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Proteomics world-first blood test tracks muscle recovery in athletes

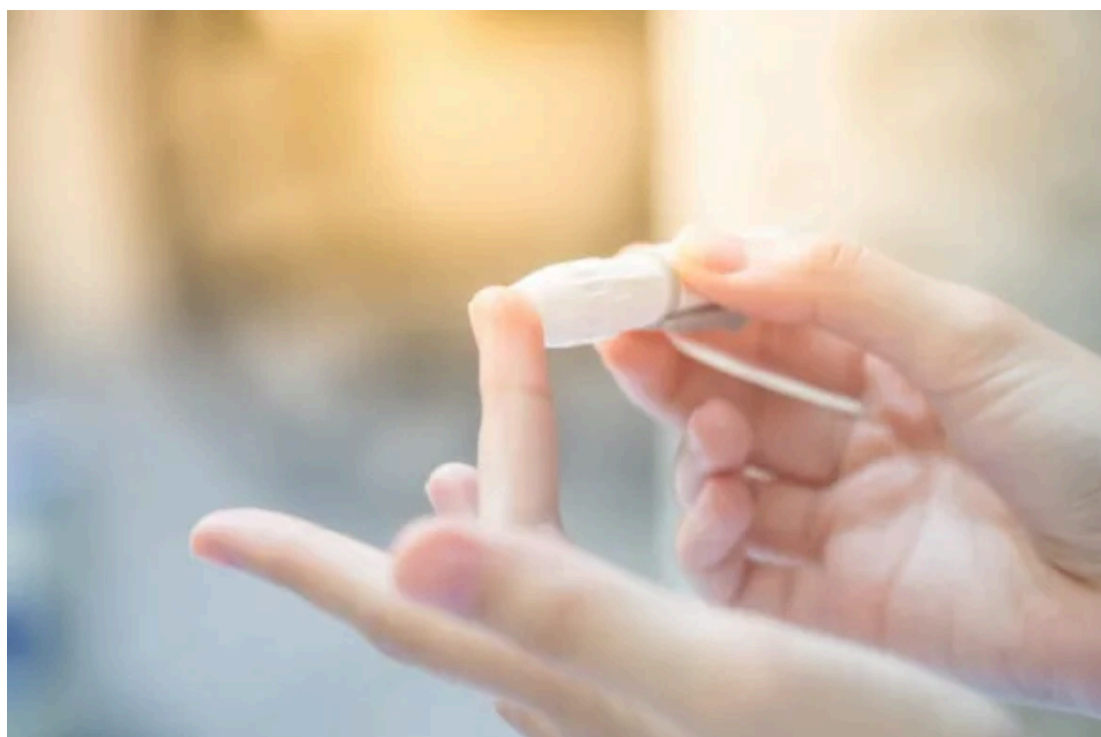
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In a world-first for sports science, OxiDx, a majority-owned subsidiary of ASX-listed biotechnology company Proteomics International has unveiled a groundbreaking, easy-to-use diagnostic tool to detect and monitor muscle damage and recovery in athletes.

Proteomics sees OxiDx's innovative fingerprick blood test becoming a valuable step in transforming sports medicine, helping to minimise muscle injury, better manage recovery and optimise performance in athletes.



OxiDx, a majority-owned subsidiary of biotech company Proteomics International, has revealed a simple fingerprick test to detect and monitor muscle damage in elite athletes.

The company has just published the results of its study in the peer-reviewed journal *Physiological Reports*, showing the test can effectively measure oxidative stress, a key marker of muscle damage caused by exercise.

Oxidative stress is an imbalance between two different types of molecules, free radicals and antioxidants – muscles can be injured when there are too many free radicals and not enough antioxidants in the body.

‘These results could be a game-changer for sports medicine - they have implications for all high-performance athletes.’

Proteomics International managing director Dr Richard Lipscombe

The recent study examined 20 elite marathon runners, who underwent blood testing from five days before to a week after their races.

Oxidative stress levels in each athlete were identified via a biomarker - described as a “fingerprint” found on protein molecules in the blood – which peaked 48 hours after the marathon and remained elevated for up to five days.

The OxiDx test results closely matched traditional indicators of muscle damage, such as increased muscle soreness and elevated levels of creatine kinase, an enzyme leaked into the body whenever muscle tissue damage occurs.

Individual recovery times varied significantly, with some athletes recovering within three days while others showed signs of stress beyond seven days. Proteomics says the variability in recovery times identified using the OxiDx test highlighted its potential for use in personalised recovery plans, enabling athletes to safely resume training without risking further injury.

OxiDx, which is 60 per cent owned by Proteomics, is working with The University of Western Australia to commercialise technologies that can diagnose oxidative stress by detecting subtle changes in the surface structures of protein molecules in the blood.

Initially, the OxiDx test could provide a simple, accurate method for tracking muscle recovery, filling a critical gap in current sports science capabilities. The test could be used to collect blood samples in the home, clinic or on the sports field.

It could also provide a considerable cost saving within the sports industry, given muscle injuries account for up to 55 per cent of all sports-related injuries, costing Australia an estimated \$1.2 billion in 2023 alone.

Proteomics International managing director Dr Richard Lipscombe said: *“These results could be a game-changer for sports medicine - they have implications for all high-performance athletes, from footballers to horse racing. If we can detect unseen muscle damage, then athletes can adjust their training regime to avoid more serious injury.”*

Proteomics says the potential applications of the OxiDx test may extend far beyond sports, with promising opportunities in sectors such as veterinary science and general medicine.

The company is actively exploring the use of the test in the lucrative horse racing industry – it is estimated up to 85 per cent of thoroughbreds experience at least one injury within the first two to three years of their racing careers.

Oxidative stress may also contribute to the development of chronic and degenerative health conditions, including cancer, rheumatoid arthritis, and cardiovascular, kidney, neurological, and respiratory diseases. Down the track, an appropriately modified form of the OxiDx test may have the potential to identify the early onset of some of these debilitating conditions.

Proteomics International is gearing up for an Australian launch of the OxiDx test for athletes in early 2025.

With its ability to measure subtle protein changes via a simple at-home or on-the-field blood sample and its potential for wide-ranging applications, the first of its kind test appears set to redefine how sports medicine and possibly general medicine, tackles injury and disease prevention and recovery.

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