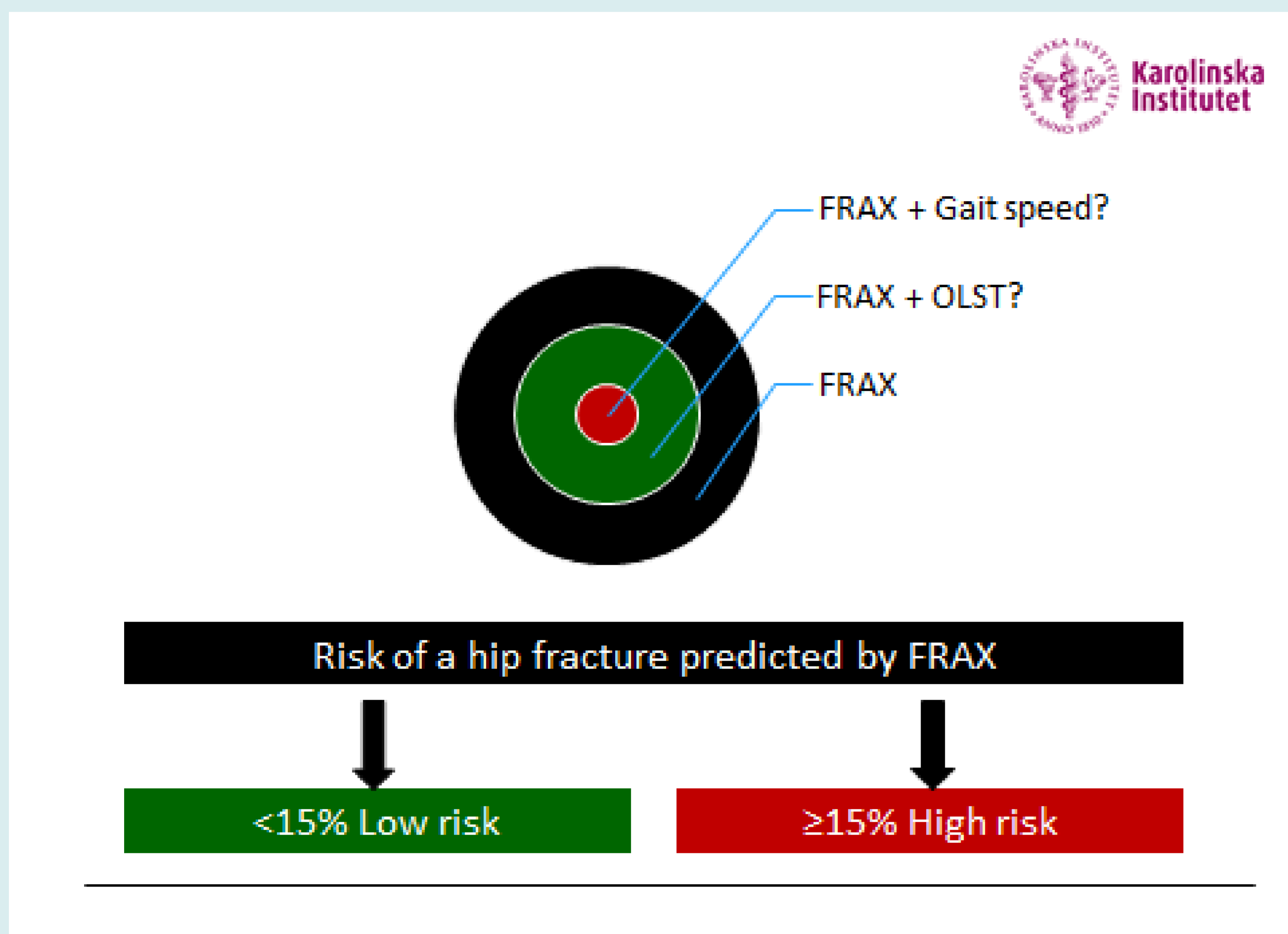


The added value to FRAX of gait speed and tests of postural balance

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Results

Gait speed and one-leg standing time each add to the predictive ability of FRAX

Gait speed added to FRAX

- Net reclassification index 0.24 ($p=0.023$)
- Sensitivity (true positive rate) increased from 13% to 47%
- Specificity (true negative rate) decreased from 93% to 83%

One-leg standing time added to FRAX

- Net reclassification index 0.061 ($p=0.545$)
- Sensitivity (true positive rate) increased from 15% to 43%
- Specificity (true negative rate) decreased from 93% to 72%

Objective

One-leg standing time and gait speed are known bone density independent risk factors for hip fractures. These risk factors are not included in the FRAX (Fracture Risk Assessment) tool. Improving the predictive ability of FRAX by addition of easy-to-perform measurements, would be of great clinical value, since many fragility fractures could be prevented if high-risk individuals were correctly identified. The primary aim of this study was to explore which of gait speed and one-leg standing time (OLST), had the greatest impact on the predictive ability for hip fractures, as additions to FRAX.

Methods: A population based sample of 351 women aged between 69 and 79 years were tested for one-leg standing time with eyes open, mean gait speed over a 15 + 15 meters walk. Hip fracture and mortality data were obtained from health care registers.

Conclusion: Gait speed could be a valuable addition to FRAX in hip fracture risk assessments in elderly women.



- Net reclassification index (NRI) compares two predictive models for example FRAX compared to FRAX + gait speed
- Range -2 to 2
- A positive NRI (>0) indicates improved accuracy.

	FRAX		FRAX + new risk factor "X"	
	Fracture	No fracture	Fracture	No fracture
FRAX $\geq 15\%$	A	B	FRAX + X $\geq 15\%$ (thumbs up)	(thumbs down)
FRAX $< 15\%$	C	D	FRAX + X $< 15\%$ (thumbs up)	D-F (thumbs down)

The area under curve (AUC) for the receiver operating characteristic (ROC) increased from 0.59 to 0.71 when gait speed was added to FRAX. AUC was 0.67 for one-leg standing time added to FRAX. The 75:th percentile of fracture risks predicted by FRAX was 15%.

The population was divided into a high risk group with hip fracture FRAX risk $\geq 15\%$ and a low risk group with fracture risk $< 15\%$. When classifying into these two risk groups, net reclassification index (NRI) was 0.24 when gait speed was added to FRAX, and 0.06 with the addition of OLST

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