

## INTRODUCTION

exercise stimulate growth hormone (GH) secretion and may serve as a promising physiological test for the diagnosis of GH deficiency. However, exercise standardization for a feasible GH test is still lacking.

## OBJECTIVES

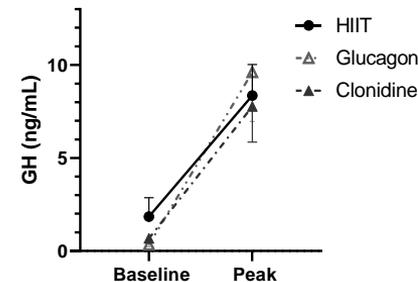
The aim of the present study was to examine the GH secretion to high intensity interval exercise.

## METHOD

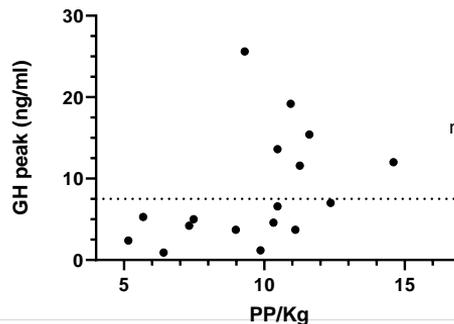
Seventeen children ( $12.4 \pm 2.6$  years) with impaired growth rate performed high-intensity interval test (HIIT) that included 10 intervals of 15 seconds all out pedaling against resistance determined by age, sex and weight on a cycle ergometer with 1-minute active rest between each interval. Power output measurements were collected during the test. Blood samples were collected before, immediately after, 30, 45, and 60 min after the beginning of the exercise test. GH response was compared to pharmacological provocation test (clonidine or glucagon).

## RESULTS

HIIT led to a significant increase in GH levels ( $p < 0.001$ ), with high correlation to GH response following pharmacologic stimulation ( $r = 0.82$ ,  $r = 0.80$  for clonidine and glucagon respectively,  $p < 0.001$ ). A significant correlation was found between mean peak power to body weight and the GH response ( $r = 0.50$ ,  $p = 0.04$ ). 83% of participants who reached peak power  $> 10$  watts/kg had normal GH secretion compared to 36% with low GH response.



GH response to HIIT, glucagon and clonidine tests. There was a significant increase in GH in all 3 modes of tests.



GH response versus peak power/kg. There was a significant correlation between mean peak power normalized to body weight and the GH response to the High-Intensity Interval Test

## CONCLUSIONS

HIIT is a brief and individualized exercise protocol that may be used as a physiological provocation test for GH secretion. There might be a minimum of anaerobic power needed to induce adequate GH response during HIIT.