

# Feature Article

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## Date Rape Drugs

### Data Summary

Kathrine Janzen  
RCMP Forensic Laboratory Edmonton

The recent media attention to the topic of drug use in sexual assault has greatly increased the number of cases submitted for the analysis of blood and urine samples from victims. Accompanying the samples have been many questions from investigators and the doctors who examine the victims. Some of the most frequent questions “*How long can you detect a drug?*” “*Do you prefer blood or urine?*” “*Is there any point in taking a sample after x hours?*” prompted the research which is summarized in table form (see next page).

The data was distributed to investigators following an oral presentation along with information on the effects of benzodiazepines and GHB. Some words of caution are advised. Investigators who are given this material for reference should also be given a basic understanding of drug metabolism and the concept of half-life. The Comments Section (after the table) should be highlighted and explained.

All benzodiazepines have the ability to interfere with memory acquisition, but the ones asterisked are particularly noted for causing amnesia. The duration of effects of the drugs and the length of time they can be detected in blood and urine are based on **single** dose studies. Obviously, larger doses will extend these times. It must be stressed that the effects of a drug will vary with the individual’s metabolism, experience, general health, as well as the presence or absence of other drugs, etc. Obviously, the length of time any substance can be detected in blood and urine is also very dependant on the sensitivity and specificity of the analytical methods employed by the laboratory. Some data was inferred from related information. Given these cautions, the table can serve as a useful guideline for sexual assault investigators.

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## DATE RAPE DRUGS - DATA SUMMARY TABLE

Caution, data provided is for use as a general guideline only. See comments.

Drug	Appearance	Dose (mg)	Duration <sup>a</sup>	Half life	Blood <sup>b</sup>	Urine <sup>c</sup>
GHB * (gamma-hydroxybutyrate)	white powder or tablet or clear liquid	2500	15 min - 3 hrs <sup>1</sup>	1 hr <sup>1</sup>	6 hrs <sup>1</sup>	12 hrs <sup>1</sup>
flunitrazepam * (Rohypnol)	white tablets (round) (now with blue dye)	1, 2	30 min - 12 hrs <sup>15</sup>	9 - 25 hrs <sup>1</sup>	18 hrs <sup>5</sup>	72 hrs <sup>7</sup>
triazolam * (Halcion)	violet or blue oval tablet	0.125 0.25	30 min - 6 hrs <sup>8,13</sup>	1.5 - 4 hrs <sup>1</sup>	6 hrs <sup>5,13,17</sup>	48 hrs <sup>1</sup>
lorazepam * (Ativan)	white tablet (round, oblong or oval)	0.5, 1 or 2	1 hr - 8 hrs <sup>8,20</sup>	11 -16 hrs <sup>9</sup>	36 hrs <sup>20</sup>	72-96 hrs <sup>20</sup>
alprazolam * (Xanax)	white, peach or lavender tablet	0.25, 0.5, 1	30 min - 7 hrs <sup>10</sup>	12 -15 hrs <sup>9,24</sup>	30 hrs <sup>17,18</sup>	72 hrs <sup>1</sup>
diazepam (Valium)	yellow or blue round tablet	5 -10	20 min - 7 hrs <sup>10,11,14</sup>	20 - 100 hrs <sup>9</sup>	72 hrs <sup>12</sup>	days
chlordiazepoxide (Librium)	white/green capsule black/green capsule	10 -25	1 - 8 hrs <sup>14</sup>	5 - 30 hrs <sup>9</sup>	24 hrs + <sup>1</sup>	days
temazepam (Restoril)	maroon / flesh capsule maroon / blue capsule	15 - 30	1 - 8 hrs <sup>16</sup>	9 - 12 hrs <sup>9</sup>	72 hrs <sup>5,17</sup>	48 hrs <sup>21</sup>
clonazepam (Rivotril)	orange or white cylindrical tablets	.5, 2	1-12 hrs <sup>24</sup>	19 - 60 hrs <sup>1</sup>	96 hrs <sup>23</sup>	168 hrs <sup>2</sup>
bromazepam (Lectopam)	white, pink or green cylindrical tablets	1.5, 3, 6	1-8 hrs <sup>25</sup>	8-19 hrs <sup>1</sup>	48 hrs <sup>19</sup>	72 hrs <sup>1</sup>
nitrazepam (Mogadon)	white cylindrical tablets	5 - 10	1-19 hrs <sup>14</sup>	18 - 34 hrs <sup>9</sup>	72 + hrs <sup>5</sup>	168 hrs <sup>1</sup>
flurazepam (Dalmane)	orange/ivory capsule red/ivory capsule	15 - 30	1-6 hrs <sup>22</sup>	50 - 100 hrs <sup>9</sup>	140 hrs <sup>5</sup>	days
diphenhydramine (Gravol, Nytol, Benadryl)	numerous tablets and capsules	50 - 100	1-7 hrs <sup>3</sup>	3 - 8 hrs <sup>1</sup>	24 hrs <sup>6</sup>	96 hrs <sup>6,1</sup>

compiled by K.E. Janzen, Toxicologist, RCMP Forensic Laboratory Edmonton, April 1998

### **Comments:**

\* documented incidents of amnesia

<sup>a</sup> Based on a single dose. The length of time effects are experienced will vary depending on the actual dose administered, the metabolism of the individual, and with the presence or absence of other drugs.

<sup>b</sup> The length of time a drug or its metabolites can be detected in blood or urine will vary with the method of analysis, dose administered, metabolism of the individual, etc. Assume analytical techniques capable of detecting as little as 1 ng drug /ml blood/plasma.

<sup>c</sup> Drugs appear in the urine primarily as metabolites. The times indicated reflect the length of time metabolites are excreted in the urine, but do not necessarily imply that they can be routinely detected to that length of time.

Superscript numbers correspond to references below.

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