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Serum Cholesterol Concentrations in Yearling Bulls

Gary Goldy, Jack Riley, and Willard Olsen

Summary

A wide range in serum cholesterol concentrations was observed within and between all four breeds of yearling bulls studied. The significance of this observation is unknown at this time. Addition research is necessary to determine the heritability of serum cholesterol, and the relationship between serum cholesterol of sires and the tissue cholesterol of their progeny.

Introduction

A research project is under way at Kansas State University to study the effects of management and nutritional strategies on serum and tissue cholesterol concentrations in beef cattle. Our study was conducted in conjunction with that project to help establish a preliminary data base for evaluating ranges and differences in serum cholesterol of bulls being fed a similar ration. Previous research has indicated that there is no correlation between serum and tissue cholesterol concentrations in feedlot cattle.

Experimental Procedures

Blood samples were obtained from yearling bulls when they were weighed off test at a bull test at Beloit, Kansas in April, 1987. The bull test ration was composed of corn, 27.6%; milo, 15%; chopped hay, 42.8%; supplement, 3.1%; hominy, 5%; fat, 1.5%; and molasses, 5%. Serum was harvested and frozen until analyzed for cholesterol concentration by an auto-analyzer procedure.

Results and Discussion

Table 36.1. shows the serum cholesterol minimums, maximums, and means for Angus, Charolais, Simmental, and Gelbvieh yearling bulls. Serum cholesterol concentrations ranged from 60 to 265 mg/dl in yearling bulls that were fed the same ration. All four breeds had similar within-breed serum cholesterol ranges. Charolais bulls had higher ($P<.05$) serum cholesterol levels than the other three breeds studied. Gelbvieh bulls also had higher ($P<.05$) serum cholesterol concentrations than Simmental bulls. The significance of the ranges and means is unknown at this time.

Table 36.1. Serum Cholesterol Concentrations of Yearling Bulls

Breed	Number	<u>Serum Cholesterol Concentration (mg/dl)</u>			SE
		Minimum	Maximum	Mean	
Angus	45	73	253	141.5 ^{bc}	4.5
Charolais	44	86	265	170.0 ^a	4.6
Simmental	173	60	225	134.8 ^c	2.3
Gelbvieh	55	93	201	150.0 ^b	4.1

^{abc} Means in the same column with different superscripts are different (P<.05).

* * *

The chief dietary source of cholesterol is foods of animal origin. However, the American Heart Association says that lean beef can be included as a part of a balanced diet without exceeding the recommended 300 milligrams of cholesterol per day. Some examples of cholesterol contents of animal foods are listed below.

Food Item	Mg/3.5 oz. Serving
Beef	73
Pork	79
Lamb, Veal	78-150
Chicken (no skin)	73
Fish	50-60
Wild Game	52-140
Shrimp, Lobster	130-170
Egg, Whole	250
Milk	34

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