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JOURNAL ARTICLE

Binding of methyltrienolone to androgen receptors in human skin fibroblasts is enhanced by insulin

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Previous reports have suggested a relationship between hyperinsulinemia and increased androgen secretion leading to female virilization, but no report has been made of the effects of insulin on androgen receptors. The authors tested the *in vitro* effect of insulin on the binding of methyltrienolone (R1881) to androgen receptors of cultured genital skin fibroblasts preincubated with serum-free medium in the absence and presence of insulin (100 ng/mL, ie, 2600 microU/mL) for 18 hours at 37 degrees C. Insulin increased specific binding of R1881 by 35% (range, 13% to 75%). Scatchard analysis of androgen receptor binding demonstrated a similar increase in the number of binding sites, whereas binding affinity remained unchanged. The increase in androgen receptors was dose dependent (maximum effect at 25 ng insulin/mL) and time dependent (maximum effect occurring after 12 hours). DNA measurements indicated that insulin increased binding sites per cell rather than altering the cell number. Insulin increased total protein concentration to an extent similar to that observed for the increase in androgen receptor binding sites. Cycloheximide, but not actinomycin D, inhibited the effect of insulin on androgen receptor binding. The authors' data suggest that insulin induces an increase in the number of androgen receptors per cell as part of a general anabolic effect on cellular protein content.

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