

## Methionine can lessen the negative effects of health disorders

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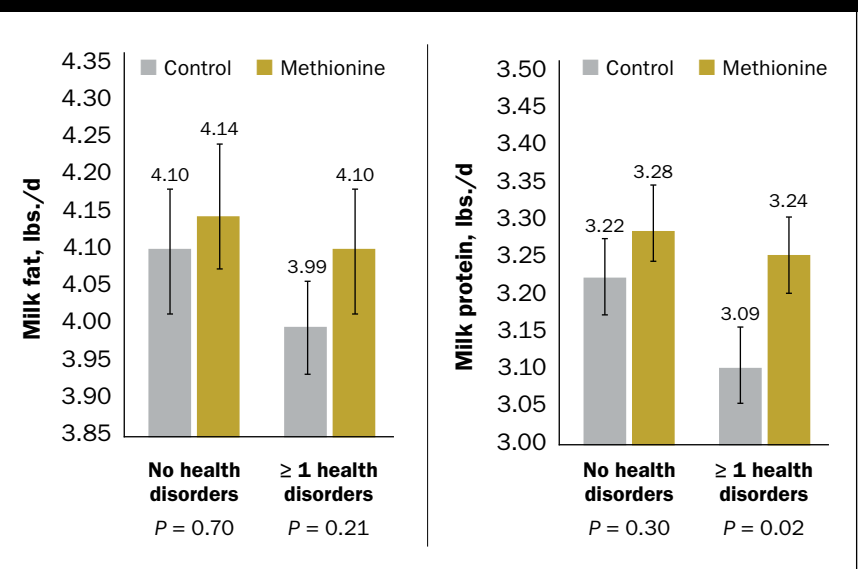
**M**ETHIONINE is a functional amino acid, meaning that it regulates important biological functions other than just serving as a building block for proteins. For instance, methionine plays an important role in the antioxidative defense that is positively associated with health status of animals.

In dairy cows, one question that had remained to be properly answered is if methionine can reduce health disorders or at least lessen the negative effects of health

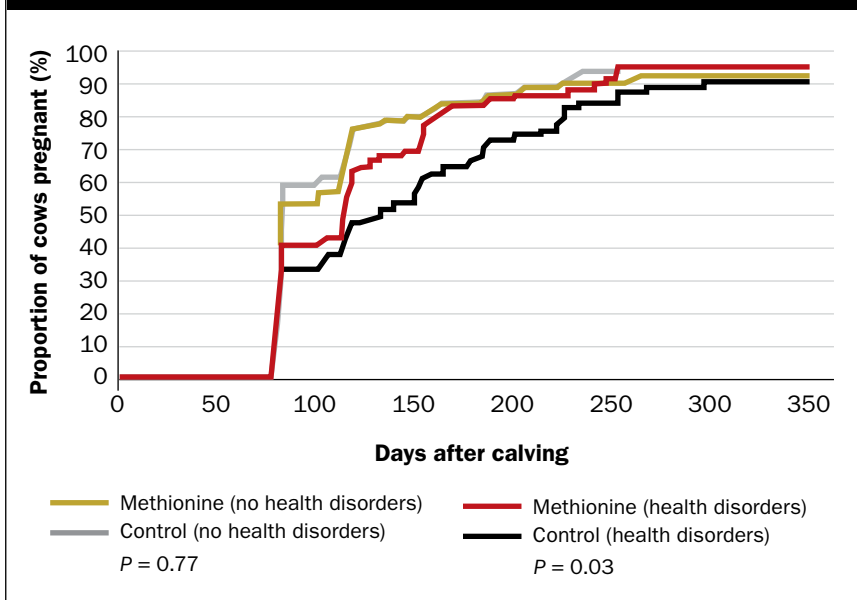
470 cows from two different herds (University of Wisconsin-Madison and Cornell University). Within both herds, cows were either supplemented with rumen-protected methionine or not supplemented (control) from 21 days prepartum to 150 days postpartum.

Methionine-supplemented cows tended to have a reduced culling rate up to 350 days in milk (19.3% versus 13.1%). They also had a lower proportion of subclinical milk fever at the day of parturition (22% versus 13.6%; UW-Madison only) compared

**Figure 2. Milk performance for methionine-supplemented cows or control cows by health disorder groups**



**Figure 1. Proportion of cows pregnant over time for methionine-supplemented cows or control cows by health disorder groups**



disorders on cow performance. This was one of the questions evaluated and answered in research recently published in the *Journal of Dairy Science*. The researchers enrolled

to control cows. Methionine supplementation did not seem to reduce any other health disorders such as mastitis, ketosis, retained placenta, or displaced abomasum.

### The impact of disease

To better understand the impact of methionine supplementation on

severity of health disorders, the authors retrospectively grouped the dataset in two health groups: cows that experienced health disorders during their lactation phase (49%) and cows that did not (51%). Within these health groups, methionine-supplemented cows were compared to control cows through indicators of severity of health disorders such as milk performance and fertility.

As expected, cows that had health disorders took longer to get pregnant (Figure 1) and had reduced milk performance (Figure 2) relative to cows that did not experience health disorders. Interestingly, cows that experienced health disorders, within the group of methionine supplemented cows had considerably greater milk protein production and got pregnant 24 days sooner than control cows.

### Helps in times of stress

The decision tree evaluated by dairy

farmers that leads to culling a cow is different from farm to farm, but usually it includes reproductive problems, low milk production, and severity of health disorders. In this study, most cows that were culled experienced at least one health disorder (67% of cows), which considerably reduced their fertility. Thus, it is possible that the overall lower culling rate for methionine-supplemented cows relative to control cows was at least partially explained by the ability of methionine to reduce the negative effects of health disorders on fertility.

Methionine lessened the negative effects of health disorders on milk protein production and fertility. Together, these findings support that methionine can benefit cow performance and suggest that these effects may be even more important in times of stress, such as health disorders. 🐄

The authors were graduate students at the University of Wisconsin-Madison who now work for dairy nutrition companies.

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