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1: [J Ren Nutr.](#) 2001 Oct;11(4):212-9.

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## Recombinant human growth hormone in patients with acute renal failure.

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**OBJECTIVE:** The objective of this study is to determine the impact of recombinant human growth hormone (rhGH) on metabolic and nutritional parameters in malnourished patients with acute renal failure. **DESIGN:** The design is an open-labeled pilot trial examining the effects of rhGH administration in a small group of highly catabolic, malnourished patients with acute renal failure. Each patient served as his or her own control. **SETTING:** An intensive care unit in a tertiary care medical institution. **PATIENTS:** Five patients with established acute renal failure in a critical care unit. Entry criteria included clinical evidence of malnutrition: a serum albumin level of <3.2 g/dL, a prealbumin level of < or = 20 mg/dL, and an insulin-like growth factor IGF 1 level <200 ng/mL. The study consisted of 3 periods: phase I, 3 day baseline; phase II, 6 day treatment; and phase III, 3 day washout. During the entire study, blood and urine samples were obtained daily to calculate normalized protein catabolic rate, total nitrogen appearance rate (TNA), and nitrogen balance. Additional data were collected to measure metabolic and inflammatory parameters. **INTERVENTION:** The intervention consisted of administering 100 microg/kg/d of rhGH for 6 days. **RESULTS:** There were significant changes in TNA, normalized protein catabolic rate, and nitrogen balance during the 3 study phases. TNA decreased from 43.3 +/- 24.4 g/d in phase I, to 25.2 +/- 16.5 g/d during phase II (P <.001). There was a further decrease in TNA to 16.2 +/- 8.3 g/d during phase III (P <.001 v phase I). Nitrogen balance improved from - 31.8 +/- 21.4 g/d during phase I, to - 12.9 +/- 10.3 g/d during phase II (P <.001), and further improved to - 4.1 +/- 4.0 g/d in phase III (P <.001 v phase I). Significant changes were also noted in levels of blood urea nitrogen, phosphorous, serum growth hormone, IGF-1, and serum leptin levels after growth hormone administration. A statistically significant increase in serum albumin was noted in phase III (3.1 g/dL) versus phase I (2.7 +/- 0.7 g/dL). **CONCLUSIONS:** Administration of rhGH to critically ill patients with acute renal failure resulted in improvements in negative nitrogen balance and a significant decrease in total nitrogen appearance rate. These changes corresponded to increases in serum growth hormone, IGF-1, IGF-1 binding protein 3, and leptin levels after growth hormone administration. Copyright 2001 by the National Kidney Foundation, Inc.

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