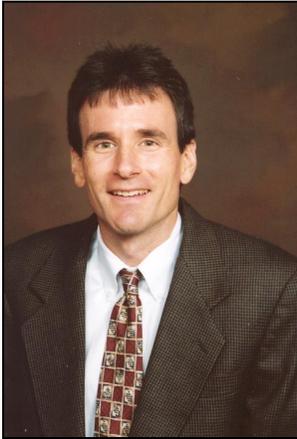
**Scott Lipsky (USA) / Rajeev Ram (USA)**

d

**Alejandro Falla (COL) / Xavier Malisse (BEL)**

**64, 46, 10-8**

# STMS 2011 Membership Renewal



Dear Colleague,

Please take a moment to renew your membership to STMS for 2011. You can do this very easily by accessing the STMS website at [www.stms.nl](http://www.stms.nl) and following the instructions for renewing your membership or click on STMS membership form to mail in your renewal fee. For existing members, it is very easy to renew by using both credit card with the convenient paypal link or mailing the STMS renewal form. If you are interested in Joining Us, access is also easy with these same options.

Be sure to renew your membership now to guarantee you receive details for all upcoming news and events. Also, don't miss out on future abstracts or research data in issues of the Journal of Medicine and Science in Tennis.

Additionally, membership allows you access to past issues of the STMS journal and web contact reserved only for STMS members.

Please feel free to contact us at [office@stms.nl](mailto:office@stms.nl), if you have any questions about renewing your membership or becoming a new STMS member.

Thank you for your continued support of STMS as we move to an exciting new year of medicine, science and tennis!

Thank you!  
Todd Ellenbecker

# C ONFERENCE OUTLOOK

## APRIL 2011

### **2011 American Medical Society of Sports Medicine 20th Annual Meeting**

Apr 30 - May 4, 2011 Salt Lake City, UT

<http://www.amssm.org/Conferences.html>

## MAY 2011

### **The Twelfth ITTF Sports Science Congress to be held in Rotterdam**

**The Netherlands**

**5-7 May 2011**

<http://www.2011wttc.com/visitor-information/program.html>

Note: If you are interested in giving a presentation on one of the subthemes, please submit an abstract before 8 January 2011 to Ineke de Graaf at [sportsscience@2011wttc.com](mailto:sportsscience@2011wttc.com) and include the registration form.

#### **For further information**

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### **American College of Sports Medicine Annual Meeting**

**May 31-June 4, 2011**

Denver, CO

<http://www.acsmannualmeeting.org/>



## MISSION STATEMENT

To disseminate current and practical tennis-related medical and scientific information to all our stakeholders (players, coaches, health care professionals, scientists, and tennis organizations) in order to optimize the health and performance of tennis players world-wide.



**stms**  
Society for Tennis  
Medicine and Science



# Membership Benefits!!

## What you get with STMS membership (One Year US \$175 - Three Years US \$500)\*

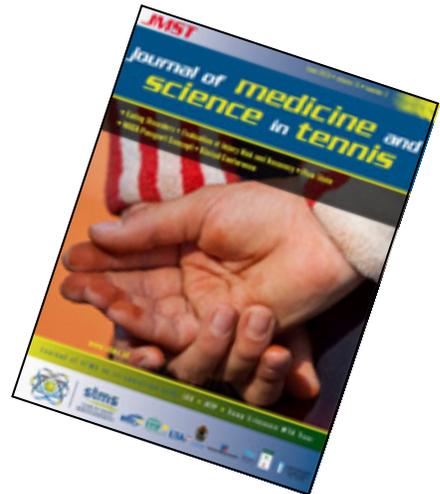
- Subscription to three issues per year of the Journal Medicine and Science in Tennis
- Free online access to all editions of the Journal
- Subscription to six issues per year of the STMS E-mail Newsletter
- Discounts to STMS Conferences
- Access to the dedicated Members Area
- STMS voting rights\*\*

\* *Students pay a discounted membership fee (US\$ 100)*

\*\* *Non-Students Only*

### Questions?

Contact the STMS Membership Office by e-mail at  
[membership@stms.nl](mailto:membership@stms.nl)



**Join us now!!!**