



Pentti Iivanainen: Passion for bone health

OSCARE SONO® CUSTOMER TESTIMONIAL



- For over ten years Pentti Iivanainen ran a clinic for patients with bone fractures and increased risk of osteoporosis.
- Osteoporosis screening was performed by an interview based evaluation of clinical risk factors for osteoporosis and during the recent years by measuring bone strength with the OsCare Sono® bone sonometer.
- OsCare Sono® enhances the screening of osteoporosis patients and helps to target healthcare resources well as only those patients with a significantly increased osteoporosis risk are sent for further investigations.

Meet **Pentti Iivanainen**, a retired paramedic nurse from the city of Mikkeli, which is located in South-Eastern Finland and has about 55,000 inhabitants. During his career at the **municipal health center** of Mikkeli, Pentti Iivanainen has used the **OsCare Sono® bone sonometer** probably more than anyone else in the world: he calculates himself that he has done bone check-ups for almost one thousand patients during three years. This must be the unofficial world record – so far. Therefore, Pentti is the right person to share his experiences of screening for osteoporosis and about the ways that OsCare Sono® can be used to improve the conventional care processes.

“Pentti Iivanainen has measured bone strength with the OsCare Sono® sonometer on almost a thousand patients during three years.”

Pentti's work history includes 25 years of work both at Mikkeli municipal health center and Mikkeli city hospital. Pentti first graduated as a medical technician. In 2000, when the first ever paramedic training program in Finland started, Pentti was among the participants. Four years later, he finished another training program that was the first of its kind in the country and became a certified cast master. Pentti also worked at Kuopio University Hospital, both in the emergency room and surgical outpatient clinic. In 2004 Pentti's career took a new turn, as he was given



OsCare Sono®'s low frequency ultrasound enables a good correlation with characteristics affecting bone strength.



All equipment needed in the OsCare Sono® measurement are conveniently carried in the case: the measurement device, measurement aids (ruler, patient's hand support and ultrasound gel) as well as a laptop and its power cord.

the responsibility of running a clinic for bone fractures and osteoporosis patients. His work also included an element of screening obstructive arterial disease by measuring ankle pressure and ABI indexes of primary healthcare patients. By this time, the change of duties was welcome, as Pentti felt that he had already had his share of the eventful and hectic shifts in the emergency room.

In 2012 Pentti started using an OsCare Sono® bone sonometer to help him screen for osteoporosis among his patients. OsCare Sono® measures the speed of low frequency ultrasound in the forearm radial bone. The measurement result correlates with bone cortical thickness, mineral density and elasticity – all important determinants of bone strength. Studies comparing OsCare Sono® and central DXA measurement results have shown that the lower the patient's OsCare Sono® result, the more likely he or she is to have an osteoporosis finding in the DXA examination (DXA = dual energy X-ray). The correlation between the measurement results of OsCare Sono® and central DXA was investigated also in Mikkeli. Pentti was responsible for the patient measurements in this 100 patient study and the principal researcher was Dr. Juha Kiesilä, the senior physician of home care in the Mikkeli region. The results of the investigation were analogous with those from the previous research.

For ten years, Pentti ran his clinic for fractures and osteoporosis, and eventually retired in the summer of 2015. When talking to Pentti, it is obvious that osteoporosis was really close to his heart. And it still is, as retirement has not

subdued his energy when it comes to giving enlightening health advice. He loves to speak about the two essential things that keep bones strong: Good nutrition, supplemented with calcium and vitamin D, and physical exercise. The number of city dwellers of Mikkeli that Pentti sent to the local gym to improve their muscular strength and balance is significant.

Pentti also tells how worried he is about children who don't get enough physical exercise. Too much inactivity combined to the megatrend of lengthening lifetime will lead to a future where we have an enormous population of elderly with fragile bones. With this, Pentti confirms what we already know from research: osteoporosis is getting more and more common in the Western world, and its detection and care are becoming a high priority.

DETECTING AND TREATING OSTEO-POROSIS IN THE MUNICIPAL HEALTH CARE CENTER OF MIKKELI

In his clinic, Pentti welcomed patients with fractured bones from both primary and specialized care. Also the occupational health physicians of

“Interview and the MOI index, as well as OsCare Sono® measurements, were used for the screening of osteoporosis.”



OsCare Sono® measurement is effortless and the result can be immediately read on the computer screen.

the city of Mikkeli sent in patients with suspected osteoporosis. The third patient group that Pentti regularly saw in his clinic were women who were screened for osteoporosis as a part of their 60-year routine checkup. It was Pentti's task to examine his patients for osteoporosis, using the MOI index (Mikkeli Osteoporosis Index) and OsCare Sono®, and sometimes blood testing, and then send the risky cases to DXA for further examination. The MOI index is a questionnaire-based tool for assessing an individual's risk of osteoporosis. It is well known in most Finnish hospitals, although the internationally better known FRAX index has gained popularity also in Finland.

The patients whose DXA results clearly indicated osteoporosis had blood tests done to exclude potential secondary causes. After this, medication was started. At this point, patients were also given health education, where the importance of exercise and nutrition were explained in detail. When the patient's diagnosis was osteopenia, the appropriate care included health education with calcium and vitamin D.

THE USE OF OSCARE SONO® BONE SONOMETER

Pentti holds the unofficial world record of OsCare Sono® measurements with his 1,000 checkups. He says that using the device was easy, and his patients were happy to have their bone strength assessed. Those who had good results were satisfied, and the ones who ended up in the DXA queue were glad that their condition was diagnosed and treated.

In some cases, with excessively muscular or thick armed patients, it was challenging to get OsCare Sono® readings, but usually also these patients got reliable results eventually. Overall, Pentti estimates that during the three years about ten patients failed to get their readings because their arms had too much soft tissue on top of the radius bone.

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"The use of OsCare Sono® bone sonometer can lead to cost reductions when the right patients are sent to DXA examinations."
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The OsCare Sono® results were well in line with DXA findings. According to Pentti Iivanainen, OsCare Sono® can be a useful tool in osteoporosis screening, used together with the MOI index and interview results. Routine use of OsCare Sono® may lead to cost savings as only patients deemed to be at an increased risk of osteoporosis based on the OsCare Sono® result and other risk factors are sent to DXA. After all, it is not worthwhile to send everyone to the expensive and time consuming DXA examination, if you have access to a reliable yet economical choice. OsCare Sono® bone sonometer also helped detect individuals with an increased risk of osteoporosis, who would not have been spotted otherwise. Overall, the early detection and treatment of osteoporosis helps save costs and improve the quality of life.



ABOUT OSCARE MEDICAL

Oscare Medical was founded in 2007 to commercialize the results of research conducted in the University of Jyväskylä since the early 2000s. Since 2013 the majority of Oscare Medical is owned by a publicly-listed Finnish company, the Revenio Group Corp. Revenio Group Corp. also markets the highly successful Icare® tonometer family for the measurement of ocular pressure. The OsCare Sono® has a CE marking and it is available in several international markets.

For more information:
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