

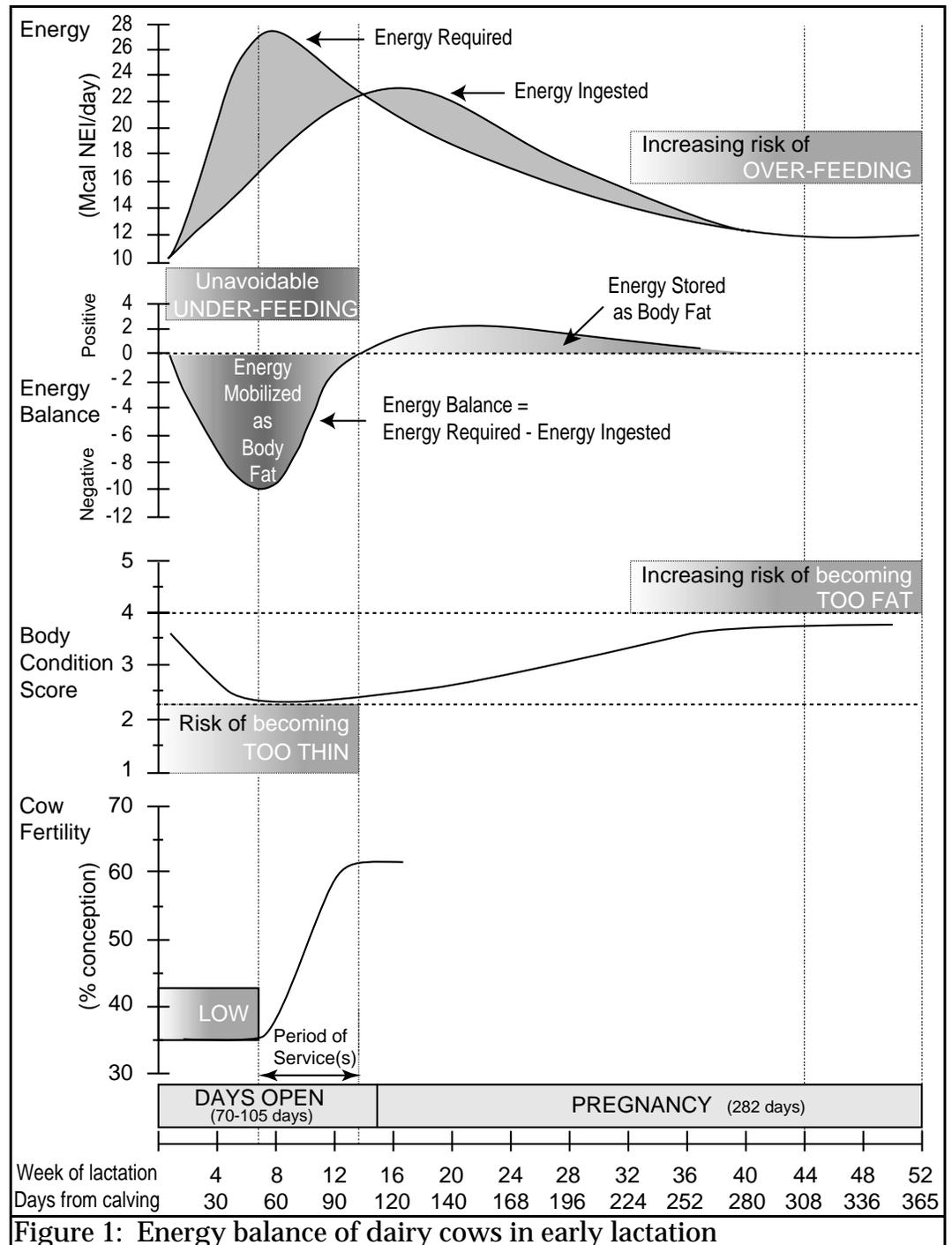
## 12) BODY CONDITION SCORES

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### BODY CONDITION

The amount of body reserves a cow has at calving has a strong influence on potential complications at or immediately after calving, milk production and reproductive efficiency for the upcoming lactation. Cows that are too thin have:

- Reduced milk production due to lack of adequate body reserves to use in early lactation;
- Increased incidence of certain metabolic diseases (ketosis, displaced abomasum, etc.);
- Delayed resumption of heat cycle after calving.



On the other hand, cows that are too fat have:

- More complications at calving (difficult calving);

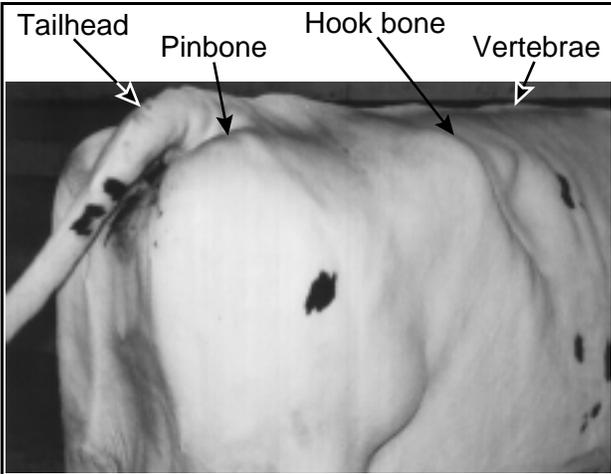


Figure 2: Identification of some body parts used to assign body condition scores

- Depression of voluntary dry matter intake in early lactation that predisposes the cow to:
  - Increased incidence of certain metabolic diseases (fat cow syndrome, ketosis, etc.);
  - Reduced milk production.

Thus the goal is to have cows in "good" condition at calving—not too thin and not too fat. Body condition is a subjective assessment of the amount of fat, or amount of stored energy, a cow carries. Body condition changes throughout the lactation cycle. Cows in early lactation are in negative energy balance and losing body condition (mobilizing body reserves). For every kilo of body weight mobilized, enough energy is supplied to support the production of seven kilos of milk. Early

| Body Condition Score                  | Vertebrae at the middle of the back | Rear view (cross-section) of the hook bones | Side view of the line between the hook and pinbones | Cavity between tailhead and pinbone |             |
|---------------------------------------|-------------------------------------|---|---|-------------------------------------|-------------|
|                                       |                                     |   |   | Rear view                           | Angled view |
| 1<br>Severe underconditioning         |                                     |   |   |                                     |             |
| 2<br>Frame obvious                    |                                     |   |   |                                     |             |
| 3<br>Frame and covering well balanced |                                     |   |   |                                     |             |
| 4<br>Frame not as visible as covering |                                     |   |   |                                     |             |
| 5<br>Severe overconditioning          |                                     |   |   |                                     |             |

Figure 3: Body condition scores (Adapted from A.J. Edmondson, I.J. Lean, C.O. Weaver, T. Farver and G. Webster. 1989. A body condition scoring chart for Holstein dairy cows. *J. Dairy Sci.* 72:68-78.)

lactation cows should not lose more than about one kilo of body weight per day. In contrast, cows in late lactation are in positive energy balance and gain body condition to replenish the body reserve lost in early lactation. Thus the "ideal" body condition changes over the stages of a lactation (Figure 1).

**BODY CONDITION SCORE (BCS) THROUGHOUT LACTATION**

Body condition score is a tool used to adjust feeding and management practices in order to maximize the potential for milk production and minimize reproductive disorders.

A body condition score is assigned by visual observation of the cow's rump area—primarily the region delimited by the hip bones (*tuber coxae*), the pinbones (*tuber ischii*) and the tailhead. The amount of "covering" over the vertebrae of the back is also used in giving a score (Figures 2, 3 & 4). Cows are usually ranked on a scale from 1 to 5. Extremely thin cows are assigned a score of 1 and extremely fat cows, a score of 5 (Figure 4).

A body condition score of 1.5 one or two months after calving is not desirable

Table 1: Effect of body condition score (BCS) losses in early lactation on conception rate

| Loss in BCS       | Conception rate |
|-------------------|-----------------|
| Less than 1 unit  | 50%             |
| From 1 to 2 units | 34%             |
| More than 2 units | 21%             |

because it indicates severe lack of adequate nutrition (negative energy balance, Figure 4a). A body condition score of about 3.0 (Figure 4b) should be typical of a cow recovering body reserves in mid-lactation. In late lactation and during the dry period, a body condition score of 3.5 may be the most desirable.

**Recommended body condition scores at various stages of lactation are:**

|                |            |
|----------------|------------|
| Calving        | 3.0 to 3.5 |
| Breeding       | 2.5        |
| Late lactation | 3.0 to 3.5 |
| Dry period     | 3.0 to 3.5 |

This body condition score gives the cow sufficient body reserves to minimize the risk of complications at calving while maximizing milk production in early lactation. As milk production declines in late lactation, cows gain body weight efficiently. Overfeeding concentrate is a

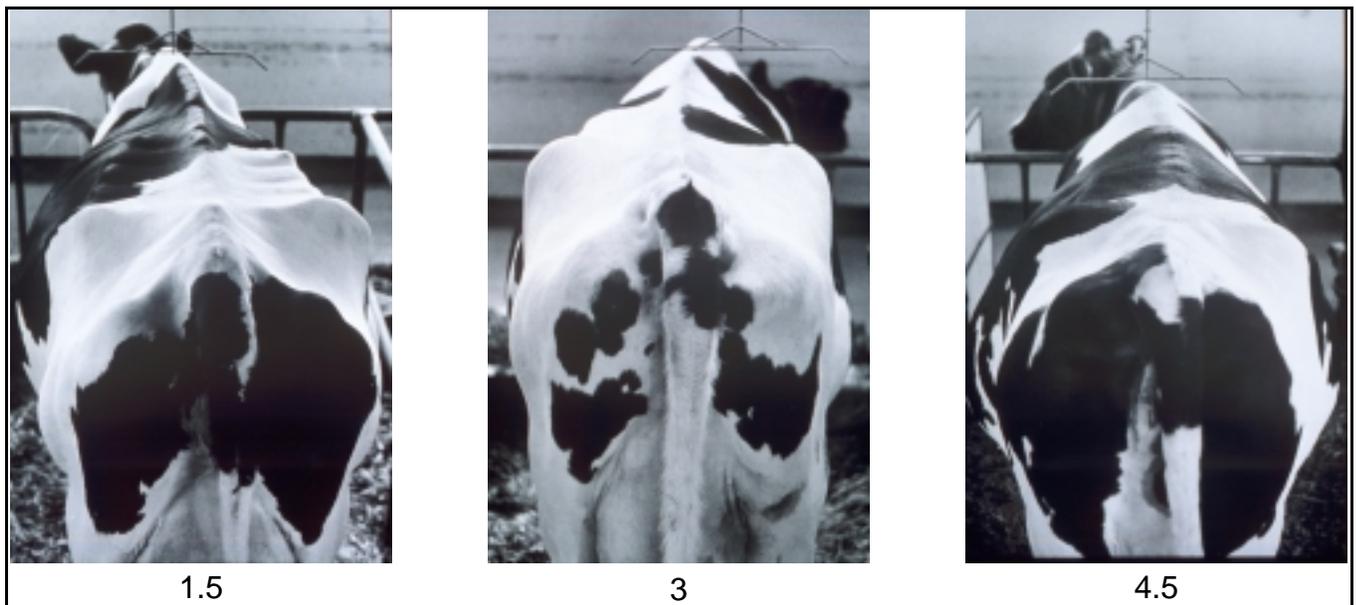


Figure 4: Examples of cows with body condition scores of 1.5 (A), 3 (B), and 4.5 (C)

common management mistake. Cows fed too much concentrate in the later part of lactation tend to become obese (Figure 4c).

These cows are likely to have difficult calving and to develop other disorders (fat cow syndrome).