

Table S1 Supplemental digital content 1: Patient's demographics

ID	Age	Gender	Fractured side	Dominant side	Cause of accident	Profession	Smoker	Fracture location	Time of cast immobilization (days)	1st scan	2nd scan	3rd scan	4th scan	5th scan	6th scan
										2 weeks after trauma	4 weeks after trauma	6 weeks after trauma	12 weeks after trauma	6 months after trauma	1 year after trauma
1	28	m	left	right	Fall	Blue-collar worker	yes	waist	67	✓*	✓*	✓*	✓	✓	✓
2	48	m	left	right	Traffic accident	White-collar worker	yes	waist	80	✓*	✓*	✓*	✓	✓	✓
3	20	w	left	right	Traffic accident	White-collar worker	no	waist	78	✓*	✓*	✓*	✓	✓	✓
4	63	w	left	both	Sport accident	Retired	no	distal pole	54	✓*	✓*	✓*	✓	✓	✓
5	28	w	left	right	Sport accident	White-collar worker	yes	distal pole	51	✓*	✓*	✓*	✓	✓	✓
6	19	m	left	right	Sport accident	Student	yes	waist	69	✓*	✓*	✓*	✓	✓	✓
7	72	w	left	right	Fall	Retired	no	waist	70	✓*	✓*	✓*	✓	✓	✓
8	56	m	left	right	Fall	Blue-collar worker	no	waist	85	✓*	✓*	✓*	✓	✓	✓
9	47	m	left	right	Fall	White-collar worker	no	distal pole	54	✓*	✓*	✓*	✓	✓	✓
10	19	m	right	right	Sport accident	Student	no	distal pole	41	✓*	✓*	✓	✓	✓	x
11	24	m	left	right	Sport accident	Blue-collar worker	yes	waist	93	✓*	✓*	✓*	✓	✓	✓
12	23	m	right	right	Sport accident	Student	no	waist	67	✓*	✓*	✓*	✓	✓	✓
13	30	m	left	right	Fall	Student	no	distal pole	30	✓*	✓*	✓	✓	✓	✓
14	72	w	left	right	Fall	Retired	no	waist	80	✓*	✓*	✓*	✓	✓	✓
15	27	m	right	right	Fall	White-collar worker	n.s.	waist	85	✓*	✓*	✓*	✓	✓	✓
16	32	m	right	right	Fall	Blue-collar worker	yes	waist	79	✓*	✓*	✓*	✓	x	✓
17	24	m	left	right	Sport accident	White-collar worker	yes	waist	69	✓*	✓*	✓*	✓	✓	x
18	27	w	right	right	Sport accident	White-collar worker	no	waist	84	✓*	✓*	✓*	✓	✓	✓
19	28	m	right	right	Sport accident	Blue-collar worker	yes	waist	80	✓*	✓*	✓*	✓	✓	✓
20	58	w	right	right	Fall	Housewife	yes	distal pole	42	✓*	✓*	✓	✓	✓	✓
21	56	w	left	both	Sport accident	White-collar worker	no	distal pole	40	✓*	✓*	✓	x	✓	✓
22	21	m	left	right	Fall	Blue-collar worker	no	distal pole	43	✓*	✓*	✓	✓	✓	✓

\*, fractured side scanned with cast; ✓, scanned; X, not scanned (patient did not show up for the visit). m, male; f, female; n.s., not stated.

**Table S2** Supplemental digital content 2: Mean relative differences (standard deviation) of the densitometric and micro-architectural parameters at each grade in percent compared to the internal grade 1 reference.

	1-1 (n=58)	1-2 (n=85)	1-3 (n=31)	1-4 (n=15)	1-5 (n=6)
Tb.BV/TV	-0.3 (1.8)	1.3 (4.2)	3.6 (3.5)	2.9 (8.4)	3.5 (4.5)
Tb.N	-0.3 (4.1)	5.1 (4.7)	11.9 (5.8)	12.6 (5.9)	15.5 (5.9)
Tb.Th	-0.4 (1.7)	1.5 (3.1)	4.7 (2.8)	4.5 (3.5)	6.8 (1.8)
Tb.Sp	0.6 (3.6)	-3.7 (4.1)	-9.4 (5.2)	-10.7 (5.8)	-13.7 (6.2)
Tb.1/N.SD	0.4 (5.0)	-4.8 (6.4)	-13.9 (8.4)	-16.3 (9.0)	-21.4 (10.4)
Conn.Dens.	-0.4 (5.3)	6.7 (10.9)	13.3 (17.5)	13.9 (8.7)	21.6 (29.9)
Apparent density	-0.5 (2.0)	0.3 (3.7)	2.0 (3.4)	1.1 (7.9)	1.7 (3.0)
Tb.BMD	-0.2 (1.5)	-1.7 (1.7)	-3.2 (1.9)	-4.3 (2.4)	-4.9 (2.2)

Tb.BV/TV, trabecular bone volume fraction, Tb.N, trabecular number, Tb.Th, trabecular thickness, Tb.Sp, trabecular separation, Tb.1/N.SD, inhomogeneity of trabecular network, Conn.D, connective density, Tb.BMD, trabecular bone mineral density.

**Table S3** Supplemental digital content 3: Mean (standard deviation) of each grade's structure modeling index (SMI)

	1-1 (n=58)	1-2 (n=85)	1-3 (n=31)	1-4 (n=15)	1-5 (n=6)
SMI	-1.5 (1.7)	-1.0 (1.6)	-0.5 (1.7)	-0.4 (1.9)	-0.7 (1.9)