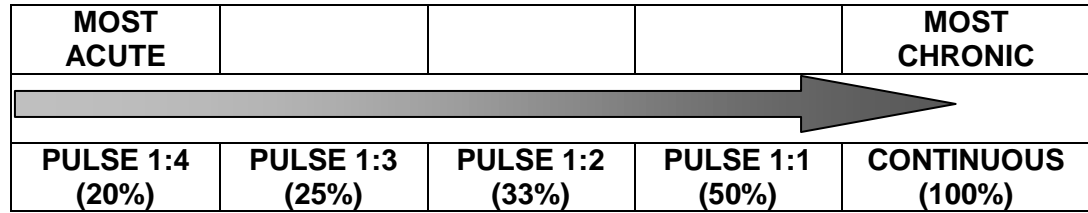


Ultrasound treatment principle – 1 minutes worth of ultrasound per treatment head area
 Therefore longer if PULSED and longer for LARGER TREATMENT AREAS
 Treatment time = 1 x (no of times treatment head fits onto tissue to treat) x (pulse factor)
 To determine the PULSE FACTOR, add the two components of the ratio together
 (e.g. - Pulsed at 1:4 adds up to 5, multiply by 5. Pulsed at 1:1, adds up to 2, multiply by 2 etc)

Ultrasound Treatment Dose Calculations © Tim Watson (2015)

Mode	Pulse Ratio	Duty Cycle
Continuous		100%
Pulsed	1:1	50%
	1:2	33%
	1:3	25%
	1:4	20%
	1:9	10%



Ultrasound Pulse Ratio and % Duty Cycle Equivalents

Ultrasound Pulsed (Duty Cycle %) modes and their selection

Intensity required at the lesion ($W\ cm^{-2}$)	Depth of Lesion (cm)							
	0.5	1	2	3	4	5	6	
	3MHz			1 MHz				
1.0	1.20	1.40	1.80	1.75	2.00	2.25	2.50	
0.9	1.08	1.26	1.62	1.58	1.80	2.03	2.25	
0.8	0.96	1.12	1.44	1.40	1.60	1.80	2.00	
0.7	0.84	0.98	1.26	1.23	1.40	1.58	1.75	
0.6	0.72	0.84	1.08	1.05	1.20	1.35	1.50	
0.5	0.60	0.70	0.90	0.88	1.00	1.13	1.25	
0.4	0.48	0.56	0.72	0.70	0.80	0.90	1.00	
0.3	0.36	0.42	0.54	0.53	0.60	0.68	0.75	
0.2	0.24	0.28	0.36	0.35	0.40	0.45	0.50	
0.1	0.12	0.14	0.18	0.18	0.20	0.23	0.25	

Combined 1 and 3MHz Ultrasound Dose table indicating ultrasound intensity at various tissue depths.

To identify the appropriate dose to set on the machine, determine (a) the estimated depth of the lesion to be treated and (b) the intensity of ultrasound required at that depth to achieve the desired effect. The intensity to set on the machine is that which is indicated where the two columns/rows meet.

E.g. to achieve a $0.5W\ cm^{-2}$ intensity at 1cm tissue depth, select 3MHz treatment option and set machine to $0.7\ W\ cm^{-2}$.