

돼지 척추위치별 삼겹살 형태 및 근육비율

PORK





1. 측정 방법 및 절차

측정대상 세부근육

▷ 주요근육 6개 선정: 깊은흉근, 넓은등근, 몸통피부근, 배곧은근, 배바깥경사근, 배속경사근

▷ 측정형질: 세부근육의 단면적 및 척추 위치별 분포



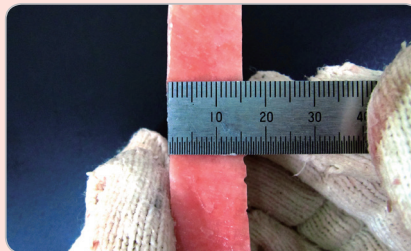
● 삼겹살 확보(712두)



● 삼겹살 측정(길이, 넓이, 두께)



● 15mm로 육절기에서 세절



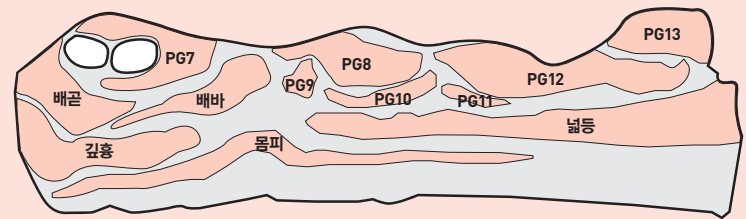
● 두께 확인



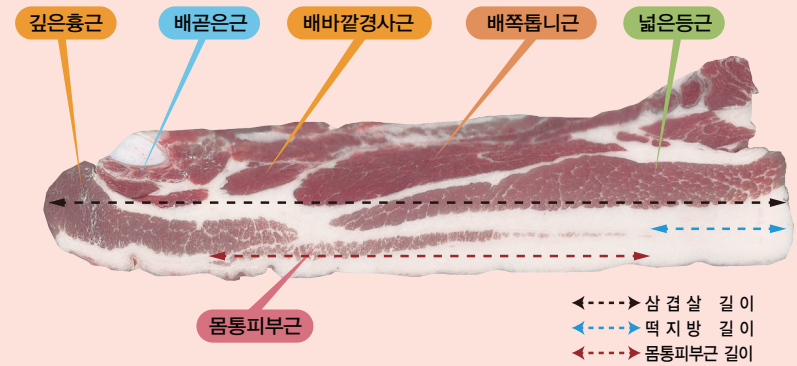
● 척추별 분류



● 삼겹살 실제 크기로 스캔



● 슬라이스별 근육면적 측정 (Image Pro Plus ver.7.0)



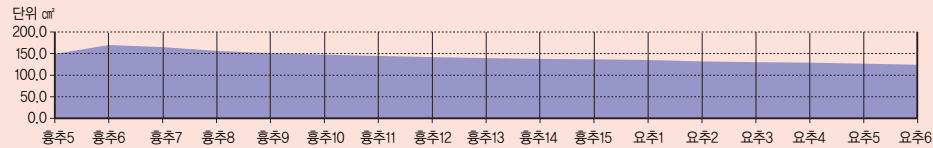
● 6개 대표근육 분석

2. 돼지 품종별 삼겹살 생산 및 근육조성 형질

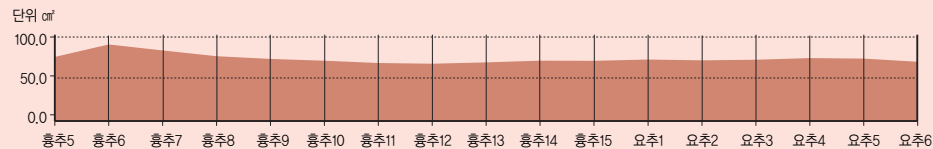
형 질		Yorkshire (n=516)	Landrace (n=133)	전 체 (n=649)
삼겹살 평 균 규 격	삼겹살 무게 (kg)	6.97±0.98 ^b	7.17±0.85 ^a	7.02±0.95
	삼겹살 길이 (mm)	535.35±28.70 ^b	555.32±23.09 ^a	539.39±28.78
	삼겹살 넓이 (mm)	286.20±17.26 ^a	273.92±8.94 ^b	283.72±16.67
	전체근육비율 (%)	48.16±5.90^b	54.17±5.82^a	49.38±6.36
삼겹살 근육별 면 적	깊은흉근 (cm ²)	93.39±22.96 ^b	111.60±20.13 ^a	97.08±23.57
	넓은등근 (cm ²)	203.57±36.76 ^b	217.06±31.09 ^a	206.30±36.07
	몸통피부근 (cm ²)	433.35±75.86 ^b	507.53±61.77 ^a	448.37±79.03
	배곧은근 (cm ²)	199.12±35.01 ^b	238.10±32.84 ^a	207.02±37.95
	배바깥경사근 (cm ²)	338.22±54.16 ^b	362.78±48.95 ^a	343.19±54.02
	배속경사근 (cm ²)	90.83±23.66 ^b	96.03±21.40 ^a	91.88±23.30
	기타근육 (cm ²)	718.75±111.08 ^b	851.59±92.12 ^a	745.64±119.99

3. 척추위치별 삼겹살 단면의 근육 및 지방

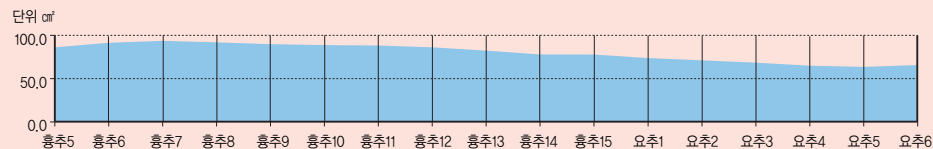
삼겹살 전체면적



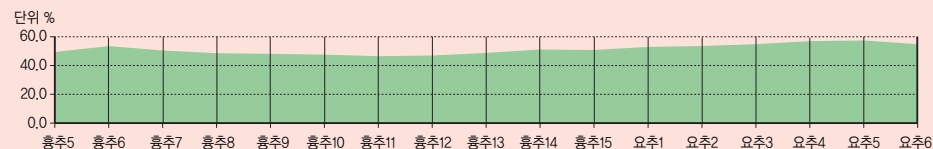
근육 면적



지방 면적



삼겹살 중 근육비율



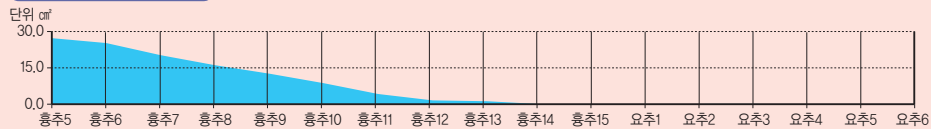
구분	두 수	삼 겹 살 면적(cm²)	근 육 면적(cm²)	지 방 면적(cm²)	근 육 비율(%)
흉추5	520	147.31±29.32 ^a	70.31±17.71 ^d	77.55±17.95 ^d	47.44±6.77 ⁱ
흉추6	644	170.16±19.28 ^a	87.87±13.14 ^a	82.91±16.58 ^{ab}	51.78±6.30 ^{abcd}
흉추7	645	164.83±18.18 ^b	80.55±12.82 ^b	84.89±17.03 ^a	49.02±6.83 ^e
흉추8	647	155.55±16.96 ^c	72.86±11.16 ^c	83.29±16.54 ^a	47.05±6.72 ^g
흉추9	647	149.93±16.23 ^d	69.68±10.59 ^d	80.82±16.43 ^{bc}	46.73±6.95 ^{gh}
흉추10	647	146.58±16.12 ^e	67.50±10.38 ^e	79.61±16.50 ^{cd}	46.33±7.14 ^{hg}
흉추11	647	143.45±15.95 ^a	64.61±10.27 ^{hi}	79.28±16.48 ^{cd}	45.34±7.30 ^{hi}
흉추12	645	140.88±15.68 ^b	63.98±9.98 ^{hi}	77.29±16.65 ^d	45.78±7.52 ⁱ
흉추13	646	139.16±15.73 ^{gh}	65.62±10.72 ^{gh}	73.98±16.39 ^e	47.47±7.76 ^j
흉추14	647	137.51±15.95 ^{hi}	67.73±11.27 ^{ef}	70.28±16.04 ^f	49.53±7.81 ^e
흉추15	75	136.97±15.03 ^{hi}	66.82±10.13 ^b	70.73±14.98 ^f	49.05±7.11 ^e
요추1	639	135.51±16.05 ^j	68.95±11.47 ^{de}	67.12±15.26 ^a	51.10±7.56 ^d
요추2	643	132.49±15.52 ^j	67.93±11.18 ^{ef}	65.11±15.08 ^a	51.51±7.52 ^{cd}
요추3	643	130.67±15.50 ^{jk}	68.56±10.60 ^{def}	62.78±15.51 ^h	52.77±7.51 ^b
요추4	634	128.97±17.14 ^k	69.90±10.58 ^d	59.69±15.34 ^l	54.52±6.95 ^a
요추5	576	126.31±19.73 ^l	68.53±11.60 ^{def}	58.62±15.76 ^l	54.54±6.71 ^a
요추6	338	123.19±22.35 ^m	63.88±11.86 ^j	60.09±18.25 ^j	52.43±8.02 ^{bc}

4. 척추위치별 삼겹살 단면의 주요 근육면적 변화 추이

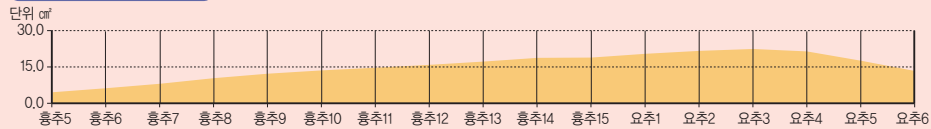
깊은흉근



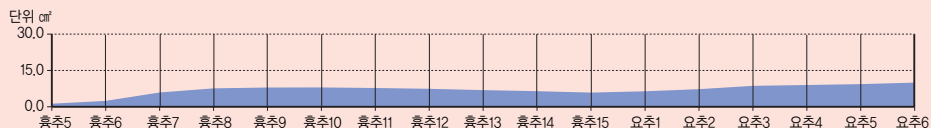
넓은등근



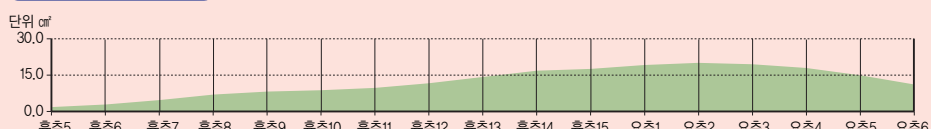
몸통피부근



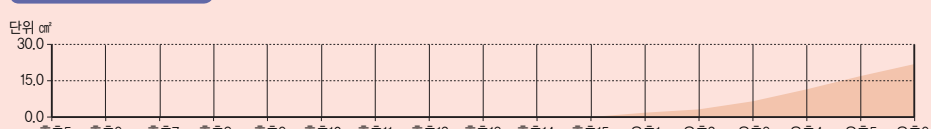
배곧은근



배바깥경사근



배속경사근



구 분	깊은 흉근(cm²)	넓은 등근(cm²)	몸통 피부근(cm²)	배곧 은근(cm²)	배바깥 경사근(cm²)	배속 경사근(cm²)
흉추5	13.02±4.96 ^a (n=465)	25.71±4.67 ^a (n=520)	4.74±1.66 ^m (n=518)	1.43±1.22 ^x (n=69)	1.84±1.15 ^v (n=70)	
흉추6	13.42±3.69 ^a (n=640)	24.28±4.39 ^a (n=644)	6.21±1.63 ⁱ (n=644)	2.42±2.69 ^j (n=466)	2.96±2.28 ⁿ (n=461)	
흉추7	9.84±2.82 ^b (n=645)	19.31±3.57 ^c (n=645)	10.24±5.64 ^k (n=645)	5.87±1.80 ^j (n=636)	4.43±1.78 ^j (n=635)	
흉추8	6.78±1.83 ^c (n=647)	15.30±3.02 ^d (n=647)	10.12±2.14 ^k (n=647)	7.55±1.52 ^j (n=647)	6.45±1.79 ^k (n=646)	
흉추9	4.57±1.37 ^{cd} (n=647)	11.84±2.66 ^e (n=647)	11.83±2.28 ^j (n=647)	7.93±1.70 ^e (n=647)	7.79±1.51 ^l (n=646)	
흉추10	2.88±1.16 ^{de} (n=646)	8.03±2.48 ^f (n=642)	13.20±2.54 ^j (n=646)	7.97±1.81 ^e (n=647)	8.39±1.55 ^j (n=646)	
흉추11	1.62±1.37 ^e (n=563)	3.86±2.22 ^g (n=555)	14.34±2.88 ^j (n=647)	7.79±1.90 ^{ef} (n=647)	9.35±1.86 ^h (n=646)	
흉추12	0.95±0.75 ^e (n=197)	1.57±1.46 ^h (n=189)	15.52±2.92 ^j (n=638)	7.50±1.90 ^f (n=646)	11.47±2.67 ^j (n=646)	
흉추13	0.64±0.41 ^e (n=28)	1.02±0.85 ^h (n=11)	16.79±3.16 ^j (n=645)	7.00±2.03 ^g (n=645)	14.02±3.35 ^e (n=646)	
흉추14	0.81±0.00 ^e (n=1)		18.26±3.58 ^j (n=647)	6.57±2.15 ^h (n=647)	16.50±3.79 ^f (n=647)	
흉추15			18.83±3.46 ^j (n=55)	5.97±1.98 ^h (n=75)	17.27±3.39 ^e (n=75)	
요추1			19.90±3.77 ^j (n=639)	6.49±2.09 ^h (n=639)	18.49±3.79 ^f (n=639)	1.83±2.09 ^j (n=47)
요추2			21.14±4.02 ^j (n=643)	7.17±2.29 ^h (n=643)	19.30±3.54 ^f (n=643)	3.16±2.86 ^e (n=304)
요추3			21.78±4.30 ^j (n=643)	8.36±2.48 ^d (n=643)	18.53±3.56 ^f (n=643)	6.51±3.64 ^d (n=580)
요추4			20.65±4.92 ^j (n=634)	8.72±2.19 ^c (n=634)	17.02±3.57 ^f (n=634)	10.85±4.19 ^e (n=633)
요추5			16.97±5.73 ^j (n=575)	9.08±2.19 ^b (n=577)	14.12±4.43 ^f (n=573)	15.99±5.02 ^b (n=576)
요추6			13.00±4.86 ^j (n=335)	9.41±2.28 ^b (n=334)	10.30±4.52 ^f (n=329)	20.06±5.36 ^a (n=338)

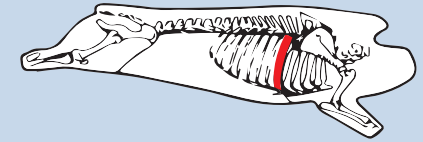
5. 척추위치별 삼겹살 단면의 근육과 지방 모양

훈추 5번 (근육비율: 평균 47.44%, 사진 56.20%)

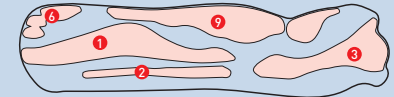
·1



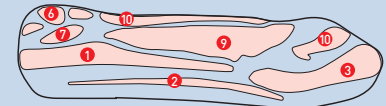
·2



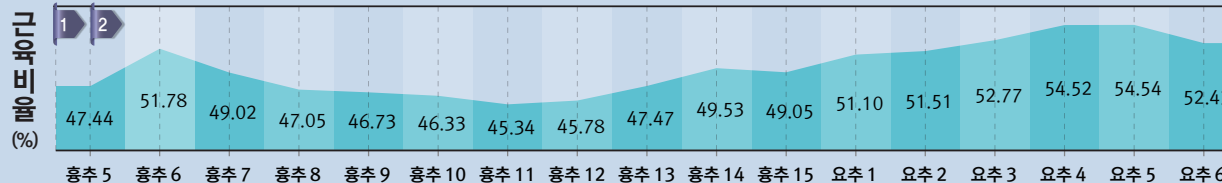
□ 부위별 명칭



- ① 넓은등근 ⑥ 장골늑골근
- ② 몸통피부근 ⑨ 배쪽툰니근
- ③ 깊은흉근



- ① 넓은등근 ⑦ 앞쪽등툰니근
- ② 몸통피부근 ⑨ 배쪽툰니근
- ③ 깊은흉근 ⑩ 속늑골사이근
- ⑥ 장골늑골근

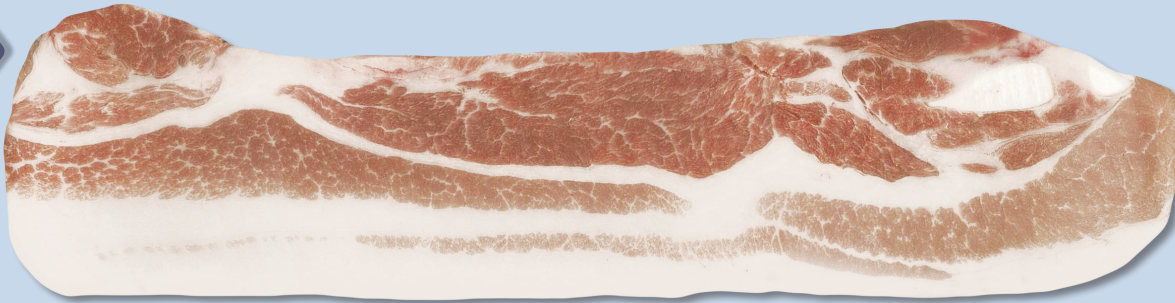


▶ 슬라이스의 번호는 삼겹살을 15mm로 잘랐을 때 순번으로 1~32번까지 있으며 척추별 약 3cm 길이가 되어 두 조각이 하나의 척추번호에 해당됩니다

5. 척추위치별 삼겹살 단면의 근육과 지방 모양

홍추 6번 (근육비율: 평균 51.78%, 사진 55.34%)

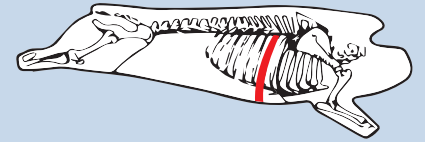
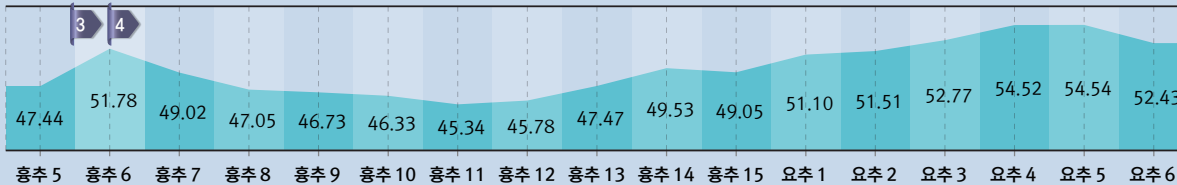
3



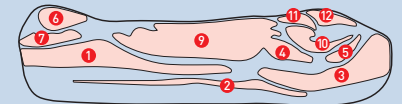
4



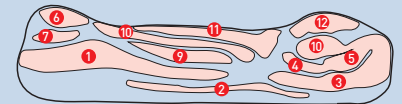
비율 (%)



□ 부위별 명칭



- | | |
|----------|-----------|
| ① 넓은등근 | ⑦ 앞쪽등툽니근 |
| ② 몸통피부근 | ⑨ 배쪽툽니근 |
| ③ 깊은홍근 | ⑩ 속늑골사이근 |
| ④ 배바갈경사근 | ⑪ 바깥늑골사이근 |
| ⑤ 배곧은근 | ⑫ 가슴가로근 |
| ⑥ 장골늑골근 | |

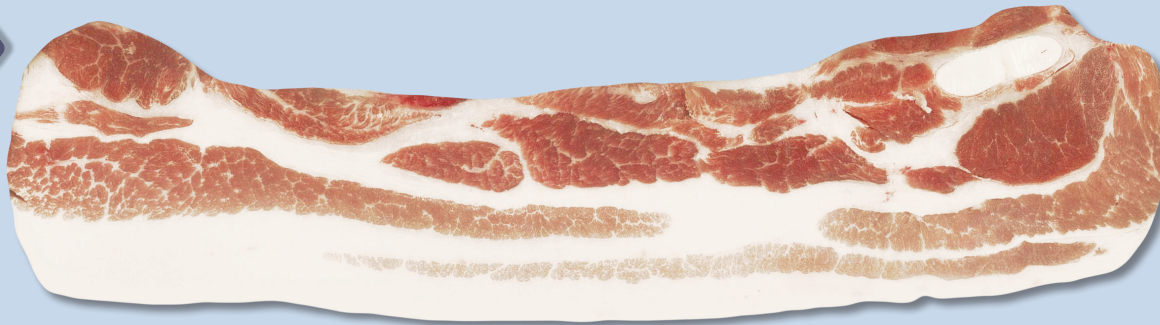


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|----------|-----------|
| ① 넓은등근 | ⑦ 앞쪽등툽니근 |
| ② 몸통피부근 | ⑨ 배쪽툽니근 |
| ③ 깊은홍근 | ⑩ 속늑골사이근 |
| ④ 배바갈경사근 | ⑪ 바깥늑골사이근 |
| ⑤ 배곧은근 | ⑫ 가슴가로근 |
| ⑥ 장골늑골근 | |

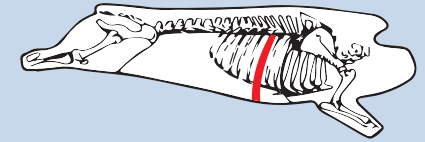
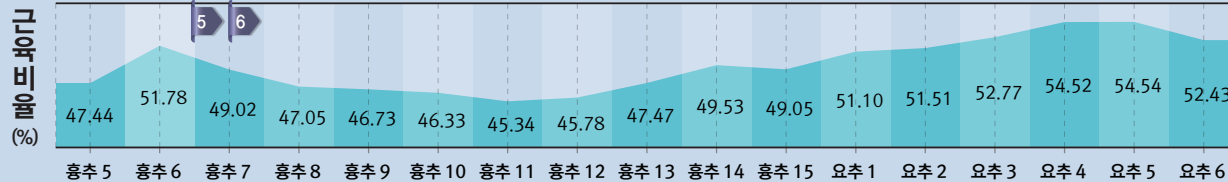
5. 척추위치별 삼겹살 단면의 근육과 지방 모양

홍추 7번 (근육비율: 평균 49.02%, 사진 54.31%)

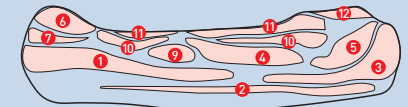
5



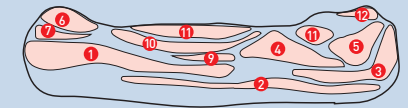
6



□ 부위별 명칭



- | | |
|----------|-----------|
| ① 넓은등근 | ⑦ 앞쪽등툽니근 |
| ② 몸통피부근 | ⑨ 배쪽툽니근 |
| ③ 깊은홍근 | ⑩ 속늑골사이근 |
| ④ 배바깥경사근 | ⑪ 바깥늑골사이근 |
| ⑤ 배곧은근 | ⑫ 가슴가로근 |
| ⑥ 장골늑골근 | |



- | | |
|----------|-----------|
| ① 넓은등근 | ⑦ 앞쪽등툽니근 |
| ② 몸통피부근 | ⑨ 배쪽툽니근 |
| ③ 깊은홍근 | ⑩ 속늑골사이근 |
| ④ 배바깥경사근 | ⑪ 바깥늑골사이근 |
| ⑤ 배곧은근 | ⑫ 가슴가로근 |
| ⑥ 장골늑골근 | |

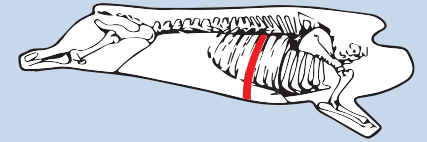
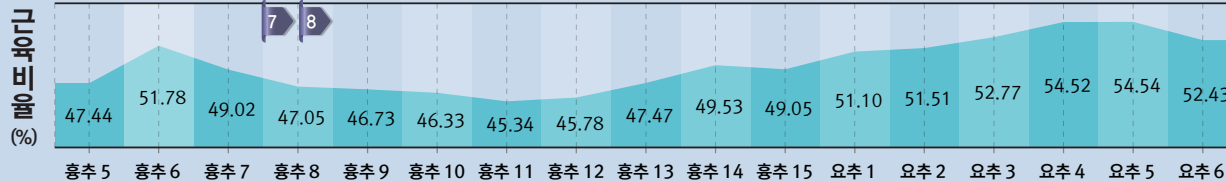
5. 척추위치별 삼겹살 단면의 근육과 지방 모양

홍추 8번 (근육비율: 평균 47.05%, 사진 54.60%)

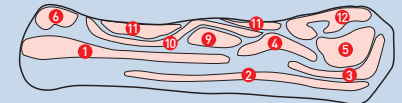
7



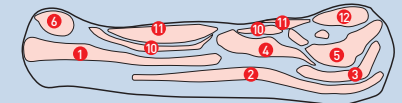
8



부위별 명칭



- ① 넓은등근 ⑦ 앞쪽등툽니근
- ② 몸통피부근 ⑧ 배쪽툽니근
- ③ 깊은홍근 ⑩ 속늑골사이근
- ④ 배바깥경사근 ⑪ 바깥늑골사이근
- ⑤ 배곧은근 ⑫ 가슴가로근
- ⑥ 장곧은늑골근



- ① 넓은등근 ⑥ 장곧은늑골근
- ② 몸통피부근 ⑩ 속늑골사이근
- ③ 깊은홍근 ⑪ 바깥늑골사이근
- ④ 배바깥경사근 ⑫ 가슴가로근
- ⑤ 배곧은근

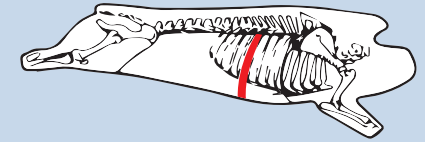
5. 척추위치별 삼겹살 단면의 근육과 지방 모양

홍추 9번 (근육비율: 평균 46.73%, 사진 56.40%)

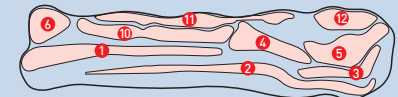
9



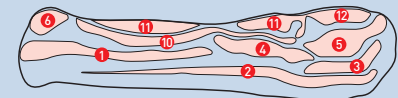
10



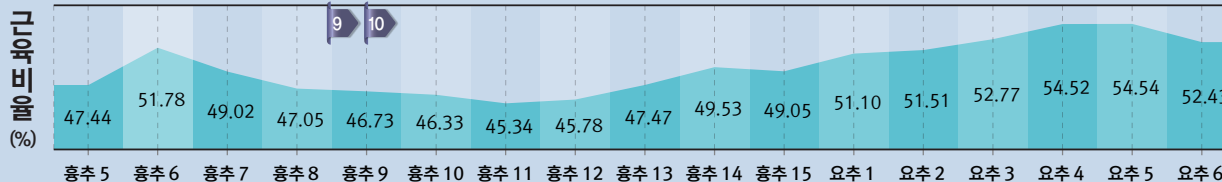
□ 부위별 명칭



- ① 넓은등근 ⑥ 장골늑골근
- ② 몸통피부근 ⑩ 속늑골사이근
- ③ 깊은흉근 ⑪ 바깥늑골사이근
- ④ 배바깥경사근 ⑫ 가슴가로근
- ⑤ 배곧은근



- ① 넓은등근 ⑥ 장골늑골근
- ② 몸통피부근 ⑩ 속늑골사이근
- ③ 깊은흉근 ⑪ 바깥늑골사이근
- ④ 배바깥경사근 ⑫ 가슴가로근
- ⑤ 배곧은근



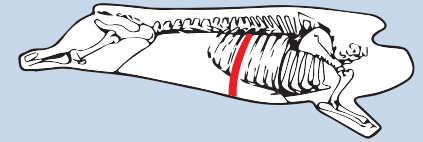
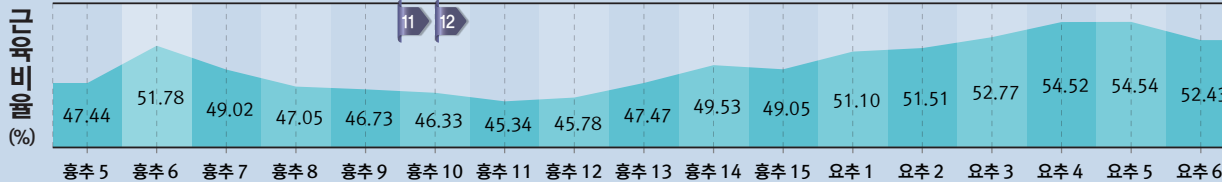
5. 척추위치별 삼겹살 단면의 근육과 지방 모양

훈추 10번 (근육비율: 평균 46.33%, 사진 58.24%)

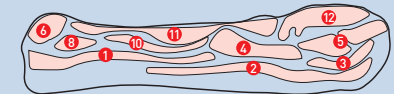
11



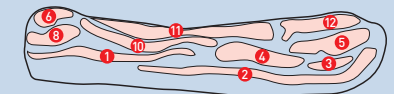
12



□ 부위별 명칭



- | | |
|----------|-----------|
| ① 넓은등근 | ⑥ 장골늑골근 |
| ② 몸통피부근 | ⑧ 뒤쪽등툽니근 |
| ③ 깊은흉근 | ⑩ 속늑골사이근 |
| ④ 배바갈경사근 | ⑪ 바깥늑골사이근 |
| ⑤ 배곧은근 | ⑫ 가슴가로근 |



- | | |
|----------|-----------|
| ① 넓은등근 | ⑥ 장골늑골근 |
| ② 몸통피부근 | ⑧ 뒤쪽등툽니근 |
| ③ 깊은흉근 | ⑩ 속늑골사이근 |
| ④ 배바갈경사근 | ⑪ 바깥늑골사이근 |
| ⑤ 배곧은근 | ⑫ 가슴가로근 |

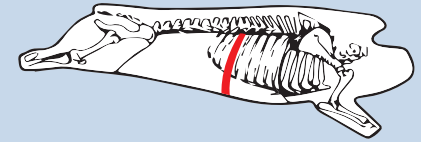
5. 척추위치별 삼겹살 단면의 근육과 지방 모양

훈추 11번 (근육비율: 평균 45.34%, 사진 56.55%)

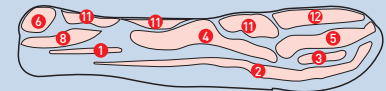
13



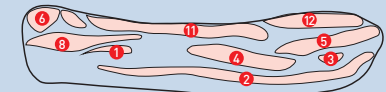
14



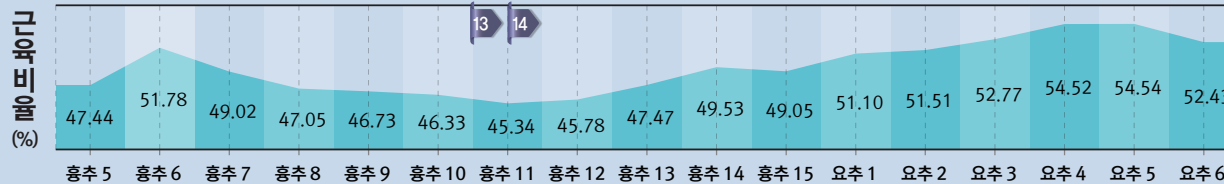
□ 부위별 명칭



- ① 넓은등근 ⑥ 장골늑골근
- ② 몸통피부근 ⑧ 뒤쪽등툰니근
- ③ 깊은흉근 ⑪ 바깥늑골사이근
- ④ 배바깥경사근 ⑫ 가슴가로근
- ⑤ 배곧은근



- ① 넓은등근 ⑥ 장골늑골근
- ② 몸통피부근 ⑧ 뒤쪽등툰니근
- ③ 깊은흉근 ⑪ 바깥늑골사이근
- ④ 배바깥경사근 ⑫ 가슴가로근
- ⑤ 배곧은근



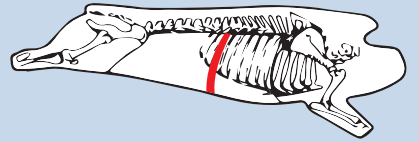
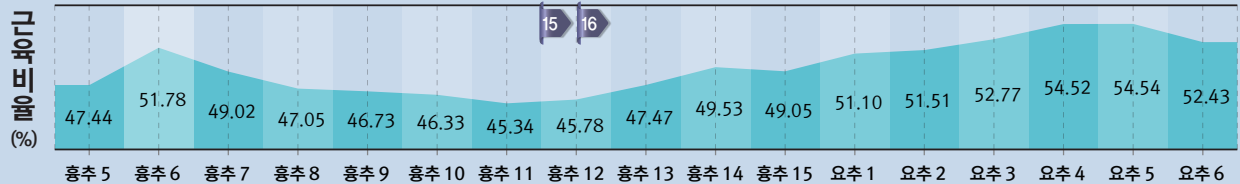
5. 척추위치별 삼겹살 단면의 근육과 지방 모양

홍추 12번 (근육비율: 평균 45.78%, 사진 55.63%)

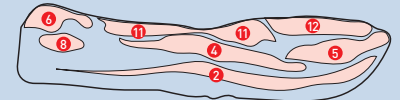
15



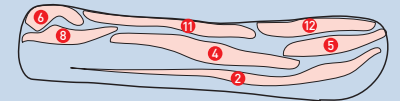
16



□ 부위별 명칭



- ② 몸통피부근 ⑧ 뒤쪽등툽니근
- ④ 배바깥경사근 ⑪ 바깥늑골사이근
- ⑤ 배곧은근 ⑫ 가슴가로근
- ⑥ 장골늑골근



- ② 몸통피부근 ⑧ 뒤쪽등툽니근
- ④ 배바깥경사근 ⑪ 바깥늑골사이근
- ⑤ 배곧은근 ⑫ 가슴가로근
- ⑥ 장골늑골근

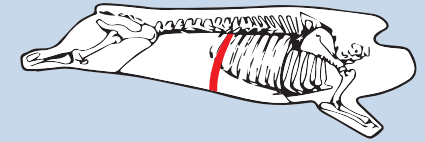
5. 척추위치별 삼겹살 단면의 근육과 지방 모양

훈추 13번 (근육비율: 평균 47.47%, 사진 58.34%)

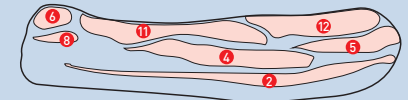
17



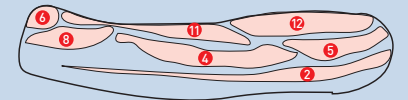
18



□ 부위별 명칭



- ② 몸통피부근 ⑧ 뒤쪽등툽니근
- ④ 배바깥경사근 ⑪ 바깥늑골사이근
- ⑤ 배곧은근 ⑫ 가슴가로근
- ⑥ 장골늑골근



- ② 몸통피부근 ⑧ 뒤쪽등툽니근
- ④ 배바깥경사근 ⑪ 바깥늑골사이근
- ⑤ 배곧은근 ⑫ 가슴가로근
- ⑥ 장골늑골근



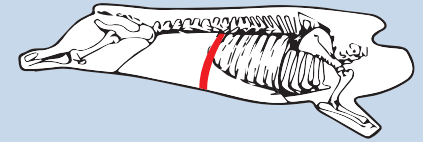
5. 척추위치별 삼겹살 단면의 근육과 지방 모양

홍추 14번 (근육비율: 평균 49.53%, 사진 58.09%)

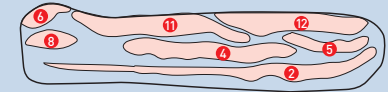
19



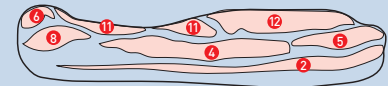
20



□ 부위별 명칭



- ② 몸통피부근 ⑧ 뒤쪽등툽니근
- ④ 배바갈경사근 ⑪ 바갈늑골사이근
- ⑤ 배곧은근 ⑫ 가슴가로근
- ⑥ 장골늑골근



- ② 몸통피부근 ⑧ 뒤쪽등툽니근
- ④ 배바갈경사근 ⑪ 바갈늑골사이근
- ⑤ 배곧은근 ⑫ 가슴가로근
- ⑥ 장골늑골근

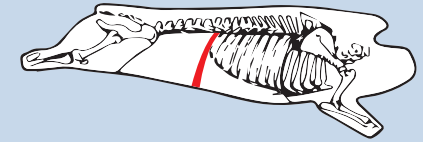
5. 척추위치별 삼겹살 단면의 근육과 지방 모양

요추 1번 (근육비율 : 평균 51.10%, 사진 63.30%)

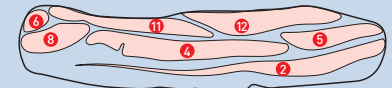
21



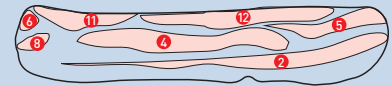
22



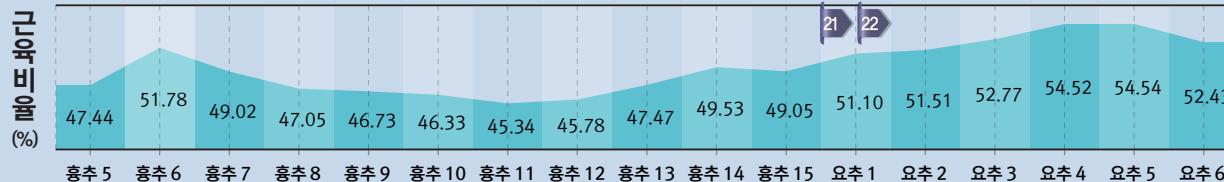
□ 부위별 명칭



- ② 몸통피부근 ⑧ 뒤쪽등툽니근
- ④ 배바깥경사근 ⑪ 바깥늑골사이근
- ⑤ 배곧은근 ⑫ 가슴가로근
- ⑥ 장골늑골근



- ② 몸통피부근 ⑧ 뒤쪽등툽니근
- ④ 배바깥경사근 ⑪ 바깥늑골사이근
- ⑤ 배곧은근 ⑫ 가슴가로근
- ⑥ 장골늑골근



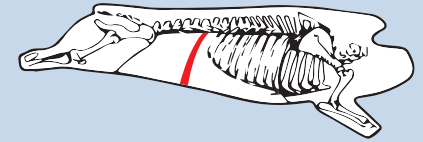
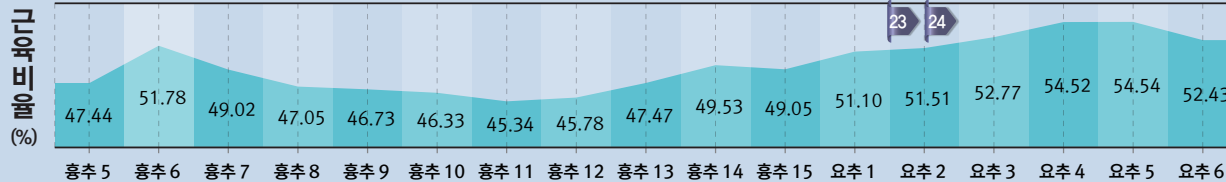
5. 척추위치별 삼겹살 단면의 근육과 지방 모양

요추 2번 (근육비율: 평균 51.51%, 사진 61.71%)

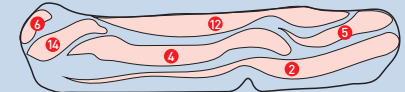
23



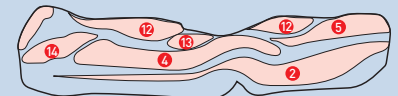
24



□ 부위별 명칭



- | | |
|----------|---------|
| ② 몸통피부근 | ⑥ 장골늑골근 |
| ④ 배바깥경사근 | ⑫ 가슴가로근 |
| ⑤ 배곧은근 | ⑭ 늑골후인근 |



- | | |
|----------|---------|
| ② 몸통피부근 | ⑫ 가슴가로근 |
| ④ 배바깥경사근 | ⑬ 배속경사근 |
| ⑤ 배곧은근 | ⑭ 늑골후인근 |

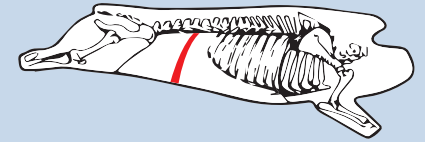
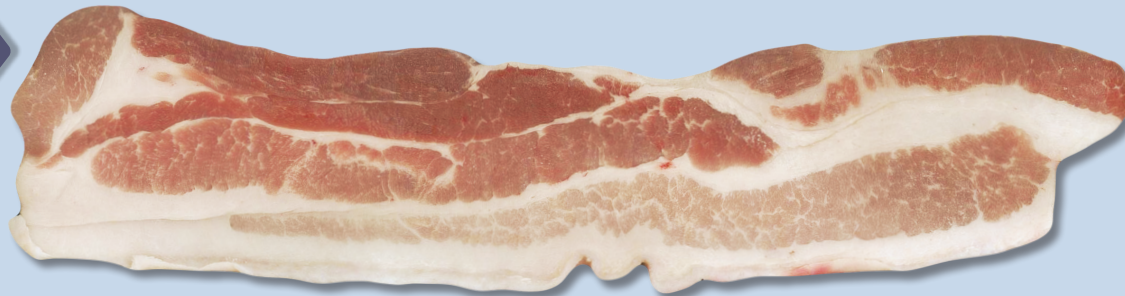
5. 척추위치별 삼겹살 단면의 근육과 지방 모양

요추 3번 (근육비율: 평균 52.77%, 사진 63.65%)

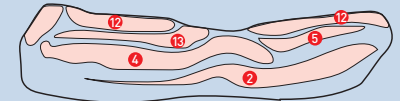
25



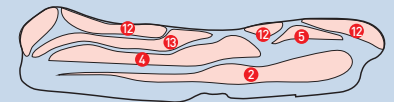
26



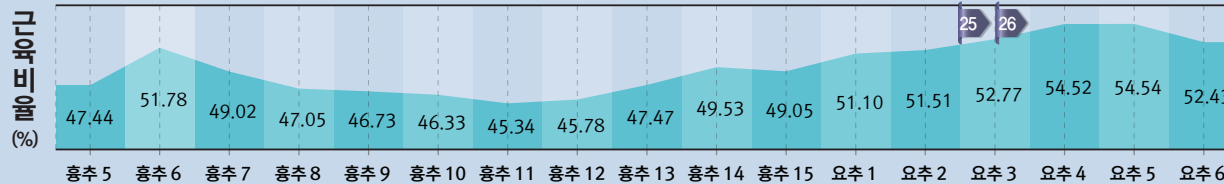
□ 부위별 명칭



- ② 몸통피부근 ⑫ 가슴가로근
- ④ 배바깥경사근 ⑬ 배속경사근
- ⑤ 배곧은근



- ② 몸통피부근 ⑫ 가슴가로근
- ④ 배바깥경사근 ⑬ 배속경사근
- ⑤ 배곧은근



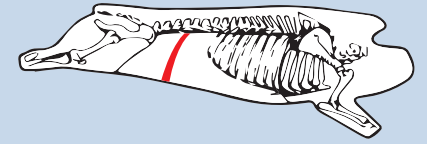
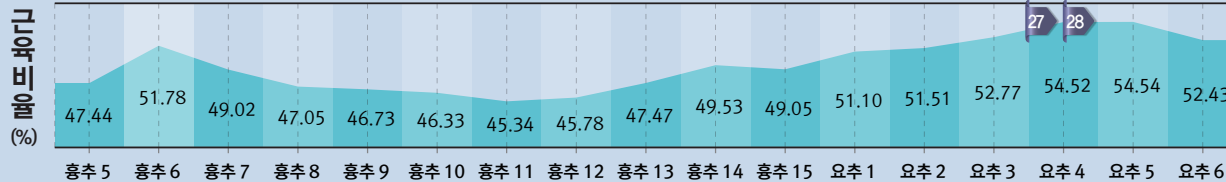
5. 척추위치별 삼겹살 단면의 근육과 지방 모양

요추 4번 (근육비율: 평균 54.52%, 사진 69.05%)

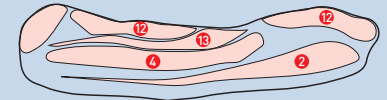
27



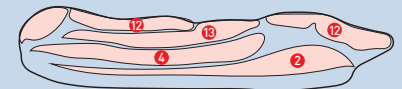
28



□ 부위별 명칭



② 몸통피부근 ⑫ 가슴가로근
④ 배바깥경사근 ⑬ 배속경사근



② 몸통피부근 ⑫ 가슴가로근
④ 배바깥경사근 ⑬ 배속경사근

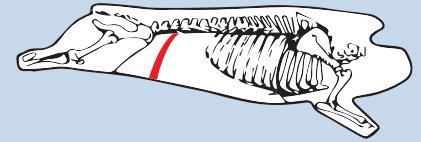
5. 척추위치별 삼겹살 단면의 근육과 지방 모양

요추 5번 (근육비율: 평균 54.54%, 사진 71.73%)

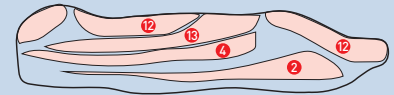
29



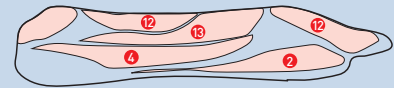
30



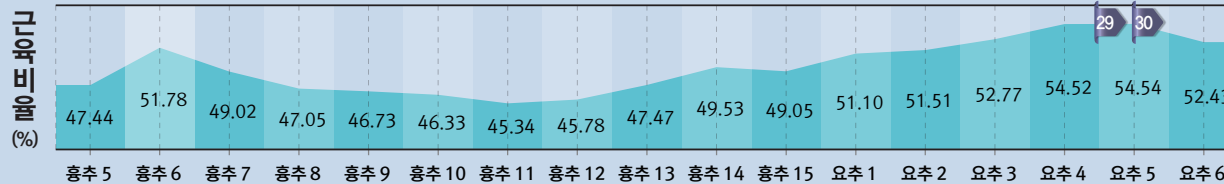
□ 부위별 명칭



- ② 몸통피부근 ⑫ 가슴가로근
- ④ 배바깥경사근 ⑬ 배속경사근



- ② 몸통피부근 ⑫ 가슴가로근
- ④ 배바깥경사근 ⑬ 배속경사근



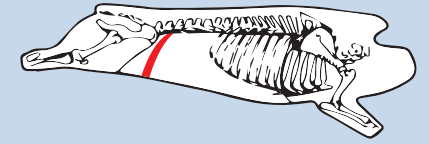
5. 척추위치별 삼겹살 단면의 근육과 지방 모양

요추 6번 (근육비율: 평균 52.43%, 사진 60.30%)

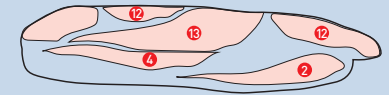
31



32



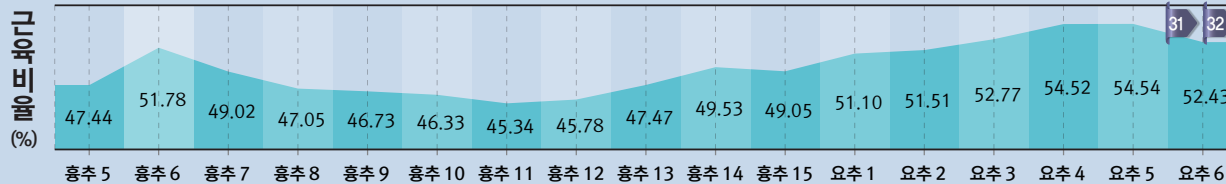
□ 부위별 명칭



② 몸통피부근 ⑫ 가슴가로근
④ 배바깥경사근 ⑬ 배속경사근



② 몸통피부근 ⑫ 가슴가로근
④ 배바깥경사근 ⑬ 배속경사근





축산물품질평가원

Korea Institute for Animal Products Quality Evaluation

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