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Symptoms of fatigue, recurrent infection and immunosuppression are often present in the athletic population. High training loads and rigorous competition schedules may contribute to symptoms associated with these conditions. This can lead to an inability to train at an effective level, resulting in poor performance. In athletes with a history of these types of symptoms, regular medical screening (including blood work) is recommended.

### **How are blood tests requested for athletes?**

- Athletes and coaches can request testing through medical physicians who will order appropriate blood tests (hematology, organ function) and urine tests as required. These physicians may be associated with individual athletes, sport bodies or actively involved within sport Performance Enhancement Teams (PETs).

### **When should blood work be done?**

- Medical screening and blood work monitoring should be placed at strategic points in the yearly training plan 2-4 times per year to ensure optimal health status during training and leading into key competitions.
- Tests can also be ordered after an athlete presents with symptoms and requires subsequent treatment.

### **Common blood test parameters:**

- **Ferritin (Fe):** As an indicator of iron status, this measure may provide early warnings of a threat to oxygen carrying capacity. Ferritin in athletes should be > 30 ug/L for males, and >20 ug/L females. If there is a poor response to training, supplementation and/or nutritional consult may be required.
- **Hematocrit (Hct) and Hemoglobin (Hb):** Increases in Hct and Hb may indicate an increase in oxygen carrying capacity. In addition, these values can reflect nutrition as well as volume and intensity of training. Low values may be associated with fatigue and will impair training and performance. Results are sensitive to hydration status, posture, and fluid shifts due to exercise, therefore methods should be standardized.

### **Example of a Standardized method of blood sampling:**

- Samples should be obtained in the morning, prior to coffee, breakfast or exercise
- Avoid high intensity exercise for 24 hrs prior to sample collection
- Arrive well hydrated (clear urine)
- Controlled posture (eg. sitting for 15 minutes prior to sampling)

*“The monitoring of a swimmer’s health status and performance readiness through the use of blood pathology is a valuable tool as part of a holistic development leading to optimal performance.”*

Tom Johnson, Swim Coach, Pacific Dolphins Swim Association, National Swim Centre



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