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IN THIS ISSUE

REAPING
THE HARVEST

THE STATE
OF THE PITCH

CANNABIS
AND SPORT

FIT TO
MANAGE?

BRUCOSPORT
CONGRESS
IN BRUGES



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BY UEFA'S FOOTBALL
DEVELOPMENT
DIVISION





EDITORIAL

BY DR URS VOGEL

FOUR-GONE

It doesn't feel as though almost four years have passed since we sat down to discuss the aftermath of the FIFA World Cup – and, in the case of some of the pre-tournament favourites, it amounted to something more akin to a post-mortem. Many star players were reported to have under-performed and a high percentage of European failures to live up to expectations were put down to mental and physical fatigue. There was a great deal of talk about excessive workloads.



Dr Urs Vogel, Chairman of the UEFA Medical Committee.

Four seasons later, we are once again watching attentively as players prepare for the FIFA World Cup in a year which also includes the African Cup of Nations. But there have been changes. UEFA, for example, has lightened the UEFA Champions League burden by removing a group phase. FIFA has insisted that the final whistle be blown on all domestic competitions in good time for players to prepare for the finals in Germany.

During the same four-year period, UEFA's injury studies have gathered momentum and a valuable databank has not only been established but is also being put to good use. The move

to harmonise methodologies is another step in the right direction, as it will permit other studies to be correlated with our own. Much of this issue of Medicine Matters is devoted to matters related to injury studies – and we make no apology for that.

Detecting 'patterns' in a short time-span is, scientifically, risky. But some interesting talking points have already emerged. Overall, the incidence of injury among the clubs involved in our study has fallen in the last four years. But is it a coincidence, for example, that the significant decreases have occurred in the 2002/03 and 2004/05 seasons? In other words, after the FIFA

COVER

Andriy Shevchenko takes the ball past Greek defender Ioannis Goumas in Ukraine's 1-0 win in Athens en route to their first-ever FIFA World Cup final, this summer's tournament to be played in Germany from 9 June to 9 July 2006. From a medical point of view, the tournament will also offer an exceptional learning experience.

PHOTO: FOTO-NET



The wise use of substitutes has become an important tactic in modern football.



CONCLUSIONS

World Cup and the UEFA European Championship, when one would instinctively suspect that the incidence of injury would rise. Could the possible explanation be that, while we are monitoring the top stars' ability to cope with the physical and psychological burdens of major tournaments, the rest of the professional workforce is finally able to benefit from a decent rest?

What's more, attitudes have changed as a result of injury studies which have undoubtedly increased awareness of the medical issues to be addressed. Reliable data about injury risks during pre-season training have given coaches food for thought. Four years ago, 'rotation' was not a frequently used word in the footballing lexicon. But there have now been significant moves in terms of designing and utilising squads with a view to distributing workloads on a more equitable basis.

But only time – and continued research – will determine whether we are winning the crusade to reduce the risk of injury. In a sense, the two World Cups will provide interesting points of reference.

After the tournament in Germany, will we express the same concerns as we did in 2002? Four years have gone by and we may be able to start drawing conclusions.



The new UEFA Champions League format has taken some of the pressure off the players. Here, Ze Roberto in Bayern Munich's UEFA Champions League tie against Club Brugge.



REAPING THE HARVEST

UEFA's injury studies have been a recurrent theme in Medicine Matters and the state of play is that one of the fundamental aims of the project is now beginning to be achieved. The study was not conceived as an esoteric compilation of figures. The objective was – and is – to provide feedback to team doctors which can enhance their efforts to prevent injuries.

Some of the top clubs involved in UEFA's project have now been monitored over a period of four full seasons – which means that the database has now become a valuable tool and that answers can now be provided to some of the most frequently asked questions. Clubs and football organisations often ask, for instance, whether the risk of injury in the top-level game has increased. There is now enough solid evidence to respond that it has not – and that it has even decreased.

The ongoing project now features visits by UEFA's research team to the clubs which have participated in the study, with a view to establishing how to develop the research and what further elements could productively be incorporated into the monitoring programme.

At the end of each season, there is direct feedback to the clubs in the form of a detailed résumé of their own results, along with mean figures from other teams, enabling comparisons to be made. Clubs and national associations are aware that UEFA can now provide reliable data and, for instance, the Italians are keen to receive figures related to non-contact muscular injuries, while the English have expressed more interest in issues such as groin injuries or the effects of a winter break on the incidence of injury.

It has never been Medicine Matters' policy to 'name names' but the much-publicised case of Michael Owen's fifth metatarsal fracture prompted the English media to question his presence in this summer's FIFA World Cup. UEFA's database included details of 19 such injuries, which allowed a mean absence of 76 days to be established. The evidence also suggested that surgery signified a lower risk of re-injury. UEFA could therefore offer reassuring data to the player, his club and his national association.

In other words, the seeds sown over the last four years are beginning to produce a harvest. Continued feedback will, we hope, allow physicians to advance still further in the crusade to prevent injuries, to avoid burn-out syndromes, and to establish viable balances between work and recovery periods during long and demanding campaigns.

RESEARCH = VALUABLE EVIDENCE

Harmonising methodologies has enabled studies of injury patterns to be effectively interlocked and for valid comparisons to be made. At the same time, UEFA's injury study has helped to promote individual studies within national associations where there is concern about the

incidence of injury in domestic competitions.

A case in point is Turkey, where Professor Mehmet Binnet, a member of UEFA's Medical Committee, initiated the country's first injury study along with Dr Onur Polat, his fellow chairman of the Turkish FA's Medical Committee.

The pioneering study embraced 406 footballers enrolled in 15 clubs belonging to the Turkcell Premier League. Data were collected according to UEFA norms over a period covering 9,190 hours (820 match hours and 8,370 training hours). During this time-span, team doctors recorded and reported 330 injuries at a mean of one injury per 27.85 hours.

Processing the data revealed significant trends. 142 injuries (43%) occurred during the 820 match hours, while 188 (57%) corresponded to injuries sustained during training. When compared with similar studies, the salient feature was the high incidence of injuries during training.

Further analysis uncovered other significant trends. 'Contact injuries' resulting from tackles or collisions accounted for 30.72%. The remaining 69.28% were non-contact injuries. The figures suggested to the researchers that non-contact injuries had increased in relation to previous seasons and that the high ratio of non-contact injuries represented a strong indicator of physical overuse and/or return to activity before recovery had been completed.



Several injuries occur during training.



The study also grouped figures according to geographical areas, providing further food for thought. The teams based in the Marmara region (broadly speaking, the western seaboard facing Greece) recorded that 45.45% of the injuries registered during the season were of the non-contact type. Of the injuries affecting teams in the more northerly Black Sea region, 68.25% were non-contact. And in the central Anatolian area, the incidence of non-contact injuries peaked at no less than 94.12%.

With regard to the nature of the injuries, 50.96% were of low intensity, with the player absent from training and match play for less than one week; 40.51% were labelled moderate, with the player absent for between one week and one month; and 8.12% came into the 'severe' category and entailed absences in excess of a month. The breakdown by regions revealed that the Anatolian teams suffered 46.30% in terms of mild injuries; 44.44% moderate; and 9.26% serious. In the Black Sea region, the figures were 49.23%, 41.54% and 9.23%, while the Marmara clubs posted the lowest incidence of severe injury (57.35%, 36.76% and 5.88%).

30.85% of injuries affected the thigh, 20.18% the ankle, and 12.38% the groin. 37.61% of injuries were classed as strains, 24.41% as sprains, and 15.24% were evidently attributable to overuse.

Important conclusions were drawn from the country's first injury study, which clearly indicated a need for correctly designed training pro-

grammes and a review of entire training cultures. Clubs were urged to check whether specific endurance and elasticity routines were being implemented and the importance of adequate warm-up and warm-down procedures was underlined. The high ratio of non-contact muscular injuries suggested a need to upgrade preventive measures.

At the same time, analysis of injury patterns revealed one fact that could be the starting point for debate. Muscle injuries are most common at football clubs which change their technical staff more than once a season. Interpretations of this information can take various channels, as it could be coherently argued that squad members might be tempted to overexert themselves on the training ground to impress a new coach or, conversely, that the new coach is often tempted to launch a new regime by working the players harder than his predecessor.

Whatever the answers, the undeniable conclusion is that the Turkish injury study provided persuasive evidence in the case for reviewing physical training methods with a view to reducing the high ratio of non-contact injuries.

CONTACT DETAILS

UEFA's injury studies have been extended to final tournaments of other competitions – and it is interesting to note that the highest ratio of non-contact injuries was registered in the finals of the 2005 European Under-19 Championship played in Northern Ireland. The study embraced

495 match hours and 899 training hours. Sixteen players sustained 17 injuries during the tournament, only two of which were in training and only three of the match injuries were due to foul play.

All but one of the injuries occurred during the first week of the twelve-day tournament. Only one was classed as 'major' while five were 'moderate' (1-4 weeks).

Non-contact injuries accounted for 59% of the total and were concentrated into the final 30 minutes of match play.



Franck Dja Djedje of France (left) fights for the ball with Matthew Mills of England during the 2005 European Under-19 Championship in Northern Ireland.



Physician Dr Ulrich Schmieden and physiotherapist Christel Arbini care for the injured German forward Sandra Minnert during the Women's EURO 2005 final against Norway.

SVEN SIMON

One coherent explanation was that the Under-19 Championship was staged during the last fortnight of July, when most teams are still in pre-season training. Preparation programmes therefore take on even greater significance and it could be important for the Under-19 internationals to dedicate time to fitness exercises during the 'close season'.

The European Women's Championship final round, played in England during the month of June, registered a lower ratio of non-contact injuries. Yet the percentage (36%), coupled with the 41% recorded by the men at EURO 2004, highlights the frequency of muscle injuries in today's football.

Contusions accounted for 44% of the injuries at the women's tournament – exactly double the percentage registered at EURO 2004. However, the men's finals in Portugal yielded four fractures (9% of all injuries), whereas none were recorded in England – arguably a reflection of physical intensity and body mass. Once again, the risk of injury was much greater during match play (36.0 per 1,000 hours) than in training (2.5). In this respect, the women's parameters were similar to the men's (32.2 per 1,000 hours of match play at EURO 2004 / 2.9 in training).

One of the interesting observations to emerge as a common denominator at all three tournaments (the two EUROs and the Under-19s) was that the incidence of injury was very significantly greater during the initial group matches than in the subsequent fixtures played on a knock-out basis.

SPEAKING THE SAME LANGUAGE

What is a 'severe' injury? What is a 'recurrent' injury? Is the Achilles tendon 'ankle' or 'lower leg'? You might have clear answers to all three questions. But will a physician at the other end of Europe come up with the same responses?

It is no secret that variations in definitions and methodologies can generate significant differences in the results and conclusions obtained from injury studies, making it difficult to compare like with like. Even though medical journals have developed strategies such as the Consort statement in response to this problem, fundamental differences have persisted in published studies of football injuries. This represents a key issue for UEFA when it comes to collating studies on a pan-European basis, so it is good news that a consensus agreement has now been reached, laying the foundations for a harmonisation in methodologies and terminologies. It signifies a great step forward and, as far as we know, football is the first sport to have drawn up such a consensus statement.

The move started with informal discussions during the 1st World Congress on Sports Injury Prevention in Oslo in June 2005. FIFA's Medical Assessment & Research Centre (F-MARC) then agreed to act as hosts for a consensus group formed by experts (from three continents) involved in the study of football injuries – among them a member of UEFA's Medical Committee, Prof. Jan Ekstrand. A working document identifying key

issues related to data collection and reporting served as the basis for discussions at a two-day meeting in Zurich, leading to the production of a consensus statement to be published in leading sports-medicine journals in Europe and North America.

UEFA's injury studies fully comply with the agreement and it means that other studies conducted by, for instance, individual national associations – such as the Turkish project outlined in this issue – can be interpolated with our data. Clubs who adhere to the newly agreed format for recording injuries will, in consequence, be able to hold their data against other studies in order to determine whether injury ratios are above the norm in certain categories.

In answer to the questions posed in the opening paragraph, the severity of injuries is gauged by the number of days that elapse between the day the injury is sustained and the date of the player's return to full participation with the rest of the squad in training and availability for team selection.

It is now clarified that the injury occurs on 'day zero' (rather than 'day 1') and that, consequently, a player who withdraws from training but is available for full participation the following day should be reported as having suffered a time-loss injury with a severity of '0 days'. This will be classed as a 'slight' injury, with 'minimal' being the term adopted for an injury that entails absence for 1-3 days, 'mild' for the 4-7 day bracket, 'moderate' for 8-28 days, and 'severe' where absence exceeds that time-span. The category that none of us



Raul suffered a contact injury which will keep him out of the game for three or four months this season.



want to record is the 'career-ending injury'.

Historically, the description of recurrent injuries has been diverse. A recurrent injury is now described as "an injury of the same type and at the same site as an index injury, which occurs after a player's return to full participation from the index injury". A recurrent injury occurring within two months of a player's return is an 'early recurrence', one occurring between two and 12 months is a 'late recurrence', and a repeat injury suffered more than a year later is to be described as a 'delayed recurrence'. This entails detailed registration of the index injury, as a repeat of an injury imprecisely marked as 'knee' or 'thigh' may not be a genuine recurrence.

The consensus statement also defines 'match exposure' as games between teams from different clubs, with matches between teams from the same club classed as training exposure – as is match activity that forms part of a player's rehabilitation after injury. 'Training exposure' relates exclusively to sessions where there is physical exertion, meaning that team talks, blackboard tactical work and sessions with psychologists or physios are excluded. On the other hand, warm-up and warm-down routines should be recorded as training exposure.

The classification of injuries is dealt with in great detail in the document, along with baseline norms for the recording of data and a standard injury report form. Two alternative methods of recording injuries are contemplated: one is based on time

loss; the other – more time-consuming for the medical staff – on the need for medical attention. In other words, the latter will include a relatively large number of incidents recorded as 'severity: zero days'. A number of hypothetical cases are contemplated in the consensus statement, such as a player who sustains a groin injury. The team physician considers that the injury does not warrant immediate treatment and the player continues to take part in training and matches. However, the player elects, two months later, to undergo surgery and then requires 90 days of rehabilitation. In the 'medical attention' format, the case should be recorded as a zero-day injury on the date when the physician was consulted and then as a 90-day injury as from the date of surgery. In 'time-loss' mode, only the 90-day period would be recorded.

Much the same would apply to a player who suffers an ankle sprain during a match but plays on, receives medical attention after the game, continues full training for six days using ankle taping, but aggravates the injury during the next match and requires 15 days of rehabilitation. The more detailed 'medical attention' mode would give a fuller picture (describing the initial sprain as a zero-day injury), whereas the 'time-loss' method only records the ultimate 15-day injury.

For team physicians, the consensus statement not only makes interesting reading but also lays the foundations for thoroughly reliable interchange of information – which can only be positive in the crusade to reduce the incidence of injuries in the game of football.



Ole Gunnar Solskjær is treated for a foot injury. Later the Manchester United forward suffered a knee injury, followed by surgery which sidelined him for more than a year.

THE STATE OF THE PITCH

UEFA has decided to extend its monitoring of artificial surfaces. The report by Professor Jan Ekstrand published in the previous issue of *Medicine Matters* suggested no substantial difference in injury risks between artificial turf and natural grass but, since the study was initiated, the goalposts have been moved slightly by the introduction of new criteria, testing formulae and norms for approval.

artificial pitch may seem fine when it is laid, but the idea is to monitor its performance with the passage of time and to establish levels of wear and tear on the pitch – and the players...

BY THE WAY...

"This is a medical study and it did not consider the effects of artificial turf on playing styles or the quality of football produced on this type of surface." That sentence, featured in the report in the previous issue of *Medicine Matters*, has provoked questions and comment.

FIFA has now established a 'star system', whereby only two-star artificial surfaces will be acceptable for elite competitions, with one-star surfaces acceptable for lower-level games or in certain developing countries.

Under the new regime, UEFA and FIFA have agreed to cooperate on research and monitoring duties, with the former focusing on the top pro level in Europe and the latter monitoring other continents and the amateur game.

In practical terms, this means that UEFA's team will spring into action as soon as clubs install two-star surfaces. And the monitoring will not be restricted to a comparative study of injury incidences. Each club will be visited and feedback from players will be included in UEFA's database. So will detailed information about the state of the surface, as artificial pitches will be tested on an annual basis so that the condition of the pitch can be correlated with injury data. Clubs will also be obliged to keep a detailed logbook related to pitch maintenance – and this information will also be included in the UEFA database.

For the purposes of the study, Europe will be divided into northern, central

and southern sectors. Three countries will be pinpointed within each region and the study will monitor two clubs per country, giving an overall total of 18. Data collection will be meticulous, with a view to producing homogenous, reliable information embracing a period of several years. In other words, an



This jigsaw puzzle was assembled into the artificial pitch at East End Park, Dunfermline in 2003. The SPL had the artificial pitch replaced in 2005.



JEMS KRISTIAN VANG

The artificial pitch that is home to Vags Boltfelag (VB), located amid the dramatic coastal landscape of the Faroe Islands.



The preliminary study conducted by a panel asked to assess injury risks on the two types of surface suggested that artificial surfaces do not detract from the game in terms of incidence figures. The debating point, however, is whether it detracts from the game by removing elements from its rich playing texture.

It might be a valid argument, for instance, to claim that lesser traction on an artificial surface could reduce the risk of studs locking into the turf and causing ligament damage. On the other hand, that relative lack of traction sometimes prompts players to complain about greater difficulties in turning quickly.

However, many of the players' comments focus on the difficulty of chipping the ball on an artificial surface or 'getting under it' to hit a lofted pass. In terms of match analysis, that could translate into significant changes. 'Ball-to-feet' passes become more prevalent, to the detriment of traditional wing play culminating in crosses. Corners have a greater tendency to be played short, as the taker sometimes experiences difficulty in getting a boot far enough under the ball to deliver a more classical lofted centre.

In other words, the purpose of including that sentence in the last issue was simply to alert the reader to the fact that there's more to the artificial turf v. natural grass question than meets the medical eye...



SNS GROUP

The design of footwear custom made for artificial pitches.



EMPICS

Europe's first full-size outdoor artificial football pitch was inaugurated in November 1971 by the first athlete to break the four-minute mile barrier, Roger Bannister, flanked by the captains of the football team of Highbury Grove and Holloway school in London.



CANNABIS AND SPORT

BY DR MARTIAL SAUGY AND DR LYDIA AVOIS,
LAUSANNE ANTI-DOPING LABORATORY

The consumption of substances derived from cannabis, such as hashish (resin) and marijuana ("grass", "pot"), particularly in the form of "joints", is reported to be widespread.

There is evidence to support theories of an upsurge in the use of this type of drug in some countries. The problem affects society in general and sport is not immune to it making it a potential problem that the footballing world cannot ignore. This has caused increasing concern and uncertainty among young players, parents, coaches and managers.

Sportspeople who consume cannabis derivatives generally restrict themselves to low doses. Consumption usually takes place outside sports facilities and so is outside the control of team coaches and/or doctors. This lack of control is accentuated by the fact that testing for the substance only occurs during competitions.

Statistics gathered from laboratories accredited by the World Anti-Doping Agency (WADA) show that cannabis is easily the most common drug causing positive results, in particular ahead of testosterone and nandrolone. Positive results only relate to competition testing. They do not take into account any positive doses found in urine samples taken out of competition; these are not reported by laboratories.

The main active ingredient of cannabis is delta-9-tetrahydrocannabinol (THC). As cultivation methods have developed, it has become possible to grow cannabis plants that have significantly higher levels of THC than before. This high THC level may reinforce and change the immediate effects of consumption.

The effect of a high level of THC in terms of long-term damage to health has not been well documented, although any activity requiring concentration and energy will be affected by its use.

The effects of cannabis derivatives are varied and can have physical and psychological repercussions as well as influencing a player's social behaviour. Isolated or infrequent consumption can lead to:

1. mild intoxication
2. a sedative effect on behaviour
3. slower reaction times
4. memory problems
5. a tendency towards drowsiness.

In terms of the effects on the body, although heightened sensory perception can be expected, THC also engenders a certain heaviness, significant relaxation and excessive fatigue of the limbs. As the dose increases, the user may experience hallucinations, an alteration of the perception of reality and a marked reduction in concentration. Furthermore, as these products are generally smoked, consumption by inhalation can only have a negative effect on sporting performance and the player's health (detrimental effects on the lungs, oral cavity and upper respiratory tracts).

As regards psychological and social behaviour, cannabis accentuates the mood of the person concerned. So a user may become carefree, happy and relaxed, but also risks becoming stressed, depressed or paranoid. Other effects on a user include

reduced inhibition and developing a certain indifference.

Chronic consumption leads to psychological dependence, a chronic sedative effect and even social detachment.

Does cannabis have a doping effect?

The question often asked in the case of a positive result for cannabis is whether it was consciously used for doping purposes. The response must be that this substance can only indirectly improve performance: it can have a euphoric effect, reducing anxiety and increasing the sociability of a player who may be particularly nervous before an important match. It can also have a relaxing effect after the game. In this way, cannabis can be considered as a doping product which calms the mind. It has already been shown that the use of cannabis in sporting environments is basically motivated by the feeling of relaxation and well-being obtained, allowing the user to sleep more easily. However, if consumed regularly, it risks becoming harmful to performance and motivation.

It is when cannabis is consumed regularly that the signs become apparent in young athletes. There may be changes in behaviour during training as well as inconsistent performance, concentration or motivation. Particular care should be taken when a player is vulnerable, for example if lacking support, during



prolonged or repeated injury, when isolated from family or if subject to excessive pressure for results on the pitch. In these cases it is up to the club coaches and doctors to look out for any symptoms that may appear and to intervene tactfully, although firmly, when necessary. In some cases referral to a psychologist will be necessary.

Analysis and the kinetics of urinary elimination

According to the World Anti-Doping Code, an abnormal result must be announced for cannabis if the main metabolite of THC, carboxy-THC, is discovered in a player's urine at a level in excess of 15 micrograms/litre as a result of competition testing. This limit has been established to distinguish between active consumers and smokers of cannabis and players who may have been passively exposed to cannabis smoke. The limit also reduces the risk of a positive urine result after the consumption of some commercial products which may contain traces of cannabis. The use of hemp seed and oil in the manufacture of food products has increased considerably in some Western countries since the mid-1990s. The authorities have acted to impose limits on THC levels such that the consumption of these commercial products will not bring about positive urine results.

It should be noted that the elimination of THC metabolites from urine is a very slow process and depends on an individual's physiology. In this way, a simple quantification of the urinary concentration of carboxy-THC reveals very little information

on the time elapsed since consumption. The quantity discovered in urine depends on various factors:

1. the dosage of the most recent consumption
2. the time elapsed between the most recent consumption and taking the urine sample
3. the manner of consumption (single dose or regular consumption)
4. the individual's metabolism.

If these factors are taken into account, it is extremely difficult to establish a relationship between urinary concentration and the effects on an individual's psychomotor skills.

Despite these considerations, some scientific studies have shown that on the occasional consumption of a normal dose (a "joint"), the user will have a positive result for carboxy-THC for three, four or even five days, depending on the smoker's body mass. In this way consuming marijuana with friends a few days before a match could be disastrous for a football player as there would be a significant risk of failing a doping test. The pretext of recreational use is no longer valid. Even if cannabis is taken without the intention of improving performance, the outcome will be a positive result if the urinary level exceeds the authorised threshold.

For regular users, smoking cannabis several times a week for example, urine samples would remain positive for a much longer time after the most recent consumption. Scientific research published on this subject has shown that the time

until urine samples return negative outcomes can be as much as four weeks (two weeks on average) after the most recent consumption.

In conclusion, even though the doping effects of cannabis have not been clearly established, this drug is on the list of prohibited products and is the subject of competition testing. Given that the product takes a long time to be eliminated from urine, as well as the general negative effects over the long term on sporting performance, players should completely abstain from consuming cannabis in whatever form and under whatever circumstances.

Doping is not merely a pharmacological matter. It is a risky undertaking that compromises health and sporting ethics. In a new definition published in the World Anti-Doping Code, cannabis is categorically considered a prohibited substance and has the capacity to end a player's career.



Dr Martial Saugy.

FIT TO MANAGE?

John Barnwell's coaching career was truncated by a serious car crash when he was on his way home from a charity dinner arranged with a view to raising funds for cancer research. He was lucky to survive an impact which left the rear-view mirror embedded in his skull. Trying to analyse the underlying causes of the accident, he put much of it down to the sheer intensity of the managerial role at football clubs.

lems can easily go undetected and be allowed to escalate.

"You're tempted to think that the club will look after you – and some do. But by no means all. In any case, in 1992, the mean figure for tenancy at a managerial job in the league was two years and seven months. At the moment, the figure has already dropped to one year and seven months. In terms of long-term health care, a manager is, basically, on his own."

John's response was to try to implant a system offering preventive health care to managers. As it happened, it was Kevin Keegan who put him on the trail of Dorian Dugmore, a cardiovascular specialist who, after emigrating to Canada, had been repatriated by Adidas to spearhead a project aimed at company executives. Ten league managers visited the Wellness International Medical Centre in Stockport, near Manchester, during a pilot scheme. Its success led to the birth of the 'Fit to Manage' project.



John Barnwell as manager of Wolverhampton Wanderers FC parades the League Cup after the 1-0 win against Nottingham Forest FC in 1980.

Ten years ago, the former player (his career included seven years at Arsenal FC) was invited to become chief executive of the League Managers' Association, an organisation established in England in 1992. Within six months, he saw how the Wimbledon manager, Joe Kinnear, suffered a heart attack during a league visit to Sheffield Wednesday and was fortunate that the home club had highly qualified medical staff on hand.

"Coupled with my own experience," John Barnwell comments, "it made me realise that health care for managers and coaches was necessary. Most of us are former players and, when you're playing, you get used to looking after yourself and having a lot of things done for you. When you become a manager, you can easily find yourself 20 years older and, instead of looking after yourself, you're concentrating on looking after everybody else. Health prob-

Even though some of the initial reactions were of the "Why do I need that if I'm perfectly fit?" variety, over 80 managers have taken advantage of a scheme currently being funded by the English Premiership. One of the most persuasive arguments in the project's favour was actually the case involving a high-profile coach at a high-profile club who didn't take advantage of the scheme. Rearranged club commitments forced him to cancel three appointments at



Johan Cruyff (second from left) filmed an anti-smoking campaign after undergoing heart surgery while in charge at FC Barcelona.



the Wellness Centre and, before a fourth could be made, he required emergency surgery for a life-threatening heart condition.

Dr Dorian Dugmore is also Secretary General of the World Council For Cardiovascular & Pulmonary Rehabilitation and a board member of the

European Society of Cardiology's Working Group for Sport Cardiology, Exercise Physiology and Cardiac Rehabilitation, apart from being a former player, qualified coach and head coach of the Great Britain team at the World Student Games. Medicine Matters asked him to describe his work on the 'Fit to Manage' project...

aneurysm of the aorta during a Liverpool game. These are some of the high-profile examples: there are many, many more.

The 'Fit to Manage' scheme set up by the Football League Managers Association (LMA) at the behest of John Barnwell was initially funded by the Professional Footballers Association (PFA) and, more recently, by the English Premiership. It has been specifically designed to address the lifestyle and cardiovascular health of the football manager. Cardiovascular screening of ex-athletes (nearly all managers being former footballers) has shown us that the most common cause of sudden death is due to degenera-

Cardiovascular risk in English football league managers **A CAUSE FOR CONCERN?**

The stresses and pressures associated with the management of an English league club have been highlighted recently in the media. Average working weeks range from 80-87 hours, with maximum levels reaching 100 hours. Add to this constant TV, radio and newspaper scrutiny at Premier level. Often, just fighting to survive puts managers in the limelight more than ever before.

The lifestyle associated with such pressure often means long hours on the road, eating poorly – often with a 'fast food' diet high in saturated fats and low in nutritional value. Add in a lack of planned exercise, the relentless pressure to win coupled with a fear of losing your job if you don't, and you have a cocktail that is potentially damaging to your health.

The last 20-30 years have yielded clear evidence of cardiovascular risk/events among league managers. Jock Stein's sudden death from a myocardial infarction following the Scotland v Wales game in 1985; heart

attacks suffered by Joe Kinnear and Barry Fry; Graeme Souness, and Johan Cruyff both receiving coronary artery bypass surgery and Gérard Houllier suffering a dissected



Coaches in the English Premier League undergo cardiovascular tests these days.



Nevio Scala and his assistant Michael Henke had some nervous moments when BV Borussia Dortmund played away to Eintracht Trier in the German Cup in 1997.

tive ischemic heart disease (Thompson P.D., *Exercise and Sports Cardiology*, 2001). Indeed, significant atherosclerotic narrowing of the coronary arteries (> 75% in 2-3 major vessels) has been found in the majority in sudden deaths in older athletes (Northcote et al, *Sudden Death and Vigorous Exercise*, 1986).

A major challenge is emerging: the need for ex-footballers who become managers and coaches to take better care of their lifestyle and cardiovascular health. This identifies a further need for such individuals to be guided towards making the transition from sports-related health and fitness as players, to lifestyle-related health and fitness as managers and coaches. This is being currently addressed through the provision of the Warwick Business School's 'Certified (Football) Management Diploma'. It focuses on key elements of successful football management, especially health/fitness issues.

These include reduced participation in regular exercise; the nutritional balance between calories burned and expended in post-playing days, which often leads to weight gain; and alterations in blood lipid levels and other biochemical markers that can affect cardiovascular risk (e.g. increased adrenaline and cortisol levels during games). The need to balance the demands of management with personal family life was also among the issues reflected in a recent TV documentary, showing that the clinical/physiological costs of managing a top game were higher in the two managers

undergoing electrocardiographic/ blood pressure ambulatory monitoring during a game, compared with being pushed to exhaustion on the treadmill one week earlier in a clinical setting.

Of the first 54 managers (mean age of 49) enrolled in the 'Fit to Manage' scheme, 24 (44%) recorded diagnosed cardiovascular abnormalities and/or significant risk which included atrial fibrillation, atrial flutter, aortic stenosis, significant ventricular ectopy, (couplets, triplets, runs), coronary artery disease, angioedema and hypercholesterolemia. These were recorded despite overall fitness levels being acceptable for age/sex (mean peak $\text{VO}_2 - 43 \text{ ml} \cdot \text{O}_2 \cdot \text{kg} \cdot \text{min}^{-1}$).

The previous discussion raises a big question: Who cares for the carers? Should managers – together with those appointing them and influencing their performance – be strongly encouraged to establish provision to look after their health as a standard clause in future contracts? Such an approach employed across Europe can only help to influence others in the game, including recreational footballers and spectators, to reduce the burden of illness associated with lifestyle/cardiovascular disease. The latter is emphasised in the recent recommendations of the European Society's working group on sport cardiology for competitive sports participation in athletes with/ without cardiovascular disease.



Scotland manager Jock Stein and coach Andy Roxburgh move the goalposts during a training session prior to the EURO'80 qualifier against Norway in October 1978.



Dr Michel D'Hooghe.

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BRUCOSPORT CONGRESS IN BRUGES

October 2006 will mark the end of an era in sports medicine. The annual Brucosport congress in Bruges will be staged for the 25th and last time.

The event has always been close to UEFA's heart – not least because Brucosport was the brainchild of Dr Michel D'Hooghe, former chairman of our Medical Committee, current chairman of FIFA's Medical Commission and, in the more political arena, a long-standing member of the FIFA Executive Committee. However, there has been more to Brucosport than personal attachments to Michel and his team. The event has played a significant role in promoting the development of sports medicine.

"The medical advances over these 25 years," Michel D'Hooghe comments, "are obvious to everybody who is old enough to remember the days when a meniscus operation was relatively major surgery; when physiotherapy and rehabilitation were more about immobilisation than mobilisation; and debates on doping focused on the use of anabolic steroids rather than growth hormones and so on. But, basically, Brucosport came into being at a time when sports medicine in general and soccer medicine in particular was not that well structured. So the event wasn't just about its significance as a conference. It brought specialists together in a context that allowed

them to exchange information and experiences. It was something new and, in all modesty, I think it helped to bring structures up to a higher level."

Asked to explain the decision to lower the flag after the 25th edition, Michel D'Hooghe comments "there have been significant advances in communication technology which prove that Brucosport has fulfilled its purpose. When we started, there were maybe two or three journals of sports medicine. These days, it wouldn't take me long to jot down a list of 15 or 16. And that was before the Internet burst onto the scene as an invaluable communications tool. There are other reasons for bringing down the final curtain. Those of us who organise it are 25 years older, for example! And we have lost some team members. Some participants have been coming to Bruges for 10 or 15 years and might prefer to go somewhere else! At the same time, mergers within the pharmaceutical world have affected the sponsorship scenario. So we have decided to change course and, in the future, to organise specialised events dedicated to specific areas such as trainers or women's football."

So the final Brucosport will be held on 13 and 14 October and, as Michel D'Hooghe says "the idea is to, as we say in French, *finir en beauté*." Helping him to 'go out on a high note' will be an 'all-star team' selected from the previous 24 editions. The final word – on 'Visions for the Future of Sport' – will be delivered by Jacques Rogge, Michel's compatriot who heads the IOC, while the founder of Brucosport will take a bow on a typically positive note by discussing 'Visions for the Future of Medical Follow-up in Football'. "There is still a lot of work to be done and challenges to be faced in orthopaedics, psychology and so on. But one thing hasn't changed over the last 25 years. We can help to produce better athletes but we can't guarantee better footballers!"

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