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## Biomarkers and prediction models for type 2 diabetes and diabetes related outcomes

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## Stellingen

Behorende bij het proefschrift:

### **Biomarkers and Prediction Models for Type 2 Diabetes and Diabetes Related Outcomes**

“A direct comparison of the performance of prediction models in external validation can bridge the gap between the development of models and the conduct of studies for clinical application.”—This thesis

“Existing prediction models are valid tools to identify individuals at high risk for type 2 diabetes but do not perform well enough to quantify the actual risk of future diabetes.”—This thesis

“Variation of glycaemia indices below the threshold for diagnosis of diabetes is a good predictor of diabetes over 5-10 years in adults.”—This thesis

“It is particularly important for the assessment of the value of novel biomarkers to take into account the possible effect of sex on the risk prediction of diabetes.”—This thesis

“Biomarkers which are in the causal biological pathways or correlated with common risk factors for diabetes or cardiovascular disease are less likely to provide additional prognostic information.” — Gerszten RE, Wang TJ, Nature 2008;451:949-52

“Prediction models should contain information from multiple time-points to make full use of biomarkers indicating the flow of life.” —This thesis

“To be considered useful, a risk score should be clinically credible, accurate, have generality, and, ideally, be shown to be clinically effective—that is, provide useful additional information to clinicians that improves therapeutic decision making and thus patient outcome.” Altman DG, et al BMJ 2009;338:b605

“The meaning of life is what you choose it to be. It is not somewhere out there but right between our ears.” —Stephen William Hawking

“Life is like riding a bicycle. To keep your balance, you must keep moving.” — Albert Einstein

“It is not enough that we do our best; sometimes we must do what is required.”  
— Winston Churchill

Ali Abbasi  
Groningen, March 2013