Lorillard Response
Feb 11, 1972

Table 1

Darby Model		Modified Model		
Assumed Amt. of Nicotine Absorbed from Cigarette (mg)	Nicotine half-life (10 min.); Cotinine half-life (1800 min.) Estimated Serum Cotinine (µg/ml)	Assumed Amt. of Nicotine Absorbed from Cigarette (mg)	Nicotine half-life (40 min.); Cotinine half-life (1140 min.) Estimated Serum Cotinine (µg/ml)	
.1	90	.1	59	63%
.2	180	.2	118	
.3	270	.3	177	
.4	360	.4	236	65%

Clearly, these changes in half-life significantly alter the estimated yield from a cigarette when this is to be inferred from the serum cotinine level obtained by Gori and the pharmokinetic model (compare data in Tables I and II).

but not relative ranking

Table II

Average of all Serum Cotinine Data by Gori

Brand	Cotinine (ng/ml)
Barclay	176
Cambridge	103
Carlton	107
Now	98

time calc yield ↓

.3 mg - 177

177 mg

= .16 mg

The form of the pharmokinetic model proposed by Darby estimates that the level of serum cotinine will increase linearly with the yield of the cigarette providing the same number of cigarettes are smoked at the same times.