

Combining PTH(1-34) and mechanical loading has increased benefit to tibia bone mechanics in ovariectomised mice

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Supplementary Materials

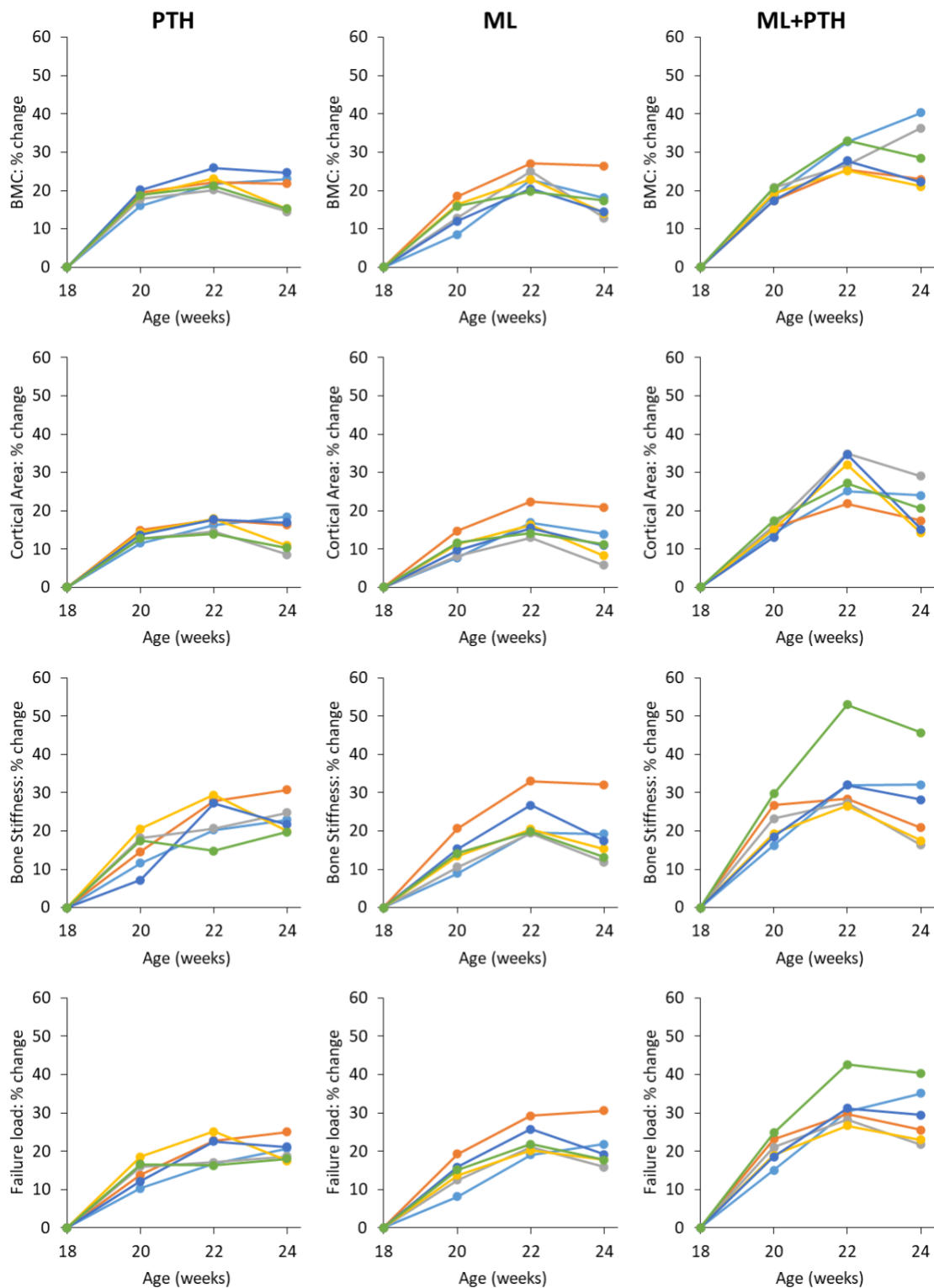


Figure S1: Percentage change, relative to treatment onset (week 18), in tibia structural and mechanical properties. Treatment commenced at 18 weeks old and was withdrawn at 22 weeks old. Colours represent individual mice

Table S1 Tibia midshaft morphometric properties over time for each treatment group following ovariectomy (values reported as mean $\pm$ standard deviation)

	Treatment	Age (weeks)					
		14 [¶]	16	18*	20	22	24
J (mm⁴)	PTH	0.125 $\pm$ 0.007	0.130 $\pm$ 0.008	0.129 $\pm$ 0.007	0.160 $\pm$ 0.011	0.173 $\pm$ 0.012	0.174 $\pm$ 0.013
	ML	0.115 $\pm$ 0.009	0.122 $\pm$ 0.006	0.126 $\pm$ 0.008	0.150 $\pm$ 0.013	0.173 $\pm$ 0.012	0.179 $\pm$ 0.015
	ML+PTH	0.128 $\pm$ 0.007	0.135 $\pm$ 0.007	0.139 $\pm$ 0.009	0.188 $\pm$ 0.009	0.197 $\pm$ 0.003	0.205 $\pm$ 0.013
	OVX	0.097 $\pm$ 0.009	0.106 $\pm$ 0.008	0.109 $\pm$ 0.006	0.111 $\pm$ 0.007	0.112 $\pm$ 0.007	0.111 $\pm$ 0.010
	Time-effect:						
	PTH				(< 0.001)	(< 0.001 ;0.005)	(< 0.001 ;1.000)
	ML				(0.010)	(< 0.001 ;< 0.001)	(0.001 ;0.313)
	ML+PTH				(0.001)	(< 0.001 ;0.003)	(< 0.001 ;0.077)
	PTH	0.58 $\pm$ 0.02	0.58 $\pm$ 0.02	0.58 $\pm$ 0.02	0.68 $\pm$ 0.03	0.70 $\pm$ 0.03	0.69 $\pm$ 0.04
	ML	0.56 $\pm$ 0.01	0.57 $\pm$ 0.02	0.57 $\pm$ 0.01	0.65 $\pm$ 0.03	0.71 $\pm$ 0.02	0.71 $\pm$ 0.04
Ct.Ar (mm²)	ML+PTH	0.58 $\pm$ 0.02	0.60 $\pm$ 0.02	0.60 $\pm$ 0.02	0.72 $\pm$ 0.02	0.76 $\pm$ 0.01	0.77 $\pm$ 0.03
	OVX	0.51 $\pm$ 0.03	0.52 $\pm$ 0.03	0.52 $\pm$ 0.02	0.54 $\pm$ 0.02	0.54 $\pm$ 0.02	0.53 $\pm$ 0.02
	Time-effect:						
	PTH				(< 0.001)	(0.001 ;0.411)	(0.006 ;1.000)
	ML				(0.010)	(< 0.001 ;0.001)	(0.005 ;0.491)
	ML+PTH				(0.002)	(< 0.001 ;0.011)	(< 0.001 ;0.002)
	PTH	223 $\pm$ 3	220 $\pm$ 4	219 $\pm$ 4	258 $\pm$ 8	262 $\pm$ 10	253 $\pm$ 13
	ML	222 $\pm$ 3	220 $\pm$ 6	220 $\pm$ 5	255 $\pm$ 14	279 $\pm$ 14	284 $\pm$ 18
	ML+PTH	224 $\pm$ 3	226 $\pm$ 6	225 $\pm$ 7	270 $\pm$ 11	290 $\pm$ 12	290 $\pm$ 17
	OVX	201 $\pm$ 6	205 $\pm$ 9	206 $\pm$ 8	209 $\pm$ 7	211 $\pm$ 7	208 $\pm$ 8
Ct.Th (μm)	Time-effect:						
	PTH				(< 0.001)	(0.001 ;1.000)	(0.024 ;0.835)
	ML				(0.008)	(0.001 ;< 0.001)	(0.002 ;1.000)
	ML+PTH				(0.001)	(0.001 ;0.012)	(0.003 ;1.000)

The p-values for a “time-effect” are reported in parentheses as (comparison to baseline (week 18) values; comparison previous time point).

Bold values indicate a statistically significant difference between time points. Superscript: [¶]Ovariectomy was performed at week 14;

*treatment commenced at the beginning of week 18 and was withdrawn at the end of week 22.

Table S2 Summary of linear regression analysis for prediction of bone stiffness and strength using trabecular bone morphometric properties

Group		BV/TV	Tb.Th	Tb.Sp	Tb.N
PTH	Stiffness	0.319	0.243	0.237	0.400
	Failure Load	0.389	0.288	0.326	0.495
ML	Stiffness	0.213	0.756	0.205	0.021
	Failure Load	0.115	0.761	0.301	0.074
ML+PTH	Stiffness	0.009	0.569	0.140	0.179
	Failure Load	0.001	0.577	0.215	0.242

Statistically significant associations are highlighted in bold.