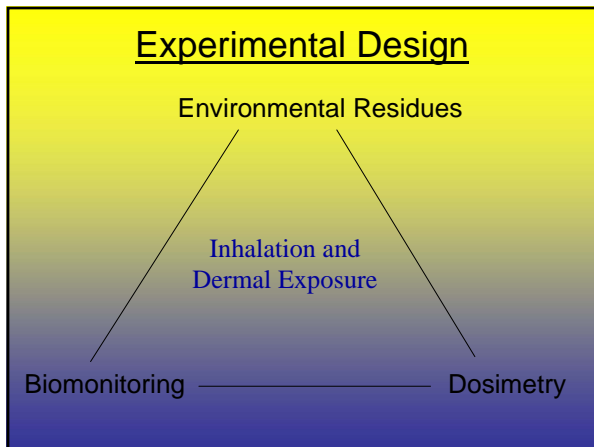
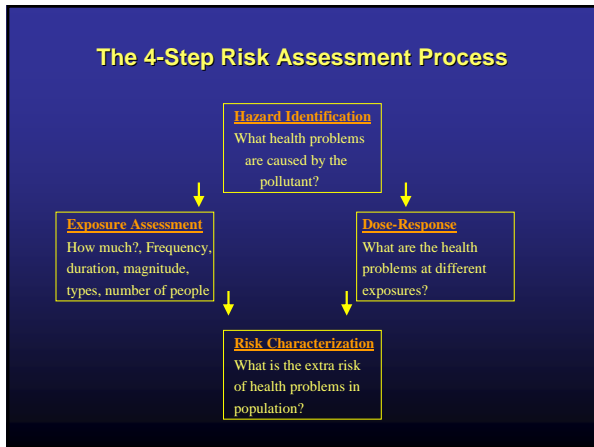
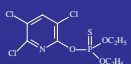

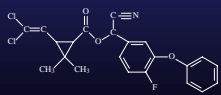




College of Natural Resources and the Environment nre

MPAL
 Massachusetts Pesticide Analysis Laboratory



	Vapor Pressure (mm Hg)	Water Solubility (ppm)	Rfd (ug/Kg/d)
 Chlorpyrifos (Organophosphate)	2×10^{-5}	1.4	3
 Carbaryl (Carbamate)	3×10^{-7}	120	10
 Cyfluthrin (Pyrethroid)	2×10^{-9}	0.002	20



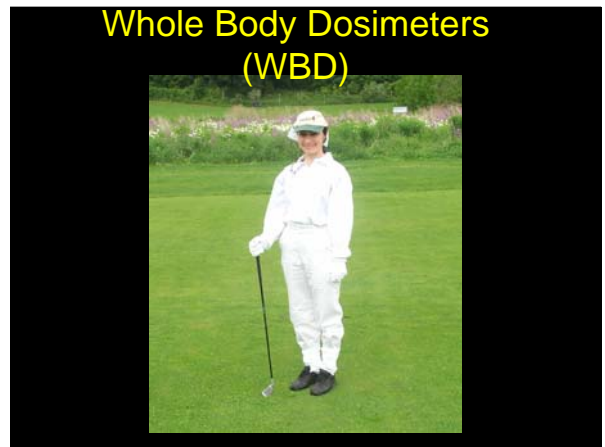


Basic Study Design

2 Volunteer Groups

1 Hour Post-Application

4 Hours Golf



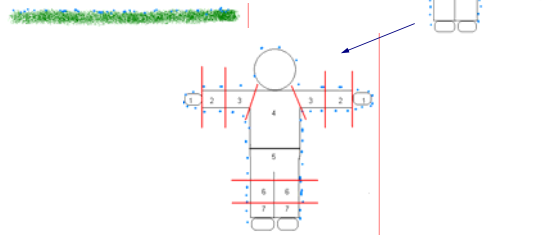
Personal Air Samplers



Dosimetry

Dislodgeable Foliar Residues

Transfer Factor



Whole Body Dosimeter

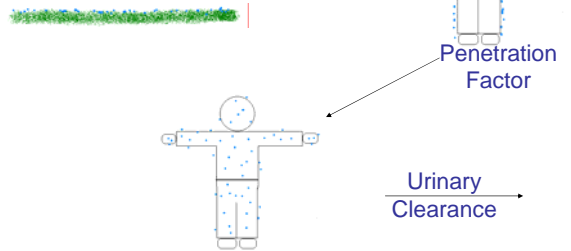
Biomonitoring Group



Biomonitoring

Dislodgeable Foliar Residues on Treated Turf

Transfer Factor

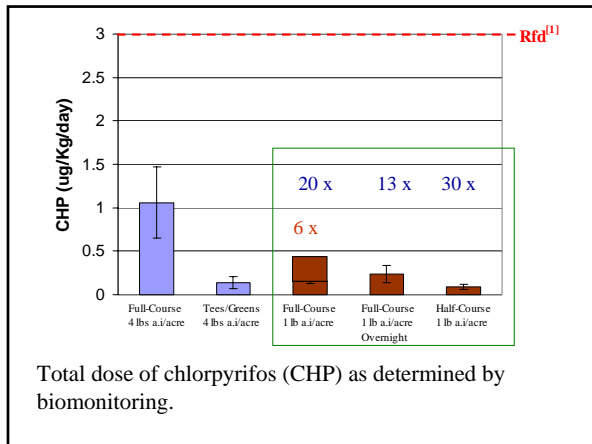


Results



Chlorpyrifos Biomonitoring





Carbaryl Biomonitoring Results

Rfd = 10.0 µg/Kg/d

Pre-exposure: 0.269 µg/Kg ± 0.186

Post-exposure: 0.544 µg/Kg ± 0.183

Total exposure: 0.813 µg/Kg/d

Conclusions

- o Exposure to chlorpyrifos, carbaryl, and cyfluthrin under worst case scenarios are significantly less than established Reference Dose (Rfd) criteria.
- o Dermal absorption is the most significant route of exposure to golfers.



“Diet is considered the primary exposure pathway for most pesticides, with drinking water and residential exposure contributing to aggregate exposure in some cases”

Fenske et al., Environmental Health Perspectives 2002

- children
- misuse
- home use
- occupational settings

