EFFECT OF AGE ON COMPOSITION AND QUALITY OF *LONGISSIMUS THORACIS* MUSCLE OF THE MOOSE (*ALCES ALCES L.*) HARVESTED IN ESTONIA

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AIM. The aim of the present study was to determine the biochemical composition and technological parameters of muscle (*Longissimus thoracis*) from both adult and calf moose (*Alces alces L.*) hunter-harvested in the forests of southern Estonia.

MATERIAL AND METHODS. 13 moose were harvested with a hunting rifle during the hunts from 27 October till 8 December 2013 in southern Estonia. Dissection and skinning started 15 minutes to 5 hours after harvesting. Skinning and dissection of a carcass took 45–80 minutes. The age of the animals was estimated by the wear of mandibular premolars and molars, whereas the work was performed by an expert. Hot carcass weight was determined, and carcass yield calculated according to the method used in meat processing plants.

Samples from *Longissimus thoracis* between the 11-12th ribs were obtained from carcasses. Muscle samples (500 g) were taken from the carcasses within 90 minutes after skinning in abattoir, and transferred directly to the chilling box. All muscle samples were packed into plastic bags and stored at +5°C until the analysis. To determine the statistical difference between age groups the student's t-test was used.

Table 1. Descriptive statistics of the adult and calf groups of animals

Traits	Mean	Std. Dev.	Min	Max
Adult group (n = 5♀ + 2♂)				
Age, months	54	22.8	30	90
Hot carcass weight, kg	192.30	20.88	164.40	225.00
Carcass yield, %	72.79	0.39	72.00	73.00
Pre-processing time, min	65	8.66	60	80
Red meat yield, kg	139.93	14.61	120.00	162.00
Calf group (n = 4♀ + 2♂)				
Age, months	6	–	6	6
Carcass weight, kg	84.48	8.40	76.70	98.60
Carcass yield, %	71.50	1.76	69.00	73.00
Pre-processing time, min	45.83	2.04	45.00	50.00
Red meat yield, kg	60.50	6.75	54.00	72.00

RESULTS. (× - female moose individual value; ○ - male moose individual value)
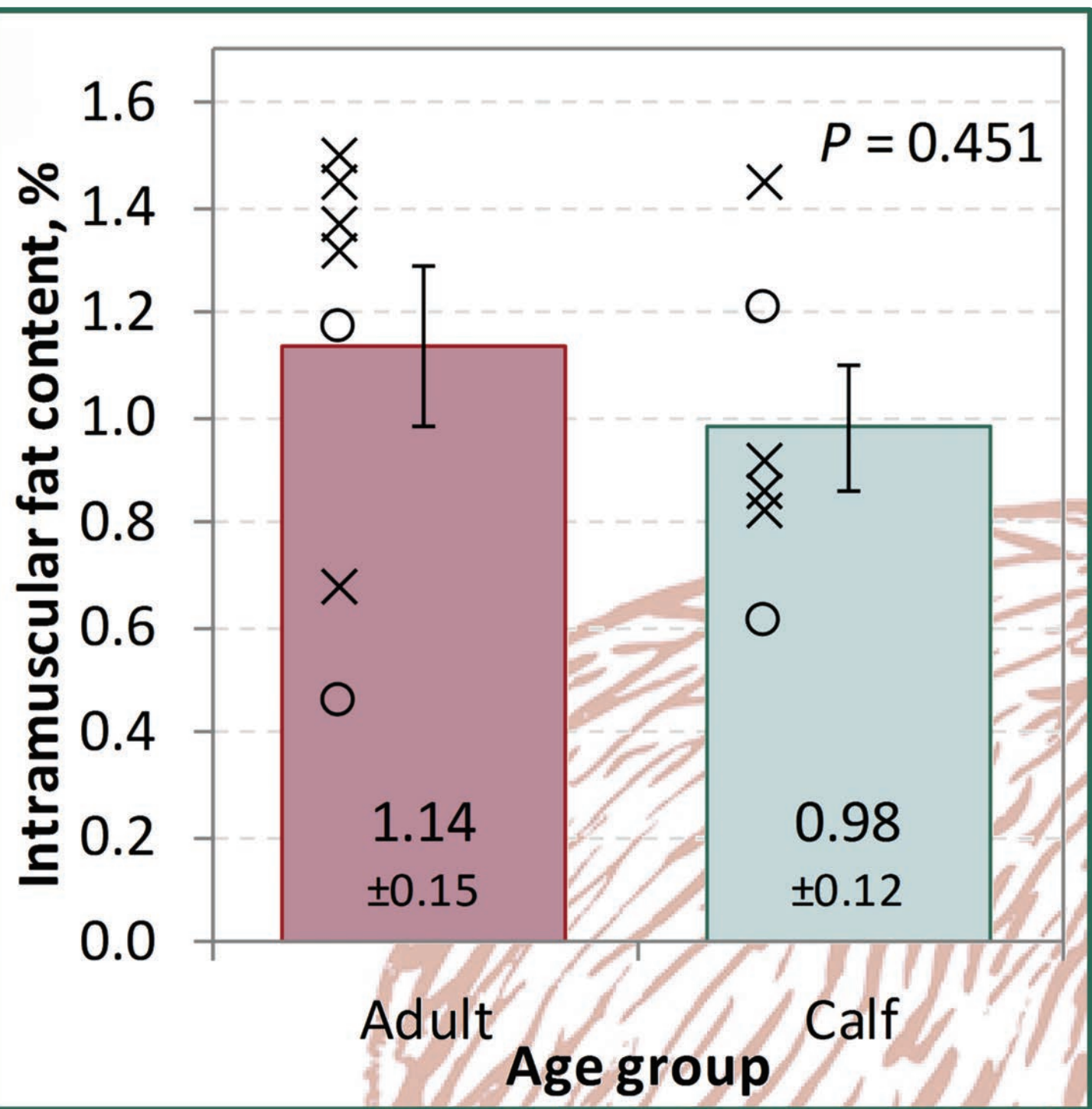

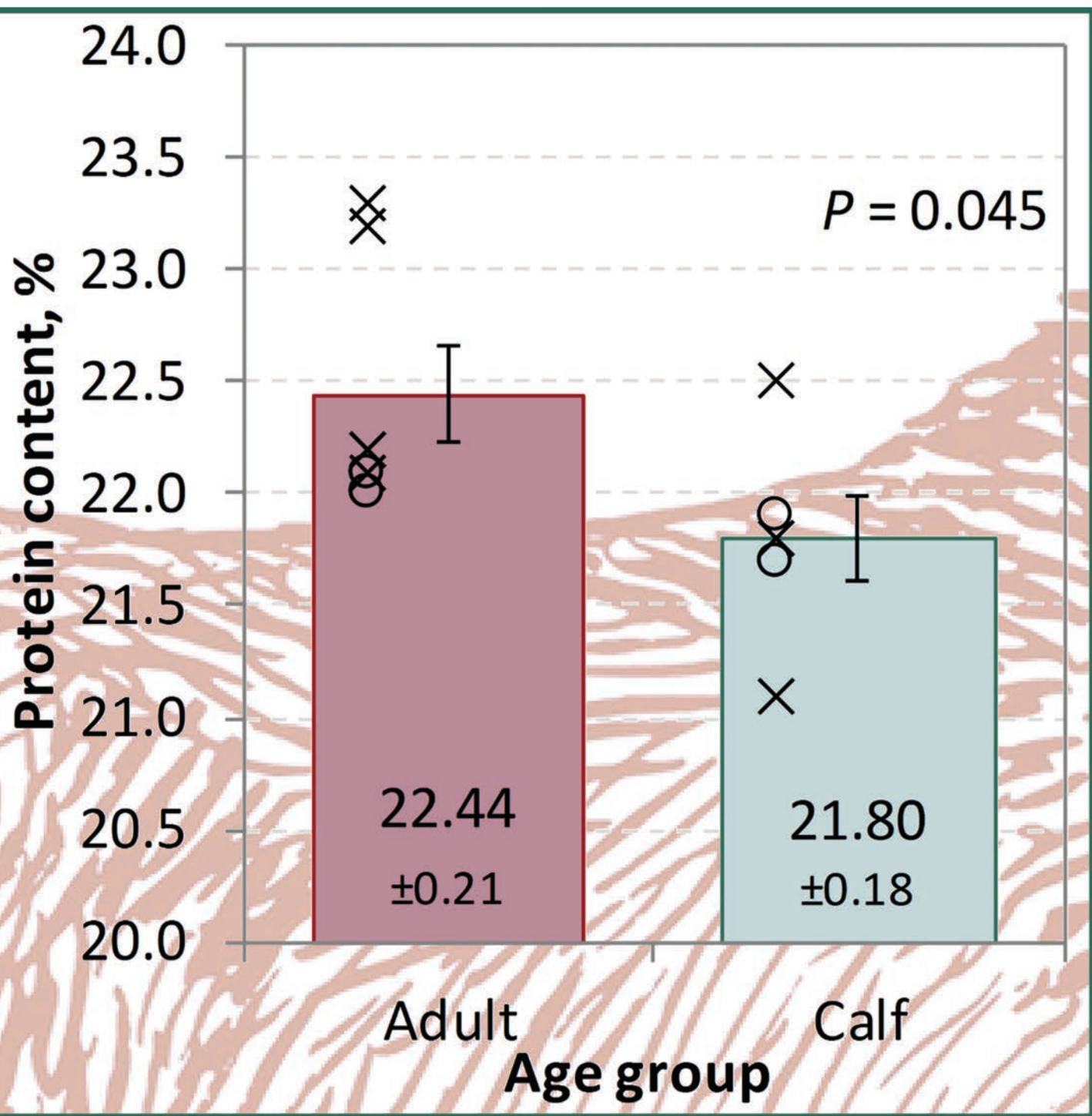**FIG. 1.** Average IMF content (± SE) of moose muscles by age group.

FIG. 2. Average protein content (± SE) of moose muscles by age group.
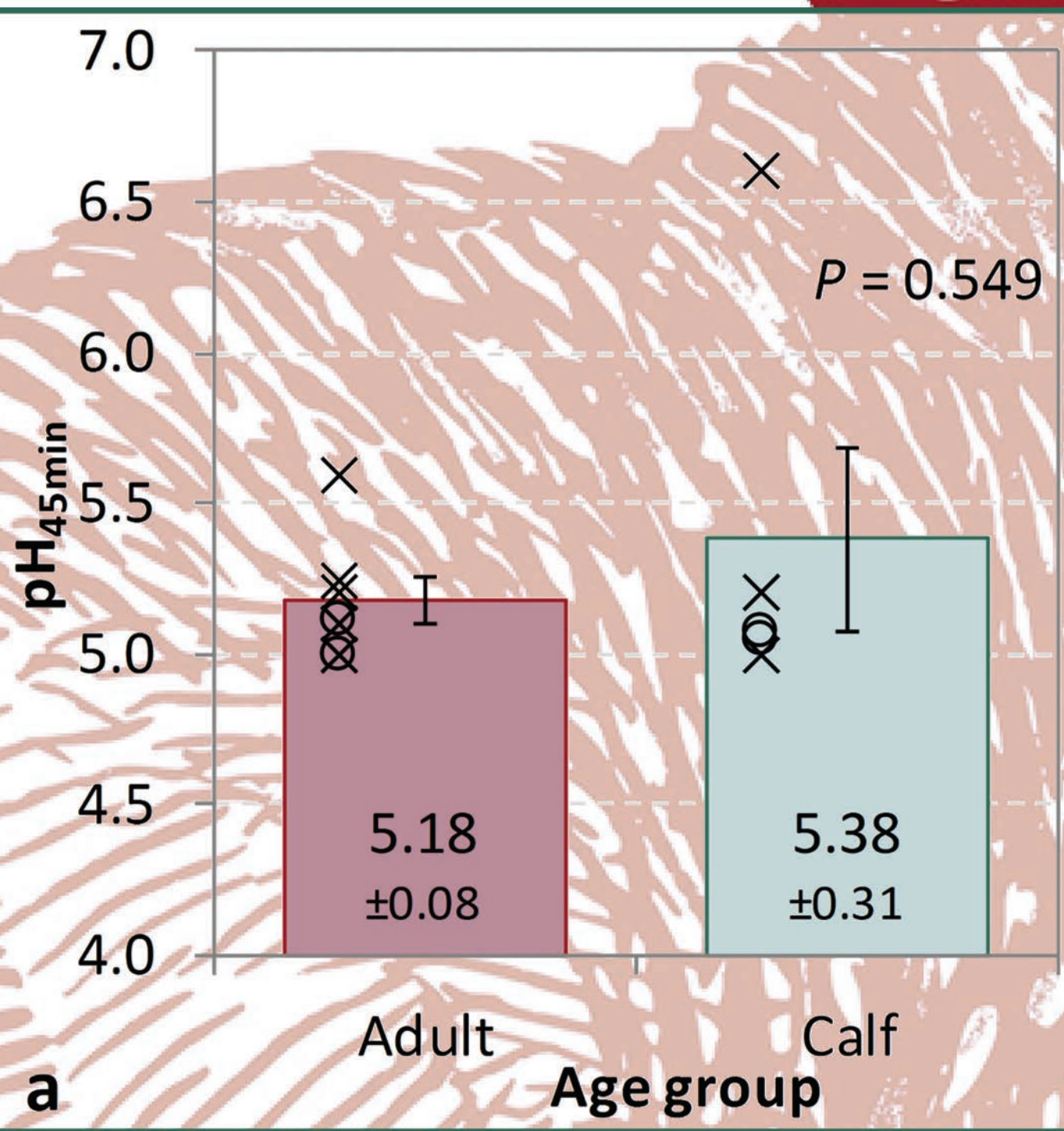
FIG. 3. Average initial (pH_{45min}) (a) and ultimate (pH_{72hr}) (b) pH values (± SE) of moose muscles by age group.
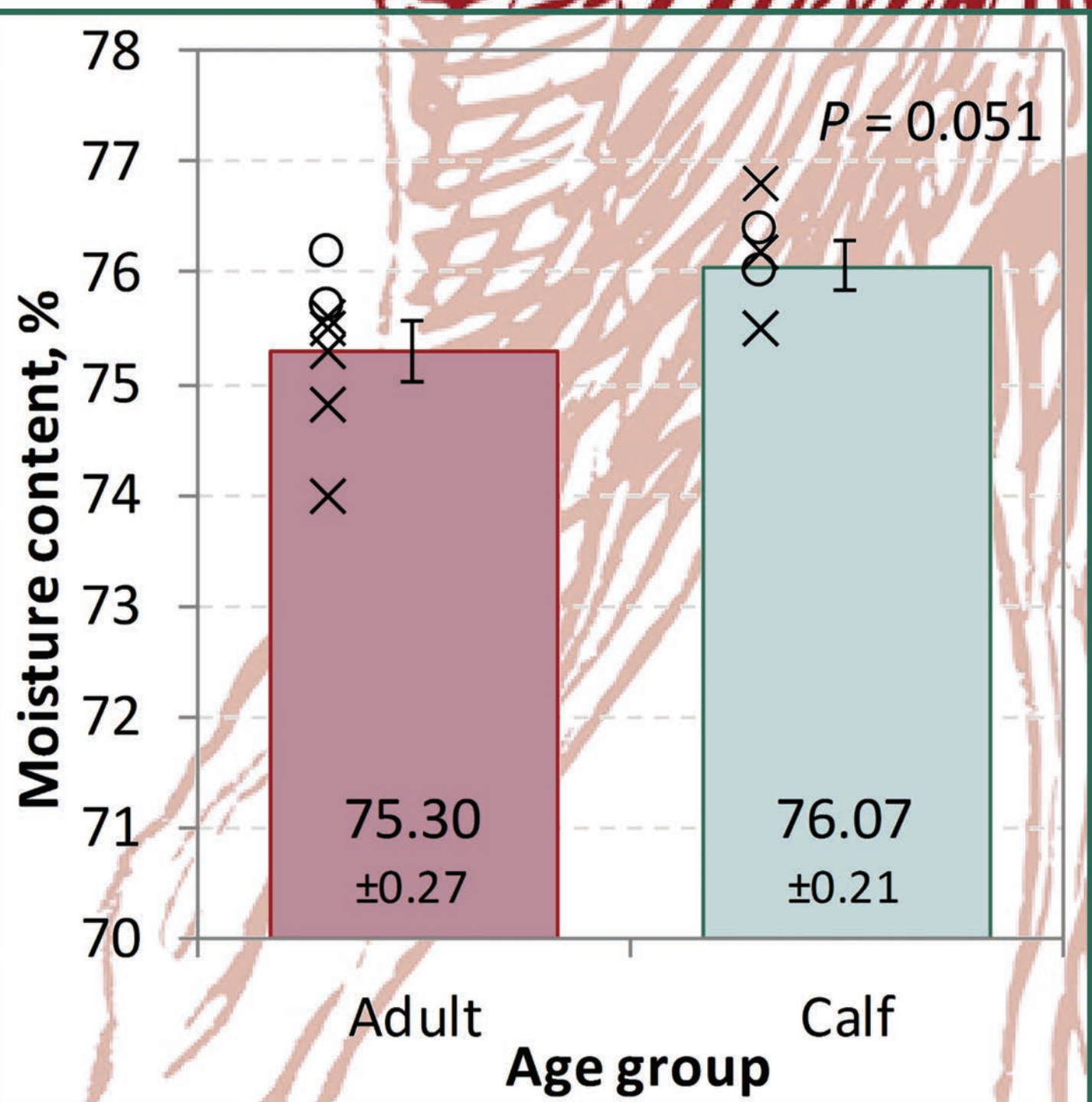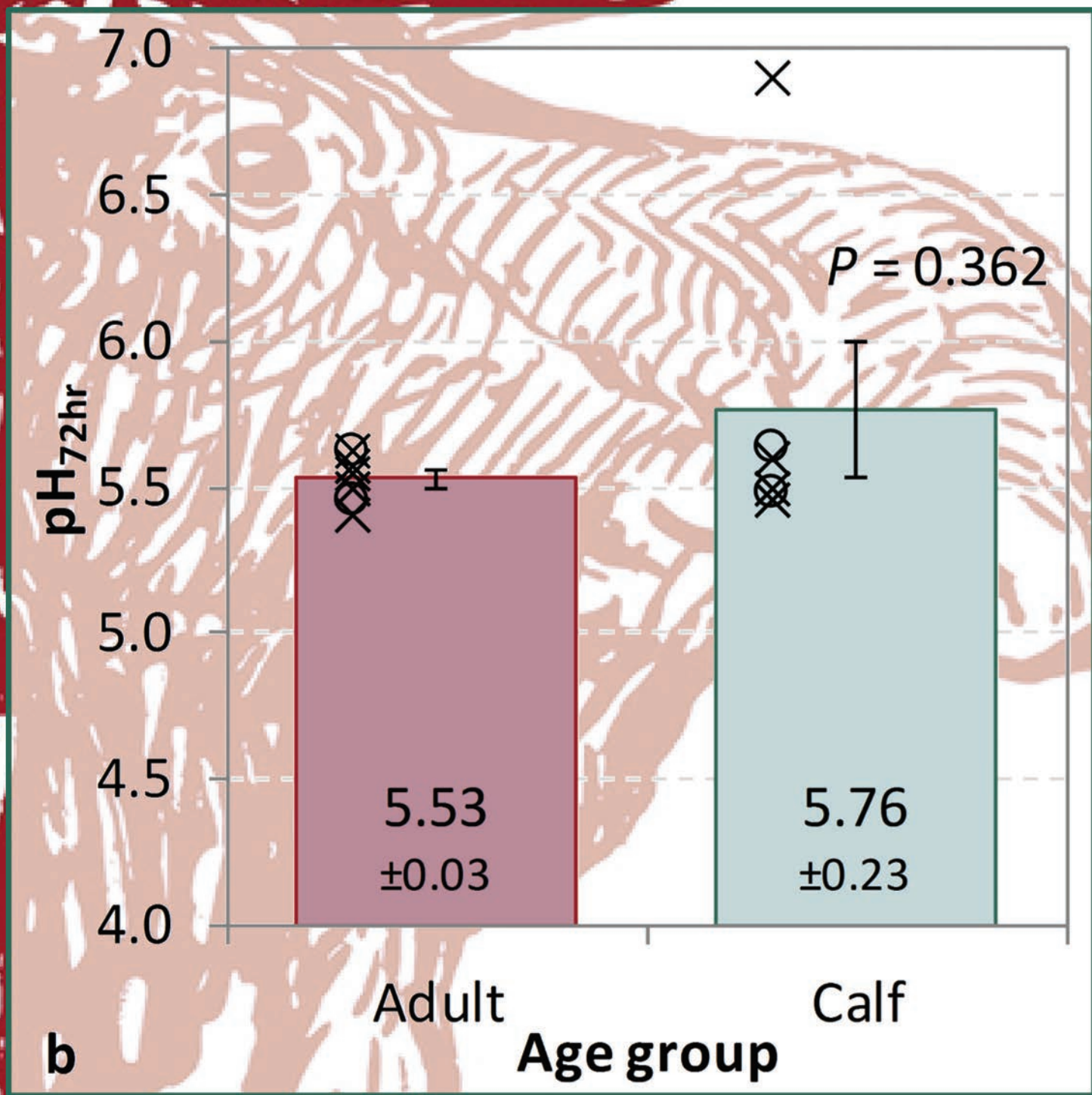
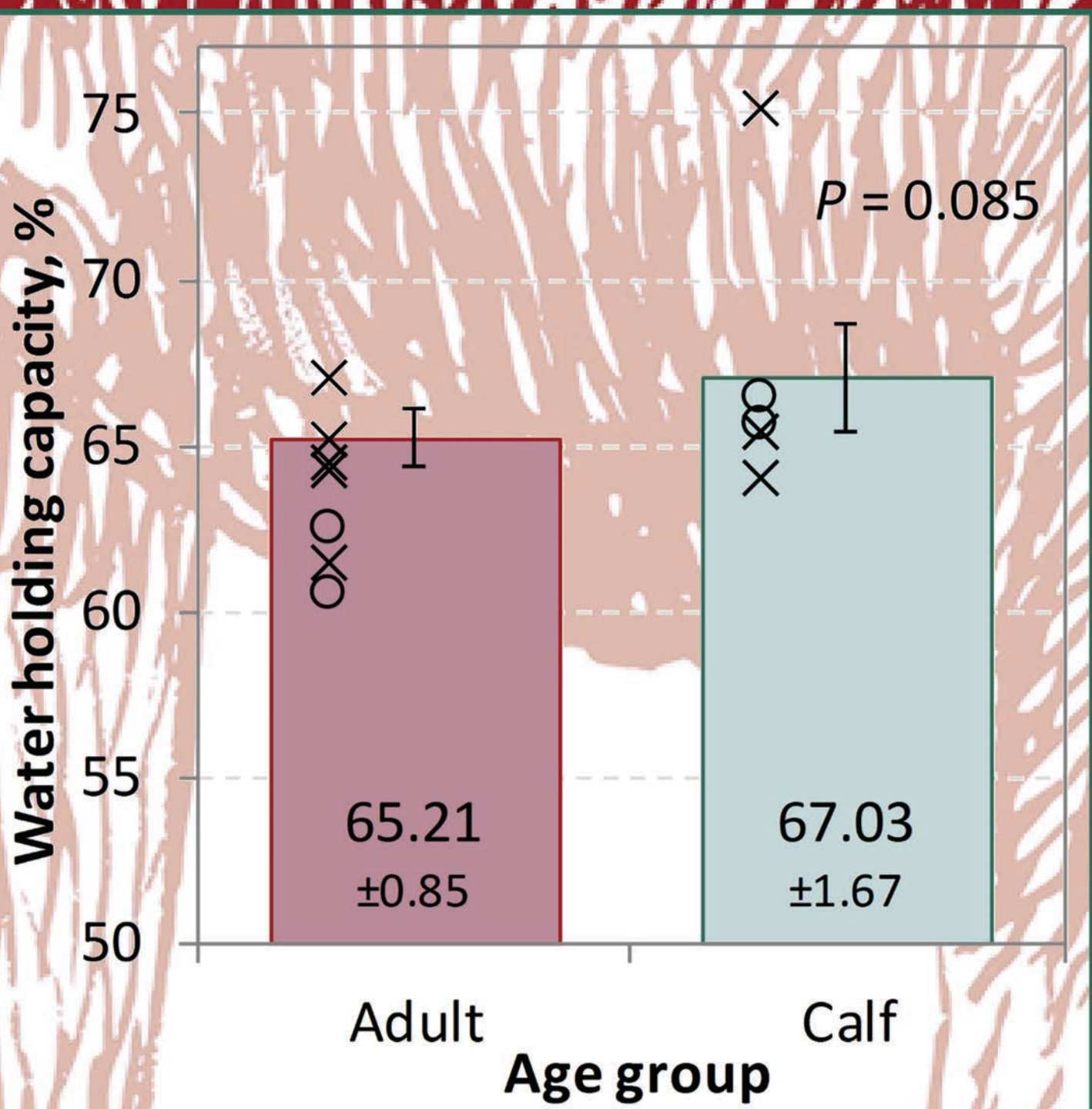**FIG. 4.** Average moisture content (± SE) of moose muscles by age group.

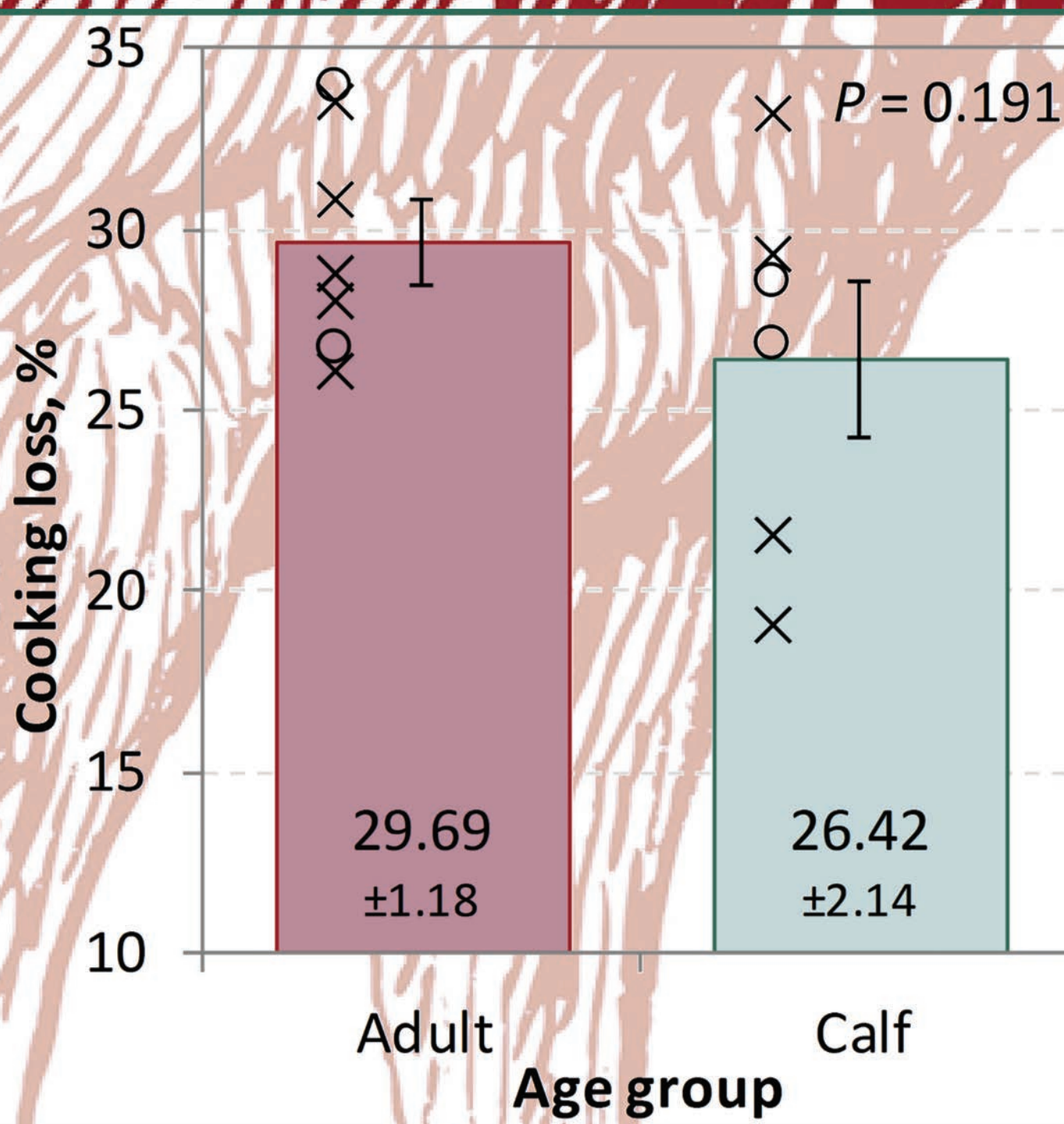**FIG. 5.** Average WHC (± SE) of moose muscles by age group.

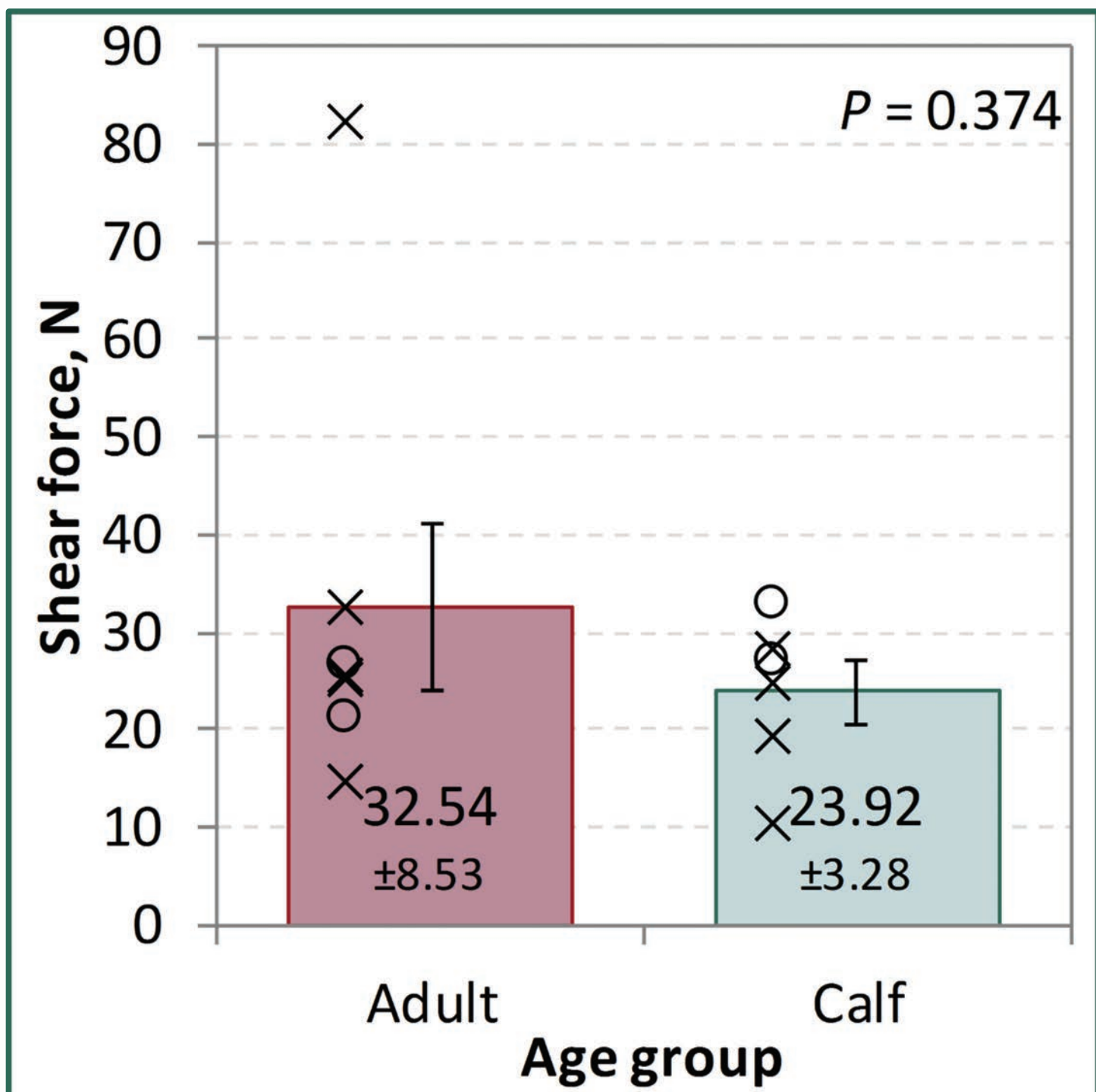**FIG. 6.** Average cooking loss (± SE) of moose muscles by age group.

FIG. 7. Average shear force (± SE) of moose muscles by age group

CONCLUSIONS. The protein and moisture content of moose muscle was significantly influenced by age. On the other hand, pH, WHC, electroconductivity and boiling loss did not differ between age groups. Although the meat from adult animals was tougher, the dry matter, protein and IMF level was higher than that in calves. Still, it can be concluded, that the meat from younger moose was more tender and of better overall quality. The number of game meat handlers and their increasing production volumes also demonstrates the need for further research, which shall involve after-processing and product development issues.