

**Application of a Prediction Model for Identification of Individuals at  
Diabetic Risk.**

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As a follow-up to our preceding paper, we attempted to extract features of health risk progression for diabetes in Sequential Multi Layered Perceptron (SMLP) via inverse processing of the learned structure. The time-varying risk progress was assessed with risk trajectory and conditional mixture model. Overall risk cut along with the prediction was stable over time and high body mass index (BMI) tops the health behavioral risks predicting the onset of diabetes. For the initial prediction, high BMI (obesity), high blood pressure (BP), high cholesterol, and diet in fatty food were significant. Over time, variations in trajectory were due to changes in BMI, stress, BP, cholesterol, and fatty food intake. We tested the effectiveness of identifying prediabetics by the SMLP by applying the implemented SMLP to a test population of employees from a large manufacturing company, where an early worksite health promotion was initiated (1984). This resulted in a potential sensitivity (71.4%) although there were issues like mapping corresponding risks and large time lags. A secondary test on the similar population as in the previous paper showed a promising sensitivity (86.5%) over 3 years. When combining with targeted screening such as impaired glucose tolerance test only for those predicted to be diabetics, the presented prediction model and extracted features can be used in implementing an effective disease prevention and management program.