



Title	A design for investigating the association of birth weight, weight change during life course with adult hypertension in Hong Kong women
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Methods: Male Wistar rats from dams fed either a normal chow (control) or a low-protein diet during suckling (postnatal low protein, PLP) were implanted with an intracerebroventricular cannula into the third ventricle and leptin, NPY or MT-II at maximal and two or three sub-maximal doses were administered from 12 weeks of age. Food was weighed after 2, 4, 6 and 24 hours.

Results: Leptin at the mid-range dose of 2.5 µg reduced food consumption and body weight over 24 hours more in the PLP group than in controls (75 ± 5 vs. $93 \pm 5\%$ of the food consumption following saline administration, $p < 0.05$; 13.3 ± 2.2 vs. 4.4 ± 2.0 g body weight loss, $p < 0.01$). The dose of NPY required to double food intake during the first 6 hours in the PLP group was twice that in the controls (0.82 ± 0.22 vs. 0.40 ± 0.06 nmol, $p < 0.001$). Furthermore, NPY, except at the maximal dose of 2.5 nmol, did not increase food intake significantly over 24 hours in the PLP offspring, whereas it increased food intake in control offspring. The dose of MT-II required to halve food intake over the first 4 hours in the PLP offspring was half that in the controls (0.093 ± 0.002 vs. 0.184 ± 0.002 nmol, $p < 0.01$).

Conclusions: Rats suckled by dams fed on a low protein diet have reduced food consumption and bodyweight, accompanied by an increased sensitivity to both leptin and an MC3/4-R agonist and a decreased sensitivity to NPY. This suggests that these animals have activated anorexigenic neural pathways and less active orexigenic pathways, which may contribute to the resistance to diet-induced obesity. Support: Biotechnology and Biological Sciences Research Council UK.

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A design for investigating the association of birth weight, weight change during life course with adult hypertension in Hong Kong women

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“Fetal origins hypothesis” by Barker¹ in 1990 is a well known hypothesis. One of the key finding was that low birth weight was associated with higher adult systolic blood pressure. However, in 2002, Huxley *et al*² argued that birth weight had little relevance in determining blood pressure levels in later life. But after that, several studies^{3,4} argued against it until now. In addition, some experts think that change in size between birth and current rather than fetal biology itself affect the blood pressure, which means the fetal origins hypothesis must be weighed against a “postnatal origins hypothesis”⁵. Therefore, it is important to explore what is the interaction between later body weight change and fetal programming on the effect of BP.

Objectives: Of this study is to determine whether: Low birth weight predicts higher blood pressure/risk of hypertension

in later life; The impact of birth weight on later blood pressure is modified by adult BMI (BMI at age 18 and current BMI); Adult BMI (BMI at age 18 and current BMI) has independently association with blood pressure/risk of hypertension.

Method: Female Registered Nurses and Enrolled Nurses who are memberships of Association of Hong Kong Nursing Staff (AHKNS) are considered as the target population. AHKNS has all the members' home address, they will be asked to measure their waist circumference using a mailed tape measure and record in a card, then send back the cards and inform us if they willing to participate the study. The participants will be invited to the Women's Health Centre of CUHK to fill out a self-administrated questionnaire, after that, anthropometric measurements are conducted. The main exposures are birth weight, BMI at age18 and current BMI; the main outcomes are blood pressure and hypertension. Current height, weight, blood pressure will be obtained by field measurement; other important self-report variables will be checked by medical records for validity. This study is approved by the Faculty Ethics Sub-committee.

Significance: Using a mailed tape measure to invite the target population attending study, it may be more cost-effective than a general population-based survey, and improve the response rate; it is easily be performed. From our knowledge, this is the first study in Hong Kong to use a life course epidemiology method to verify the “Fetal origins hypothesis” in Chinese population, and determine how import that the effect of weight change during a person's life course on later life outcome. It allows us to find some evidences for developmental origins disease, and then give the better suggestions for primary prevention of some later life outcomes.

1. Barker, D.J., *BMJ*, 301:1111, 1990.
2. Huxley, R. *et al*, *Lancet*, 360:659–665, 2002.
3. Gamborg, M., *et al.*, *Am J Epidemiol*, 166:634–645, 2007.
4. Davies, A.A., *et al.*, *Hypertension*, 48:431–436, 2006.
5. Lucas, A. *et al*, *BMJ*, 319:245–249, 1999.

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Evaluation of feeding practices education for mothers whom children (aged between 6 and 36 months) suffered form improper growth in district 19 of city of Tehran

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Objective: This study was undertaken to assess and report the Successfulness of the implemented feeding practice education for Mothers by measuring the Ante optometric index among their children during education.

Methods: All mothers whom children had including Criteria referred to Ayat health center during 2001–2003. They