

The Second Team CSC Saxo Bank Anti-Doping Program Report

Enclosed please find the results of the most extensive set of longitudinal data on professional athletes ever presented during a 1½ year period. Since the launch of the program in December 2006 until April 2008, a total of 941 anti-doping tests have been collected and analysed. All tests conducted under the WADA CODE have been declared “negative”. The key differences between this program and any other presented anti-doping program are the following:

1. All urine tests and blood collections for homologous blood transfusions have been collected under the WADA CODE. This qualifies these anti-doping tests – if declared positive – to be sanctioned according to the WADA CODE rules and regulations
2. 80% of all tests were collected out-of-competition; 9% and 11% were collected pre-competition and in-competition, respectively
3. All tests were unannounced with the focus of testing “at home”

Please read the introduction below and feel free to contact me for any further questions.

Scopes and Results of the Project:

The “Team CSC Saxo Bank Anti-Doping Program” has three aims:

1. To catch possible cheaters within the team
2. To set a new precedent in the anti-doping framework
3. To ensure and protect the health and integrity of the riders

Ad. 1. All 441 urine tests for steroids (223) and EPO (218) have been negative and all 450 blood screenings have been within the limits set by UCI. Three blood screenings were exceeding the limits of either haemoglobin or reticulocytes and can be fully explained by physiological reasons i.e. pre-season haemo-concentrations and medical conditions. In addition, 38 tests for homologous blood transfusions were also found “negative” and 9 hGH were stored for later analyses.

Ad. 2. The extensive, out-of-competition test strategy is meant to put pressure on anti-doping authorities and other cycling teams to improve their anti-doping regimes so that more cheaters can be detected. The program has certainly inspired the forthcoming “Biological Passport” launched by UCI to be conducted in 2008. In addition, one other professional cycling team has implemented an identical program to their riders and many more have shown their interest.

Ad. 3 Educating the riders throughout the program about their fluctuations in anti-doping related variables has enabled the riders and the program manager to identify specific factors such as stage riding, illness, travel, overtraining, altitude, competition etc. that not only may have affected the physiological condition of the rider but also possible anti-doping measures that could have warranted a false sanction i.e. a 14 days start prohibition.

These aims have successfully been obtained which puts this program well ahead of any anti-doping activity taking place in sports today.

Testing and Collection of Results

Collection of tests has been carried out unannounced and in mainly out-of-competition (80% of all tests). Urine and blood samples have been collected either by the UCI certified, independent Stockholm-based anti-doping company, International Doping Test & Management or the German based PWC. A total number of 941 tests – not including research samples for autologous blood transfusions, human growth hormone and measurements of the total amount of haemoglobin (haemoglobin mass). Research samples included the number rounds up to more than 1000 tests during 1½ years of testing.

The tests include blood for blood profiles, blood transfusions and human growth hormone, and urine tests for steroids, EPO, stimulants and masking agents. The medical personnel testing the riders are responsible for taking samples whenever they see fit; riders are contractually required to advise them about their whereabouts at all times so that they are tested without prior warning. The CSC Saxo Bank “whereabouts system” is an extranet designed database that the doping control officers at all times can enter from anywhere in the world. The easy use of the CSC Saxo Bank “whereabouts system” may very-well be the explanation for no “missed tests”

The collection has taken place on five continents with the majority of tests planned during the out-of-season and pre-season period. With an average of 13 blood screenings and 28 tests in total per rider, the CSC Saxo Bank riders are by far the most tested athletes in sports where WADA CODE rules and regulations have been applied.

Independence

All urine tests and blood for homologous blood transfusions have been conducted according to the WADA CODE and analysed by WADA accredited laboratories. Test results are forwarded by the WADA accredited laboratories to the UCI (and if “positive” to WADA) before the results are presented to the program manager and lastly to the Team CSC Saxo Bank. No interference or tampering with results is possible.

Today, all the aggregated results are being made available to the public once again. This strengthens the fact that this program is fully transparent and accountable.

Administration of Measurements

Individual blood profiles have been constructed for each rider and the likelihood of the magnitude of future blood samples can be established by use of statistical methods. Therefore, a database (athledata.org) has been constructed in order to follow the profiles of each rider facilitating a possible, immediate follow-up test if needed.

Conclusions

The Team CSC Saxo Bank Anti-Doping Program has had a major impact on the future global anti-doping work. By the UCI introduction of the "Biological Passport" which in essence is identical to the CSC Saxo Bank Anti-Doping Program, the CSC Saxo Bank program will forever stand as the role model within any ambitious anti-doping activity.

Kind regards,

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Explanatory notes to Figures

Haematocrit and Haemoglobin vs. Time

The normal individual variation in haematocrit and haemoglobin is 15% at the most (e.g. 0.42-0.48 in haematocrit). This variation includes seasonal changes. However, the magnitude of sports specific factors such as training is difficult to establish. It is known that haematocrit and haemoglobin is higher at the beginning of the competition season and then declining in well-trained athletes. In addition, the extent of non-sport specific modalities such as stage races, illness, high altitude training, use of hypoxic chambers, overseas flights etc. influencing blood variables is not easy to establish. Thus, the variations in some elite athletes may express higher values than for normal, healthy people (a 21% decrease in haemoglobin was found in one rider during Tour de France 2007*). By collecting repeated measurements over time the accumulated individual variation declines and sudden out-of-range values will progressively be easier to detect.

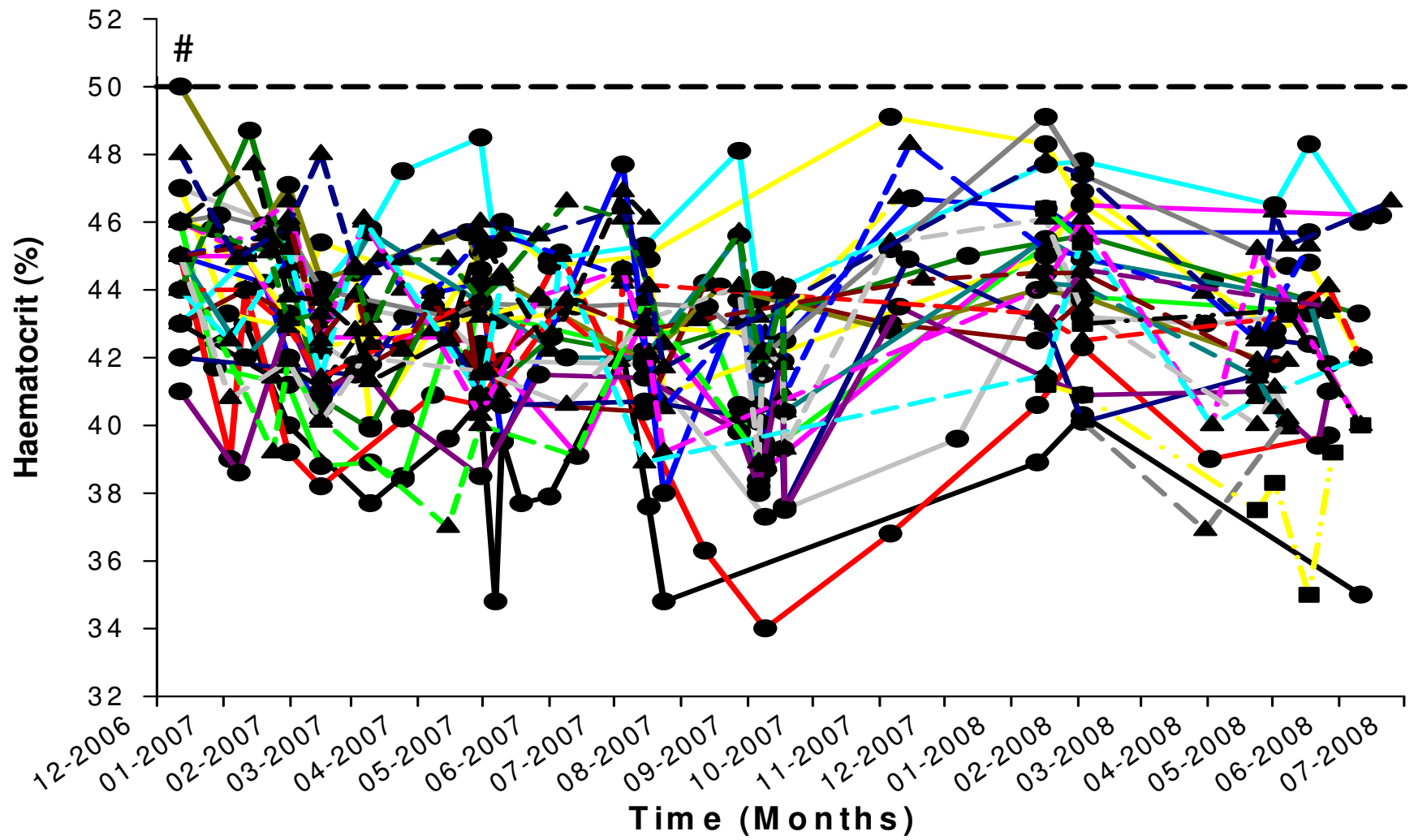
OFF-Score and reticulocytes vs. Time

The OFF-score is an equation containing haemoglobin and reticulocytes (the immature red blood cell). By combining the two variables it is possible to determine whether an athlete has used EPO or to some extent performed (autologous) blood transfusion procedures. The upper limit set by UCI is 133. The upper and lower limits of reticulocytes are set at 2.0% and 0.2%, respectively. Reticulocytes are as mentioned sensitive to various blood manipulations but also independent of the plasma volume and are therefore essential in evaluating blood profiles in athletes. Thus, athletes can by no means manipulate with the numbers found in a blood screening.

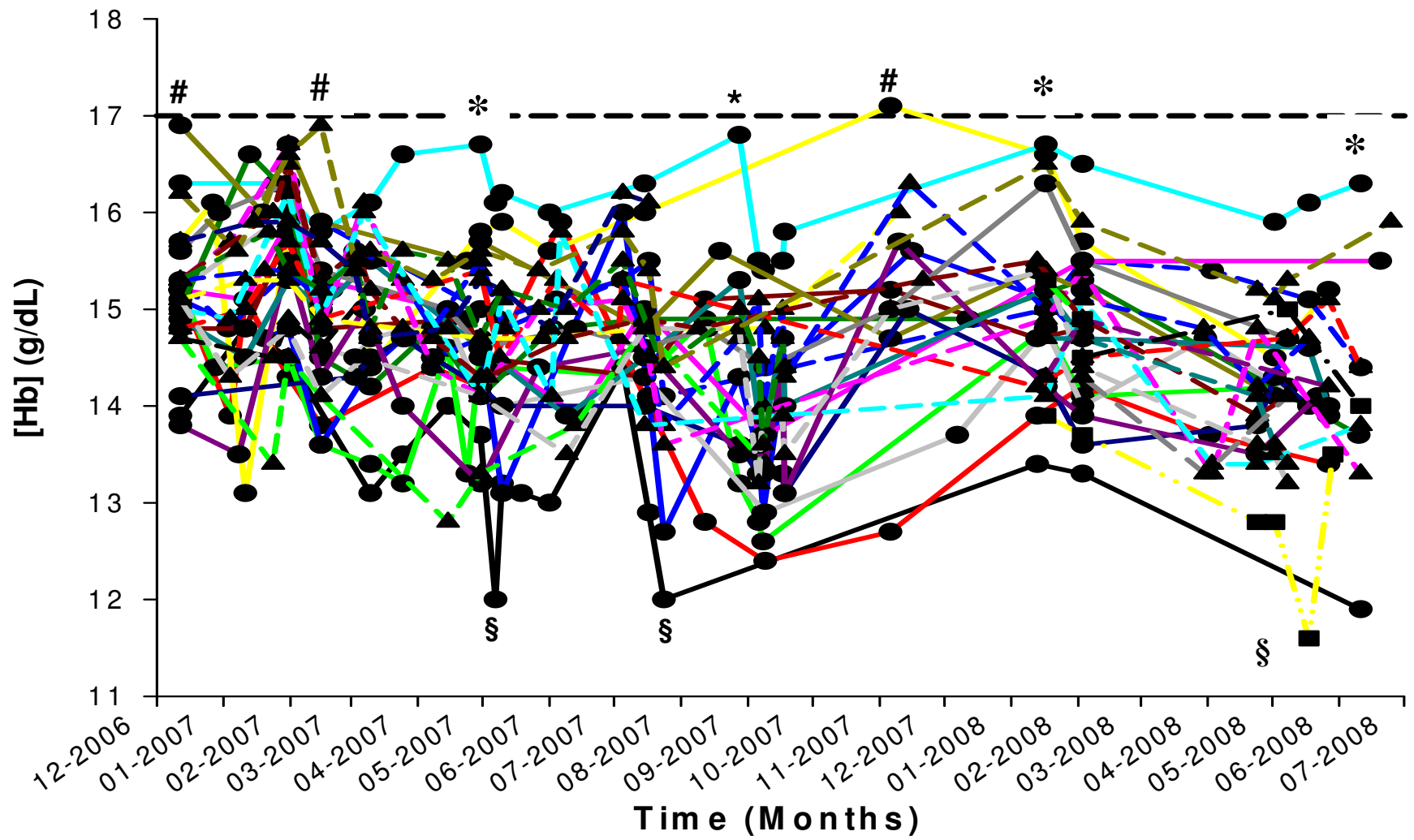
Blood Profiles

An individual "blood profile" in this project consists of a combination of two blood variables – haemoglobin and reticulocytes. Reticulocytes are very sensitive to EPO and loss of blood (autologous blood transfusion) but less sensitive to i.e. altitude, illness, and hypoxic chambers. Therefore, repeated measurements of reticulocytes in combination with haemoglobin helps discriminating between the use of forbidden substances/methods and normal conditions.

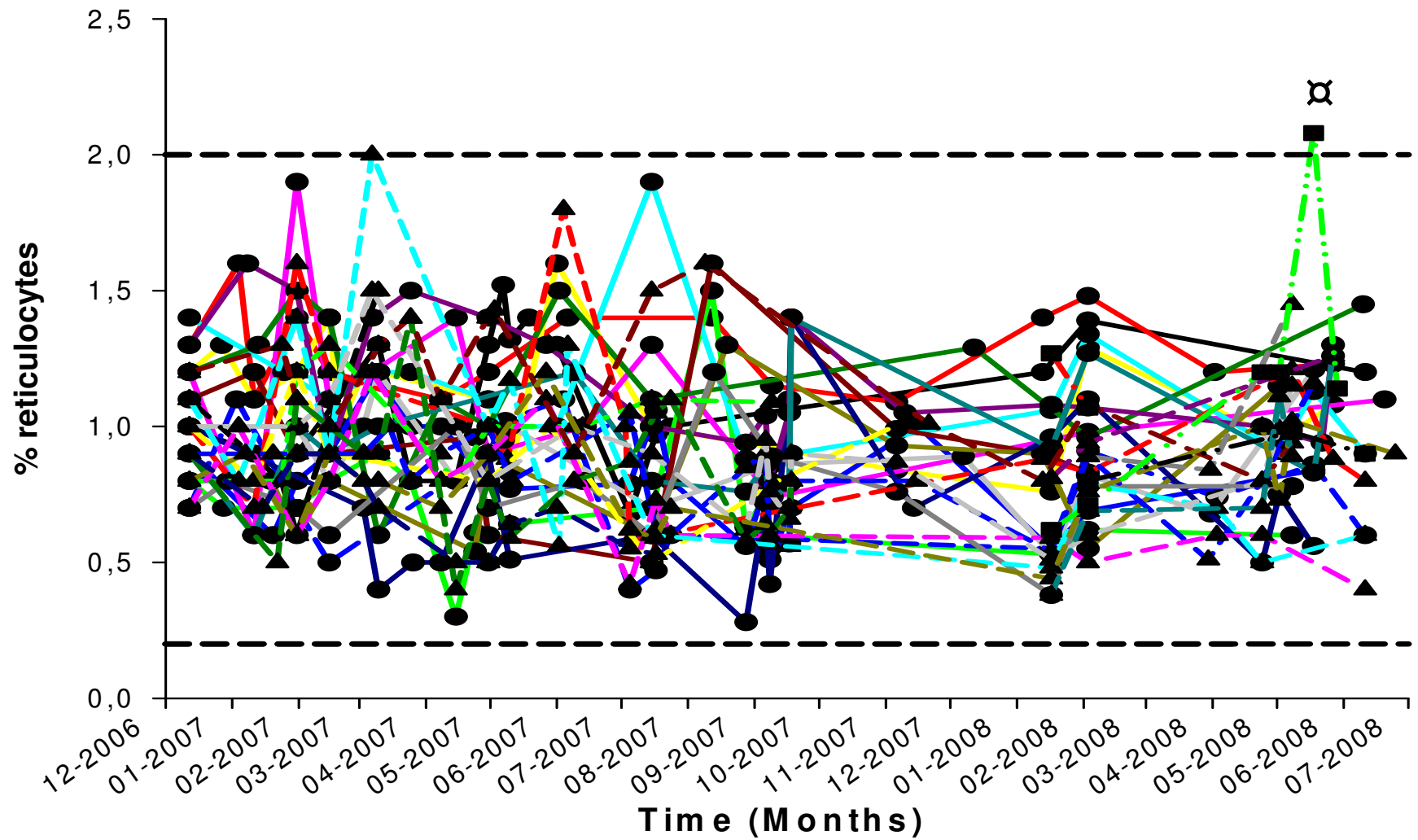
* Mørkeberg J, Belhage B, Damsgaard R. Changes in blood profiles during Tour de France, Ugeskr Laeger. 2008 May 26;170(22):1916-9 2007



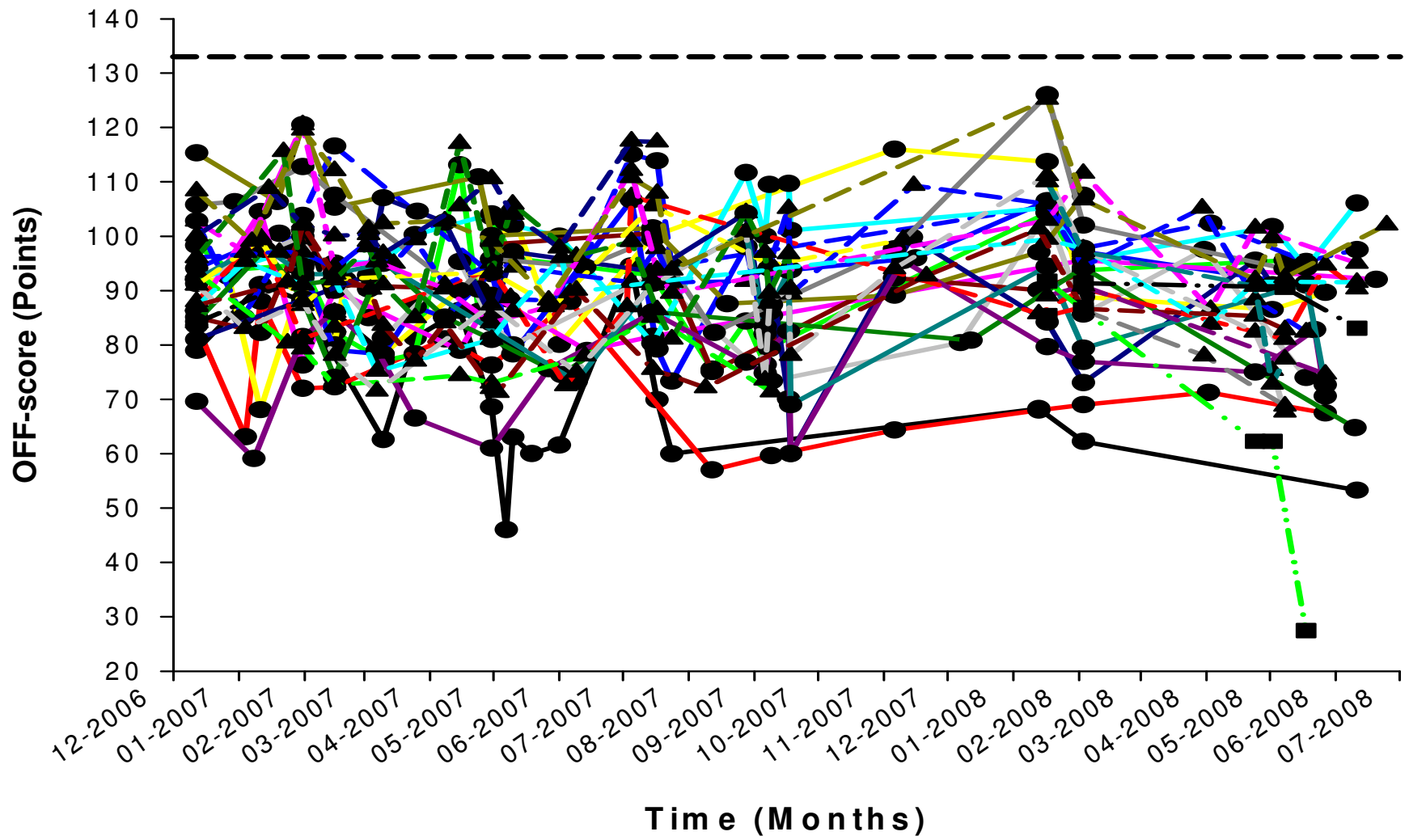
Possible high haemoglobin due to out-of-season haemo-concentration



Possible high haemoglobin due to out-of-season haemo-concentration
 * UCI permission for exceeding upper limits due to documented natural high haemoglobin
 § Blood collected after days of high intensity competition

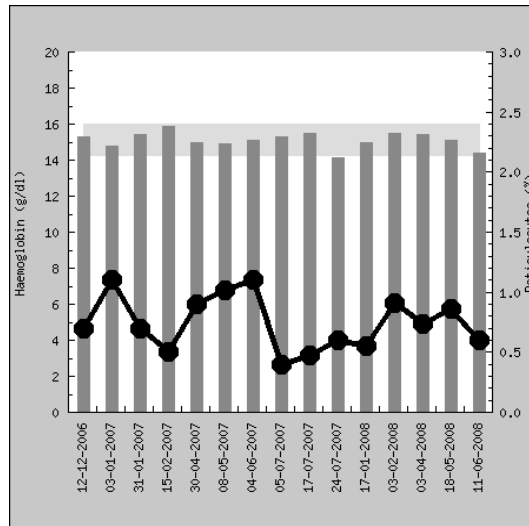


⊗ High reticulocytes in combination with critical low haemoglobin regarded as a medical condition by the program and UCI



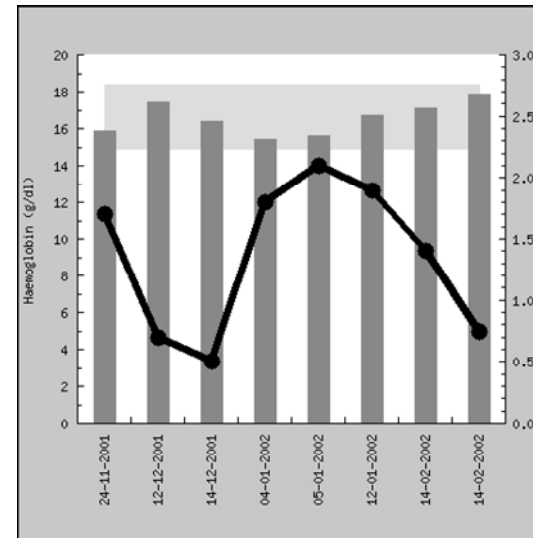
Blood Profiles

CSC Rider – Normal Variations



Blood profile with normal variations in hemoglobin (grey bars) and reticulocytes (black line). In addition to 8 out-of-competition EPO and steroid tests, this rider had specific follow-up tests for EPO and blood transfusion – all negative

Athlete (non-cyclist) – Positive for EPO



Blood profile with a characteristic “wave-like” pattern in an athlete tested positive for EPO in February 2002. The reticulocytes (black line) show major variations with concomitant increases in haemoglobin (grey bars)