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Portable X-ray Fluorescence Methodology for Bone Lead Measurement

Low-cost, portable device detecting long-term lead exposure in bone without cadmium sources or bulky equipment.

Researchers at Purdue University have developed a method of X-ray Fluorescence (XRF) that allows clinicians to identify long term lead exposure in the human body. This method is noninvasive unlike other techniques. Researchers found that long term lead exposure can be detected in bones using a unique portable x-ray machine. Bone lead content is measured using XRF. Compared to the current method used in industry referred to as KXRF which uses the k-shell of lead, this method is much more portable. This new method is also an improvement on KXRF, not requiring cadmium isotope. However, the XRF machine detects the l-shell in lead which allows a smaller and less expensive hardware. This method of long-term lead exposure measurements is much cheaper and faster than current in-use methods.

Advantages:

-Portability

-No cadmium-109 needed

-Quicker measurement times

Applications:

-Lead Exposure detection

-Diagnosing of medical conditions

-Continued research of other elements know to accumulate in bone

Technology Validation:

This technology was validated using former research with the XRF equipment as well as continued research and testing with timing of measurements.

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Category

Biotechnology & Life Sciences/Analytical & Diagnostic Instrumentation

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