**Effects of Catch-up Growth at Early Age on Body Composition**

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**Introduction:**

Epidemiological studies have demonstrated a correlation between low-birth-weight in mammals and detrimental health in later life 1. The occurrence of slow growth during foetal and early life is often followed by accelerated weight gain in infancy and later years (catch-up growth). Catch-up growth and environmental stress in early life are linked to different insults such as obesity and heart diseases 1, 2. In this preliminary study, the effects of catch-up growth on adiposity and intrahepatocellular (IHCL) content is investigated in low (LBW) and high birth weight (HBW) female and male mice.

**Methods:**

Animals and treatment

Virgin female C567Bl/6 mice were paired with males from the same strain. From the day mating was confirmed pregnant females were maintained on a normal control diet (20% protein) and remained on this diet during the gestation period (approx. 19 days) and the lactation period (21 days). At 21 days of age, the offspring were divided into four groups, low and high birth weight (males and females). These groups were weaned onto a standard chow diet (fat content 5%) for a period of 12 weeks. Body weights and length were recorded daily.

MR experiments

Whole body and liver 1H MRS were performed on offspring at 11 and 14 weeks of age at 4.7T using a VMRIS scanner. Localised 1H MRS of the liver was performed using a PRESS sequence with TR 10s, TE 9 ms and 64 averages following voxel (2x2x2mm) placement by MRI. The spectra were analysed using MestRe-C (Santiago de Compostela, Spain) where an exponential of 1.5 Hz was applied, prior to baseline correction and peak integration of the water and lipid peak.

**Results and discussion:**

**Figures:** The effects of catch-up growth on (a) body weights, (b) lengths, and (c) IHCL content. MRS 1H

**Table 1:** Body weights and lengths in males and females at day 1, week 1 and week 3.

**References:**