

TABLE 11.12
Permethrin Bioavailability and Body Burden for Uniformed Soldier

Human Part	Body Surface Area (cm ²)	Permethrin Dose ^a (μg/cm ²)	Percutaneous Absorption ^b	Body Region Index ^c	Uniform Effect ^d	Total (μg)
Head	1180	4	0.087	×4	1	1642.56
Neck	420	4	0.087	×4	1	584.64
Trunk	5690	125	0.087	×3	0.29	53,834.51
Arms	2280	125	0.087	×1	0.29	7190.55
Hands	840	4	0.087	×1	1	292.32
Genitals	180	125	0.087	×12	0.29	6812.10
Legs	5050	125	0.087	×1	0.29	15,926.44
Feet	1120	4	0.087	×1	1	389.76
Total (μg)						86,672.88
Total (mg)						86.67
Total body burden (mg/70 kg soldier)						1.24 mg/kg

^a Uniform = 125 μg/cm² (NRC 1994)/spray open skin 4 μg/cm².

^b 8.7% (0.087) permethrin dose absorbed.

^c Region body absorption index.

^d The 0.29 is 29% absorption from cloth relative to open skin (index).

cover a range of chemical moieties, we should be in a position to further refine those aspects of dermatopharmacology and dermatotoxicology that require knowledge of skin penetration. However, the data are sufficient to make reasonable estimates from regional variation percutaneous absorption applied to human risk assessment. Proper risk assessment should also include absorption from clothing, because that is what exists.

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