

# Best Estimate $\alpha/\beta$ Ratios for Human Normal Tissues and Tumors

Tissue/organ	Endpoint	$\alpha/\beta$ (Gy)	95% CL (Gy)	Source
<b>Early reactions</b>				
Skin	Erythema	8.8	6.9; 11.6	Turesson and Thames (1989)
	Erythema	12.3	1.8; 22.8	Bentzen <i>et al.</i> (1988)
	Dry desquamation	~8	N/A	Chogule and Supe (1993)
	Desquamation	11.2	8.5; 17.6	Turesson and Thames (1989)
Oral mucosa	Mucositis	9.3	5.8; 17.9	Denham <i>et al.</i> (1995)
	Mucositis	15	—15; 45	Rezvani <i>et al.</i> (1991)
	Mucositis	~8	N/A	Chogule and Supe (1993)
<b>Late reactions</b>				
Skin/vasculature	Telangiectasia	2.8	1.7; 3.8	Turesson and Thames (1989)
	Telangiectasia	2.6	2.2; 3.3	Bentzen <i>et al.</i> (1990)
	Telangiectasia	2.8	—0.1; 8.1	Bentzen and Overgaard (1991)
Subcutis	Fibrosis	1.7	0.6; 2.6	Bentzen and Overgaard (1991)
Breast	Cosmetic change in appearance	3.4	2.3; 4.5	START Trialists Group (2008)
	Induration (fibrosis)	3.1	1.8; 4.4	Yarnold <i>et al.</i> (2005)
Muscle/vasculature/ cartilage	Impaired shoulder movement	3.5	0.7; 6.2	Bentzen <i>et al.</i> (1989)
Nerve	Brachial plexopathy	<3.5*	N/A	Olsen <i>et al.</i> (1990)
	Brachial plexopathy	~2	N/A	Powell <i>et al.</i> (1990)
	Optic neuropathy	1.6	—7; 10	Jiang <i>et al.</i> (1994)
Spinal cord	Myelopathy	<3.3	N/A	Dische <i>et al.</i> (1981)
Eye	Corneal injury	2.9	—4; 10	Jiang <i>et al.</i> (1994)
Bowel	Stricture/perforation	3.9	2.5; 5.3	Deore <i>et al.</i> (1993)
Bowel	Various late effects	4.3	2.2; 9.6	Dische <i>et al.</i> (1999)
Lung	Pneumonitis	4.0	2.2; 5.8	Bentzen <i>et al.</i> (2000)
	Lung fibrosis (radiological)	3.1	—0.2; 8.5	Dubray <i>et al.</i> (1995)
Head and neck	Various late effects	3.5	1.1; 5.9	Rezvani <i>et al.</i> (1991)
Head and neck	Various late effects	4.0	3.3; 5.0	Stuschke and Thames (1999)
Supraglottic larynx	Various late effects	3.8	0.8; 14	Maciejewski <i>et al.</i> (1986)
Oral cavity + oropharynx	Various late effects	0.8	—0.6; 2.5	Maciejewski <i>et al.</i> (1990)
<b>Tumours</b>				
Head and neck	Various	10.5	6.5; 29	Stuschke and Thames (1999)
	Larynx	14.5*	4.9; 24	Rezvani <i>et al.</i> (1993)
Vocal cord		~13	'wide'	Robertson <i>et al.</i> (1993)
Buccal mucosa		6.6	2.9; $\infty$	Maciejewski <i>et al.</i> (1989)
Tonsil		7.2	3.6; $\infty$	Maciejewski <i>et al.</i> (1989)
Nasopharynx		16	—11; 43	Lee <i>et al.</i> (1995)
Skin		8.5*	4.5; 11.3	Trott <i>et al.</i> (1984)
Prostate		1.1	—3.3; 5.6	Bentzen and Ritter (2005)
Breast		4.6	1.1; 8.1	START Trialists Group (2008)
Oesophagus		4.9	1.5; 17	Geh <i>et al.</i> (2006)
Melanoma		0.6	—1.1; 2.5	Bentzen <i>et al.</i> (1989)
Liposarcoma		0.4	—1.4; 5.4	Thames and Suit (1986)

CL, confidence limit.

\*Re-analysis of original published data.

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