
Waist-to-hip ratio

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Identifying and Definitional Attributes

Data Dictionary: NHDD

Knowledgebase ID: 000373 Version number: 2

Metadata type: DERIVED DATA ELEMENT

Registration Authority: NHIMG Admin status: SUPERSEDED

Effective date: 01-MAR-05

Definition: A ratio calculated by dividing the waist circumference of an adult person by the hip circumference of that same person.

Context: Public health and health care:
Body fat distribution has emerged as an important predictor of obesity-related morbidity and mortality. Abdominal obesity, which is more common in men than women, has, in epidemiological studies, been closely associated with conditions such as coronary heart disease, stroke, non-insulin dependent diabetes mellitus and high blood pressure.

Waist- to-hip ratio (WHR) can be used:
- to indicate the prevalence of abdominal obesity and its sociodemographic distribution (problem identification)
- to evaluate health promotion and disease prevention programs (assessment of interventions)
- to monitor progress towards National public health policy
- to ascertain determinants and consequences of abdominal obesity
- in nutrition and physical activity surveillance and long-term planning.

Relational and Representational Attributes

Datatype: Numeric

Representational form: QUANTITATIVE VALUE

Representation layout: N.NN

Minimum Size: 3

Maximum Size: 3

Data Domain: NOVAL Calculated value to two decimal places

Guide For Use: Formula:

WHR = Waist circumference (cm) divided by hip circumference (cm).

Adult waist to hip ratio is a continuous variable. Adult waist to hip ratio cannot be calculated if either component necessary for its calculation (i.e. abdominal circumference or hip circumference) has not been collected (i.e. is coded to 999.9).

Adult cut-off points for waist to hip ratio, that may define increased risk of cardiovascular disease and all cause mortality, range from 0.9 to 1.0 for men and 0.8 to 0.9 for women (Croft et al. 1995, Bray 1987, Bjorntorp 1985). These values are based primarily on evidence of increased risk of death in European populations, and may not be appropriate for all age and ethnic groups.

In Australia and New Zealand, the cutoffs of > 0.9 for males and > 0.8 for females were used in the Australian Bureau of Statistics' 1995 National Nutrition Survey.

As there are no cut-off points for waist to hip ratio for children and adolescents, it is not necessary to calculate this item for those aged under 18 years.

Collection Methods: WHR should be derived after the data entry of waist circumference and hip circumference. It should be stored on the raw data set as a continuous variable and should not be aggregated or rounded.

Related metadata: is calculated using Waist circumference - measured version 2
is calculated using Hip circumference - measured version 2
supersedes previous derived data element Adult abdomen to hip ratio version 1

Administrative Attributes

Source Document:

Source Organisation: National Health Data Committee
National Centre for Monitoring Cardiovascular Disease
Australian Institute of Health and Welfare

Comments: This data element applies to persons aged 18 years or older as no cut off points have been developed for children and adolescents. It is recommended for use in population surveys and health care settings.

More recently it has emerged that waist circumference alone, or in combination with other metabolic measures, is a better indicator of risk and reduces the errors in waist-to-hip ratio measurements. Waist to hip ratio is therefore no longer a commonly used measure. It is recommended that in population surveys, sociodemographic

data including ethnicity should be collected, as well as other risk factors including physiological status (e.g. pregnancy), physical activity, smoking and alcohol consumption. Summary statistics may need to be adjusted for these variables.

Presentation of data:

Means, 95% confidence intervals, medians and centiles should be reported to one decimal place. Where the sample permits, population estimates should be presented by sex and 5-year age groups. Estimates based on sample surveys may need to take into account sampling weights.

For consistency with conventional practice, and for current comparability with international data sets, recommended centiles are 5, 10, 15, 25, 50, 75, 85, 90 and 95. To estimate the 5th and 95th centiles, a sample size of at least 200 is recommended for each group for which the centiles are being specified.

Data Element Links

Information Model Entities linked to this Data Element

NHIM Physical characteristic

Data Agreements which include this Data Element
