

Table 3. Means and standard errors for modified Himmelsbach scores and sickness scores obtained in precipitation tests utilizing standard methods.³ These scores are the sums of scores from 5 observations.

<u>Drug</u>	<u>Precipitation Score</u>	<u>Sickness Score</u>
Placebo	51.5 $\pm$ 8.6	0.2 $\pm$ 0.2
Nalorphine 40 mg	82.0 $\pm$ 13.6 ^{.05}	1.0 $\pm$ 0.5
Naloxone 4 mg	132.2 $\pm$ 17.0 ^{.01*}	5.8 $\pm$ 1.8 ^{.01*}

The superscript is the level of significance for the difference from placebo as calculated using 2-way analysis of variance (subjects X treatments) and the method of least significant differences.

*The precipitation and sickness scores for naloxone are significantly different from those for nalorphine at $p < .01$.

After 35 days of chronic butorphanol administration, saline placebo was substituted for butorphanol under double blind conditions. Within 24 hours, all subjects perceived the placebo substitution and reported withdrawal symptoms which increased in severity from the 24th through the 48th hour. Accompanying this were pupillary dilation, increases in body temperature and pulse, and decreased caloric intake (Fig. 2 and Table 2). Generally symptoms reported were those described for opiate withdrawal but in addition there were symptoms which have been described only with nalorphine or cyclazocine withdrawal syndromes. Four subjects reported electric shocks usually associated with faintness and two subjects reported itching. All subjects found this abstinence syndrome to be somewhat uncomfortable and asked for morphine to relieve their symptoms on the second night of withdrawal. They were consequently offered a small dose of butorphanol or a sedative. All subjects rejected the butorphanol and chose to receive a sedative. Five of the six received diazepam, 15 mg, and the other subject received pentobarbital, 100 mg. Analysis of the chronic opiate questionnaire² indicated that the subjects reported feeling bad through the first week of withdrawal with denial of discomfort by the 8th day of abstinence (Fig. 3).