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Working

## U Mass - Glucose Tolerance Test [↗](#)

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[dx.doi.org/10.17504/protocols.io.xxafpie](https://dx.doi.org/10.17504/protocols.io.xxafpie)

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### ABSTRACT

#### Summary:

Glucose tolerance test measures systemic clearance of glucose following an intraperitoneal bolus injection of 20% dextrose. This experiment measures insulin sensitivity in awake mice assuming that there are no alterations in the animal's pancreatic  $\beta$ -cell function and insulin secretion. Insulin sensitivity is altered in obese mice.

### EXTERNAL LINK

<https://mmpc.org/shared/document.aspx?id=141&docType=Protocol>

### MATERIALS

NAME	CATALOG #	VENDOR	CAS NUMBER	RRID
20% Dextrose injection USP	<a href="#">NDC0409-7935-19</a>	<a href="#">Hospira(Pfizer)</a>		

### MATERIALS TEXT

#### Note:

[Hospira](#), [RRID:SCR\\_003985](#)

- 1 Mice may be fasted overnight (~15 hours) or for 5 hours prior to the start of experiment.
- 2 Collect plasma sample (10  $\mu$ l) before the start of experiment (basal-0 min) to measure basal glucose levels.
- 3 Administer intraperitoneal injection of 20% dextrose (1 or 2 g/kg body weight) using an insulin syringe.
- 4 Collect plasma samples (10  $\mu$ l) at 10, 20, 30, 60, 90, and 120 min following injection to measure circulating glucose concentrations.
- 5 For data analysis, plasma glucose levels vs. time after injection are plotted, and area under curve may be calculated to estimate insulin sensitivity.
- 6 Area under curve of glucose tolerance test may be inversely correlated with insulin sensitivity assuming unaffected insulin secretion and pancreatic  $\beta$ -cell function in mice.



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