

Supplemental Tables for:
 Muscle Loss is Associated with Overall Survival in Patients with Metastatic Colorectal Cancer Independent of Tumor Mutational Status and Weight Loss
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Supplemental Table 1. Days Between Baseline Scan and 3-, 6-, and 12-month Follow-up Scans. To account for the fluctuation of scan intervals we performed linear interpolation to calculate percent change from baseline to exactly 3-, 6- and 12-month follow-up (see *Patients and Methods*).

CT, computed tomography; SD, standard deviation.

Characteristic	<i>N</i>	mean ± SD	minimum	maximum
Baseline CT scan to 3-month follow-up, days	193	89 ± 20	+52	+133
Baseline CT scan to 6-month follow-up, days	164	181 ± 22	+140	+227
Baseline CT scan to 12-month follow-up, days	135	362 ± 22	+320	+409

Supplemental Table 2. Patient Characteristics at Time of Metastatic Diagnosis by Availability of Scans at Follow-up Time Points.

n, number; SD, standard deviation.

Characteristic	3-month follow-up	6-month follow-up	12-month follow-up
	n = 193	n = 164	n = 135
Age, years			
Mean \pm SD	58.9 \pm 13.1	59.3 \pm 13.5	58.0 \pm 13.1

Median [25 th , 75 th percentile]	59 [50, 68]	60 [50, 69]	58 [48, 68]
Minimum - maximum	26 - 92	26 - 92	32 - 92
Sex, n (%)			
Male	103 (53.4%)	89 (54.3%)	70 (51.9%)
Female	90 (46.6%)	75 (45.7%)	65 (48.1%)
Race and ethnicity, n (%)			
Caucasian	174 (90.2%)	148 (90.2%)	122 (90.4%)
Asian	8 (4.1%)	7 (4.3%)	6 (4.4%)
African American	2 (1.0%)	2 (1.2%)	1 (0.7%)
Hispanic or Latino	0 (0.0%)	1 (0.6%)	1 (0.7%)
Other	3 (1.5%)	2 (1.2%)	2 (1.5%)
Unavailable	6 (3.1%)	4 (2.4%)	3 (2.2%)
Body weight at metastatic diagnosis, kg			
Mean \pm SD	80.1 \pm 19.7	80.0 \pm 19.8	79.6 \pm 19.4
Median [25 th , 75 th percentile]	77 [66, 91]	78 [66, 91]	77 [66, 89]
Minimum - maximum	44 - 153	44 - 143	44 - 153

Height, cm			
Mean \pm SD	169.5 \pm 10.2	169.7 \pm 10.4	169.0 \pm 10.7
Median [25 th , 75 th percentile]	168 [163, 178]	169 [163, 178]	168 [162, 178]
Minimum - maximum	145 - 196	145 - 193	145 - 196
Body mass index, kg/m²			
Mean \pm SD	27.5 \pm 5.4	27.5 \pm 5.5	27.6 \pm 5.5
Median [25 th , 75 th percentile]	27 [24, 30]	27 [24, 30]	27 [24, 31]
Minimum - maximum	17 - 42	17 - 42	17 - 44
Organ of cancer origin, n (%)			
Colon	148 (76.7%)	122 (74.3%)	100 (74.1%)
Rectum	45 (23.3%)	42 (25.6%)	35 (25.9%)
Location of tumor, n (%)			
Left	123 (63.7%)	105 (64.0%)	90 (66.7%)
Right	57 (29.5%)	50 (30.5%)	39 (28.9%)
Transverse	13 (6.7%)	9 (5.5%)	6 (4.4%)
Tumor mutation, n (%)			

Wild type	78 (40.4%)	72 (43.9%)	67 (49.6%)
<i>KRAS</i>	79 (40.9%)	59 (36.0%)	48 (35.6%)
<i>NRAS</i>	6 (3.1%)	6 (3.7%)	5 (3.7%)
<i>BRAF</i>	30 (15.5%)	27 (16.5%)	15 (11.1%)
Therapy type of first treatment, n (%)			
Standard chemotherapy	185 (95.9%)	156 (95.16%)	125 (92.6%)
Targeted + standard chemotherapy	8 (4.1%)	8 (4.9%)	10 (7.4%)
No. of lines of systemic therapy after metastatic diagnosis, n			
Mean \pm SD	2.3 \pm 1.5	2.4 \pm 1.5	2.5 \pm 1.6
Median [25 th , 75 th percentile]	2 [1, 3]	2 [1, 3]	2 [1, 3]
Minimum - maximum	0 - 9	0 - 9	0 - 9

Supplemental Table 3. Univariate survival estimates for skeletal muscle loss at 3 months, weight loss at 3 months, and tumor mutational status.

CI, confidence interval; n, number; OS, overall survival; SD, standard deviation.

	Median OS (95% CI), in months	25th percentile OS (95% CI), in months	75th percentile OS (95% CI), in months	5-year-survival rate (95% CI)
Skeletal muscle loss at 3 months				
>5% skeletal muscle loss	27 (16 - 42)	11 (7 - 16)	62 (42 - NA)	25% (13% - 39%)
≤5% skeletal muscle loss	44 (61 - NA)	24 (32 - 51)	24 (22 - 28)	37% (27% - 39%)
Weight loss at 3 months				
>5% weight loss	42 (20 - 56)	14 (8 - 23)	NA (49.8 - NA)	31% (15% - 48%)
≤5% weight loss	45 (34 - 61)	25 (18 - 31)	72.5 (61.0 - NA)	39% (27% - 51%)
Tumor mutational status				
wild-type	50 (35 - 62)	28 (22 - 35)	80 (62 - NA)	14% (3% - 32%)
<i>RAS</i> -mutant	34 (26 - 51)	21 (14 - 26)	71 (51 - NA)	36% (23% - 48%)
<i>BRAF</i> -mutant	19 (11 - 28)	11 (7 - 14)	43 (24 - NA)	40% (26% - 53%)

Supplemental Table 4. Multivariable Model Demonstrating the Relationship Between >5% Loss of Body Composition and

Tumor Mutation Status. Body composition change was evaluated at scans obtained 3, 6, and 12 months from metastatic diagnosis.

Estimates are adjusted for potential confounders including age, sex, and baseline skeletal muscle or baseline body weight. **Table 3** is a shortened version of this table.

CI, confidence interval; OR, odds ratio; WT, wild type.

Timepoint	Covariable	>5% body weight loss		>5% skeletal muscle loss	
		OR (95% CI)	<i>P</i> value	OR (95% CI)	<i>P</i> value

<i>3-months</i>	Mutation				
	<i>BRAF</i> -mutant vs WT	1.543 (0.521 - 4.568)	.4332	1.786 (0.727 - 4.387)	.2057
	<i>RAS</i> -mutant vs WT	0.840 (0.366 - 1.926)	.6801	0.972 (0.483 - 1.953)	.9355
	Age, years				
	≥70 vs <70	0.677 (0.243 - 1.889)	.4567	0.829 (0.348 - 1.975)	.6720
	Sex				
	female vs male	3.521 (1.510 - 8.210)	.0036	1.439 (0.536 - 3.861)	.4698
	Baseline				
body weight	1.028 (1.007 - 1.048)	.0080	–	–	
skeletal muscle		–	1.008 (0.996 - 1.021)	.2067	

<i>6-months</i>	Mutation				
	<i>BRAF</i> -mutant vs WT	2.379 (0.778 - 7.274)	.1284	3.372 (1.273 - 8.933)	.0144
	<i>RAS</i> -mutant vs WT	1.188 (0.493 - 2.862)	.7016	1.114 (0.538 - 2.435)	.7261
	Age, years				
	≥70 vs <70	1.455 (0.560 - 3.783)	.4412	0.748 (0.300 - 1.866)	.5341
	Sex				
	female vs male	3.225 (1.359 - 7.657)	.0079	1.376 (0.506 - 3.740)	.5321
	Baseline				
weight	1.027 (1.005 - 1.049)	.0159	–	–	
skeletal muscle	–	–	1.017 (1.004 - 1.031)	.0107	

<i>12-months</i>	Mutation				
	<i>BRAF</i> -mutant vs WT	4.426 (0.982 - 19.957)	.0529	5.533 (1.604 - 19.091)	.0068
	<i>RAS</i> -mutant vs WT	2.217 (0.717 - 6.853)	.1666	1.577 (0.667 - 3.727)	.2991
	Age, years				
	≥70 vs <70	4.297 (1.166 - 15.835)	.0285	0.833 (0.265 - 2.618)	.7538
	Sex				
	female vs male	7.497 (2.299 - 24.326)	.0008	2.430 (0.739 - 7.990)	.1437
	Baseline				
	weight	1.025 (0.996 - 1.053)	.0886	–	–
	skeletal muscle	–	–	1.010 (0.995 - 1.026)	.1910