**Problem** Risk prediction may reduce the burden of disease by guiding strategies for prevention and treatment in a wide range of domains, but accurate and interpretable prediction models are needed.

**What is Already Known** The oblique random survival forest has exceptional prediction accuracy, but it is also computationally inefficient and lacks tools for interpretation.

**What This Paper Adds** This study introduces methodology that improves the computational efficiency and interpretation of oblique random survival forests. We show that fitting oblique random survival forests with partial Newton Raphson scoring is hundreds of times faster than existing methods with no loss of prediction accuracy. We also introduce a novel method to estimate variable importance with oblique random survival forests that outperforms state of the art methods when used to discriminate between relevant and irrelevant continuous predictors.