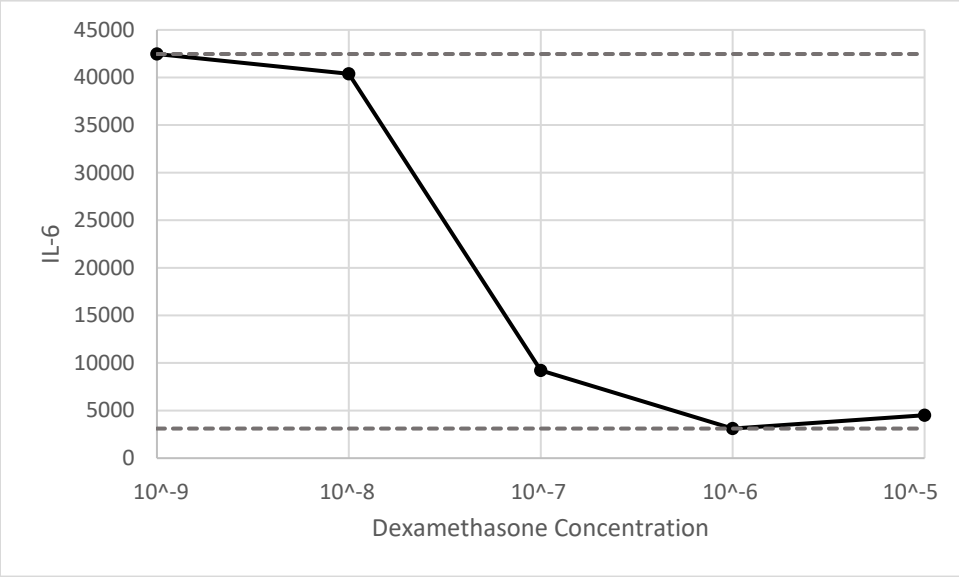
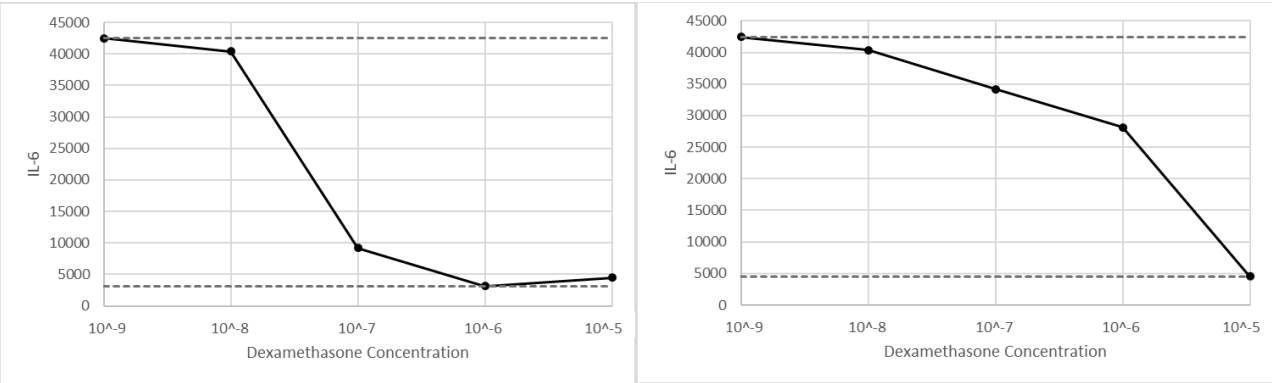
Supplemental Digital Content

Supplemental methods

Explanation of AUC percentage calculation for each participant's baseline and follow-up glucocorticoid receptor (GR) sensitivity. We employ a slightly modified version of the AUC calculation found in Pruessner et. al (2003). Using basic geometry principles of the trapezoid formula, we calculated the area under the dark black line (using the lowest IL6 value as a boundary) and then divided that by the area of the dashed grey rectangle (the highest and lowest IL6 values). That number is the AUC percentage – the percentage of the total area in the grey rectangle that the dark black line encompasses. To obtain the patient's GR difference, we subtracted the baseline GR AUC percentage from the follow-up GR AUC percentage.



As an example, here are two scenarios below. In the figure to the left, Dexamethasone suppresses IL-6 quickly and the curve has a quick and dramatic drop, thus the AUC percentage would be small, indicating a higher GR sensitivity. In the figure to the right, Dexamethasone suppresses IL-6 slowly and the curve has a late drop, thus the AUC percentage would be large, indicating a lower GR sensitivity. If the follow-up were the figure on the right and the baseline was the figure on the left, then that participant's GR AUC percentage difference would be positive, indicating reduced GR sensitivity. If the figures were reversed, and the follow-up was on the left and the baseline was on the right, that patient's GR AUC percentage difference would be negative, indicating increased GR sensitivity.



Rationale for why we chose to calculate participant-specific AUC percentages rather than overall AUC. In the figure below, the shape of the Patient 1 and Patient 2 curves are identical with the exception that Patient 2 has a higher overall value (+20,000 to each point). Under our method, Patient 1 and Patient 2 will have identical AUC percentages due to their identical curves. This is because the "total area" is calculated from each patient's highest and lowest GR values. Under an alternative method that calculates absolute AUC (the area under the curve down to zero), the AUC's for Patient 1 and Patient 2 will be different. Given the variability and random error when estimating absolute values of GR, we believed it best to calculate relative AUC values specific to each participant, thus making each AUC calculation specific to how "fast" or how "slow" the curve descends.

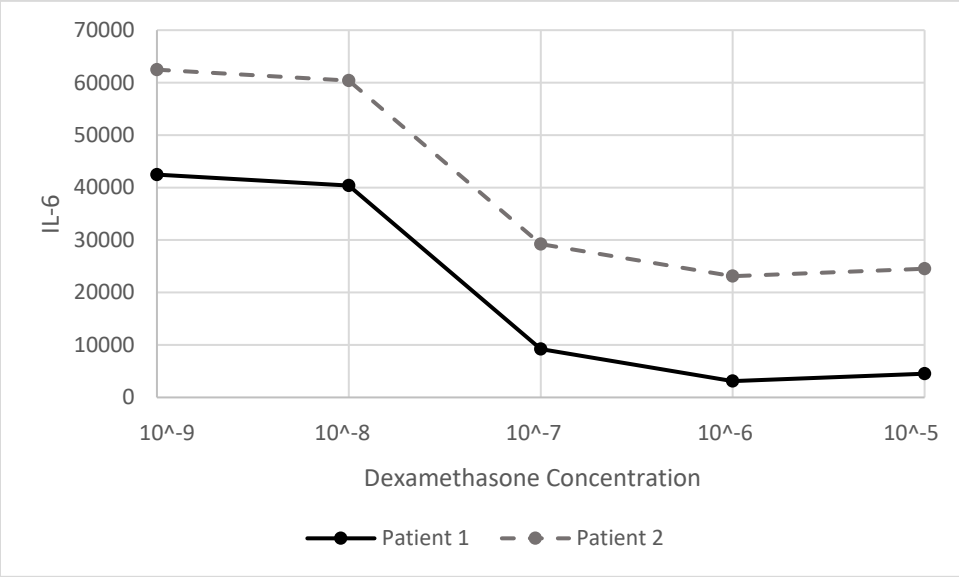


Table S1

Correlation coefficients among fatigue and GR sensitivity at pre and one-month post-IMRT and inflammation makers at one-month post-IMRT.

	Fatigue pre	Fatigue post	GR pre	GR post	GR difference	CRP post	IL-1β post	IL-6 post	IL-10 post	IL-1ra post	IL-6sr post	MCP1 post	sTNFR2 post
Fatigue post	0.548**												
GR pre	0.026	-0.015											
GR post	0.119	0.171	0.042										
GR difference	0.070	0.135	-0.676**	0.708**									
CRP post	0.322**	0.296*	-0.101	0.392**	0.359**								
IL-1β post	-0.107	0.081	-0.044	0.083	0.093	0.049							
IL-6 post	0.241*	0.356**	-0.037	0.231	0.198	0.535**	0.148						
IL-10 post	-0.076	0.199	0.005	0.293*	0.212	0.170	0.273*	0.078					
IL-1ra post	0.352**	0.437**	-0.030	0.043	0.053	0.204	0.195	0.171	0.037				
IL-6sr post	0.017	0.076	0.166	-0.185	-0.253*	0.095	-0.165	0.250*	-0.124	0.041			
MCP-1 post	-0.102	-0.130	-0.037	-0.075	-0.029	-0.048	-0.151	-0.044	-0.206	0.092	-0.156		
sTNFR2 post	0.183	0.335**	-0.043	-0.130	-0.066	0.070	0.238	0.104	0.180	0.390*	0.056	0.042	
TNF-α post	0.026	0.207	-0.105	0.225	0.239*	0.130	0.325*	0.276*	0.279*	0.198	0.128	0.062	0.426**

*p<0.05

**p<0.01

Note. CRP = C-reactive protein, GR = glucocorticoid receptor, IL1β = interleukin β, IL1ra = interleukin 1 receptor antagonist, IL6sr = interleukin 1 soluble receptor, MCP1= monocyte chemoattractant protein 1, sTNFR2 = soluble tumor necrosis factor receptor 2, TNFα = tumor necrosis factor α.