Chronic subclinical mastitis reduces milk and components yield at the cow level

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Short title: **Effects of chronic mastitis on milk quality**

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Summary

The experiment reported in this research paper aimed to evaluate the effects of chronic subclinical mastitis **(CSM)** caused by different types of pathogens on milk and components yield at the cow level. A total of 388 Holstein cows were evaluated for milk yield measurements and had milk samples collected (n = 3) once every two weeks for determination of SCC and milk components, and microbiological culture. Cows were considered healthy if all 3 samples of SCC were ≤ 200,000 cells/mL and had culture-negative results at the third milk sampling. Cows with only one result of SCC > 200,000 cells/mL during the three samplings were considered non-chronic whereas cows with at least 2 out of 3 results of SCC > 200,000 cells/mL were considered as being chronic. These CSM cows were then further sorted according to whether they were chronic negative-culture **(chronicNC)** or chronic positive-culture **(chronicPC)**. This resulted in four udder health statuses: healthy, non-chronic, chronicNC or chronicPC. The milk and components yields were evaluated according to the udder health status and by type of pathogens using a linear mixed effects model. A total of 134 out of 388 cows (34.5%) had chronicPC, 57 cows (14.7%) had chronicNC, 78 cows (20.1%) had non-chronic and 119 cows (30.7%) were considered heathy based on the udder health status. This resulted in a grand total of 1,164 cow records included in the statistical model. Healthy cows produced more milk than non-chronic cows (+2.1 Kg/cow.day), chronicNC (+4.1 Kg/cow.day) and chronicPC (+5.7 Kg/cow.day). Healthy cows produced more milk components yields (total solids +91.9 g/cow.day; fat +21.4; total protein +21.5; lactose +40.1 and solids nonfat +69.8) than chronicPC cows. Healthy cows produced more milk than cows with chronicPC caused by minor (+5.2 Kg/cow.day) and major pathogens (+7.1 Kg/cow.day).