

Kategori: Pasientbehandling/Fagprosedyrer/Annet/Annet 3	Gyldig fra/til:02.04.2022/02.04.2026
Organisatorisk plassering: Helse Bergen HF/Kvinneklubben/Seksjon for fostermedisin og ultralyd	Versjon: 3.01
Godkjenner: Albrechtsen, Susanne	Prosedyre
Dok. ansvarlig: Synnøve Lian Johnsen	Dok.id: D15139

Referanseverdier Doppler bukarterier

Splenic artery (a. lienalis), celiac artery (truncus coeliacus), mesenteric artery (a.mesenterica superior), hepatic artery (a.hepatica)

Ebbing C *et al* Ultrasound Obstet Gynecol 2008, Ebbing C *et al* Early Hum Dev 2009, og Ebbing C *et al* Reprod.Sci 2008

Table S3 Reference ranges for the splenic artery time averaged maximum velocity (cm/s) based on 521 observations in 161 low-risk pregnancies.

Gestation (weeks)	Centile								
	50	2.5	5	10	25	75	90	95	97.5
21	11	6	7	7	9	13	15	16	17
22	11	6	7	8	9	13	15	17	18
23	12	7	7	8	10	14	16	18	19
24	13	7	8	9	11	15	17	19	20
25	13	8	9	10	11	16	18	19	21
26	14	8	9	10	12	17	19	20	22
27	15	9	10	11	13	17	20	21	23
28	16	10	10	11	13	18	21	22	24
29	17	10	11	12	14	19	22	23	25
30	17	11	12	13	15	20	23	24	26
31	18	11	12	14	16	21	24	25	27
32	19	12	13	14	16	22	25	26	28
33	20	13	14	15	17	23	25	27	29
34	21	13	14	16	18	23	26	28	30
35	21	14	15	16	19	24	27	29	31
36	22	14	15	17	19	25	28	30	31
37	23	15	16	17	20	26	29	31	32
39	24	16	17	18	21	27	30	32	34

Table 3 Reference ranges for the splenic artery pulsatility index based on 521 observations in 161 low-risk pregnancies.

Gestation (weeks)	Centile								
	50	2.5	5	10	25	75	90	95	97.5
21	1.39	0.90	0.96	1.04	1.19	1.64	1.91	2.09	2.28
22	1.50	0.96	1.03	1.11	1.28	1.77	2.07	2.28	2.49
23	1.60	1.01	1.09	1.18	1.36	1.89	2.22	2.45	2.67
24	1.68	1.06	1.14	1.23	1.42	1.99	2.34	2.58	2.82
25	1.74	1.10	1.18	1.28	1.48	2.07	2.43	2.69	2.94
26	1.79	1.12	1.20	1.31	1.51	2.13	2.51	2.77	3.03
27	1.82	1.14	1.22	1.33	1.54	2.17	2.56	2.83	3.10
28	1.84	1.15	1.24	1.35	1.56	2.19	2.59	2.87	3.14
29	1.85	1.16	1.24	1.35	1.56	2.20	2.60	2.88	3.15
30	1.85	1.15	1.24	1.35	1.56	2.20	2.60	2.88	3.15
31	1.84	1.15	1.23	1.34	1.55	2.19	2.58	2.86	3.13
32	1.82	1.14	1.22	1.33	1.54	2.16	2.55	2.82	3.09
33	1.79	1.12	1.21	1.31	1.52	2.13	2.51	2.78	3.04
34	1.76	1.11	1.19	1.29	1.49	2.10	2.47	2.73	2.99
35	1.73	1.09	1.17	1.27	1.47	2.06	2.42	2.67	2.92
36	1.69	1.07	1.15	1.25	1.44	2.01	2.36	2.61	2.85
37	1.66	1.05	1.12	1.22	1.41	1.96	2.31	2.55	2.78
39	1.58	1.00	1.07	1.17	1.34	1.86	2.18	2.41	2.63

Table 4 Reference ranges for the splenic artery systolic peak velocity (cm/s) based on 521 observations in 161 low-risk pregnancies.

Gestation (weeks)	Centile								
	50	2.5	5	10	25	75	90	95	97.5
21	19	8	9	11	15	24	28	31	33
22	22	10	11	13	17	26	31	34	36
23	24	12	13	16	19	29	34	36	39
24	26	14	15	18	22	31	36	39	42
25	29	15	17	20	24	34	39	42	44
26	31	17	19	22	26	36	41	44	47
27	33	19	21	24	28	39	44	47	49
28	35	21	23	26	30	41	46	49	52
29	37	23	25	27	32	43	48	51	54
30	39	24	26	29	34	45	50	53	56
31	41	26	28	31	35	46	52	55	58
32	42	27	29	32	37	48	53	57	60
33	44	28	31	33	38	49	55	58	61
34	45	29	32	34	39	51	56	60	63
35	46	30	33	35	40	52	57	61	64
36	47	31	34	36	41	53	58	62	65
37	48	32	34	37	42	54	59	63	66
39	49	33	35	38	43	55	61	64	67

Table 1 Reference ranges for the celiac artery systolic peak velocity (cm/s) based on 510 observations in 161 low-risk pregnancies.

Gestation (weeks)	Centile								
	50	2.5	5	10	25	75	90	95	97.5
21	26	16	17	19	22	30	35	38	40
22	28	17	19	21	24	33	37	40	43
23	30	19	20	22	26	35	40	43	46
24	32	20	22	24	28	37	43	46	49
25	34	22	24	26	30	40	45	48	52
26	36	23	25	27	31	42	47	51	54
27	38	25	27	29	33	44	50	53	57
28	40	26	28	30	35	46	52	56	59
29	42	27	29	32	36	48	54	58	61
30	43	28	30	33	38	50	56	60	63
31	45	29	32	34	39	51	58	62	65
32	46	30	33	35	40	53	59	63	67
33	47	31	33	36	41	54	60	65	68
34	48	32	34	37	42	55	62	66	70
35	49	32	35	38	43	56	62	67	71
36	49	33	35	38	43	56	63	67	71
37	50	33	35	38	43	57	64	68	72
39	50	33	36	38	44	57	64	68	72

Table S2 Reference ranges for the celiac artery time averaged maximum velocity (cm/s) based on 510 observations in 161 low-risk pregnancies.

Gestation (weeks)	Centile								
	50	2.5	5	10	25	75	90	95	97.5
21	12	8	8	9	10	14	16	17	18
22	13	8	9	10	11	15	17	18	19
23	13	9	9	10	12	15	18	19	20
24	14	9	10	11	12	16	18	20	21
25	15	10	10	11	13	17	19	21	22
26	15	10	11	12	13	18	20	22	23
27	16	11	11	12	14	18	21	23	24
28	17	11	12	13	14	19	22	23	25
29	17	11	12	13	15	20	22	24	26
30	18	12	13	14	15	20	23	25	27
31	18	12	13	14	16	21	24	26	27
32	19	12	13	14	16	22	25	26	28
33	19	13	14	15	17	22	25	27	29
34	20	13	14	15	17	23	26	28	30
35	20	14	15	16	18	24	27	29	31
36	21	14	15	16	18	24	27	29	31
37	22	14	15	16	19	25	28	30	32
39	23	15	16	17	20	26	29	32	34

Table 2 Reference ranges for the celiac artery pulsatility index based on 510 observations in 161 low-risk pregnancies.

Gestation (weeks)	Centile								
	50	2.5	5	10	25	75	90	95	97.5
21	1.73	1.23	1.30	1.38	1.53	1.96	2.19	2.35	2.49
22	1.81	1.28	1.36	1.44	1.60	2.05	2.30	2.46	2.62
23	1.88	1.33	1.41	1.50	1.67	2.13	2.39	2.57	2.73
24	1.94	1.37	1.45	1.54	1.72	2.20	2.48	2.66	2.83
25	2.00	1.41	1.48	1.58	1.76	2.26	2.54	2.73	2.91
26	2.04	1.43	1.51	1.61	1.80	2.31	2.60	2.79	2.97
27	2.07	1.45	1.53	1.64	1.83	2.35	2.64	2.84	3.02
28	2.09	1.47	1.55	1.65	1.84	2.37	2.67	2.87	3.05
29	2.10	1.47	1.56	1.66	1.85	2.38	2.68	2.88	3.07
30	2.10	1.47	1.56	1.66	1.85	2.39	2.68	2.88	3.07
31	2.09	1.47	1.55	1.66	1.85	2.38	2.67	2.87	3.06
32	2.08	1.46	1.54	1.64	1.83	2.36	2.65	2.85	3.04
33	2.06	1.44	1.53	1.63	1.82	2.33	2.62	2.82	3.00
34	2.03	1.43	1.51	1.61	1.79	2.30	2.59	2.78	2.96
35	1.99	1.40	1.48	1.58	1.76	2.26	2.54	2.73	2.90
36	1.95	1.38	1.45	1.55	1.73	2.21	2.49	2.67	2.84
37	1.91	1.35	1.42	1.52	1.69	2.16	2.43	2.61	2.77
39	1.81	1.28	1.35	1.44	1.60	2.05	2.30	2.46	2.62

Table 1
Longitudinal reference ranges for the superior mesenteric artery peak systolic velocity (cm/s) based on 589 observations in 161 low-risk pregnancies

Gestation (weeks)	Centile								
	2.5	5	10	25	50	75	90	95	97.5
21	17	19	21	25	29	34	39	42	44
22	20	21	24	27	32	37	42	45	48
23	22	24	26	30	35	40	45	49	52
24	24	26	28	33	38	43	49	52	55
25	26	28	31	35	40	46	52	56	59
26	28	30	33	37	43	49	55	59	62
27	30	32	35	40	46	52	58	62	65
28	32	34	37	42	48	55	61	65	69
29	33	36	39	44	50	57	64	68	72
30	35	37	40	46	53	60	67	71	75
31	36	39	42	48	55	62	69	73	77
32	37	40	43	49	56	64	71	76	80
33	38	41	45	51	58	66	73	78	82
34	39	42	46	52	60	68	75	80	85
35	40	43	47	53	61	69	77	82	87
36	40	44	47	54	62	70	79	84	88
37	41	44	48	55	63	71	80	85	90
38	41	44	48	55	63	72	81	86	91
39	41	44	48	55	64	73	82	87	92

Table 2
Longitudinal reference ranges for the superior mesenteric artery time averaged maximum velocity (cm/s) based on 589 observations in 161 low-risk pregnancies

Gestation (weeks)	Centiles								
	2.5	5	10	25	50	75	90	95	97.5
21	8	9	10	11	13	16	18	19	21
22	9	10	11	12	15	17	19	21	22
23	10	10	11	13	15	18	20	22	23
24	10	11	12	14	16	19	22	23	25
25	11	12	13	15	17	20	23	24	26
26	11	12	14	16	18	21	24	25	27
27	12	13	14	16	19	22	24	26	28
28	13	14	15	17	20	22	25	27	29
29	13	14	15	18	20	23	26	28	30
30	14	15	16	18	21	24	27	29	30
31	14	15	16	19	22	25	28	30	31
32	14	16	17	19	22	25	28	30	32
33	15	16	17	20	23	26	29	31	33
34	15	16	18	20	23	26	29	31	33
35	15	17	18	20	23	27	30	32	34
36	16	17	18	21	24	27	30	32	34
37	16	17	19	21	24	28	31	33	35
38	16	17	19	21	24	28	31	33	35
39	16	18	19	22	25	28	31	34	35

Table 3
Longitudinal reference ranges for the superior mesenteric artery pulsatility index based on 589 observations in 161 low-risk pregnancies

Gestation (weeks)	Centiles								
	2.5	5	10	25	50	75	90	95	97.5
21	1.29	1.38	1.48	1.66	1.88	2.10	2.31	2.45	2.57
22	1.36	1.45	1.56	1.74	1.95	2.18	2.40	2.53	2.65
23	1.43	1.52	1.63	1.82	2.03	2.26	2.48	2.61	2.73
24	1.50	1.59	1.69	1.88	2.10	2.33	2.55	2.69	2.81
25	1.55	1.64	1.75	1.94	2.16	2.40	2.62	2.76	2.88
26	1.60	1.69	1.80	2.00	2.22	2.46	2.68	2.82	2.95
27	1.64	1.73	1.85	2.04	2.27	2.51	2.74	2.88	3.01
28	1.67	1.77	1.88	2.08	2.32	2.56	2.79	2.93	3.06
29	1.70	1.80	1.91	2.12	2.35	2.60	2.84	2.98	3.11
30	1.72	1.82	1.94	2.14	2.38	2.64	2.87	3.02	3.15
31	1.73	1.83	1.95	2.16	2.41	2.66	2.91	3.06	3.19
32	1.73	1.84	1.96	2.17	2.42	2.68	2.93	3.09	3.22
33	1.73	1.84	1.96	2.18	2.43	2.70	2.95	3.11	3.25
34	1.72	1.83	1.95	2.17	2.43	2.70	2.96	3.12	3.26
35	1.70	1.81	1.94	2.16	2.43	2.70	2.97	3.13	3.28
36	1.68	1.79	1.92	2.15	2.41	2.70	2.97	3.13	3.28
37	1.65	1.76	1.89	2.12	2.39	2.68	2.96	3.13	3.28
38	1.61	1.72	1.85	2.09	2.37	2.66	2.94	3.11	3.27
39	1.56	1.68	1.81	2.05	2.33	2.63	2.92	3.09	3.25

Table 1. Reference Ranges for the Hepatic Artery Peak Systolic Velocity Based on 176 Observations in 104 Low-Risk Pregnancies

Gestation, wk	Percentile								
	2.5	5	10	25	50	75	90	95	97.5
21	11.65	12.43	13.41	15.30	17.82	20.91	24.33	26.72	29.06
22	12.24	13.07	14.13	16.15	18.86	22.20	25.90	28.50	31.05
23	12.81	13.69	14.81	16.96	19.86	23.43	27.42	30.23	32.98
24	13.35	14.28	15.46	17.74	20.82	24.63	28.89	31.90	34.85
25	13.86	14.84	16.09	18.49	21.74	25.78	30.31	33.52	36.68
26	14.36	15.39	16.69	19.22	22.64	26.91	31.71	35.11	38.47
27	14.84	15.91	17.28	19.93	23.52	28.01	33.07	36.68	40.23
28	15.31	16.43	17.85	20.62	24.38	29.09	34.42	38.22	41.98
29	15.77	16.93	18.41	21.30	25.23	30.16	35.76	39.76	43.71
30	16.23	17.43	18.97	21.97	26.07	31.23	37.09	41.29	45.45
31	16.68	17.93	19.53	22.65	26.92	32.30	38.43	42.84	47.20
32	17.13	18.43	20.08	23.32	27.76	33.38	39.79	44.40	48.98
33	17.59	18.93	20.64	24.01	28.62	34.47	41.17	45.99	50.79
34	18.05	19.43	21.21	24.70	29.50	35.59	42.58	47.62	52.65
35	18.52	19.95	21.79	25.41	30.39	36.73	44.03	49.30	54.57
36	19.00	20.48	22.39	26.13	31.31	37.91	45.53	51.04	56.56
37	19.49	21.03	23.00	26.89	32.26	39.14	47.09	52.85	58.63
38	20.00	21.59	23.64	27.67	33.26	40.42	48.72	54.75	60.81

Table 2. Reference Ranges for the Hepatic Artery Time-Averaged Maximum Velocity Based on 176 Observations in 104 Low-Risk Pregnancies

Gestation, wk	Percentile								
	2.5	5	10	25	50	75	90	95	97.5
21	6.88	7.23	7.67	8.47	9.50	10.69	11.93	12.76	13.54
22	6.87	7.25	7.71	8.57	9.68	10.97	12.34	13.26	14.13
23	6.87	7.26	7.75	8.67	9.86	11.27	12.77	13.78	14.75
24	6.86	7.28	7.79	8.77	10.05	11.57	13.21	14.33	15.40
25	6.87	7.30	7.84	8.88	10.24	11.88	13.66	14.89	16.07
26	6.88	7.33	7.90	9.00	10.44	12.20	14.13	15.47	16.77
27	6.91	7.38	7.98	9.12	10.66	12.54	14.62	16.07	17.48
28	6.94	7.44	8.06	9.27	10.89	12.89	15.12	16.69	18.23
29	6.99	7.51	8.16	9.42	11.13	13.26	15.65	17.34	19.01
30	7.06	7.59	8.27	9.59	11.39	13.65	16.20	18.02	19.82
31	7.13	7.69	8.39	9.78	11.67	14.06	16.79	18.74	20.68
32	7.23	7.80	8.54	9.98	11.97	14.51	17.41	19.50	21.59
33	7.33	7.93	8.69	10.21	12.30	14.98	18.07	20.32	22.56
34	7.45	8.07	8.87	10.45	12.66	15.49	18.79	21.19	23.61
35	7.59	8.24	9.07	10.73	13.04	16.05	19.56	22.13	24.73
36	7.75	8.42	9.29	11.02	13.47	16.65	20.39	23.16	25.95
37	7.92	8.62	9.53	11.35	13.93	17.30	21.30	24.27	27.28
38	8.11	8.85	9.80	11.71	14.43	18.02	22.30	25.48	28.73

Table 3. Reference Ranges for the Hepatic Artery Pulsatility Index Based on 176 Observations in 104 Low-Risk Pregnancies

Gestation, wk	Percentile								
	2.5	5	10	25	50	75	90	95	97.5
21	1.07	1.12	1.19	1.32	1.49	1.69	1.89	2.03	2.16
22	1.10	1.15	1.23	1.36	1.53	1.74	1.95	2.09	2.23
23	1.12	1.18	1.26	1.40	1.58	1.79	2.01	2.16	2.30
24	1.15	1.21	1.29	1.43	1.62	1.84	2.07	2.22	2.37
25	1.18	1.24	1.32	1.47	1.66	1.89	2.12	2.29	2.44
26	1.20	1.27	1.35	1.50	1.70	1.93	2.18	2.35	2.51
27	1.23	1.29	1.38	1.53	1.74	1.98	2.23	2.40	2.57
28	1.25	1.32	1.40	1.56	1.77	2.02	2.28	2.46	2.63
29	1.27	1.34	1.43	1.59	1.80	2.06	2.32	2.51	2.68
30	1.28	1.36	1.45	1.61	1.83	2.09	2.36	2.55	2.72
31	1.30	1.37	1.46	1.63	1.85	2.11	2.39	2.58	2.76
32	1.31	1.38	1.47	1.65	1.87	2.13	2.42	2.61	2.79
33	1.32	1.39	1.48	1.66	1.88	2.15	2.43	2.62	2.81
34	1.32	1.39	1.49	1.66	1.88	2.15	2.44	2.63	2.82
35	1.32	1.39	1.48	1.66	1.88	2.15	2.43	2.63	2.81
36	1.31	1.38	1.48	1.65	1.87	2.14	2.42	2.61	2.79
37	1.30	1.37	1.46	1.63	1.85	2.11	2.39	2.58	2.76
38	1.28	1.35	1.44	1.61	1.83	2.08	2.36	2.54	2.72