

The Zucker Diabetic Fatty (ZDF) rat fed a lipid-rich diet, closely mimics human adult onset of type II diabetes and its related complications. In time, ZDF rats evolve from a model of metabolic syndrome to a type II diabetic rat based on impaired glucose tolerance caused by the inherited obesity gene mutation which leads to insulin resistance.

Pathophysiological features

Metabolic features

- Age-dependent evolution from insulin resistance to type II Diabetes mellitus (figure 1)
- Variable hyperinsulinemia
- Hyperglycemia
- Hypertriglyceridemia / Hypercholesterolemia

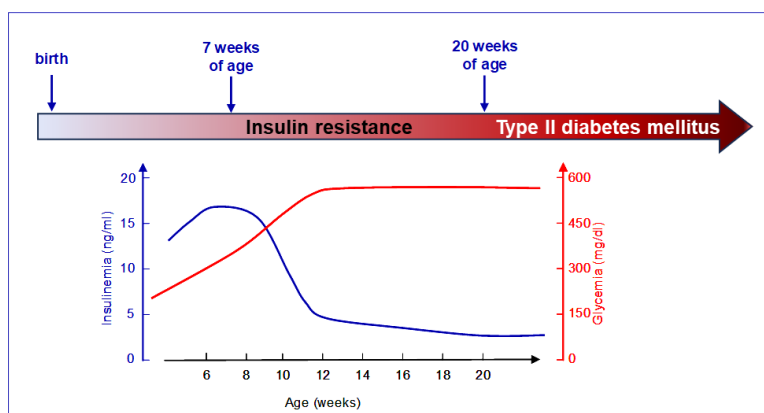


Figure 1: Age-dependent evolution of glucose metabolism in ZDF rats

Cardiovascular features

- Vascular endothelial dysfunction (aorta, superior mesenteric artery, ...) from 20 weeks of age (figure 2)

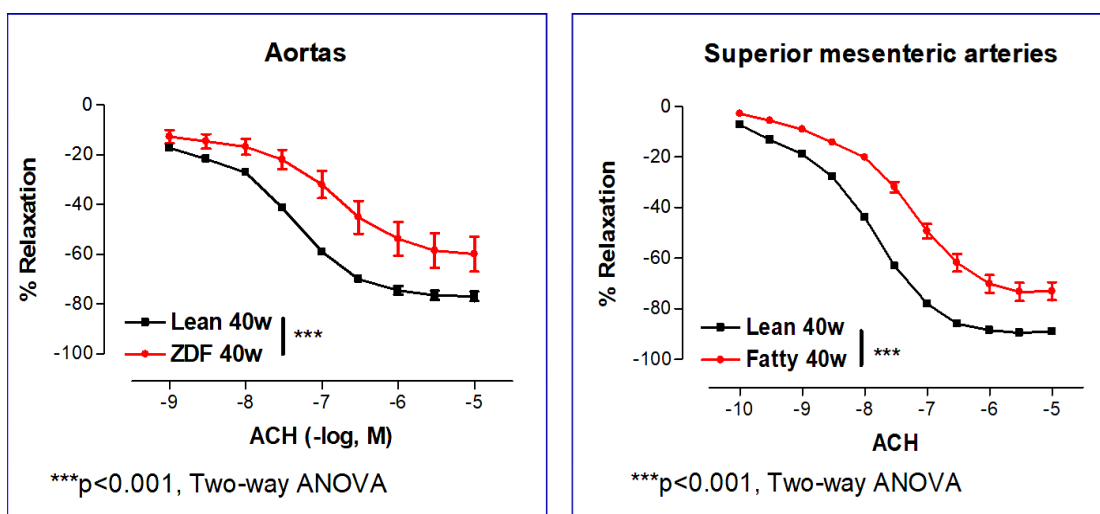


Figure 2: Comparison of endothelium dependent relaxations in ZDF and in their control (Lean) obtained in vitro experiments performed in aortic and superior mesenteric artery rings. (2-way ANOVA, *** $P < 0.001$) (Pelvipharm, internal data).

Other pathophysiological features

- Nephropathy
- Neuropathy
- Blindness
- Impaired wound healing

Related Pelvipharm bibliography:

Non disclosable information for confidentiality reasons