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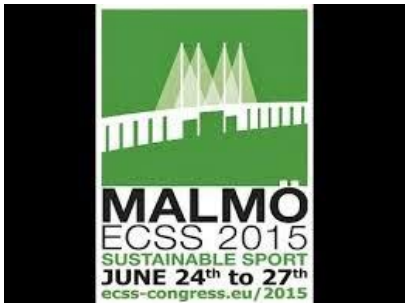
Salimetrics to Exhibit at the 20th Annual Conference, European College of Sport Science (ECSS) , 24 to 27 June Malmo, Sweden

Salimetrics will for the fourth time be exhibiting at the ECSS Meeting this year in the lovely city of Malmo where some 3,000 delegates are expected to attend

Stop by the Salimetrics Booth and we will talk you though the use of Salivary Assays in Sport

For 2015, the multidisciplinary ECSS Congress will be celebrating its 20th anniversary. The 2015 congress theme of Sustainable Sport will permeate the academic programme as well as the arrangements: the three universities co-hosting the event all emphasise sustainability in education and research, and will work together with the City of Malmö, a fair trade city, to make ECSS 2015 a sustainable sports congress.

The Öresund Region (Malmö, Copenhagen and Lund) is an academically vital area with 150 000 university students and more than 12 000 researchers, among them top class researchers within the many different areas of Sport Sciences and Sport Studies.



Link to Conference Website

Salimetrics is regarded as the World Leader in Saliva Assay Technology and is currently involved with Elite Sportspeople from many disciplines; we have strong relationships with the top Universities within this field and can guide you to the right people to ensure performance is maximized. Our offices can be located Globally

The value of saliva monitoring in sport

The easy, stress-free, non-invasive nature of saliva collection makes it one of the most accessible body fluids and it has been shown to have potential value in studying normal human physiology as well as pathology. The measurement of salivary hormone levels by rapid, sensitive enzyme linked immunosorbent assay (ELISA) techniques is a valuable clinical and research tool for several steroid hormones (e.g. cortisol, testosterone, oestriol, progesterone, dehydroepiandrosterone,). The concentration of these steroid hormones in saliva reflects their

free concentration in serum or plasma. The levels of other variables such as immunoglobulin A can also provide useful information about the status of mucosal immunity which is depressed by prolonged physical or psychological stress. The measurement of the concentration of a plasma protein such as transferrin in saliva can be used to exclude samples contaminated by blood which is critical if valid conclusions are to be drawn from salivary hormone data. At Loughborough University, sport scientists have long been using salivary markers as indicators of the stress response to exercise, both in studies examining the impact of acute exercise on immunoendocrine responses and to monitor athletes, including professional footballers, over the course of a competitive season. In conjunction with the use of stress and mood state questionnaires, salivary measures can provide useful information for the sport scientist, team doctor and coach to evaluate the impact of training and competition on the athlete's immune and endocrine systems. The measurement of salivary immunoglobulin A, cortisol and testosterone have proved useful in this regard. Stressed athletes exhibit depressed levels of immunoglobulin A and an elevated cortisol/testosterone ratio. Recently, this approach has been applied to the monitoring of premier league footballers over the course of the season. While the manager may not use this information to directly inform his team selection, it may prove useful to identify players who are not coping well with stress, allowing appropriate training, psychological, nutritional or medicinal interventions to take place to reduce the chance of player burnout.

Salivary IgA: What is it and why measure it?

Heavy schedules of training and competition appear to increase the risk of upper respiratory tract infections (URTI), such as sore throats, colds, chest infections and 'flu (see article by Fahlmann & Engels 2005). Insufficient recovery from these illnesses can lead to recurrent infectious episodes that could cost a player days or even weeks of vital training and could ultimately make or break a successful season for an individual or a team. Although there are several possible mechanisms for these increased episodes of infection, it has been suggested that URTI may result from a reduction in the levels of the main antibody found in saliva, tears and mucous: immunoglobulin A (IgA). Saliva and mucosal secretions protect the lining of the oral cavity through a mechanical washing effect and play an important role as the first-line of defence against potential pathogens entering via the mouth. IgA acts to prevent the replication of viruses and inhibits viral and bacterial attachment to the mucosal lining of the mouth, throat and upper respiratory tract.

Resting levels of salivary IgA (s-IgA) have been closely associated with episodes of URTI, with higher levels of s-IgA associated with a lower incidence of URTI and lower levels of s-IgA associated with recurrent URTI both in the general population and in elite athletes. Furthermore, long-term (months) of exercise training appears to have a 'snowball' effect on s-IgA responses; resting s-IgA concentration has been shown to fall during a 7-month training season in elite swimmers and an higher incidence of URTI has been reported in elite swimmers undertaking intensive training who have low s-IgA levels (Gleeson et al 1995). In addition to the physiological stress placed upon an individual during heavy schedules of training and competition, psychological stress also appears to influence s-IgA concentration, with higher levels of mental stress associated with lower s-IgA concentration. Since s-IgA and episodes of URTI appear to be related, measuring resting s-IgA levels provides information on resting levels of mucosal immunity and changes in this marker of immune function as the season progresses can be used as an indicator of stress. We already have evidence that s-IgA levels change during the course of a season in English premier league players.

Are there other useful ways of assessing immune function?

There are other measures of immune function but all of these require blood sampling. Numbers of the different types of white blood cells can be measured that can give some information about on-going infections or allergies. Some routine haematology tests can tell you a player's haemoglobin concentration and the average size and number of his red blood cells. These simple tests can identify players who are anaemic and the additional measurement of a protein called ferritin in blood serum is a good indicator of iron stores. Iron deficiency is the most common cause of anaemia and this condition will almost certainly result in underperformance in any sport where endurance is important. More sophisticated and expensive tests can be used to assess lymphocyte subsets, activation markers and cell functions.

Salivary cortisol and testosterone

As players become more stressed through repeated match play, training and inadequate recovery the secretion of the adrenal glucorticoid hormone cortisol is increased whereas that of the sex steroid testosterone falls. The ratio of cortisol to testosterone is therefore a sensitive index of stress. A published example of results from a study on England rugby union players (Gleeson et al 2007) illustrates the potential value of regular monitoring of players during critical stages of the season.

References:

Fahlman MM, Engels H-J (2005). Mucosal IgA and URTI in American college football players: A year longitudinal study. *Med Sci Sports Exerc* 37: 374-380.

Gleeson M, McDonald WA, Cripps AW, Pyne DB, Clancy RL, Fricker PA (1995). The effect on immunity of long-term intensive training in elite swimmers. *Clin Exp Immunol* 102: 210-216.

Gleeson M, Allgrove JE, Reddin D (2007). Salivary cortisol, testosterone and immunoglobulin A changes during 3 consecutive weeks of training and International competition in elite rugby union players. Proceedings of the 12th Annual Congress of the European College of Sport Science, Jyvyskala, July 2007.

Prof Michael Gleeson January 2008

Link to the full range of Salimetrics Assay Kits

Link to Salimetrics Collection Devices

To discuss any of the above please contact:

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