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Current markers of the Athlete Blood Passport do not flag microdose EPO doping.

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Abstract

The Athlete Blood Passport is the most recent tool adopted by anti-doping authorities to detect athletes using performance-enhancing drugs such as recombinant human erythropoietin (rhEPO). This strategy relies on detecting abnormal variations in haematological variables caused by doping, against a background of biological and analytical variability. Ten subjects were given twice weekly intravenous injections of rhEPO for up to 12 weeks. Full blood counts were measured using a Sysmex XE-2100 automated haematology analyser, and total haemoglobin mass via a carbon monoxide rebreathing test. The sensitivity of the passport to flag abnormal deviations in blood values was evaluated using dedicated Athlete Blood Passport software. Our treatment regimen elicited a 10% increase in total haemoglobin mass equivalent to approximately two bags of reinfused blood. The passport software did not flag any subjects as being suspicious of doping whilst they were receiving rhEPO. We conclude that it is possible for athletes to use rhEPO without eliciting abnormal changes in the blood variables currently monitored by the Athlete Blood Passport.

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