Title: The Validity of Acanthosis Nigricans on Determining Insulin Resistance

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Background: The rates of Type II Diabetes (T2D) and obesity in adolescents are rising, and previous research has indicated that Insulin Resistance (IR) is a precursor for both conditions. The development of Acanthosis Nigricans (AN) has been associated with higher levels of IR, presenting as symmetrical thickening and darkening of the skin. Nurses play a critical role in the early detection of IR, and the development of a non-invasive screening measure to detect physical characteristics associated with IR can help with identifying children who are at risk for developing diabetes

Objective: The purpose of this study was to analyze and investigate the validity of AN screening on determining IR.   The research questions guiding this study are: "What is the strength of the association between AN and IR?" and "Is this association substantial enough to use AN screening as a reliable method in schools to identify 'at risk' children?".

Methods: A systematic review of literature was completed to evaluate the evidence of the effectiveness of AN screening on determining IR in school-children and adolescents. Inclusion criteria included subjects 18 and under, studies written in English, and research published between 2010-2017. The variables that were measured included physical assessments, weight/height, sex/age, cholesterol, glucose/insulin, HOMA-IR, blood pressure, metabolic syndrome, T2D history, and Tanner's score.

Results: Of the original 31 articles originally identified, 15 met the inclusion criteria. Indicators for IR, like HOMA-IR, were found to be significantly associated with the development of AN. Studies have found that those with AN were 2-3.52 times more likely to become insulin resistant. The majority of research with the other measured variables (weight/height, sex/age, cholesterol, glucose/insulin, blood pressure, metabolic syndrome, history of T2D, and Tanner's score) also demonstrated a strong, significant association between the development of AN and IR. The three articles focused on physical assessments found that the presence of AN was a significant indicator for hyperinsulinemia and concluded that AN screenings were a reliable and effective tool at identifying "at risk" children.

Discussion: AN screenings should be done routinely in schools. Implications of this review stress the need to start enforcing AN screenings and train qualified individuals in identifying risk factors like AN that have been found to be associated with more serious health diseases, like T2D.