



Correction to: Body composition assessment and sarcopenia in patients with gastric cancer: a systematic review and meta-analysis

Sivesh K. Kamarajah¹ · James Bundred¹ · Benjamin H. L. Tan¹

Published online: 1 March 2019

© The International Gastric Cancer Association and The Japanese Gastric Cancer Association 2019

Correction to: Gastric Cancer

<https://doi.org/10.1007/s10120-018-0882-2>

In the original publication of this article, most of the reference citations in Tables 1 and 2 were published incorrectly. The corrected tables are given in this correction.

Table 1 Details of body composition assessment methodology

Authors	Year	Region	Method	Time of assessment	CT level of assessment	CT muscle	CT adipose tissue	Normalisation of measurements	Definition
Kiyama [27]	2005	Asia	BIA	PreOp, PO	–	–	–	No	–
Aoyama [14]	2015	Asia	BIA	PreOp, PO	–	–	–	No	–
Fukuda [18]	2015	Asia	BIA	PreOp	–	–	–	No	8.87 kg/m ² (men), 6.42 kg/m ² (women)
Kobayashi [28]	2015	Asia	BIA	PreOp, PO	–	–	–	No	–
Aoyama [15]	2016	Asia	BIA	PreOp, PO	–	–	–	No	–
Sato [39]	2016	Asia	BIA	PreOp	–	–	–	No	7.25 kg/m ² (men), 5.67 kg/m ² (women)
Yamamoto [41]	2017	Asia	BIA	Pre-Tx, Post-Tx	–	–	–	Yes (H)	43 cm ² /m ² (men with BMI < 25.0 kg/m ²), 53 cm ² /m ² (men with BMI > 25 kg/m ²), 41 cm ² /m ² (women)
Aoyama [16]	2018	Asia	BIA	PreOp, PO	–	–	–	No	–
Correia [47]	2007	Europe	BIA	PreOp	–	–	–	No	–
Hiki [20]	2009	Asia	CT	PreOp	–	–	–	No	–
Jeong [24]	2009	Asia	CT	PreOp	–	–	–	No	–
Kunisaki [30]	2011	Asia	CT	PreOp	–	–	–	No	–
Miyaki [35]	2013	Asia	CT	PreOp	–	–	–	No	–

The original article can be found online at <https://doi.org/10.1007/s10120-018-0882-2>.

✉ Benjamin H. L. Tan
benjamin.tan@uhb.nhs.uk

¹ Department of Upper Gastrointestinal Surgery, Queen Elizabeth Hospital Birmingham, Birmingham, UK

Authors	Year	Region	Method	Time of assessment	CT level of assessment	CT muscle	CT adipose tissue	Normalisation of measurements	Definition
Kim [26]	2014	Asia	CT	PreOp	T10	–	(–) 190 to –30	No	–
Yamaoka [42]	2015	Asia	CT	PreOp, PO	L3 mid-point	(–) 30 to 110	(–) 190 to –30	No	–
Chen [17]	2016	Asia	CT	PreOp	L3 mid-point	(–) 29 to 150	–	Yes (H)	< 40.8 cm ² /m ² (men), < 34.9 cm ² /m ² (women)
Hayashi [19]	2016	Asia	CT	PreTx	L3 mid-point	(–) 29 to 150	–	Yes (H)	< 43 cm ² /m ² (men), < 41 cm ² /m ² (women)
Huang [21]	2016	Asia	CT	PreOp	L3 mid-point	(–) 29 to 150	–	Yes (H)	< 40.8 cm ² /m ² (men), < 34.9 cm ² /m ² (women)
Nishigori [37]	2016	Asia	CT	PreOp	L3 mid-point	(–) 29 to 150	(–) 190 to –30	Yes (H)	≤ 52.4 cm ² /m ² (men), ≤ 38.5 cm ² /m ² (women)
Wang [40]	2016	Asia	CT	PreOp	L3 mid-point	(–) 29 to 150	–	Yes (H)	< 36.0 cm ² /m ² (men), < 29.0 cm ² /m ² (women)
Zhuang [45]	2016	Asia	CT	PreOp	L3 mid-point	(–) 29 to 150	–	Yes (H)	< 40.8 cm ² /m ² (men), < 34.9 cm ² /m ² (women)
Huang [23]	2017	Asia	CT	PreOp	L3 mid-point	(–) 29 to 150	(–) 150 to –50	Yes (H)	< 40.8 cm ² /m ² (men), < 34.9 cm ² /m ² (women)
Huang [22]	2017	Asia	CT	PreOp, PO	L3 mid-point	(–) 29 to 150	–	Yes (H)	–
Kudou [29]	2017	Asia	CT	PreOp	L3 mid-point	(–) 29 to 150	–	Yes (H)	43 cm ² /m ² (men with BMI < 25.0 kg/m ²), 53 cm ² /m ² (men with BMI > 25 kg/m ²), 41 cm ² /m ² (women)
Lou [33]	2017	Asia	CT	PreOp	L3 mid-point	(–) 29 to 150	–	Yes (H)	< 40.8 cm ² /m ² (men), < 34.9 cm ² /m ² (women)
Nagata [36]	2017	Asia	CT	PreOp	L3 mid-point	–	–	Yes (H)	–
Sakurai [38]	2017	Asia	CT	PreOp	L3 mid-point	(–) 29 to 150	–	Yes (H)	< 43.2 cm ² /m ² (men), < 34.6 cm ² /m ² (women)
Zheng [43]	2017	Asia	CT	PreOp	L3 mid-point	(–) 29 to 150	–	Yes (H)	< 32.5 cm ² /m ² (men), < 28.6 cm ² /m ² (women)
Zhou [44]	2017	Asia	CT	PreOp	L3 mid-point	(–) 29 to 150	–	Yes (H)	< 40.8 cm ² /m ² (men), < 34.9 cm ² /m ² (women)
Kugimiya [46]	2018	Asia	CT	PreOp, PO	L3 mid-point	(–) 30 to 110	–	Yes (H)	–
Kuwada [31]	2018	Asia	CT	PreOp	L3 mid-point	(–) 30 to 150	–	Yes (BSA)	69.7 cm ² /m ² (men), 54.2 cm ² /m ² (women)
Lu [34]	2018	Asia	CT	PreOp	L3 mid-point	(–) 30 to 110	–	Yes (H)	512.7 mm ² /m ² (men), 344.3 mm ² /m ² (women)

Authors	Year	Region	Method	Time of assessment	CT level of assessment	CT muscle	CT adipose tissue	Normalisation of measurements	Definition
Tegels [49]	2015	Europe	CT	PreOp	L3 mid-point	(-) 30 to 110	(-) 190 to -30	Yes (H)	43 cm ² /m ² (men with BMI < 25.0 kg/m ²), 53 cm ² /m ² (men with BMI > 25 kg/m ²), 41 cm ² /m ² (women)
Palmela [5]	2017	Europe	CT	PreOp	L3 mid-point	(-) 29 to 150	-	Yes (H)	43 cm ² /m ² (men with BMI < 25.0 kg/m ²), 53 cm ² /m ² (men with BMI > 25 kg/m ²), 41 cm ² /m ² (women)
Mirkin [51]	2017	North America	CT	Pre-Tx, Post-Tx	L3 mid-point	-	-	Yes (H)	< 545 mm ² /m ² (men), < 385 mm ² /m ² (women)
Lee [32]	2018	Asia	DXA	PreOp, PO	-	-	-	No	-
Liedman [48]	1998	Europe	DXA	PreOp, PO	-	-	-	No	-
Copland [50]	2007	Europe	DXA	PreOp, PO	-	-	-	No	-
Kawamura [25]	2018	Asia	TSF	PreOp	-	-	-	No	< 38.05 cm ² (men), < 27.87 cm ² (women)

CT muscle and adipose tissue reported as Hounsfield unit threshold

BIA body impedance analysis, *BSA* adjusted for body surface area, *CT* computer tomography, *DXA* dual-energy X-ray absorptiometry, *H* adjusted for height, *PO* post-operative, *Post-Tx* post-treatment (including neo-adjuvant therapy), *PreOp* pre-operative, *Pre-Tx* pre-treatment (including neo-adjuvant therapy), *TSF* thickness of skin fold

Table 2 Details of included studies

Authors	Year	Method	Cancer site	Number	Design	Age, years ^a	Sex (% male)	Extent of resection	T stage 3/4, %	Stage III/IV, %	Sarcopenia rates, %	NOS
Kiyama [27]	2005	BIA	-	108	RCS	-	67	Total (45), partial (63)	-	31	-	8
Aoyama [14]	2015	BIA	-	58	PCS	67 (36-80) ^b	50	Total (31), partial (27)	-	57	-	8
Fukuda [18]	2015	BIA	-	99	RCS	-	67	Total (34), partial (65)	-	30	21	9
Kobayashi [28]	2017	BIA	-	82	RCT	67 ± 9	73	Total (25), partial (57)	-	34	-	°
Aoyama [15]	2016	BIA	-	485	RCS	68 (27-85) ^b	62	Total (190), partial (295)	33	-	-	9
Sato [39]	2016	BIA	Upper (68), middle (120), lower (107)	293	RCS	66 (33-85) ^b	66	-	-	36	18	8
Yamamoto [41]	2017	BIA	-	90	PCS	73 ± 4	58	Total (26), partial (64)	-	21	24	6

Authors	Year	Method	Cancer site	Number	Design	Age, years ^a	Sex (% male)	Extent of resection	T stage 3/4, %	Stage III/IV, %	Sarcopenia rates, %	NOS
Aoyama [16]	2018	BIA	Upper (46), middle (57)	103	RCT	65 (36–78) ^b	58	Partial (103)	0	0	–	^c
Correia [47]	2007	BIA	Upper (32), middle (14), lower (2)	48	PCS	–	–	–	–	33	–	6
Hiki [20]	2009	CT	Lower (154)	154	RCS	60±1	54	Partial (154)	–	1	–	6
Jeong [24]	2009	CT	Lower (80)	80	RCS	57 (NA)	68	Partial (80)	–	–	–	6
Kunisaki [30]	2011	CT	–	45	RCS	66±10	62	Total (45)	–	–	–	7
Miyaki [35]	2013	CT	Lower (84)	84	RCS	67±11	61	Partial (84)	–	7	–	8
Kim [26]	2014	CT	–	304	RCS	60 (25–86) ^b	68	Total (74), partial (230)	41	24	–	8
Yamaoka [42]	2015	CT	–	102	RCS	64±11	70	Total (102)	–	24	–	^c
Chen [17]	2016	CT	Upper (54), others (104)	158	PCS	67±9	80	–	78	56	25	8
Hayashi [19]	2016	CT	–	53	RCS	–	62	Total (34), no surgery (19)	0	–	70	8
Huang [21]	2016	CT	Upper (24), middle (40), lower (98), mixed (11)	173	PCS	72±8	78	Total (71), subtotal (10)	–	46	30	9
Nishigori [37]	2016	CT	–	157	RCS	–	66	Total (157)	42	24	62	9
Wang [40]	2016	CT	–	255	RCS	65±11	75	Total (85), subtotal (170)	–	49	13	9
Zhuang [45]	2016	CT	Upper (178), NOS (759)	937	RCS	64±15	78	Total (337), subtotal (600)	65	48	42	9
Huang [23]	2017	CT	Upper (60), middle (112), lower (281), mixed (17)	391	RCS	65±15	93	Total (164), subtotal (306)	–	52	20	7
Huang [22]	2017	CT	–	110	PCS	63±10	74	Total (31), partial (79)	38	–	–	9

Authors	Year	Method	Cancer site	Number	Design	Age, years ^a	Sex (% male)	Extent of resection	T stage 3/4, %	Stage III/IV, %	Sarcopenia rates, %	NOS
Kudou [29]	2017	CT	Upper (89), mixed (59)	148	RCS	68 (52–87) ^b	72	Total (143), subtotal (5)	48	26	28	9
Lou [33]	2017	CT	–	206	PCS	64 ± 10	8	Total (65), subtotal (141)	–	39	7	8
Nagata [36]	2017	CT	Upper (8), middle (37), lower (31)	77	RCS	69 ± 2	47	Total (15), partial (62)	–	–	–	8
Sakurai [38]	2017	CT	–	569	RCS	67 ± 11	70	Total (203), subtotal (366)	45	32	25	9
Zheng [43]	2017	CT	–	693	RCS	61 ± 11	76	–	–	–	15	9
Zhou [44]	2017	CT	Upper (37), middle (52), lower (139), mixed (12)	240	PCS	73 ± 7	79	Total (97), subtotal (143)	–	46	29	9
Kugimiya [46]	2018	CT	–	119	RCS	70 ± 10	67	Total (45), partial (74)	36	21	–	9
Kuwada [31]	2018	CT	–	491	RCS	68 ± 10	71	–	–	22	25	9
Lu [34]	2018	CT	Upper (52), middle (33), lower (109), mixed (27)	221	PCS	62 (31–89) ^b	76	Total (111), partial (110)	44	–	25	9
Tegels [49]	2015	CT	–	149	RCS	70 (37–88) ^b	58	Total (40), subtotal (84), others (28)	–	58	58	9
Palmela [5]	2017	CT	Upper (5), middle (23), lower (19)	47	RCS	68 ± 10	68	–	–	89	23	8
Mirkin [51]	2017	CT	Body (18)	36	RCS	65 (NA)	36	Total (26), subtotal (10)	–	–	33	8
Lee [32]	2018	DXA	–	37	PCS	56 ± 11	65	Total (2), partial (35)	0	0	–	6
Liedman [48]	1998	DXA	Upper (13), lower (26)	36	RCT	63 (NA)	67	Total (33), partial (3)	17	–	–	^c
Copland [50]	2007	DXA	–	13	PCS	68 ± 8	69	Total (13)	–	–	–	^c

Authors	Year	Method	Cancer site	Number	Design	Age, years ^a	Sex (% male)	Extent of resection	T stage 3/4, %	Stage III/IV, %	Sarcoma rates, %	NOS
Kawamura [25]	2018	TSF	–	951	RCS	–	69	–	–	–	12	8

BIA body impedance analysis, *BSA* adjusted for body surface area, *CT* computer tomography, *DXA* dual-energy X-ray absorptiometry, *H* adjusted for height, *NA* not available, *NOS* Newcastle-Ottawa Score, *PCS* prospective cohort study, *PO* post-operative, *Post-Tx* post-treatment (including neo-adjuvant therapy), *PreOp* pre-operative, *Pre-Tx* pre-treatment (including neo-adjuvant therapy), *RCT* randomised controlled trial, *RCS* retrospective cohort study, *TSF* thickness of skin fold

^aData presented as mean \pm standard deviation unless otherwise stated

^bMedian (range)

^cNOS only applies to cohort

Publisher's Note Springer Nature remains neutral with regard to jurisdictional claims in published maps and institutional affiliations.