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[PubMed Central](#) 1: [Plast Reconstr Surg.](#) 1999 Aug;104(2):470-5.[Related Articles, Links](#)**The influence of systemic growth hormone administration on the healing time of skin graft donor sites in a pig model.**[Ghofrani A](#), [Holler D](#), [Schuhmann K](#), [Saldern S](#), [Messmer BJ](#).Division of Plastic Surgery and Hand Surgery at St. Agatha Hospital, Cologne, Germany.  
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A more rapid healing of skin graft donor sites has often been observed during ultimoratio therapies with growth hormone in adults who have suffered extremely severe burns. The purpose of this animal experimental study was to examine the influence of systemic growth hormone administration on the healing time of skin graft donor sites under standardized conditions in pigs. The animals were 14 (7 experimental and 7 control) male, sexually mature, German domestic pigs, in which 30 skin graft donor sites 8 cm x 4 cm and 0.6 mm deep were created. Fifteen each of the skin graft donor sites were bandaged with the same material [hydrocolloid bandage (Varihaesive E) and PVP-iodine gauze (Braunovidon Gaze)]. The test period was 15 days for each pig, whereby recombinant growth hormone (0.5 IU/kg body weight per day) was applied subcutaneously in the experimental group. The bandages were changed under brief narcosis every 2 days, during which one skin-punch biopsy was taken per skin graft donor site, and blood samples were drawn for determination of the serum IGF-1 values. Photographic documentation was also recorded. The biopsies were examined histologically (hematoxylin and eosin stain) and immunohistochemically (collagen IV and VII, and laminin), whereby histologically the start of keratinization was assessed as a healing criterion. The serum IGF-1 values in the growth hormone group were statistically significantly higher than in the control group. Immunohistochemically, a complete basal membrane was observed in both the experimental and the control group after the 7th or 8th day. A clearly elevated serum IGF-1 level correlated in the growth hormone group with the skin graft donor sites healing. It could thus be demonstrated both clinically and histologically that systemic application of growth hormone results in a statistically significantly more rapid healing of the skin graft donor sites by 2 days earlier than in the control group.

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