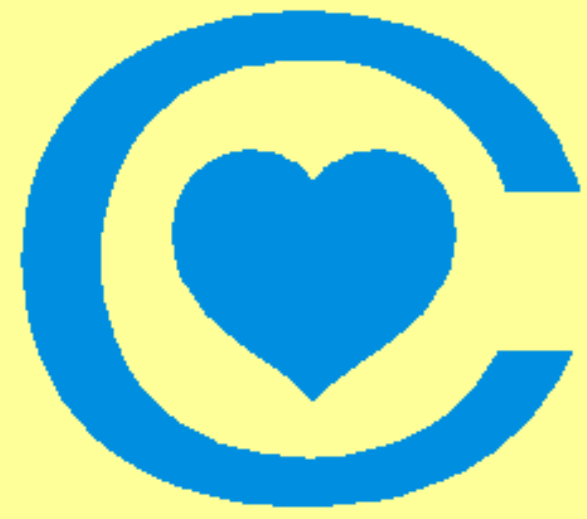


THE INFLUENCE OF GROWTH HORMONE THERAPY ON CHEMERIN CONCENTRATION, BODY MASS AND SELECTED PARAMETERS OF CARBOHYDRATE METABOLISM IN PREPUBERTAL NON-OBESE CHILDREN WITH GROWTH HORMONE DEFICIENCY



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Background and Aim

Background: Chemerin is an adipocytokine which plays a great role in metabolism of carbohydrates. Chemerin concentration correlates positively with body mass (BM). Growth hormone deficiency (GHD) is associated with excess of abdominal fat tissue also in patients with normal BMI.

Aim: To estimate the chemerin concentration and its correlation with BM and carbohydrate metabolism in non-obese, prepubertal children with isolated GHD before (GHD untreated group) and after 6 months of GH therapy (GHD after 6 m group).

Materials and Methods

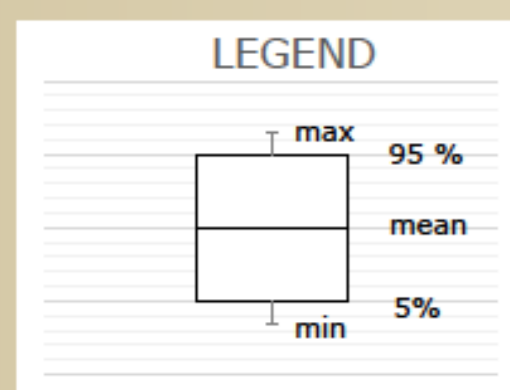
- 32 (22 boys, 10 girls) children with GHD - mean height 117.9 cm, -2.77 SD, mean BMI -0.75 SD, mean age 8.87 years
- 18 (11 boys, 9 girls) healthy children (CG) - mean height 125.8 cm, -0.93 SD, mean BMI -0.28 SD), age matched
- Serum fasting chemerin was measured in all
- In GHD untreated and GHD after 6 months the following exams were done: body composition (bioimpedancy), fasting serum glucose and insulin.
- Fasting glucose/insulin (FGIR) ratio was calculated.

Results

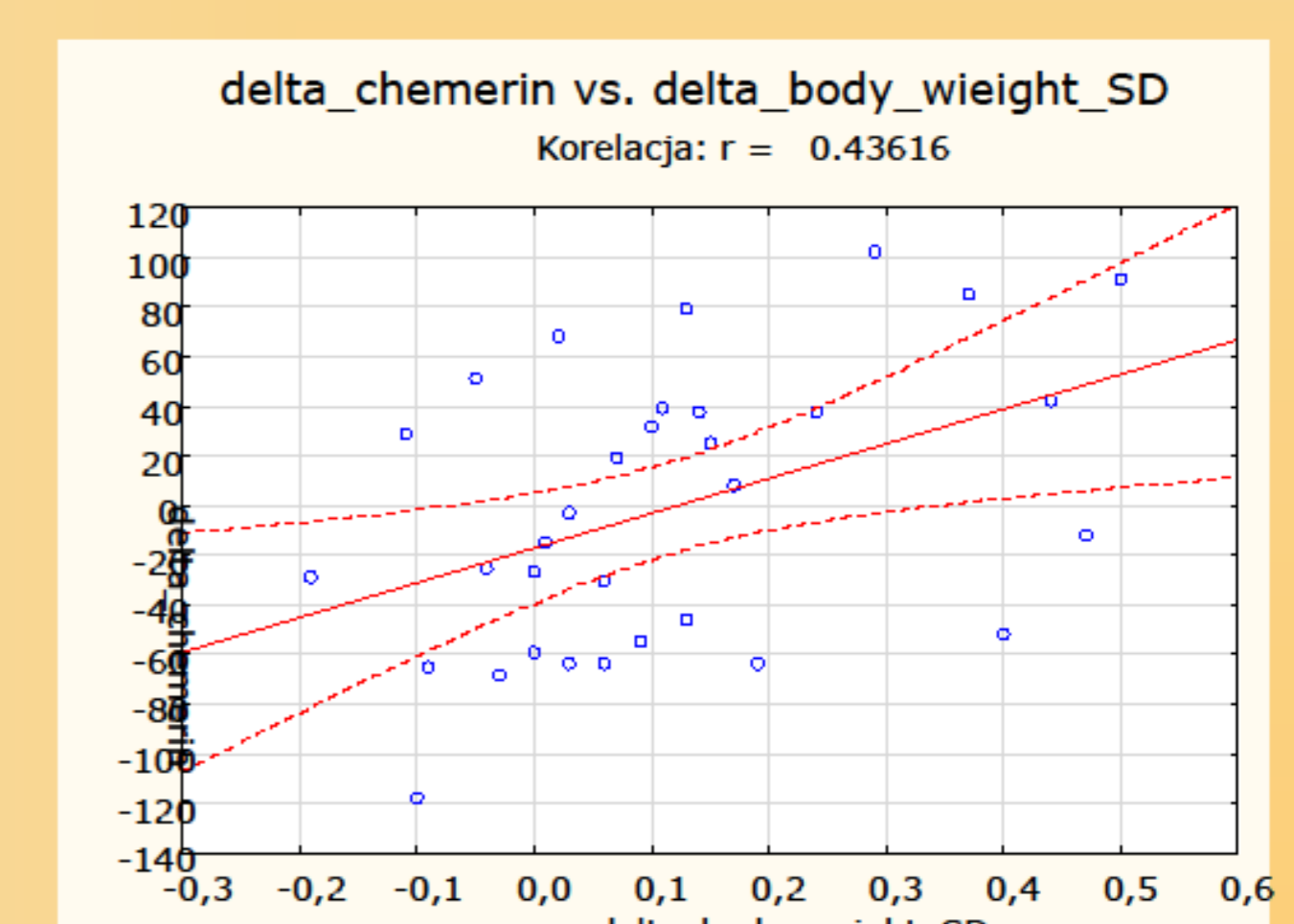
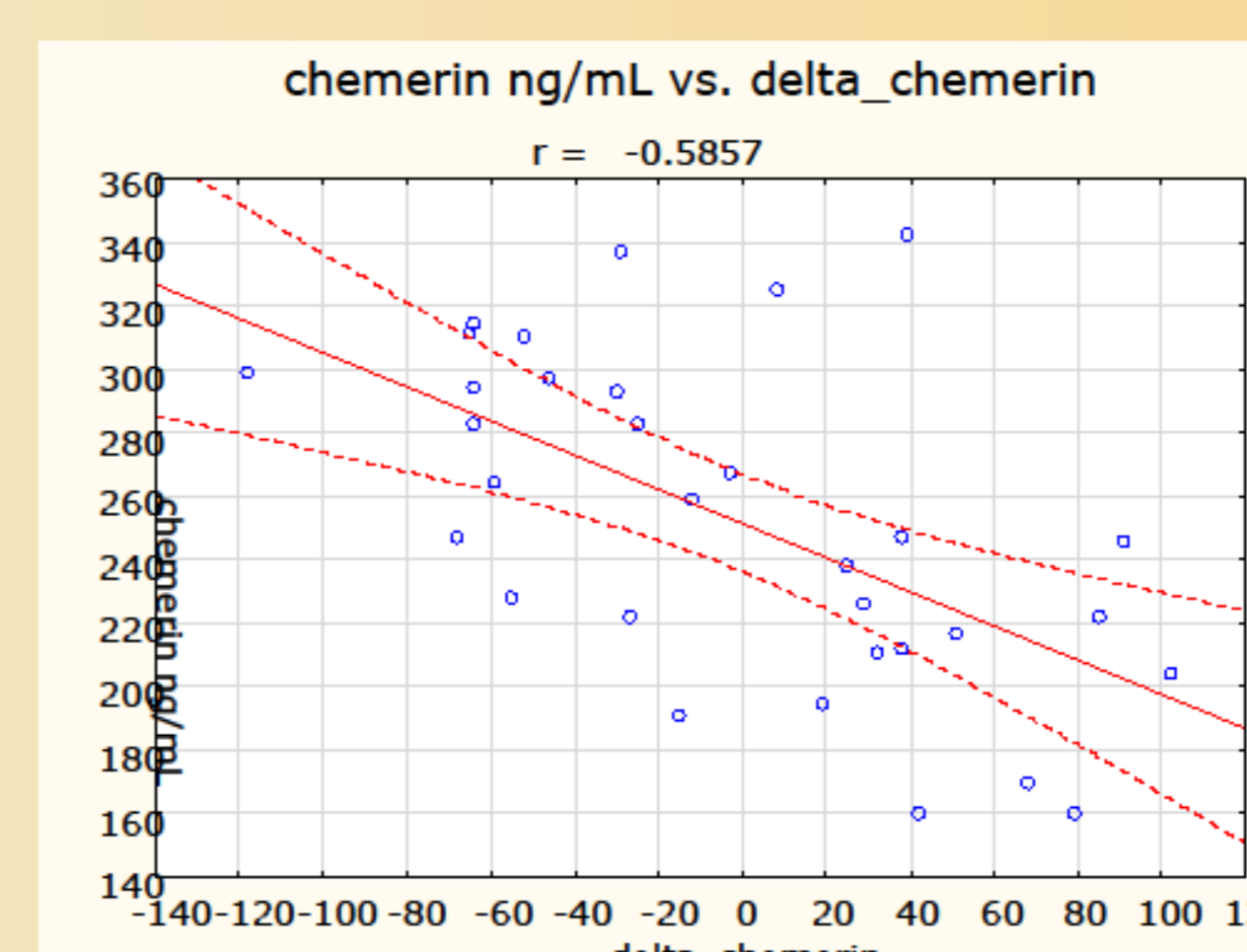
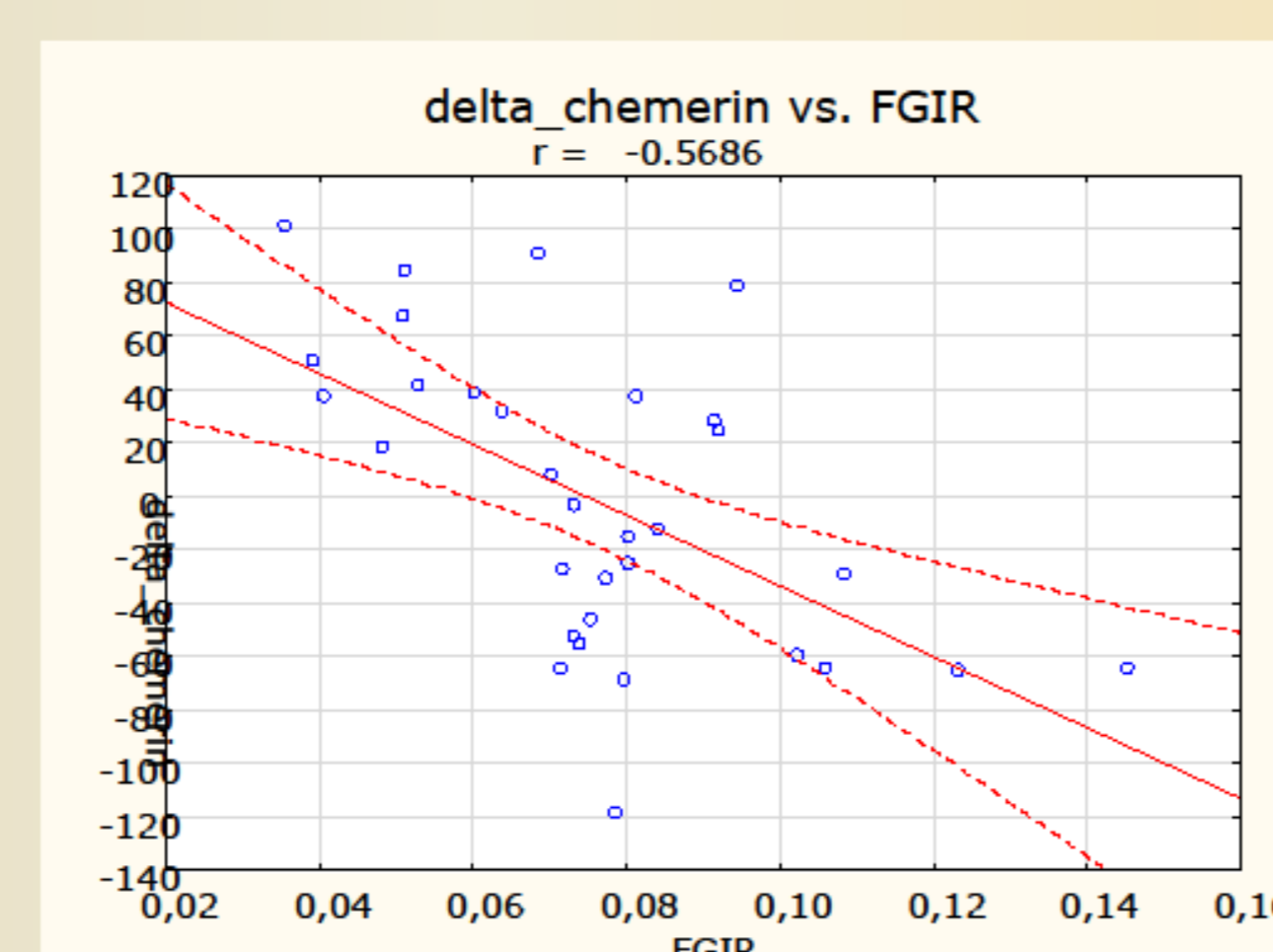
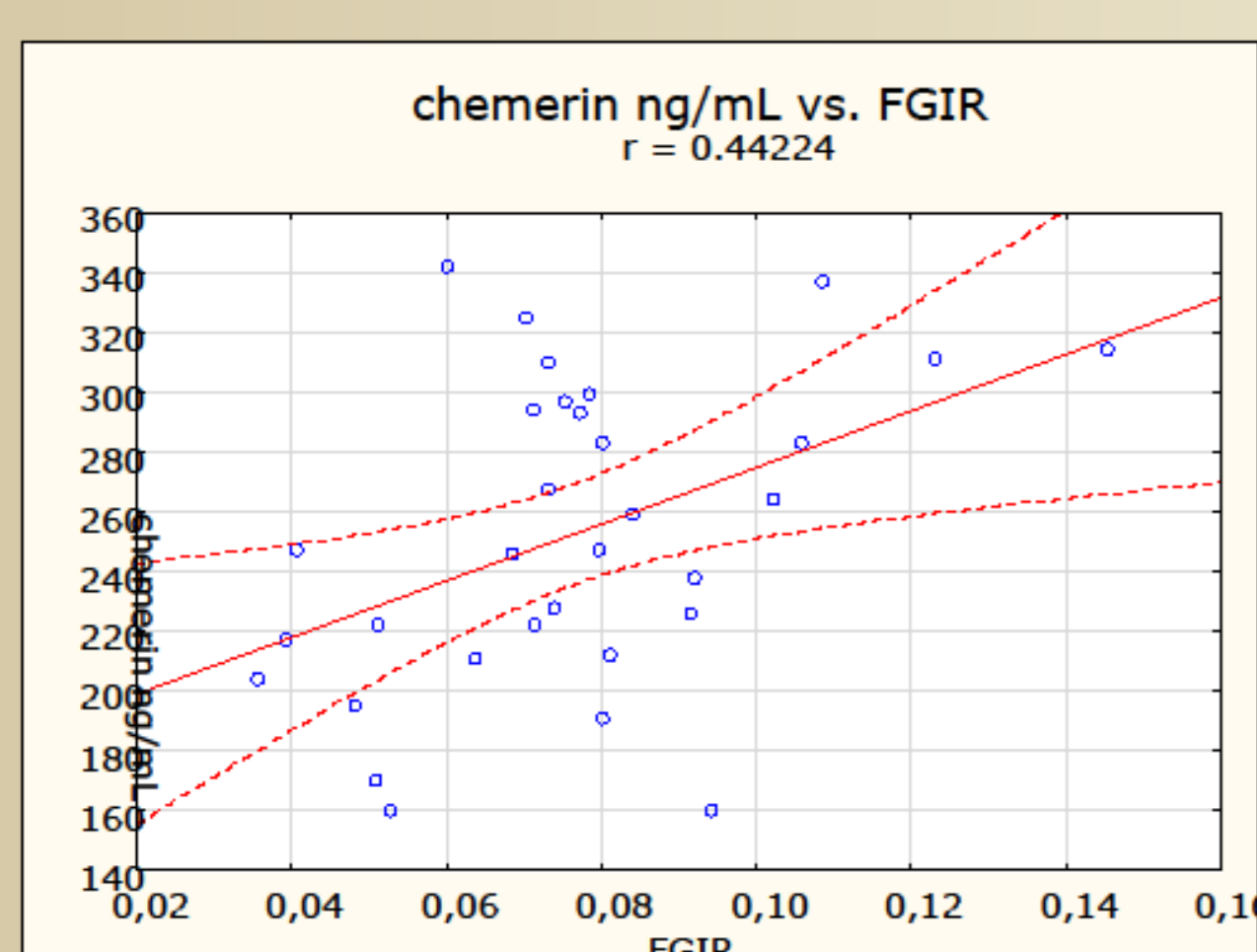
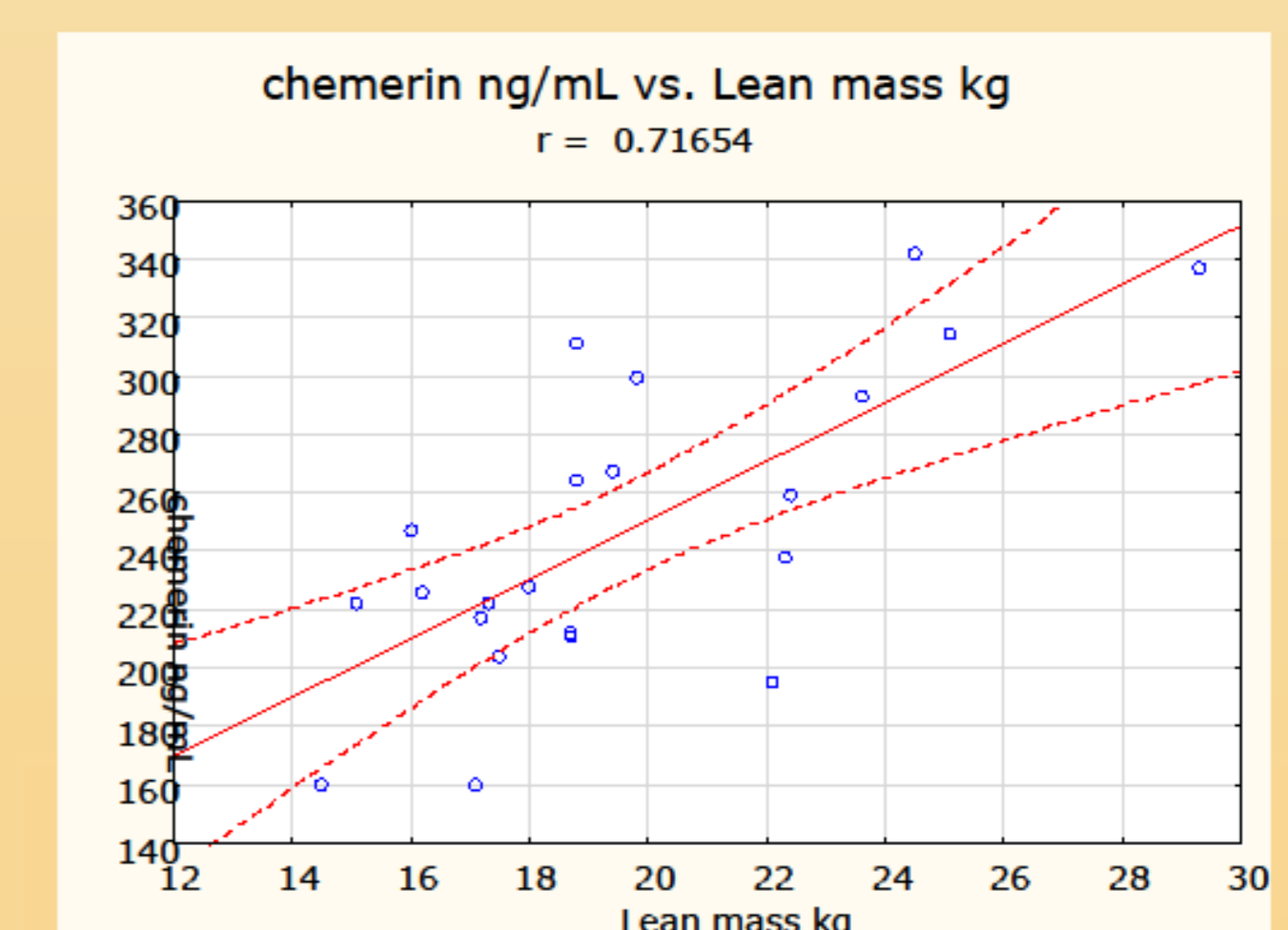
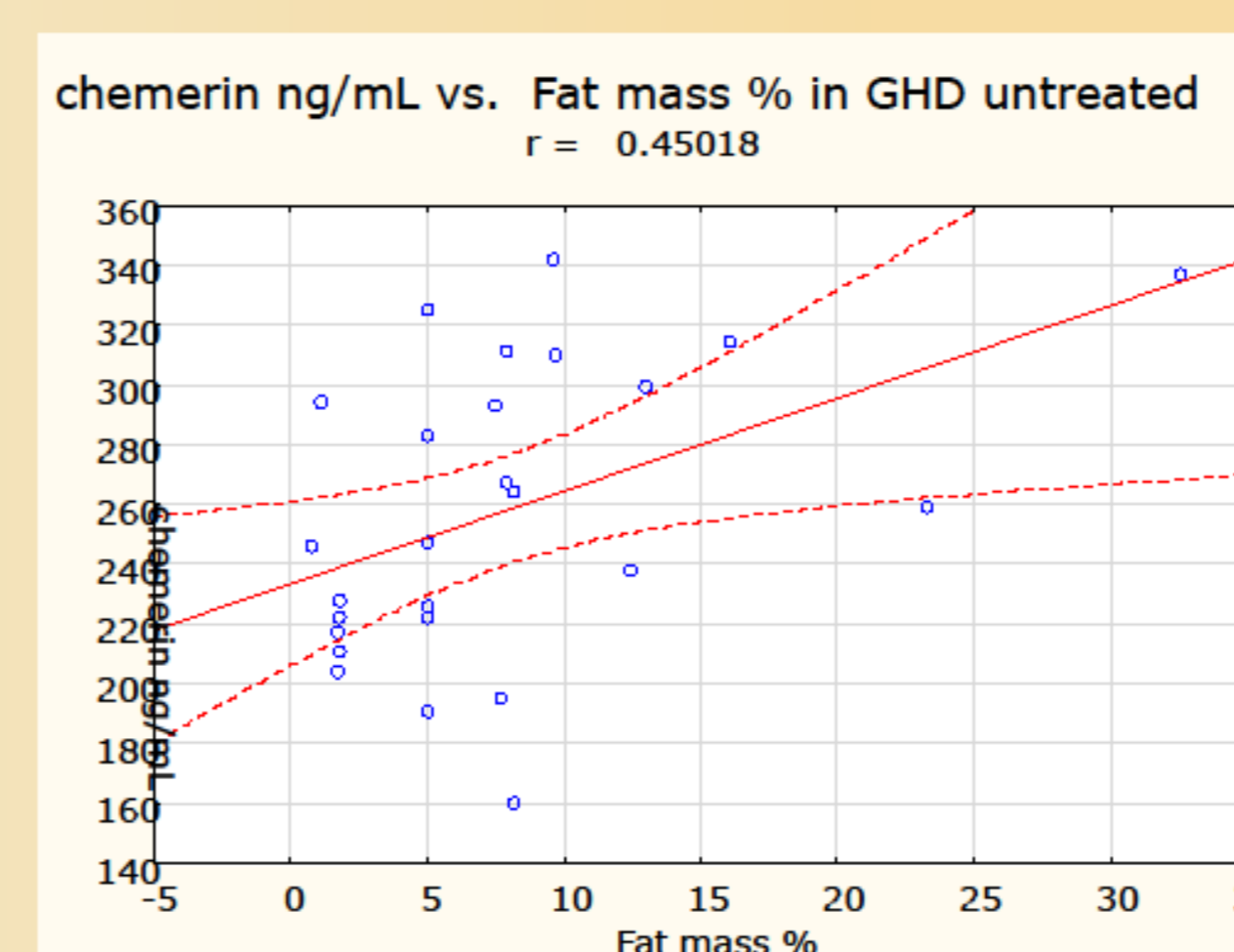
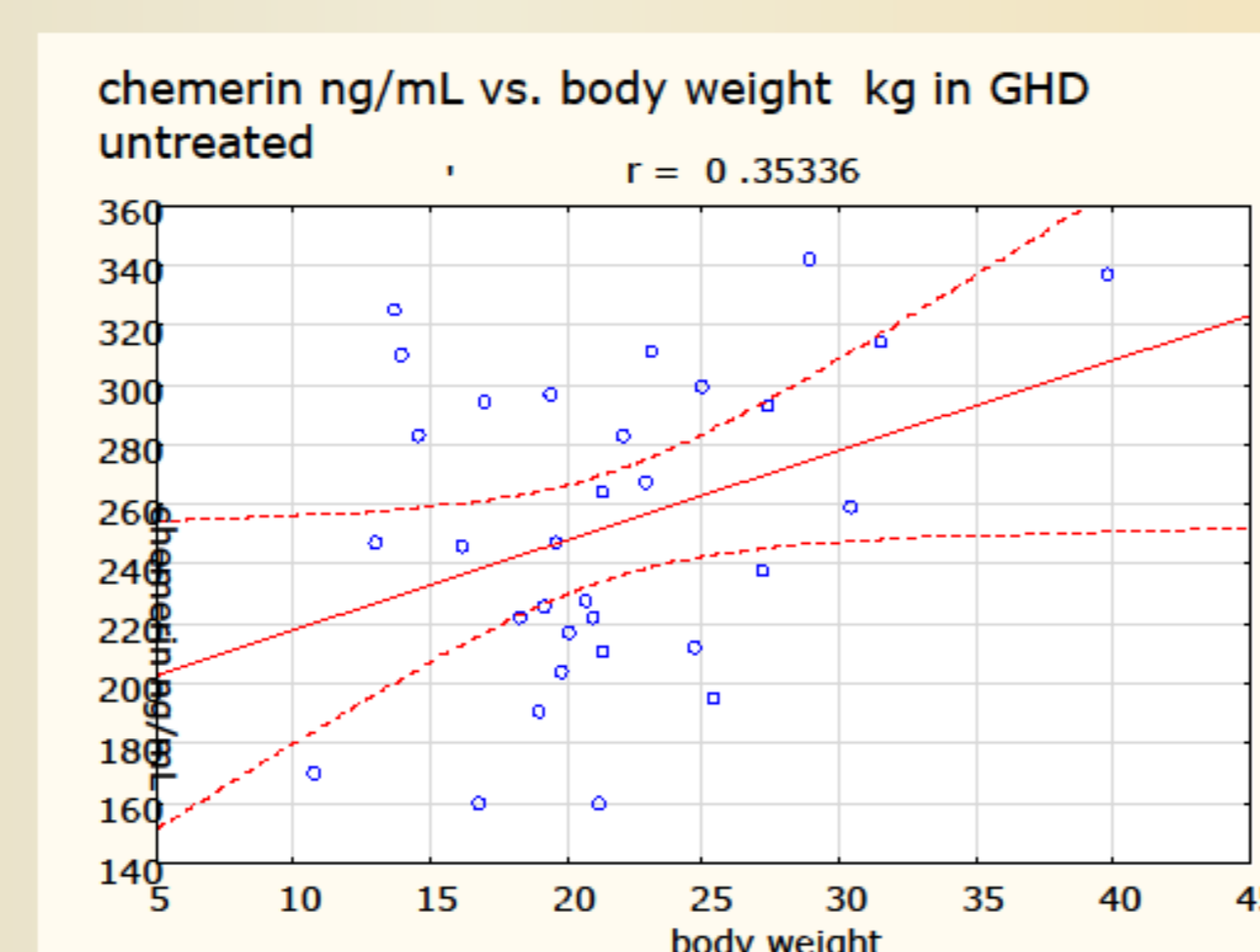
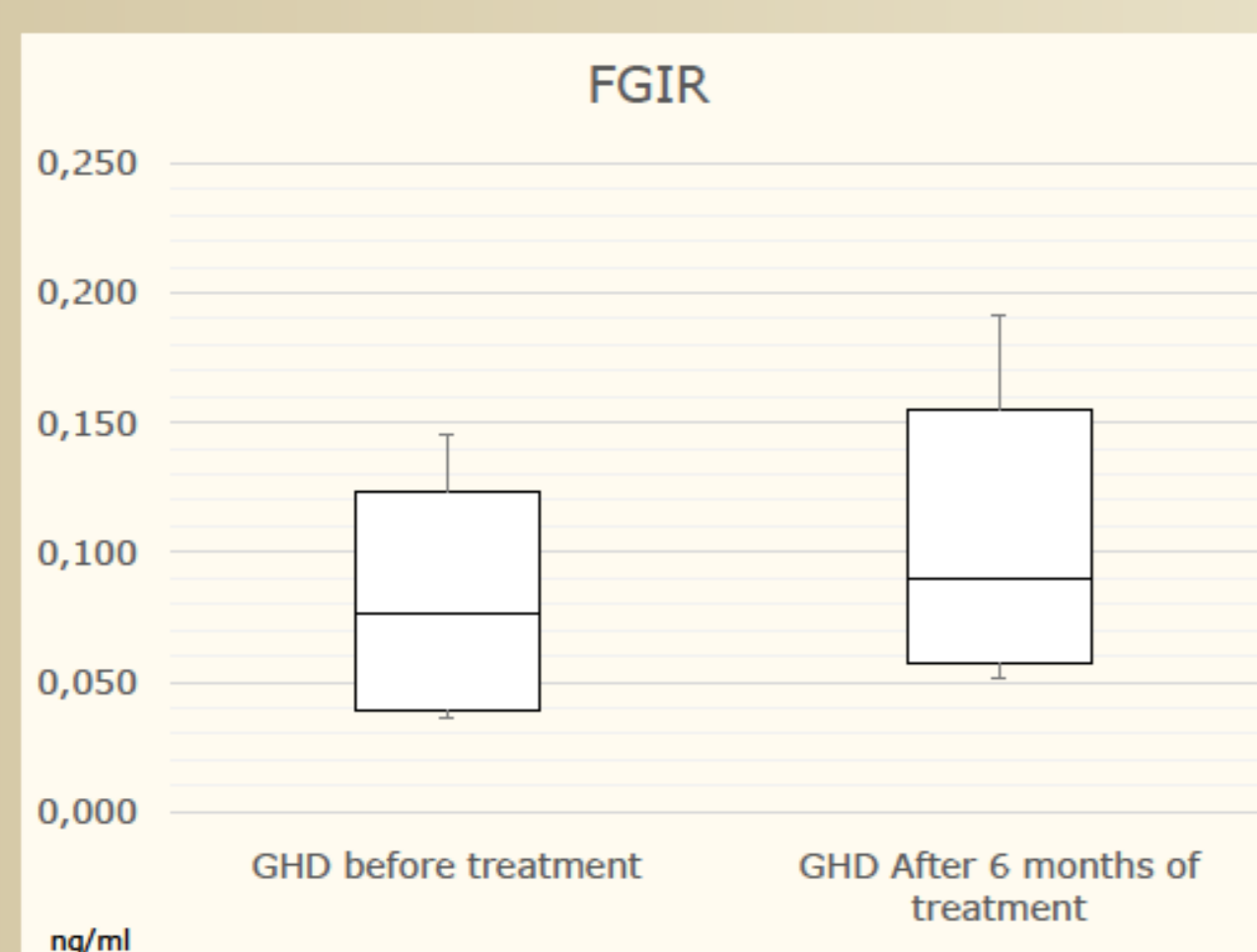
- The mean serum concentrations of chemerin did not differ significantly between CG, GHD untreated and GHD after 6 months.
- FGIR was significantly higher in GHD after 6 months comparing to FGIR in GHD untreated (0.076 v 0.090, $p < 0.01$).
- In GHD untreated chemerin concentration correlates positively with body mass (both with lean and fat mass) and FGIR ($R = 0.35$ and $R = 0.40$ respectively).
- Δ chemerin (chemerin level GHD after 6 mo - chemerin level GHD untreated) correlates negatively with FGIR and negatively with chemerin level in GHD untreated ($R = -0.57$ and $R = -0.59$).
- Δ chemerin correlates positively with Δ SD body mass ($R = 0.44$).

Chemerin (ng/mL)

	Mean	Median	Minimum	Maximum	Percentile 5%	Percentile 95%	Std. Dev.
GH untreated	252.3	247.0	160.0	342.0	160.0	337.0	51.5
GH 6 months	250.8	250.0	173.0	381.0	176.0	337.0	49.2
Control Group	276.4	280.0	183.0	405.0	183.0	405.0	66.6



Differences not statistically significant



Conclusions

- Chemerin concentration correlates positively with body mass and FGIR in prepubertal non-obese children with growth hormone deficiency before start of GH therapy whereas Δ chemerin correlates negatively with FGIR and Δ SD body mass.
- It seems that Δ chemerin levels may influence carbohydrate metabolism during GH therapy in GHD children.

