

**Needle-Free Blood Analysis**  
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Needle-Free testing is the concept of studying parts of the body, particularly blood or tissue, without the use of needles, thus without penetration of the skin. This sort of medical testing is used today; for instance, by the Pulse Oximeter (pictured left) is a device that uses sensors to measure the amount of oxygen in the blood. Scientists at



HortResearch, a government-owned research organization, are trying to expand this technology so that most blood analysis can some day be done needle-free.

In November of 2002, Dr. Christian Cook, a researcher at HortResearch, came across needle-free blood analysis when trying to manipulate high-frequency sound waves in order to measure fat levels in sheep. In his studies, Cook found that chemicals in the blood were drawn up towards the skin so that tests could indeed be run on blood without the use of needles. This conclusion brought HortResearch to use this technology in sport science, specifically in the physical training of the New Zealand America's Cup Team. The physical trainer for Team NZ, David Slyfield, told the Pacific Rim Biotechnology Conference that this technology allowed him to find the effectiveness of the training routines. This eventually led to the altering of the workout schedules of the members of Team NZ. For instance, this technology allowed Slyfield to discover the different amount of sleep required for different athletes.

Sources:

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