**RESULTS**

In the fetal kidney VEGFA protein was reduced by 30-40% in LP vs. controls (Figure 1). In the adult kidney, the situation is reversed, with VEGF protein significantly higher in LP animals compared with controls. This likely reflects the differing roles of VEGF during development (angiogenesis) and adulthood (maintenance and repair of blood vessels).

- In the fetal and adult kidney, VEGFA gene expression reflects the changes seen at the protein level. In contrast, in the fetal liver, VEGFA mRNA was increased 3-fold in LP fetuses vs. controls, but was reduced in LP adults; Figure 2. Thus a low protein diet during pregnancy affects VEGFA levels in the fetus and later in life in adulthood, however the effects are organ-specific.

- As adults, the LP exposed animals had hepatic insulin resistance (Figure 3), and down-regulated insulin-sensitive genes such as Akt2, IRS-1 and FOXO1 in the liver. However, in the adult kidneys, at this stage there were no significant reductions in the insulin pathway genes in the LP group compared with controls. Therefore insulin sensitivity appears to be organ-specific.

**CONCLUSION**

- A low protein diet during pregnancy leads to hepatic insulin resistance and effects on VEGF in both the kidney and liver. However, these effects are organ-specific and do not translate to other organs.

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**INTRODUCTION**

- Maternal malnutrition leads to offspring with a greater risk of developing chronic kidney disease
- We have previously shown that a maternal low protein diet impacts upon early developmental processes in the fetal kidney to reduce nephron number and renal function in the mature kidney
- This study considers insulin and vascular endothelial growth factor (VEGF) signalling in the kidney and liver.