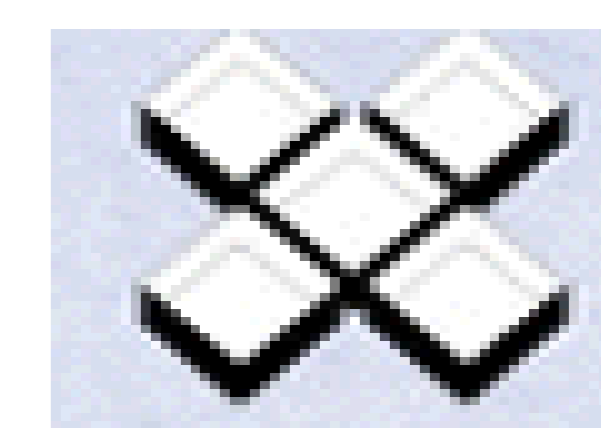


MEAL-INDUCED PLASMA GHRELIN SUPPRESSION IN DIFFERENT PHASES OF ANOREXIA NERVOSA

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INTRODUCTION

While the suppressive effect of food on circulating ghrelin is well recognized in normal humans, the integrity of this mechanism in anorexia nervosa (AN) is still a matter of debate. A few years ago lack of ghrelin suppression by a standardized breakfast was described in AN patients, who displayed baseline elevated levels of the peptide (Nedvidkova et al., J Clin Endocrinol Metab 2003). However, this finding was challenged by subsequent studies from the same group of researchers, demonstrating a decrease in plasma ghrelin following high-carbohydrate breakfast in anorectic women (Sedlackova et al., Physiol Res 2011). A similar decrease in both acyl- and desacyl-ghrelin was also reported by Harada et al. (Biol Psychiatry 2008) in another group of AN patients after an oral glucose load. The interpretation of the pathophysiology of these mechanisms has been made more difficult by the recent observation that hyperinsulinemia is even more effective in suppressing plasma ghrelin in AN women than in controls (Karczewska-Kupczewska et al., Eur J Endocrinol 2010). Based on the above, we elected to study the ghrelin dynamics after ingestion of food or placebo in a group of anorectic patients at the moment of diagnosis and after weight recuperation.

STUDY DESIGN

- 9 women affected by restricting type AN (mean age 19.4 ± 5.96 years, mean BMI 15.2 ± 0.35 kg/m²) were studied
- at the moment of diagnosis, two tests were performed on separate occasions and in random order: measurement of plasma total ghrelin along the two hours following ingestion of a 585 kcal meal (32 g fat, 51 g carbohydrate, 18 g protein) or fiber (3.37 g) as placebo
- repetition of the two tests after 2-6 months of nutritional rehabilitation
- plasma total ghrelin estimated by RIA: assay sensitivity 40 pg/ml; intra- and interassay coefficients of variation 5% and 7.6%, respectively

RESULTS

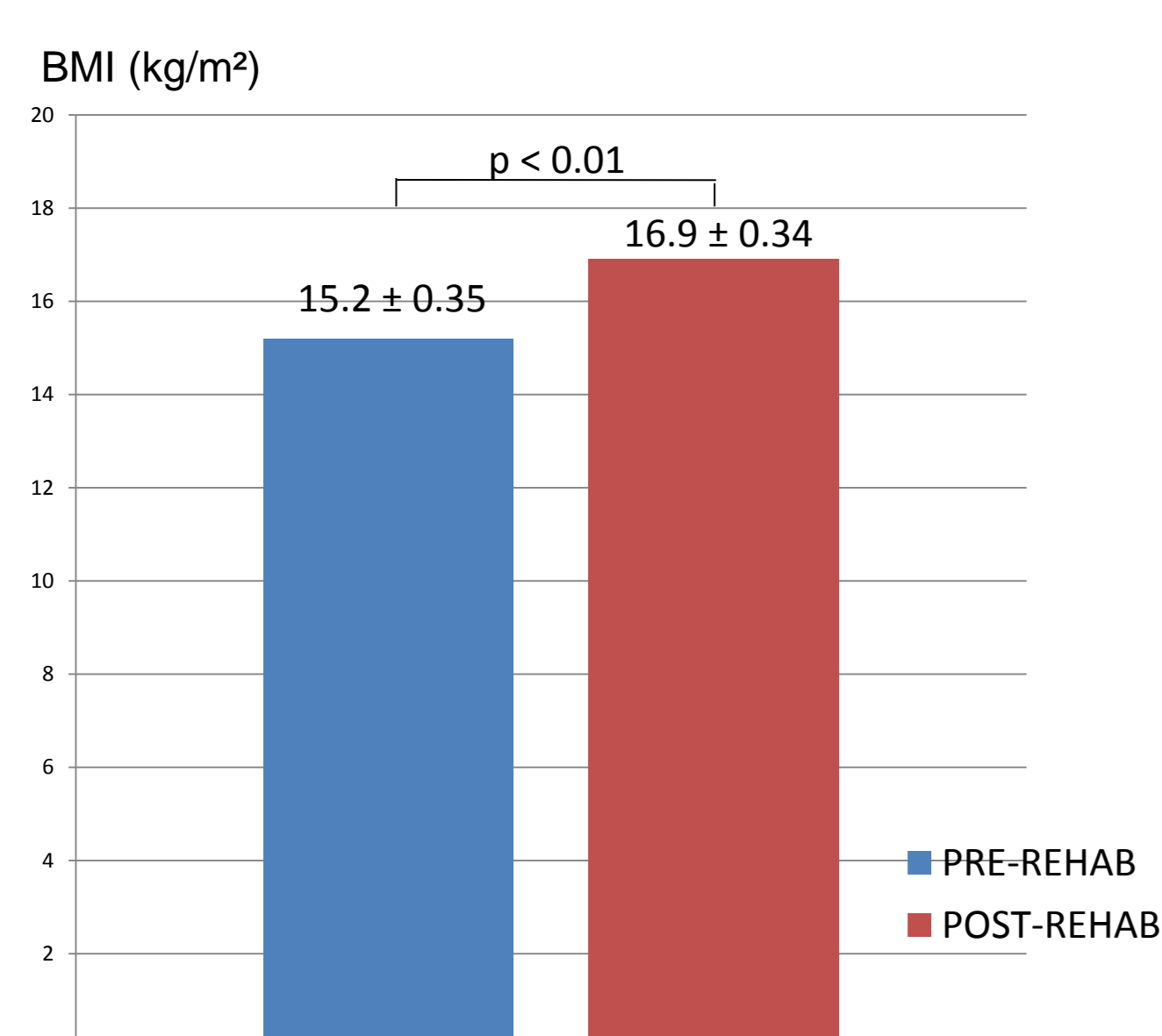


Fig. 1 - Increase in mean BMI during nutritional rehabilitation in 9 AN women

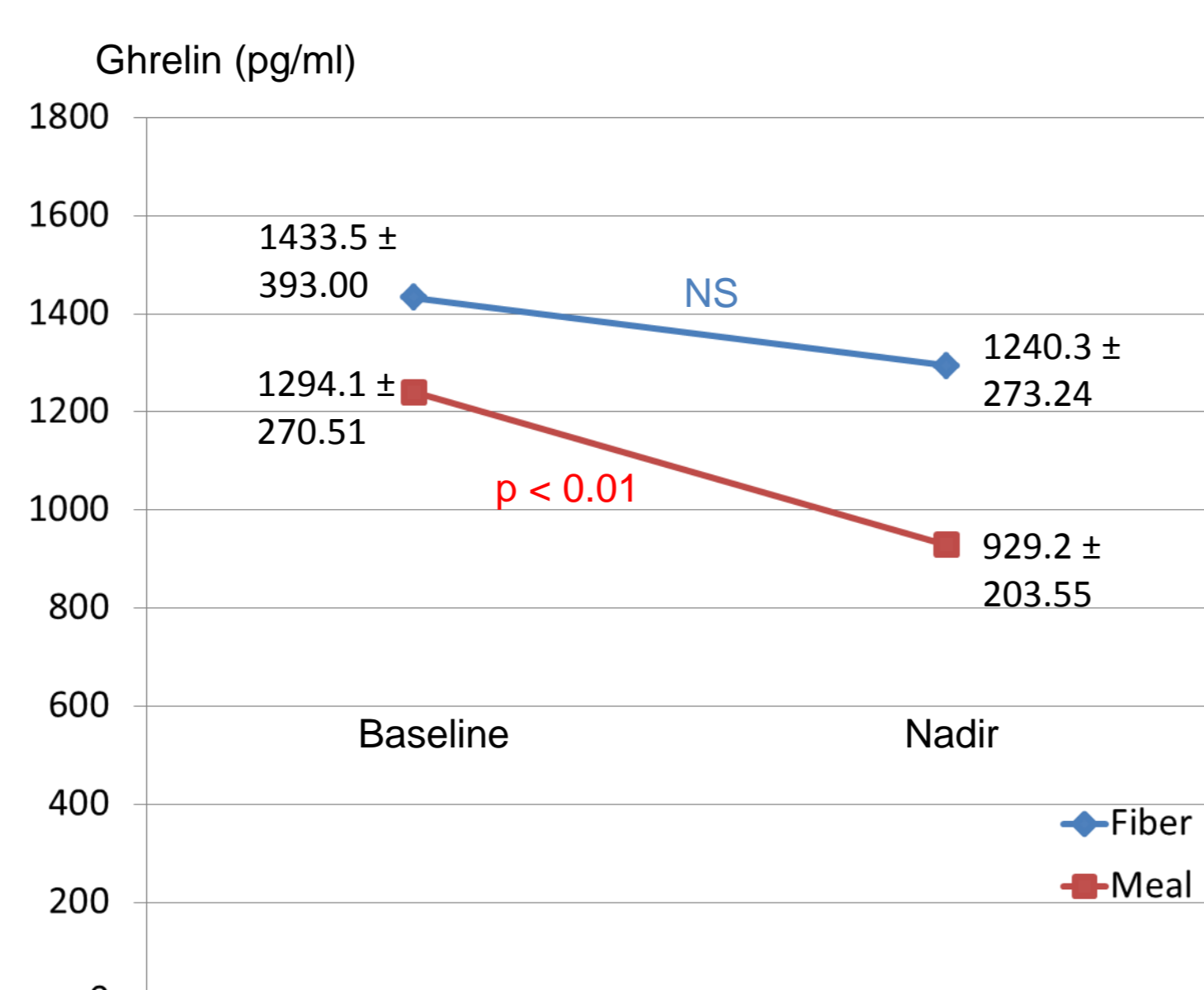


Fig. 2 - Plasma ghrelin changes after fiber or meal ingestion in AN patients at diagnosis

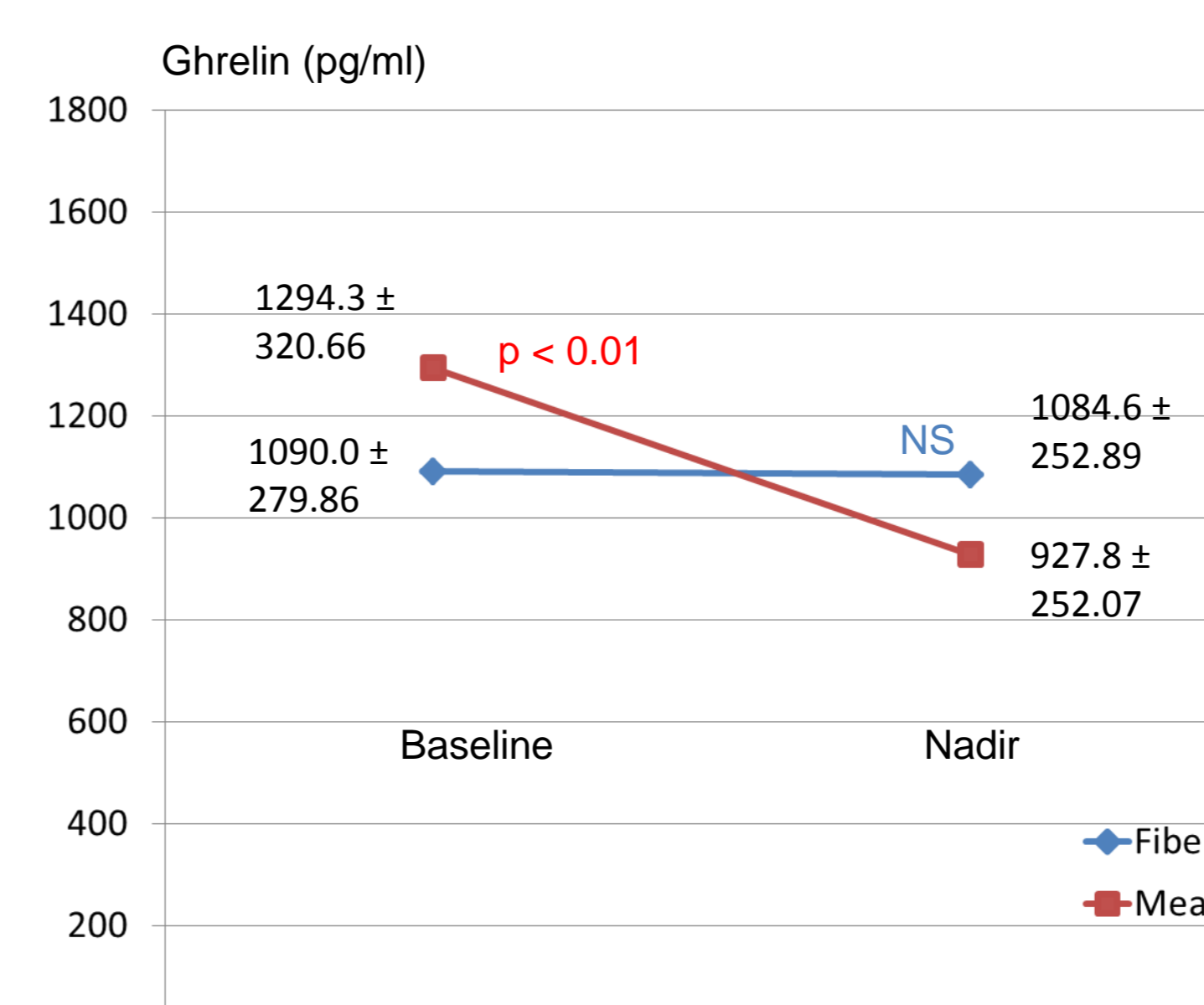


Fig. 3 - Plasma ghrelin changes after fiber or meal ingestion in AN patients after nutritional rehabilitation

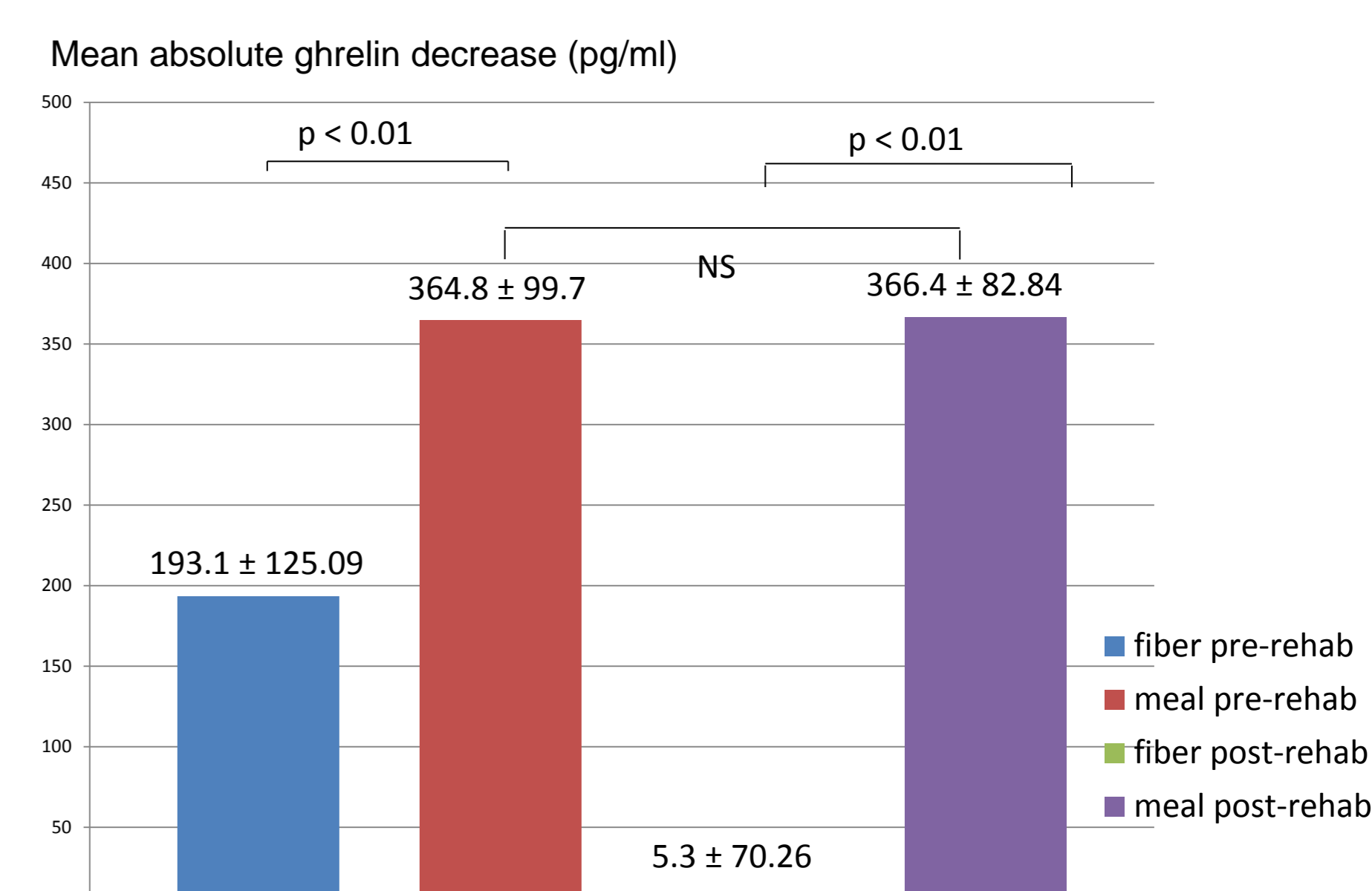


Fig. 4 – Mean absolute ghrelin decrease after fiber or meal ingestion in AN patients at diagnosis and after rehabilitation

CONCLUSIONS

- The results of this study are consistent with a substantial integrity in AN of the mechanisms subserving the physiological meal-induced ghrelin suppression
- These mechanisms appear to be preserved both in the acute phase of the disease and after initial weight increase during a nutritional rehabilitation programme