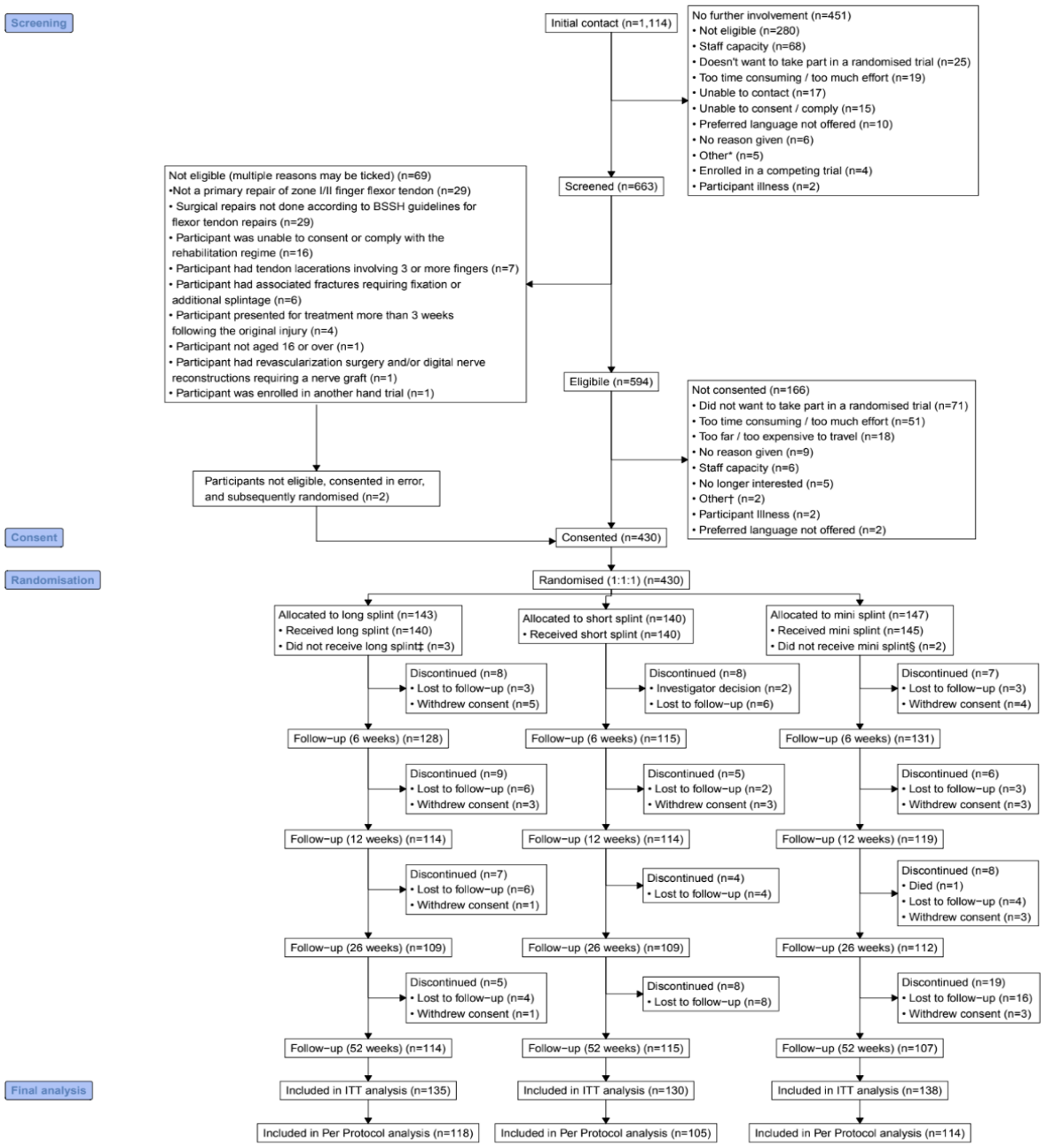
Figure 1: Participant Flow



'NB: Follow-up numbers reflect availability of primary endpoint at each timepoint.

*Other reasons for no further involvement included: Study closed for recruitment; Wants to go privately for hand therapy, so

declined; Follow ups will be done privately; Patient not for follow up locally; Did not attend first follow up

†Other reasons for not consenting included: Non compliant with post op instructions/ ht attendance thus far; Although patient

was eligible for the study according to the criteria, the patient also had significant tissue loss over the site of the FDP repair,

surgeon decision not to include patient in the study

‡Reasons for not receiving long splint included: Not happy to be randomised / unhappy with treatment allocation (n = 2); Participant

ruptured prior to splint fitting (n = 1)

§Reasons for not receiving mini splint included: No longer interested (n = 1); Participant ruptured prior to splint fitting (n = 1)

Table 1: Participant characteristics

		Long splint (n = 143)	**Short splint (n=140)**	**Mini splint (n=147)**	**Total (n=430)**
Demographic Details					
Sex	Female	43 (30%)	46 (33%)	36 (24%)	125 (29%)
Ethnicity	White	125 (87%)	122 (87%)	127 (86%)	374 (87%)
	Asian/Asian British	10 (7%)	5 (4%)	6 (4%)	21 (5%)
	Black/African/ Caribbean/Black British	3 (2%)	6 (4%)	6 (4%)	15 (3%)
	Mixed/multiple ethnic groups	3 (2%)	2 (1%)	7 (5%)	12 (3%)
	Other ethnic group*	1 (1%)	4 (3%)	1 (1%)	6 (1%)
	Prefer not to say	1 (1%)	1 (1%)	0 (0%)	2 (0%)
Employment type	Manual	82 (57%)	78 (56%)	85 (58%)	245 (57%)
	Non-manual	33 (23%)	27 (19%)	28 (19%)	88 (20%)
	Not in paid employment	28 (20%)	35 (25%)	34 (23%)	97 (23%)
Dominant hand treated in trial?	Yes	76 (53%)	64 (46%)	71 (48%)	211 (49%)
	No	66 (46%)	76 (54%)	74 (50%)	216 (50%)
	Unknown	1 (1%)	0 (0%)	2 (1%)	3 (1%)
Age (years)	Mean (SD)	38.5 (14.6)	38.1 (14.7)	37.9 (15.0)	38.2 (14.7)
	Median (IQR)	35.0 (27.5, 50.5)	37.0 (26.0, 48.0)	35.0 (26.0, 48.0)	36.0 (26.0, 49.0)
	Min, Max	16, 82	16, 78	16, 74	16, 82
Surgical Details					
Time from injury to surgery (days) †	Mean (SD)	4.2 (3.4)	3.8 (2.9)	3.9 (3.1)	4.0 (3.2)

	Median (IQR)	3.0 (2.0, 5.0)	3.0 (2.0, 5.0)	3.0 (2.0, 5.0)	3.0 (2.0, 5.0)
	Min, Max	0, 24	0, 16	0, 22	0, 24
Time from surgery to randomisation (days)‡	Mean (SD)	4.3 (2.0)	4.6 (2.4)	4.9 (1.9)	4.6 (2.1)
	Median (IQR)	4.0 (3.0, 5.0)	4.0 (3.0, 5.0)	5.0 (3.0, 6.0)	4.0 (3.0, 6.0)
	Min, Max	0, 13	1, 22	0, 13	0, 22
Number of digits with flexor tendon injury	1	130 (91%)	134 (96%)	134 (91%)	398 (93%)
	2	13 (9%)	6 (4%)	13 (9%)	32 (7%)
Details of each injured digit		n = 156	n = 146	n = 160	n = 462
Injured digit	Index	38 (24%)	35 (24%)	33 (21%)	106 (23%)
	Middle	26 (17%)	32 (22%)	27 (17%)	85 (18%)
	Ring	36 (23%)	25 (17%)	37 (23%)	98 (21%)
	Little	56 (36%)	54 (37%)	63 (39%)	173 (37%)
Zone of injury	I	62 (40%)	59 (40%)	69 (43%)	190 (41%)
Zone of injury	II	94 (60%)	87 (60%)	91 (57%)	272 (59%)
Details of each tendon structure repair		n = 201	n = 193	n = 199	n = 593
Tendon repaired	FDP	155 (77%)	142 (74%)	158 (79%)	455 (77%)
	FDS main tendon	13 (6%)	16 (8%)	14 (7%)	43 (7%)
	FDS radial slip	15 (7%)	19 (10%)	15 (8%)	49 (8%)
	FDS ulna slip	18 (9%)	16 (8%)	12 (6%)	46 (8%)
		n = 156	n = 146	n = 160	n = 462
Associated hand injuries?	Yes	67 (43%)	76 (52%)	91 (57%)	234 (51%)
	No	89 (57%)	69 (47%)	69 (43%)	227 (49%)
	Unknown	0 (0%)	1 (1%)	0 (0%)	1 (0%)
Type of associated injury§	n	67	76	91	234
	Nerve	58 (87%)	61 (80%)	70 (77%)	189 (81%)
	Vessel	18 (27%)	19 (25%)	26 (29%)	63 (27%)
	Pulley	15 (22%)	9 (12%)	20 (22%)	44 (19%)
	Skin loss	0 (0%)	1 (1%)	1 (1%)	2 (1%)
	Fracture	1 (1%)	2 (3%)	4 (4%)	7 (3%)
	Non-repaired injured tendon	5 (7%)	11 (14%)	12 (13%)	28 (12%)

**Other ethnic groups (self-reported) included: Latino; Italian; Latin; Philippines; Arab (n = 2).*

†Although inclusion criteria stated less than three weeks between injury and surgery, the two participants outside these parameters correspond to those participants who were not eligible, consented in error and subsequently randomised, as described in the CONSORT diagram.

‡Splint fitting occurred on the same day as randomisation for all participants except for two where it occurred one and three days after randomisation respectively. For all participants the day of randomisation was used in this calculation.

§More than one option can be ticked, so the denominator will differ from the rest of the table. 'n' is taken to be the number of participants who answered "Yes" to the previous question.

Table 2: Primary and key secondary outcomes

	Data availability - n (%)			Observed mean (SD)*			Adjusted mean differences (98.3% CI), p-value†		
	Long	**Short**	**Mini**	**Long**	**Short**	**Mini**	**Long vs. Short**	**Long vs. Mini**	**Short vs. Mini**
	n = 143	n = 140	n = 147						
PRWHE - ITT									
Baseline	140 (98%)	140 (100%)	145 (99%)	62.9 (20.8)	65.0 (19.4)	63.8 (20.7)			
6 weeks	128 (90%)	115 (82%)	131 (89%)	39.1 (20.0)	37.6 (21.8)	34.7 (19.8)	1.7(-3.7, 7.1); 0.45	4.7(-0.5, 10.0); 0.031	3.0(-2.3, 8.4); 0.18
12 weeks	114 (80%)	114 (81%)	119 (81%)	22.1 (17.9)	24.1 (19.3)	21.8 (18.9)	-1.1(-6.6, 4.4); 0.63	0.7(-4.7, 6.2); 0.75	1.8(-3.6, 7.3); 0.42
26 weeks	109 (76%)	109 (78%)	112 (76%)	15.0 (16.8)	15.7 (17.1)	14.7 (14.5)	-0.6(-6.2, 5.0); 0.79	0.1(-5.5, 5.6); 0.98	0.7(-4.9, 6.2); 0.77
52 weeks	114 (80%)	115 (82%)	107 (73%)	16.5 (18.3)	15.9 (17.6)	13.3 (16.0)	1.0(-4.5, 6.4); 0.68	3.4(-2.1, 9.0); 0.14	2.5(-3.0, 8.0); 0.28
Averaged‡	**135 (94%)**	**130 (93%)**	**138 (94%)**	**24.5 (15.5)**	**23.5 (16.7)**	**22.4 (15.0)**	**0.3(-4.0, 4.6); 0.88**	**2.3(-1.9, 6.5); 0.19**	**2.0(-2.2, 6.3); 0.25**
PEM – hand health and overall assessment									
Baseline	141 (99%)	139 (99%)	146 (99%)	55.3 (14.3)	57.8 (15.7)	54.7 (15.6)			
6 weeks	128 (90%)	115 (82%)	129 (88%)	37.1 (16.6)	38.7 (16.8)	35.6 (15.3)	-1.1(-6.3, 4.1); 0.62	0.7(-4.3, 5.8); 0.74	1.8(-3.4, 7.0); 0.40
12 weeks	112 (78%)	114 (81%)	118 (80%)	26.4 (17.4)	29.5 (18.3)	28.2 (17.8)	-1.8(-7.1, 3.5); 0.41	-2.5(-7.7, 2.7); 0.25	-0.7(-5.9, 4.6); 0.76
26 weeks	108 (76%)	107 (76%)	111 (76%)	20.9 (18.1)	23.4 (18.6)	22.9 (18.1)	-2.0(-7.4, 3.4); 0.37	-2.5(-7.8, 2.8); 0.25	-0.5(-5.9, 4.8); 0.81
52 weeks	110 (77%)	112 (80%)	104 (71%)	25.1 (21.4)	23.7 (19.5)	22.9 (19.8)	2.2(-3.1, 7.5); 0.32	2.4(-3.0, 7.7); 0.29	0.2(-5.2, 5.5); 0.94

Averaged‡	134 (94%)	130 (93%)	138 (94%)	28.2 (16.4)	29.5 (16.8)	28.3 (15.1)	-0.7(-5.0, 3.5); 0.69	-0.5(-4.7, 3.7); 0.78	0.2(-4.0, 4.5); 0.90
EQ-5D-5L index									
Baseline	142 (99%)	140 (100%)	146 (99%)	0.521 (0.232)	0.487 (0.263)	0.513 (0.236)			
6 weeks	128 (90%)	115 (82%)	130 (88%)	0.705 (0.155)	0.705 (0.168)	0.719 (0.178)	-0.003(-0.049, 0.042); 0.87	-0.017(-0.061, 0.027); 0.36	-0.014(-0.059, 0.031); 0.47
12 weeks	112 (78%)	114 (81%)	118 (80%)	0.802 (0.137)	0.779 (0.150)	0.768 (0.185)	0.002(-0.045, 0.048); 0.93	0.024(-0.022, 0.070); 0.22	0.022(-0.024, 0.068); 0.25
26 weeks	107 (75%)	107 (76%)	110 (75%)	0.848 (0.144)	0.836 (0.142)	0.820 (0.166)	-0.003(-0.050, 0.045); 0.90	0.027(-0.020, 0.073); 0.18	0.029(-0.018, 0.076); 0.14
52 weeks	110 (77%)	112 (80%)	103 (70%)	0.808 (0.159)	0.819 (0.182)	0.824 (0.182)	-0.026(-0.073, 0.021); 0.19	-0.026(-0.073, 0.021); 0.18	-0.000(-0.048, 0.047); 0.98
Averaged‡	134 (94%)	130 (93%)	138 (94%)	0.778 (0.141)	0.780 (0.150)	0.773 (0.156)	-0.007(-0.044, 0.029); 0.64	0.001(-0.035, 0.037); 0.93	0.009(-0.028, 0.045); 0.57
Active Range of movement – Strickland score									
Baseline	140 (98%)	140 (100%)	144 (98%)	24.1 (13.9)	23.7 (13.7)	24.5 (12.8)			
6 weeks	122 (85%)	115 (82%)	123 (84%)	44.7 (21.1)	45.2 (21.7)	42.9 (21.7)	-0.0(-6.5, 6.5); >0.99	2.1(-4.3, 8.5); 0.43	2.1(-4.4, 8.6); 0.43
12 weeks	101 (71%)	100 (71%)	104 (71%)	51.4 (23.6)	55.7 (24.3)	50.9 (23.0)	-4.5(-11.3, 2.3); 0.11	0.6(-6.0, 7.3); 0.82	5.1(-1.6, 11.9); 0.067
26 weeks	80 (56%)	73 (52%)	78 (53%)	61.4 (22.0)	60.9 (23.7)	59.7 (23.7)	-0.6(-7.8, 6.6); 0.84	1.3(-5.8, 8.3); 0.67	1.9(-5.3, 9.0); 0.53
Grip strength (kg) – affected hand									
12 weeks	100 (70%)	97 (69%)	101 (69%)	18.2 (9.8)	17.0 (8.1)	16.9 (8.8)	1.3(-1.7, 4.4); 0.30	1.6(-1.4, 4.6); 0.21	0.3(-2.8, 3.3); 0.84

26 weeks	80 (56%)	71 (51%)	78 (53%)	23.5 (9.1)	20.0 (9.0)	21.4 (9.8)	2.6(-0.7, 5.8); 0.060	1.5(-1.7, 4.7); 0.26	-1.0(-4.3, 2.2); 0.44

Abbreviations: EQ-5D-5L – EuroQol 5-dimension 5 level questionnaire; ITT – intention to treat; PEM – patient evaluation measure; PRWHE – patient rated wrist and hand evaluation; SD – standard deviation

**Observed means do not include imputation for missing baseline data.*

†Marginal difference in means estimated from linear mixed models with fixed effects for protocol stipulated post-randomisation follow-up, baseline score (except for grip strength), randomisation group and follow-up time-point by randomisation group interaction, and random effects for centre and participants. Missing baseline data were mean imputed by site.

‡Averaged over the 52-week period: the mean of available post-randomisation scores per participant

Interpretation:

The PRWHE ranges from 0-100, with higher scores indicating more pain and functional disability. A positive mean difference for the Long vs. Short comparison indicates that on average, participants in the Long splint group have higher PRWHE scores than those in the Short Splint group, and therefore worse outcomes.

The PEM is scored as a percentage (ranging from 0 to 100), with higher scores indicating higher levels of disability. A negative mean difference for the Long vs. Short comparison indicates that on average, participants in the Long splint group have lower PEM scores than those in the Short Splint group, and therefore better outcomes.

The EQ-5D-5L index was scored in line with current NICE recommendations using the mapping function developed by Hernandez Alava. A score of 1 indicates full health, with lower values indicating worse health. A negative mean difference for the Long vs. Short comparison indicates that on average, participants in the Long splint group have lower EQ-5D-5L scores than those in the Short Splint group, and therefore worse outcomes.

For active range of motion and grip strength, higher values indicate a higher range of motion and higher levels of grip strength.

Table 3: Adverse event and serious adverse event categories

		Long splint		Short splint		Mini splint	
		Events	Individuals	Events	Individuals	Events	Individuals
		n = 160	n = 143	n = 132	n = 140	n = 168	n = 147
Adverse events	Complex regional pain syndrome	2	2 (1%)	0	0 (0%)	1	1 (1%)
	Delayed wound healing	3	3 (2%)	1	1 (1%)	4	4 (3%)
	Fixed flexion deformity	73	71 (50%)	59	55 (39%)	77	75 (51%)
	Flexor tendon rupture of primary repair*	10	10 (7%)	7	7 (5%)	17	15 (10%)
	Infection	10	8 (6%)	16	15 (11%)	7	7 (5%)
	Local pressure areas	0	0 (0%)	1	1 (1%)	2	2 (1%)
	Scar issues	23	23 (16%)	16	16 (11%)	22	22 (15%)
	Stiffness	17	17 (12%)	18	17 (12%)	20	19 (13%)
	Other†	22	17 (12%)	14	13 (9%)	18	16 (11%)
Serious adverse events		n = 14	n = 143	n = 16	n = 140	n = 20	n = 147
	Fixed flexion deformity	0	0 (0%)	1	1 (1%)	0	0 (0%)
	Flexor tendon rupture of primary repair	10	10 (7%)	7	7 (5%)	17*	15 (10%)
	Infection	2	2 (1%)	4	4 (3%)	2	2 (1%)
	Other†	2	2 (1%)	4	4 (3%)	1	1 (1%)

**Of these ruptures, two ruptures in the mini splint arm were ruptures of a revision repair.*

†Full details of the other categorisations can be found in Appendix 5.14.