

## Abstract

1<sup>st</sup> International Congress on “Prediabetes and the Metabolic Syndrome”, Satellite Symposium: The Metabolic syndrome – a postprandial disease-  
Dresden, April 16-18, 2005

### Hypertriglyceridemia and glucose intolerance in common marmoset monkeys.

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Small non-human primates, like common marmosets (*callithrix jacchus*) are of growing interest in biomedical research due to their similarities with humans. In order to characterize the metabolic state of adipose marmosets OGTT's were carried out after a >14h overnight fast by oral application of 2g of glucose per kg of bodyweight. Before and 20min after the glucose load 0.5mL of blood were taken. According to the measured triglyceride concentrations immediately before OGTT and the glucose concentrations 20min after the glucose load, animals were allotted to 3 groups as shown in Table 1.

**Table 1:** Biochemical data before and 20min after an oral glucose load of 2g per kg of bodyweight applied to fasted common marmosets (mean±SD).

		Normal	Hypertriglyceridemic	
		N=18	Impaired glucose tolerance N=11	Glucose intolerant N=14
Before OGTT	Bodyweight (g)	401±45*	460±60	503±57
	Glucose (mmol/L)	6.76±2.18	7.87±3.55	9.37±2.45
	Triglycerides (mg/dL)	120±32 <sup>#</sup>	284±95	316±209
	HDL (mg/dL)	50.3±21.6*	27.8±13.6	31.1±15.3
	LDL (mg/dL)	67.5±23.0*	39.5±14.9	41.8±19.9
	FFA (mg/dL)	16.6±6.3	16.0±3.1	20.6±8.2
20min after glucose load	Glucose (mmol/L)	9.24±3.48*	13.21±2.69	19.79±1.93

\*, <sup>#</sup> significantly different compared to the other two groups (\*one way ANOVA, <sup>#</sup>one way ANOVA on ranks; Holm-Sidak or Dunn's test, respectively).

Due to the low affinity of available assays insulin measurements were not possible. Triglycerides correlate more with glucose intolerance than basal glucose concentrations, but for detection of glucose intolerance in marmosets an OGTT has to be carried out. Whether these animals are insulin resistant or have an impaired insulin secretion or both is not known and needs further studies. Nutritional and familiar background of glucose intolerance in marmosets will be discussed.

Supported by EUPEAH