

Supplemental Material

Table S1. the estimated 95% confidence interval of population means for LA and LV in cardiac cycles

Phase	Subgroup	LA-A(mm)	LA-B(mm)	LAVR	LV-D1(mm)	LV-D2(mm)	LV-D3(mm)
5%	Total	54.26(53.15,55.37)	29.54(28.75,30.32)	1.77(1.73,1.81)	45.09(44.36,45.83)	50.44(49.60,51.27)	77.36(75.89,78.84)
	Male	55.09(53.57,56.62)	29.00(27.97,30.03)	1.70(1.65,1.75)	46.34(45.38,47.30)	51.58(50.39,52.77)	80.62(78.97,82.28)
	Female	53.37(51.75,55.00)	30.10(28.91,31.30)	1.84(1.78,1.91)	43.76(42.72,44.80)	49.22(48.10,50.33)	73.88(71.68,76.09)
15%	Total	56.24(55.20,57.28)	30.71(29.88,31.53)	1.84(1.80,1.88)	43.80(42.97,44.63)	45.99(44.90,47.08)	74.75(73.51,75.99)
	Male	57.23(55.80,58.66)	30.12(28.99,31.25)	1.77(1.72,1.82)	45.40(44.32,46.48)	46.71(45.13,48.29)	77.29(75.58,79.00)
	Female	55.19(53.67,56.70)	31.33(30.10,32.56)	1.91(1.85,1.98)	42.10(40.96,43.24)	45.22(43.71,46.73)	72.04(70.46,73.63)
25%	Total	61.49(60.49,62.49)	33.71(32.92,34.51)	1.90(1.85,1.95)	41.06(40.24,41.88)	37.98(36.80,39.16)	66.57(65.26,67.89)
	Male	62.06(60.70,63.42)	33.29(32.13,34.44)	1.89(1.82,1.97)	42.59(41.56,43.62)	38.10(36.28,39.92)	68.22(66.28,70.15)
	Female	60.88(59.40,62.37)	34.17(33.05,35.28)	1.90(1.83,1.98)	39.44(38.24,40.63)	37.85(36.33,39.37)	64.82(63.10,66.54)
35%	Total	65.74(64.75,66.72)	36.52(35.74,37.31)	1.92(1.87,1.97)	38.64(37.78,39.49)	30.89(29.62,32.17)	58.94(57.47,60.42)
	Male	66.34(64.91,67.77)	36.13(34.95,37.30)	1.90(1.84,1.97)	40.00(38.96,41.03)	31.40(29.64,33.16)	60.85(58.84,62.85)
	Female	65.10(63.72,66.48)	36.95(35.90,38.00)	1.93(1.85,2.02)	37.19(35.87,38.50)	30.35(28.46,32.24)	56.91(54.80,59.03)
45%	Total	67.03(66.08,67.99)	37.70(36.92,38.48)	1.91(1.86,1.96)	37.55(36.60,38.51)	31.15(29.75,32.56)	58.77(57.30,60.25)

	Male	67.41(65.99,68.82)	37.28(36.15,38.42)	1.88(1.83,1.94)	39.13(37.95,40.31)	32.88(30.99,34.76)	61.76(59.73,63.79)
	Female	66.64(65.34,67.93)	38.14(37.07,39.21)	1.94(1.85,2.02)	35.88(34.43,37.32)	29.31(27.27,31.36)	55.59(53.71,57.47)
	Total	63.99(62.89,65.08)	35.51(34.62,36.40)	1.90(1.85,1.96)	40.16(39.17,41.14)	39.88(38.46,41.30)	66.16(64.48,67.84)
55%	Male	63.53(61.95,65.11)	34.11(32.85,35.36)	1.90(1.83,1.96)	42.35(41.25,43.46)	42.76(41.02,44.50)	70.46(68.23,72.68)
	Female	64.47(62.92,66.02)	37.01(35.81,38.20)	1.91(1.83,1.99)	37.81(36.34,39.28)	36.81(34.77,38.86)	61.58(59.56,63.59)
	Total	61.22(60.18,62.26)	33.91(33.09,34.73)	1.88(1.83,1.93)	41.84(41.05,42.63)	44.56(43.49,45.64)	70.55(69.23,71.87)
65%	Male	61.16(59.65,62.66)	33.03(31.93,34.12)	1.87(1.80,1.94)	43.68(42.71,44.66)	46.60(45.27,47.94)	74.06(72.28,75.84)
	Female	61.28(59.80,62.76)	34.85(33.63,36.06)	1.89(1.82,1.97)	39.87(38.80,40.94)	42.39(40.83,43.96)	66.81(65.30,68.32)
	Total	60.52(59.52,61.52)	33.94(33.17,34.70)	1.85(1.81,1.90)	42.62(41.88,43.35)	45.42(44.30,46.54)	71.59(70.29,72.89)
75%	Male	61.00(59.52,62.48)	33.50(32.44,34.57)	1.85(1.78,1.91)	44.22(43.32,45.13)	47.08(45.64,48.52)	74.64(72.85,76.43)
	Female	60.01(58.65,61.37)	34.40(33.29,35.52)	1.86(1.80,1.93)	40.90(39.87,41.93)	43.65(42.00,45.31)	68.34(66.77,69.90)
	Total	59.69(58.65,60.74)	33.97(33.22,34.71)	1.82(1.78,1.87)	43.40(42.66,44.14)	46.56(45.56,47.57)	72.86(71.61,74.11)
85%	Male	60.26(58.75,61.78)	33.81(32.78,34.84)	1.81(1.75,1.87)	44.94(44.00,45.89)	47.82(46.35,49.28)	75.77(73.98,77.56)
	Female	59.08(57.62,60.55)	34.13(33.02,35.24)	1.83(1.77,1.90)	41.75(40.74,42.77)	45.23(43.89,46.56)	69.75(68.34,71.16)
	Total	55.62(54.55,56.69)	31.53(30.69,32.37)	1.80(1.74,1.87)	44.91(44.19,45.63)	49.66(48.75,50.57)	76.37(75.09,77.65)
95%	Male	56.29(54.72,57.86)	30.93(29.73,32.12)	1.82(1.71,1.93)	46.31(45.38,47.24)	51.04(49.75,52.34)	79.43(77.67,81.19)
	Female	54.91(53.44,56.38)	32.18(30.99,33.36)	1.78(1.71,1.85)	43.42(42.42,44.42)	48.19(46.98,49.40)	73.10(71.60,74.61)

Table S2. the estimated 95% confidence interval of population means for RA and RV in cardiac cycles

Phase	Subgroup	RA-A(mm)	RA-B(mm)	RV-D1(mm)	RV-D2(mm)	RV-D3(mm)
5%	Total	39.46(38.45,40.47)	36.95(36.10,37.81)	42.13(41.21,43.04)	31.28(30.37,32.20)	74.35(72.95,75.75)
	Male	42.57(41.43,43.70)	37.27(36.12,38.42)	44.25(43.01,45.48)	32.69(31.30,34.07)	78.08(76.30,79.85)
	Female	36.15(34.89,37.40)	36.62(35.32,37.91)	39.87(38.74,41.01)	29.78(28.68,30.88)	70.38(68.63,72.12)
15%	Total	42.24(41.27,43.21)	40.55(39.61,41.48)	41.70(40.78,42.62)	29.68(28.81,30.55)	71.06(69.78,72.34)
	Male	45.16(44.05,46.27)	40.59(39.22,41.97)	43.80(42.51,45.09)	31.49(30.19,32.79)	75.00(73.58,76.41)
	Female	39.13(37.91,40.35)	40.50(39.21,41.78)	39.46(38.35,40.57)	27.75(26.78,28.72)	66.87(65.24,68.49)
25%	Total	44.55(43.58,45.52)	45.24(44.28,46.20)	38.60(37.73,39.48)	25.90(25.04,26.76)	65.21(63.92,66.50)
	Male	47.24(46.11,48.37)	45.60(44.23,46.97)	40.36(39.12,41.60)	27.03(25.79,28.27)	68.53(67.08,69.97)
	Female	41.68(40.40,42.95)	44.85(43.48,46.23)	36.73(35.64,37.82)	24.68(23.54,25.83)	61.68(59.86,63.50)
35%	Total	45.37(44.40,46.34)	48.62(47.69,49.54)	36.13(35.18,37.07)	23.17(22.29,24.05)	60.11(58.78,61.44)
	Male	48.21(47.05,49.36)	48.66(47.31,50.02)	38.39(37.09,39.69)	24.46(23.31,25.61)	63.68(62.27,65.08)
	Female	42.35(41.15,43.54)	48.56(47.26,49.87)	33.71(32.60,34.82)	21.79(20.51,23.07)	56.31(54.39,58.22)
45%	Total	45.58(44.67,46.49)	49.68(48.75,50.61)	36.00(34.96,37.04)	23.44(22.49,24.39)	58.63(57.34,59.93)
	Male	48.17(47.05,49.30)	49.82(48.45,51.19)	38.73(37.34,40.12)	25.58(24.31,26.85)	62.07(60.62,63.52)
	Female	42.82(41.70,43.93)	49.53(48.25,50.82)	33.09(31.88,34.29)	21.16(19.95,22.37)	54.98(53.18,56.77)

55%	Total	44.90(43.90,45.90)	45.27(44.25,46.29)	39.07(37.98,40.16)	27.22(26.18,28.25)	63.02(61.56,64.48)
	Male	47.62(46.35,48.89)	44.37(42.98,45.76)	42.15(40.75,43.56)	29.76(28.39,31.14)	67.64(66.11,69.16)
	Female	42.00(40.78,43.22)	46.23(44.74,47.72)	35.78(34.53,37.03)	24.50(23.24,25.76)	58.11(56.21,60.01)
65%	Total	45.01(44.09,45.93)	42.62(41.69,43.54)	41.15(40.07,42.23)	29.36(28.29,30.42)	65.92(64.49,67.36)
	Male	47.80(46.68,48.92)	42.38(41.25,43.52)	43.88(42.40,45.36)	31.79(30.30,33.28)	70.30(68.74,71.86)
	Female	42.04(40.97,43.10)	42.87(41.36,44.38)	38.24(37.02,39.47)	26.76(25.51,28.01)	61.26(59.40,63.12)
75%	Total	44.56(43.59,45.52)	41.96(41.11,42.81)	41.20(40.15,42.24)	29.92(28.87,30.98)	67.28(65.92,68.63)
	Male	47.57(46.46,48.68)	41.99(40.84,43.13)	43.90(42.49,45.32)	32.26(30.79,33.73)	71.48(69.93,73.03)
	Female	41.35(40.19,42.51)	41.93(40.62,43.23)	38.31(37.11,39.51)	27.43(26.17,28.69)	62.80(61.15,64.46)
85%	Total	43.76(42.80,44.73)	41.00(40.15,41.85)	41.40(40.38,42.42)	30.22(29.22,31.23)	68.54(67.16,69.92)
	Male	46.63(45.52,47.74)	41.20(40.01,42.39)	43.88(42.51,45.25)	32.69(31.28,34.09)	72.54(70.87,74.20)
	Female	40.70(39.49,41.92)	40.80(39.54,42.05)	38.76(37.52,40.00)	27.60(26.45,28.75)	64.27(62.59,65.96)
95%	Total	39.44(38.48,40.40)	36.77(35.89,37.66)	41.95(40.97,42.93)	31.83(30.83,32.84)	73.50(72.05,74.95)
	Male	42.35(41.25,43.45)	37.08(35.89,38.27)	44.08(42.71,45.45)	33.99(32.52,35.47)	77.62(75.82,79.43)
	Female	36.34(35.15,37.54)	36.45(35.11,37.80)	39.67(38.48,40.86)	29.53(28.40,30.65)	69.10(67.36,70.83)

