

Effect of growth hormone treatment on glucose tolerance in young adults with Prader-Willi syndrome

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Conclusion

GH treatment has no adverse effects on glucose homeostasis in young adults with PWS

Background

Adults with Prader-Willi syndrome (PWS) are predisposed to develop impaired glucose tolerance (IGT) and diabetes mellitus type 2 (T2DM). Reports on the prevalence of T2DM vary from 2-24% in adults with PWS.

In children with PWS, growth hormone (GH) improves body composition, psychomotor development, cognition, adaptive functioning and linear growth without adverse effects on glucose parameters. Randomized, controlled studies have shown that GH is beneficial for adults with PWS^{1,2}, but GH is also known to induce insulin resistance, which might increase the risk for T2DM

Aim

To evaluate the effects of GH on glucose homeostasis in previously GH-treated young adults with PWS who had attained adult height

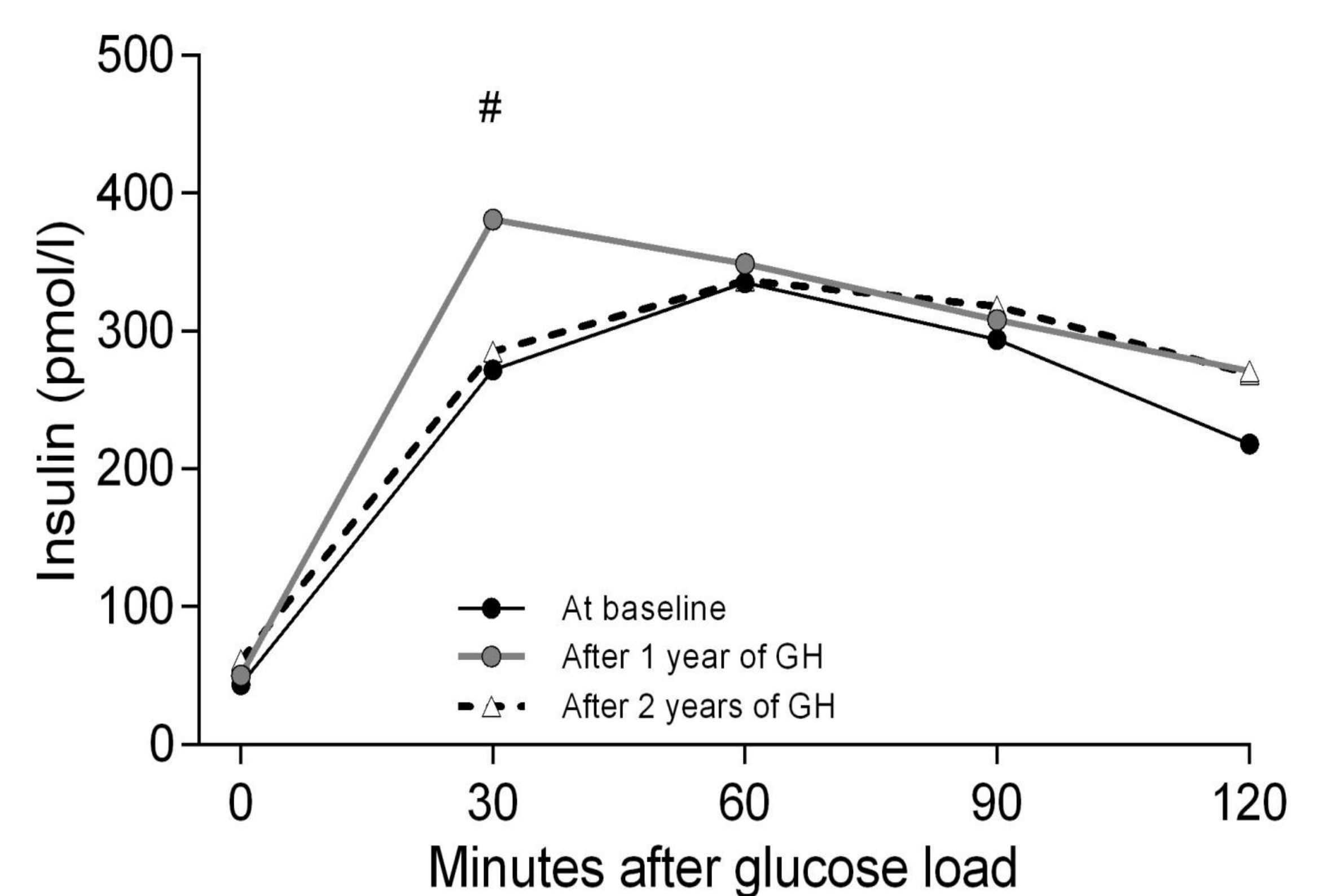
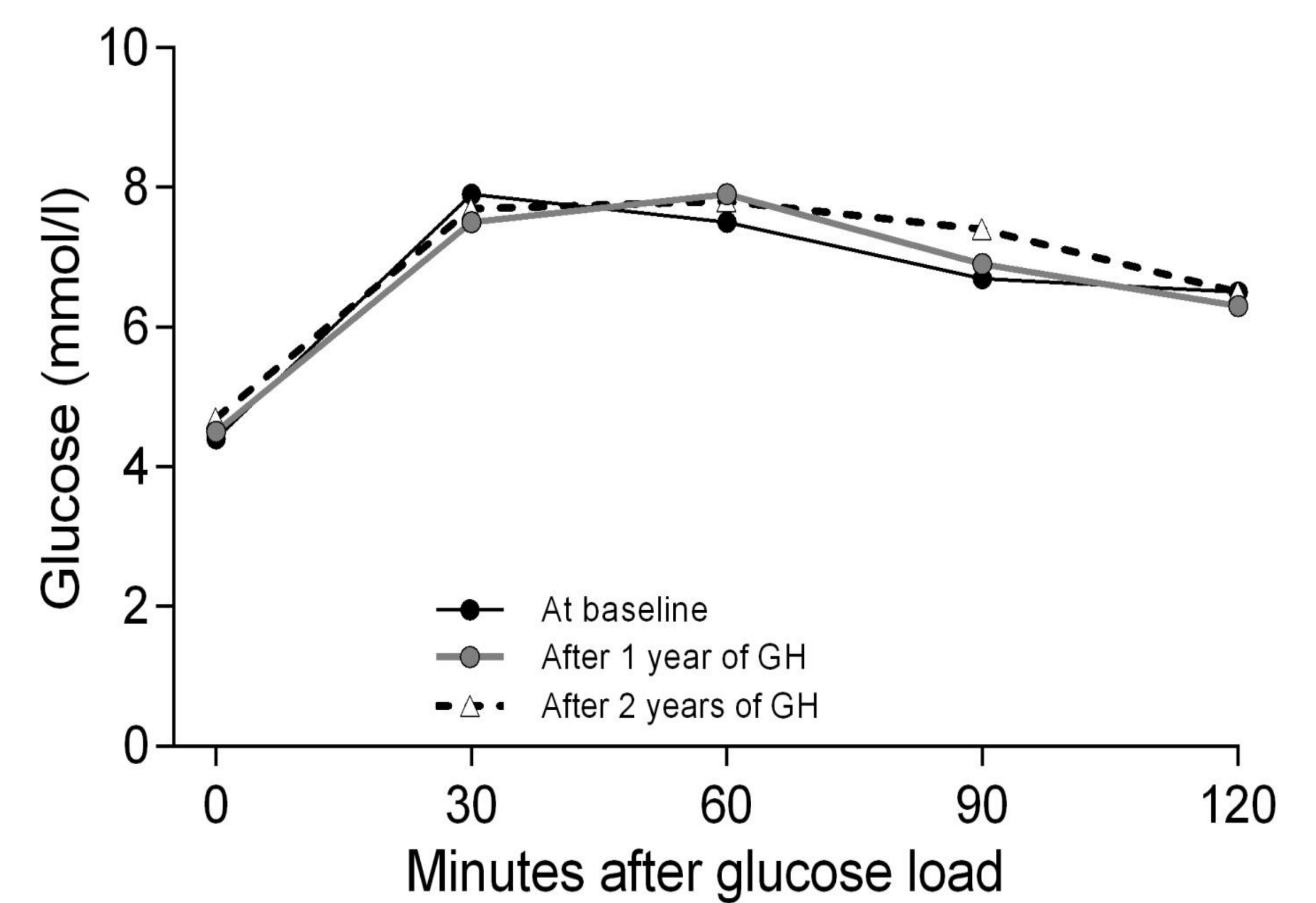
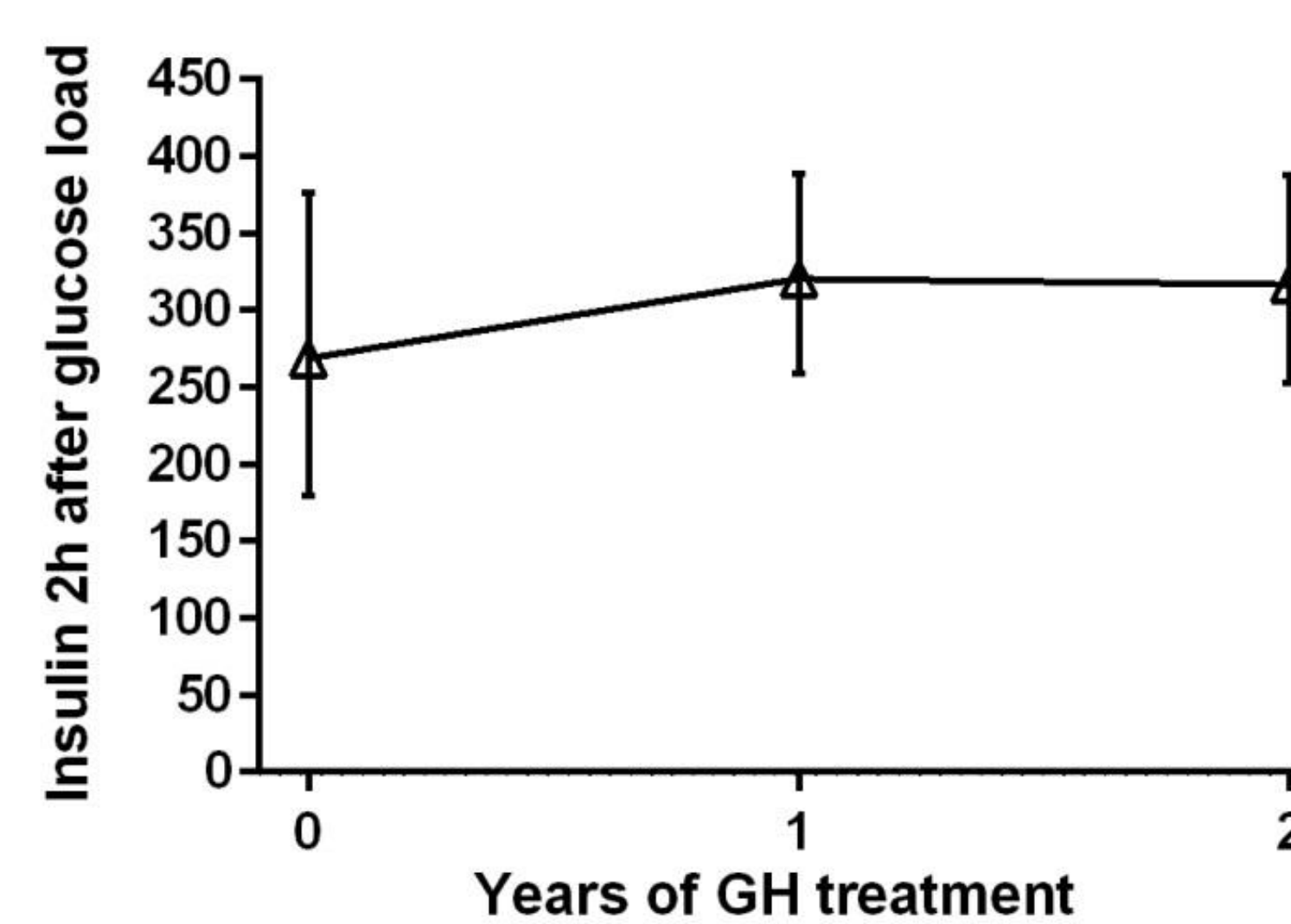
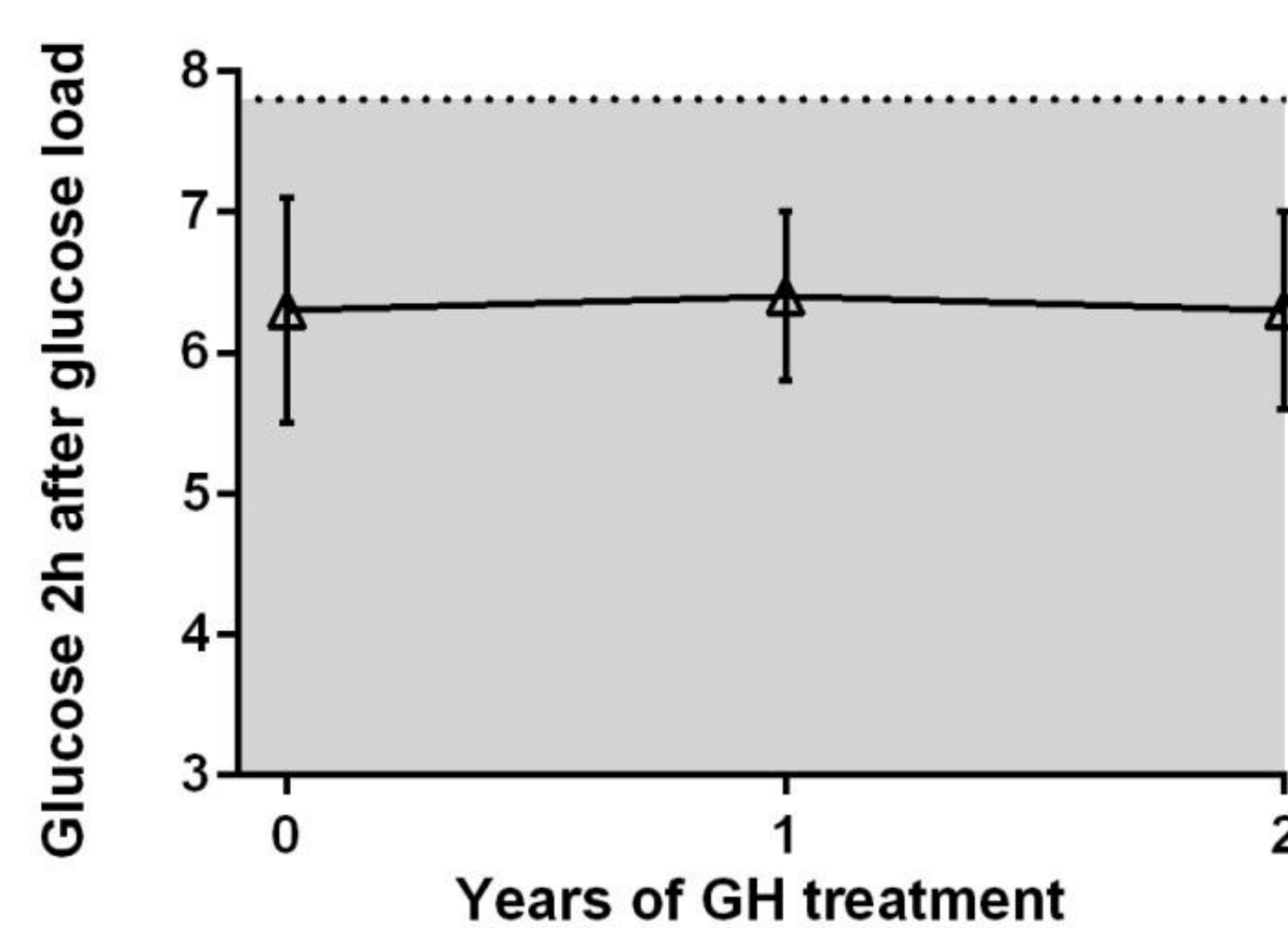
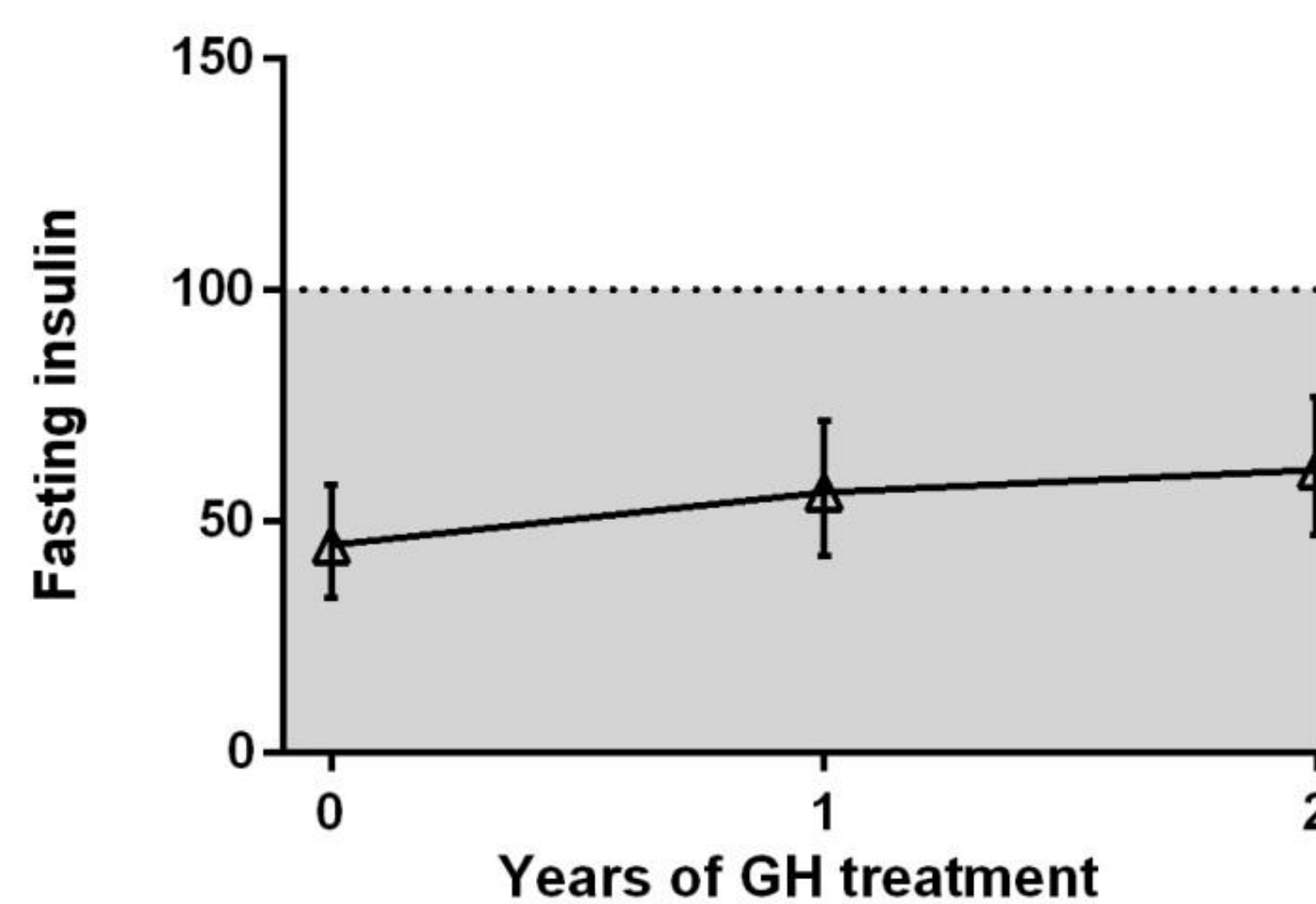
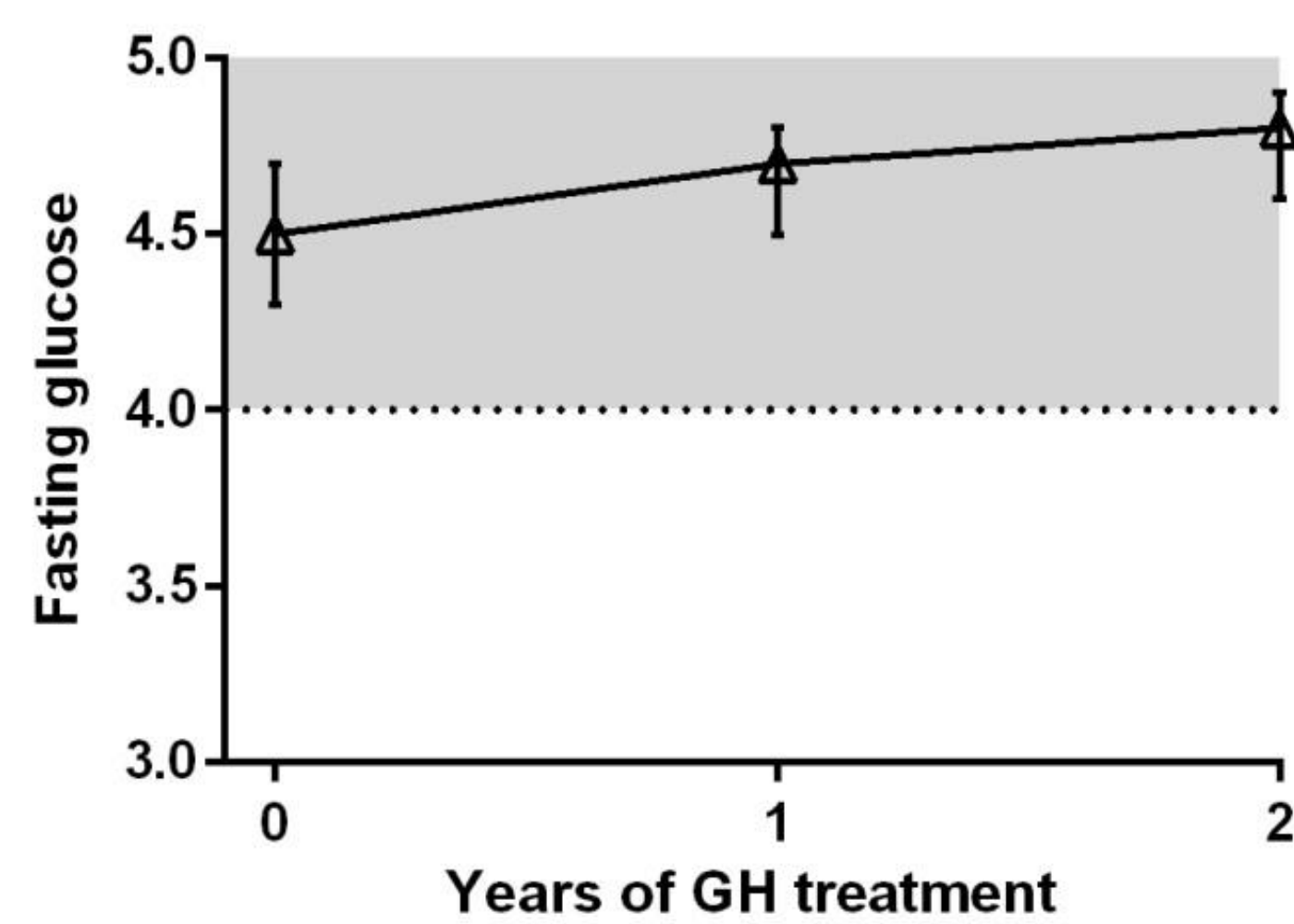
Participants & Method

Prospective open-label study in 42 young adults with PWS during 2 years of GH treatment (0.33 mg/m²/d ≈ 0.012 mg/kg/d) after attainment of adult height.

An OGTT was performed yearly.

Characteristics at restart of GH treatment

Age	17.9 (16.3 to 19.8)
Gender (♂ / ♀)	16/26
Genetic subtype	
- deletion	17 (40.5%)
- mUPD	19 (45.2%)
- ICD	4 (9.5%)
- translocation	1 (2.4%)
- unknown	1 (2.4%)
Height (SDS)	-1.3 (-1.8 to -0.4)
BMI	24.1 (20.1 to 28.4)
BMI for age (SDS)	1.1 (-0.6 to 2.2)
IGF-I SDS	-0.6 (-1.5 to -0.1)



- GH treatment did not affect glucose-stimulated glucose and insulin levels.

- None of the patients developed T2DM during 2 years GH treatment.

1. Kuppens et al. Beneficial Effects of GH in Young Adults with Prader-Willi Syndrome: A 2-Year Crossover Trial, *JCEM* 2016

2. Sode-Carlson et al. One year of growth hormone treatment in adults with Prader-Willi syndrome improves body composition: results from a randomized, placebo-controlled study. *JCEM* 2010

