Table 5. Possion regression of pleural cancer against cumulative exposure by fibre type

Fit/fibre type	A_{pl}	r	95% CI for r	Residual deviance	Degrees of freedom	P
1. Independent fits						
c	1.4	0.62	(−0.54, 1.43)	0.25	1	0.62
a	0.02	1.2	(−0.32, 3.5)		0	
y	0.0057	0.72	(0.17, 1.79)	3.68	4	0.45
Overall				3.93	5	0.56
2. Best common slope						
c	0.93			0.36	2	0.84
a	0.13	0.75	(0.27,1.3)	0.49	1	0.48
y	0.0047			3.68	6	0.72
Overall				4.53	7	0.72
3. Common slope, amphiboles only						
c	0.88			0.39	2	0.82
a	0.120	0.77	(−0.069, 1.62)	0.44	1	0.51
Overall				0.83	2	0.66

Table 6. Possion regression of peritoneal cancer against cumulative exposure by fibre type

Fit/fibre type	A_{pr}	r	95% CI for r	Residual deviance	Degrees of freedom	P
1. Independent fits						
	0.0022	2.1	(0.93, 2.9)	0.10	1	0.75
	0.00018	2.4	(0.41,6.4)			
	1.4	−1.7	(−22, 0.91)	2.60	4	0.63
Overall				2.70	5	0.75
2. Common slope, amphiboles only						
c	0.0022			0.10	2	0.95
		2.1	(1.2,2.9)		1	0.76
a	0.0006			0.09	2	0.91
Overall				0.19		

mates of the peritoneal and pleural slopes is constrained to be 2.4, the best fit pleural and peritoneal slopes are : 0.86 (95%CI 0.51–1.15) and 2.1 (95%CI 1.2–3.6). If the ratio of slopes is constrained to be 3.2, the estimated values are r=0.67 (95%CI 0.40–0.90) and r=2.1 (95%CI 1.3–2.9).

Support for a convex (r<1) increase of pleural mesothelioma risk with exposure can be found in the detailed dose-specific analyses of the Wittenoom mesotheliomas by Berry (1991). Most of these cases (62 of 72) were pleural. Figure 8 plots the constant terms in the four exposure categories of Berry's analysis against their mean cumulative exposure. The slope is very close to 0.5. In addition, Coggon *et al.* (1995), concluded from a comparison of the ranking of occupations by mortality from pleural and peritoneal cancers and from asbestosis that "a more plausible explanation [of the different rankings] is that the exposure response relations for mesothelioma and asbestosis are non-linear, with the risk of pleural mesothelioma rising relatively more steeply at low exposures, but less steeply at high exposures".

A non-linear relationship between exposure and the rates of pleural and peritoneal mesothelioma means that the percent excess mortality per f/ml.yr (R_M) will

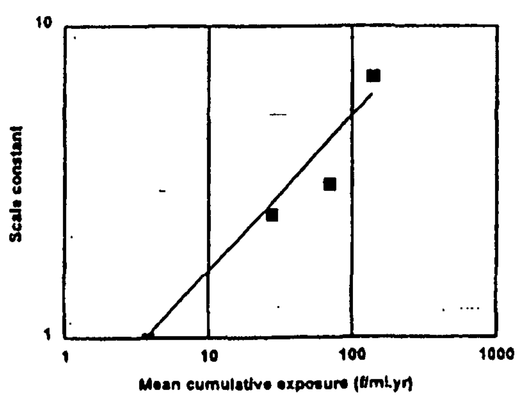

Fig. 8. Scaling constant in the four exposure groups of Berry (1991) analysis of the Wittenoom crocidolite cohort, plotted against the mean cumulative exposure in each group. The plotted line is proportional to the square root of cumulative exposure.

not provide a consistent summary of the effect for mesothelioma at the two sites considered individually. Each additional unit of exposure will add—progressively—less risk for pleural tumours, and more for peritoneal tumours. The point at which the absol-