

# THE PERFORMANCE PATHWAY



## ISN Sports Science Division Newsletter

01 September 2009

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More news from ISN Sports Science ...

# MESSAGE FROM NEWSLETTER EDITORIAL

Welcome to the FIRST edition of the ISN Sports Science Newsletter!

As our division grows, we would like to keep every members in the ISN informed of the changes that are taking place as well as to share the relevant news and events. Therefore, the ISN Sports Science Division decided to start a departmental newsletter – “**The Performance Pathway**”, which features a variety of topics in the area of sports science that related to athletic performance. The newsletter will be published every quarter and the articles in the newsletter, written by the fellow members from each of sports science centers, include scientific highlights, laboratory or facilities updates, center’s news and activities. In addition, the newsletter will also invite the input from ISN High Performance Teams on the current athletes preparation in their respective sports to be featured in an article.

Any of you who are interested in contributing articles or assisting in the publication of the newsletter may also contact Ooi Cheong Hwa at [cheonghwa@isn.gov.my](mailto:cheonghwa@isn.gov.my) or Mohd Fajar Mohd Kasim at [fajar@isn.gov.my](mailto:fajar@isn.gov.my).

In this edition, find out about the scientific highlight from ISN sports nutritionist on hydration strategy for high performance athletes; learn more on what has ISN exercise physiologist been up to at Bukit Kiara badminton hall, the support services provided by ISN conditioning specialist to pencak silat team at Vietnam, ISN sports psychologists at “Tour de Malaysia”, and other news from National Sports Institute of Malaysia at Bukit Jalil ...

We hope that you will find this newsletter useful and after reading it, you would feel better connected to what we are doing in the ISN Sports Science Division. If you have any suggestions for the newsletter, please feel free to let any one of the editorial members posted.

Your sincerely,  
ISN Sports Science Newsletter Editorial Team

# HYDRATION STRATEGY FOR OPTIMAL PERFORMANCE

By Neng Azhanie Adzman, Sports Nutrition Centre 12.06.2009

Many researchers, sports nutritionist and dietitian around the world are preaching on the importance of fluid intake in athletes' performance (indeed; when 90% of red blood cell, 70% of muscle mass and 60% of body weight are all made up of water!). It is crucial to emphasize to the athletes on the importance of hydration to minimize the side effects of dehydration.

Dehydration is associated with decrease in sports performance. As body temperature is rising due to water loss, our heart rate increases and concentration is no longer in pace (read: your mind is not working efficiently). There would be a deterioration in performance when the loss of fluid is equal to or more than 2% of body weight. It is disadvantage for athletes to deal with the lack of focus especially during competition. The other possible consequence of serious dehydration is muscle cramping (read: you are no longer in the game at this stage).

The importance of hydration is by far well understood, however, the best hydration strategy still remain debatable due to individual differences. Generally, always start exercise well hydrated by producing lightly-colored urine prior training or competition. Otherwise, extra monitoring have to be done through out the day (as in; you have to drink more and make sure before tucking into bed at night your urine is light -colored). Develop a plan for drinking during exercise based on your sweat rate. Try this trick: weigh yourself before and after training. See how much weight you loss due to sweating and urination during training and replace 1.5 L of water for every 1 kg body weight loss. You'll be amazed on how easy for you to plan your own fluid intake throughout the day by practicing so.

Different sports pose different challenges as well as the opportunities to drink (yes coach, please allow them to rehydrate after the hard punch and run). Be smart and practice strategies to get maximum benefit from fluid intake with minimal fuss and discomfort. Take training session as an opportunity to discover how much fluid you can tolerate and which sports drink (read: taste and flavor) you prefer the best. Always bear in mind that thirst is not an effective indicator of dehydration.

There you go, something to be thought about on fluid. Rain falls on your head everyday, but water needs plan to be in your body and make the best of it!

# PHYSIOLOGICAL MONITORING IN BADMINTON PLAYERS

By Chee Lee Ming, Exercise Physiology Center 02.07.2009

One of the roles of Exercise Physiology Centre (EPC) is to provide physiological service support to the Malaysian national athletes and coaches. Recently, EPC had provided a series of training monitoring services to the national elite and junior badminton players to help to track the physiological strain that placed on the players during selected court training session, physical training session as well as simulated match play. The objective of this service is to provide useful information for coaches and athletes to strategize their training program to optimize the training adaptation and to reduce the risk of injuries or overtraining syndrome.

The results were used as a guideline for the coaches to prescribe training to the players according to the physiological demands of badminton. The physiological responses that had been presented graphically would enable coaches to quantify the training intensity of each training components and thus able to organize their periodization plan for training and recovery appropriately so that performance of the players can be improved maximally.



# SOKONGAN SUAIAN FIZIKAL KEPADA PASUKAN PENCAK SILAT DI VIETNAM

Oleh Syarifah Fathynah Syed Shiekh, Pusat Suain Fizikal 19.06.2009

Tanggal 16 April 2009 yang lalu, saya bersama dua lagi pegawai sains sukan ke Ho Chi Minh City, Vietnam dalam mengikuti kem latihan dan perlawanan persahabatan pasukan pencak silat. Objektif lawatan tersebut adalah untuk melakukan pilot study ke atas atlit semasa perlawanan persahabatan dan melakukan sesi pemulihan.



Kedatangan pihak sains sukan memberi kesan yang positif kepada atlit khususnya kerana didapati jurulatih dan atlit memerlukan pendapat dan sokongan daripada pihak kami. Prestasi atlit yang tidak memuaskan pada hari pertama perlawanan persahabatan membuatkan pihak jurulatih, persatuan dan sains sukan sangat tidak berpuas hati. Kutipan data yang dilakukan pihak sains sukan (kadar nadi, laktik asid dan rakaman video) dijelaskan secara terperinci kepada semua atlit dan jurulatih. Penerangan dan pendapat daripada pihak sains sukan membantu atlit dan jurulatih dalam perlawanan yang seterusnya kerana atlit lebih faham dan merasakan diri mereka dipantau dengan begitu teliti. Sesi pemulihan juga dilaksanakan dan mendapat respon yang positif daripada atlit.

Semangat dan prestasi yang ditunjukkan atlit amat berbeza jika dibandingkan pada hari pertama perlawanan. Ia memberi kesan ke atas data yang dikutip dan turut menjelaskan bahawa terdapat perbezaan antara ke dua-dua kutipan data tersebut. Walaubagaimanapun, prestasi atlit perlu ditingkatkan lagi dan masih banyak yang pihak jurulatih, atlit dan sains sukan perlu lakukan. Seperti yang kita ketahui, pencak silat adalah sukan tradisi Melayu yang masih mengamalkan budaya-budaya tradisi.

Ada pendapat yang menyatakan bahawa mereka tidak sukakan pembaharuan dan melakukan latihan-latihan yang konvensional. Tetapi, apa yang berlaku di dalam pasukan ini adalah kehadiran sains sukan diterima baik oleh pihak jurulatih dan persatuan silat. Di harap dengan kerjasama sebegini, sukan pencak silat yang merupakan sukan warisan Melayu ini akan menjadi lebih maju.

# PSIKOLOGIS ISN JELAJAH MALAYSIA

Oleh Morwinda Mahpol, Pusat Psikologi Sukan 17.06.2009

Bermula di Zon Utara pada awal Jun 2009, Selatan, Timur, dan Malaysia Timur pada Julai 2009, Pusat Psikologi Sukan kini telah mengorak langkah dengan memberi perkhidmatan psikologi sukan kepada para guru di Sekolah-sekolah khas (sekolah sukan) di bawah Kementerian Pelajaran Malaysia.

Siri jelajah ini julung kali diadakan dengan kerjasama pihak ISN dan Kementerian Pelajaran Malaysia bagi memantapkan lagi ilmu sains sukan kepada para guru yang juga bertanggungjawab sebagai jurulatih di sekolah. Pusat Psikologi Sukan juga telah berkongsi maklumat tentang teknik-teknik tertentu yang boleh diaplikasikan sendiri oleh guru-guru kepada atlet mereka. Antaranya, teknik pernafasan, imaginasi dan konsentrasi dengan menggunakan kaedah permainan. Teknik ini biasanya digunakan kepada atlet negara untuk memperbaiki dan memantapkan skill dan kekuatan mental mereka.

Kebanyakan aktiviti psikologi yang dijalankan telah diolah kepada aktiviti yang menarik dan berkaitan dengan sukan-sukan yang diceburi oleh atlet-atlet tersebut. Apa yang lebih menarik, teknik ini lebih praktikal dan mudah difahami berbanding sesi pembelajaran formal didalam kelas kerana kesannya lebih ketara.

Konsentrasi "eye-tracking"



Konsentrasi dan imagery



Teknik Pernafasan



# BIOMECHANICS ON THE SAILING BOAT ...

By Ahmad Pharmy Jalil, Sport Biomechanics Center 17.08.2009

It is funny for all the things we have to do to get our work done. We at times travel with the team, we plan ahead in securing the best point of view, woke up much earlier and sleep much later than the rest of the team. When things do not go to plan, we adapt and make changes as not to disrupt our progress and our work. We are invisible, but we make ourselves available when we see ways to help the athletes succeed.



So with the sport of sailing, that would mean we need to get ourselves wet in the process. After all, sailing IS a water sport. It used to mean a fortnightly trip to Port Dickson, now it is a trip to Pulau Langkawi, where they are currently based. I look forward to those trips as it was always a joy to see the athletes' enthusiasm, try to help them improve technically and watch them grow over the years. Just ask Azimah and Apple ...

To help the sailors, we need to be as close to them as they sail quite a distance out in the sea. So, usually we hop on the coaches' boat, and take video footages of them during training and simulated exercise. The main weapons in our arsenal are the video camera. It is small enough to be brought on board and quite hardy enough to be exposed to some elements. Some elements, that is.

Sea water could easily damage an electronic device, and the video camera is no exception. We took a lot of precaution during filming, and at times, creative thinking saves the day especially if it is really windy and the sea water sprays into the coaches boats left, right and centre. And even from the back. Plastic bags, masking tapes and air-tight plastic boxes are the rule of the day. Upon finishing their on-water training later in the day, we usually try to slot in feedback sessions and replayed the footages taken of them executing specific skills. The Coach will then emphasis on executing correct techniques and hopefully, the video feedback will shorten the skills acquisition process. It certainly helps as visual feedback allows the athletes to see themselves doing the right technique.

... continued next page

# BIOMECHANICS ON THE SAILING BOAT ... (continued)

In the future, we plan to put cameras on the boats, and use Global Positioning System (GPS) to give us more information on the athletes while they are on the boats, and kinematics data to describe the training session. Back to the drawing board then, until the next trip to the mythical island, Pulau Langkawi ...



# DEEP THROAT TO HIGH PERFORMANCE COACHES

By Ahmad Hilmi Abdul Latif, Games Analysis Center 19.06.2009

For the duration between May 22 and June 1, 2009 Malaysian womens hockey team was in Perth, Australia for oversea training camp in preparation to Champion Challenge 2 in Kazan, Rusia (June 13 – 29, 2009). The training focus on team building and physical tuning. There were also a few friendly games with teams from University West Australia (UWA) and West Australia Institute of Sports (WAIS).

Services that we have given to the Malaysia womens hockey team during our attachment with them in Perth include:

- > Video recording and live games analysis during the friendly games
- > Organizing the video session with the coaches and players
- > Video storage in a hard disk as an future archive
- > Providing match DVD`s based on coach request

From our observation, Malaysia womens hockey team have gained quite an experience in Australia. Based on their commitment during training and friendly match, it seemed that they are ready with the challenge that waiting for them in Kazan. Starting from the 1st game with the WAIS, the team showed a good fighting spirit even lost 2:1. The next game with UWA, our team won all with 2:1. Another game with WAIS, it was draw 1:1. As far as the coaches concerned, they are really satisfied with the performance and the spirit that have been showed by the team during this training camp in Perth, Australia.



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