

Symposium 3: Nutrition and Growth

Using biological and physical measurements in children to predict disease risk

Dwyer T, Jones G, Blizzard L

Menzies Research Institute, University of Tasmania, Hobart, Tasmania

Background - The Menzies Centre has employed a strategy of including physical and biological measures of exposure in its studies where these might be relevant. The Centre has used such measures not surprisingly where the alternative - questionnaire or direct observation - could not obviously provide the desired information. The Centre has also used physical and biological measures to assist the interpretation of data obtained from questionnaire measures or simpler physical measures.

Review - In research on the occurrence of dysplastic naevi, a risk factor for melanoma, three physical/biological measures were used in parallel with two established questionnaire measures. Amid the risk factors of interest, in place of sun exposure questions direct sun exposure using polysulphone badges was undertaken and in conjunction with self reported measures of tendency to burn or tan a non-invasive measure of melanin density using a spectrophotometer was included. Also a measure of the type of melanin each individual was producing was obtained from hair samples.

In a cohort study of children where the endpoint of interest was bone density information on diet was obtained and physical activity via questionnaire. In addition, physical activity was measured using pedometers, vitamin D was measured from a serum sample. Both the abovementioned studies were able to obtain valuable extra insights for an inclusion of the biological and physical measures. The relevant results will be presented. The Menzies Centre currently has a large NHMRC grant to follow a cohort of over 8,484 children who had physical and biological measurements made on them between the ages of 7 and 15, as well as having had information on diet and physical activity collected through self report. Both sets of information will be used to estimate childhood exposures in a study which now seeks to re-measure the cohort members at age 25-33. As the first step in a longer process of following them until later life diseases, such as coronary heart disease, occur.

Conclusions - The goal of this study will be to separate the effect of childhood exposures from exposures in early adulthood on risk of adult coronary heart disease and some other conditions.