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Oral contraceptive use in girls and alcohol consumption in boys are associated with increased blood pressure

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Lifestyle behaviour in adolescents may adversely affect blood pressure and cardiovascular risk in adulthood, according to results from a large pregnancy follow-up study in Australia. In particular, alcohol consumption among boys, use of the Pill among girls, and high salt intake and increasing body mass index (BMI) in both sexes were important factors linked to blood pressure levels in late adolescence.

The substantial differences in blood pressure found in the study between those with a healthier or less favourable lifestyle "are likely to significantly affect their risk of both ischemic heart disease and stroke in adulthood", the investigators warn.

They add that adolescence is a time of life when behaviours "tend to become entrenched", and that "significant public health benefits may be achieved from implementation of a range of gender-appropriate lifestyle modifications within this age group of adolescents".

Behind the warnings lie results from the Western Australian Pregnancy Cohort (Raine) Study, in which the 2868 live births of 2900 pregnant women enrolled in 1989 in Perth were followed up at 1, 2, 3, 5, 8, 10, 14 and 17 years of age; by then, 1771 adolescents were available for the study. At that time study subjects were asked about alcohol consumption , smoking, physical activity, prescription medications (including the use of oral contraceptives), and dietary patterns, and the association between

each of these factors and systolic and diastolic blood pressure was calculated.

Boys had an overall systolic blood pressure 9 mmHg higher than girls not taking the Pill. Among the boys, systolic blood pressure was significantly associated with BMI, urinary sodium (as a marker of salt intake) and alcohol consumption. And even when adjusted for BMI, the link with alcohol and salt remained. The study also found that habitual physical activity was associated with lower diastolic blood pressure. Using adult blood pressure definition criteria, approximately 24% of the adolescents were pre-hypertensive or hypertensive; remarkably, 34% of the overweight and 38% of the obese adolescents were in these high blood pressure categories.

Furthermore, use of the Pill was significantly associated with raised blood pressure in the girls; for example, the systolic blood pressure of girls taking the Pill (30% of the group) was 3.3 mmHg higher than non-Pill users, and grew higher with increasing BMI. This finding, said the authors, extended previous findings on the Pill in adolescence. Blood pressure in the girls was not affected by alcohol consumption.

Commenting on the results, investigator Dr Chi Le-Ha from the Royal Perth Hospital, Australia, said: "Adolescents need to be aware that a lifestyle which predisposes to fatness, high salt intake and alcohol consumption may lead to adverse health consequences in adult life. The effects are additive and already associated with hypertension. Moreover, teenage girls taking oral contraceptives should be advised about regular blood pressure monitoring."

More information: Le-Ha C, Beilin LJ, Burrows S, et al. Oral contraceptive use in girls and alcohol consumption in boys are associated with increased blood pressure in late adolescence. *Eur J Prevent Cardiol* 2012; DOI: 10.1177/2047487312452966

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