

Table 1-1. Composition of the experimental diets (g/100 g).

Ingredients	FF	CE	CH	GL
Cornstarch	51.3192	41.3192	41.3192	41.3192
Casein	14	14	14	14
D-cornstarch	15.5	15.5	15.5	15.5
Sucrose	10	10	10	10
Soybean oil	4	4	4	4
Cellulose		10		
Chitosan			10	
Glucomannan				10
Mineral mixture(Ca Free)* ¹	3.5	3.5	3.5	3.5
Vitamin mixture* ²	1	1	1	1
L-Cystine	0.18	0.18	0.18	0.18
Choline bitartrate	0.25	0.25	0.25	0.25
T-butyhydroquinone	0.0008	0.0008	0.0008	0.0008
CaCO ₃	0.25	0.25	0.25	0.25
Total	100	100	100	100

Composition of diets are prepared according to the AIN-93M prescription. (Reeves PG, Nielsen FH, Fahey GC. AIN-93 purified diets for laboratory rodents: final report of the American Institute of Nutrition ad hoc writing committee on the reformulation of the AIN-76A rodent diet. J Nutr. 1993;123(11):1939-51.)

*¹: AIN-93M mineral mixture without Ca. *²: AIN-93M vitamin mixture. FF: fiber-free. CE: cellulose, CH: chitosan, GL: glucomannan.

Table 1-2. Body weight and food intake of OVX rats fed the experimental diets for 45 days.

	FF	CE	CH	GL
Initial body weight (g)	195 ± 7	194 ± 5	191 ± 3	190 ± 5
Final body weight (g)	240 ± 8	229 ± 5	222 ± 3	213 ± 3**
Body weight gain (g)	45 ± 2	35 ± 3*	31 ± 2**	23 ± 3***#
Food intake (g/ 45days)	656.2 ± 8.7	642.0 ± 22.0	674.7 ± 14.7++	565.8 ± 14.9***##
Food efficiency (%)	6.8 ± 0.3	5.4 ± 0.4	4.5 ± 0.3**	4.1 ± 0.6**

Values are means ± SE (FF: n=8, CE: n=6, CH, GL: n=7). *: $P < 0.05$, **: $P < 0.01$ vs FF. #: $P < 0.05$, ##: $P < 0.01$ vs CE. ++: $P < 0.01$ vs GL. Food efficiency (%): Body weight gain/food intake × 100. FF: fiber-free. CE: cellulose, CH: chitosan, GL: glucomannan

Table 1-3. Organ weights (g) of OVX rats fed the experimental diets for 45 days.

	FF	CE	CH	GL
Liver	7.94 ± 0.27	7.59 ± 0.27	7.15 ± 0.18	7.26 ± 0.21
Colon	0.63 ± 0.03	0.88 ± 0.04**	0.90 ± 0.01**++	0.74 ± 0.03#
Whole cecal	1.70 ± 0.10	2.67 ± 0.23	2.31 ± 0.18++	8.17 ± 0.86***##
Cecal tissue	0.62 ± 0.05	0.75 ± 0.02	0.68 ± 0.03++	1.50 ± 0.07***##
Cecal contents	1.08 ± 0.12	1.92 ± 0.22	1.63 ± 0.16++	6.66 ± 0.83***##
Abdominal fat	10.99 ± 0.79	9.04 ± 0.49	6.92 ± 0.50***#	4.47 ± 0.50***##
Uterus	0.09 ± 0.01	0.10 ± 0.01	0.11 ± 0.01	0.10 ± 0.01

Values are means ± SE (FF: n=8, CE: n=6, CH, GL: n=7). **: P<0.01 vs FF. #: P<0.05, ##: P<0.01 vs CE. ++: P<0.01 vs GL. FF: fiber-free. CE: cellulose, CH: chitosan, GL: glucomannan.

Table 1-4. Effects of the experimental diets on serum total and HDL cholesterol (mg/dL) levels in OVX rats

	FF	CE	CH	GL
Total cholesterol	114.7 ± 3.7	107.7 ± 3.7	92.3 ± 2.0**#	98.6 ± 2.7*
HDL-cholesterol	76.9 ± 2.6	73.4 ± 3.1	61.7 ± 1.9**#	68.0 ± 2.3

Values are means ± SE (FF: *n*=8, CE: *n*=6, CH, GL: *n*=7). *: *P*<0.05, **: *P*<0.01 vs FF. #: *P*<0.05 vs CE. FF: fiber-free. CE: cellulose, CH: chitosan, GL: glucomannan.

Table 1-5. Effects of the experimental diets on serum mineral levels in OVX rats

	FF	CE	CH	GL
Calcium (mg/dL)	11.3 ± 0.2	11.6 ± 0.2	11.1 ± 0.3	10.9 ± 0.3
Phosphate (mg/dL)	6.7 ± 0.4	8.1 ± 0.4	7.3 ± 0.3	7.9 ± 0.6
Magnesium (mg/dL)	2.2 ± 0.1	2.3 ± 0.1	2.0 ± 0.0#	2.3 ± 0.1
Ferrous (g/ 6 wk)	0.3 ± 0.0	0.3 ± 0.0	0.3 ± 0.0	0.3 ± 0.0

Values are means ± SE (FF: *n*=8, CE: *n*=6, CH, GL: *n*=7). #: *P*<0.05 vs CE. FF: fiber-free. CE: cellulose, CH: chitosan, GL: glucomannan.

Table 1-6. Effect of the experimental diets on femoral properties in OVX rats.

	FF	CE	CH	GL
Fresh weight (g)	0.719 ± 0.013	0.713 ± 0.010	0.684 ± 0.005*	0.686 ± 0.007
Length (mm)	31.3 ± 0.2	30.9 ± 0.1	31.0 ± 0.1	30.6 ± 0.1**
BMD (g/cm ²)	0.184 ± 0.003	0.183 ± 0.002	0.164 ± 0.002**##+	0.176 ± 0.003
Stiffness (kgf)	13.59 ± 0.33	13.36 ± 0.26	11.88 ± 0.20**##	11.90 ± 0.29**##
Bone ash (%)	36.7 ± 0.3	35.9 ± 0.4	33.2 ± 1.00**##++	35.8 ± 0.3
Organic contents (%)	23.1 ± 0.4	24.1 ± 0.4	24.6 ± 1.01	23.5 ± 0.3
Moisture contents (%)	40.2 ± 0.5	40.0 ± 0.6	42.2 ± 0.40**##	40.7 ± 0.3

Values are means ± SE (FF: n=8, CE: n=6, CH, GL: n=7). *: P<0.05, **: P<0.01 vs FF. ##: P<0.01 vs CE. +: P<0.05, ++: P<0.01 vs GL. Bone ash (%): ash bone weight/fresh bone weight × 100. Organic contents (%): (dry bone weight-ash bone weight)/fresh bone weight × 100. Moisture contents (%): (fresh bone weight-dry bone weight)/fresh bone weight × 100. BMD: bone mineral density. FF: fiber-free. CE: cellulose, CH: chitosan, GL: glucomannan.

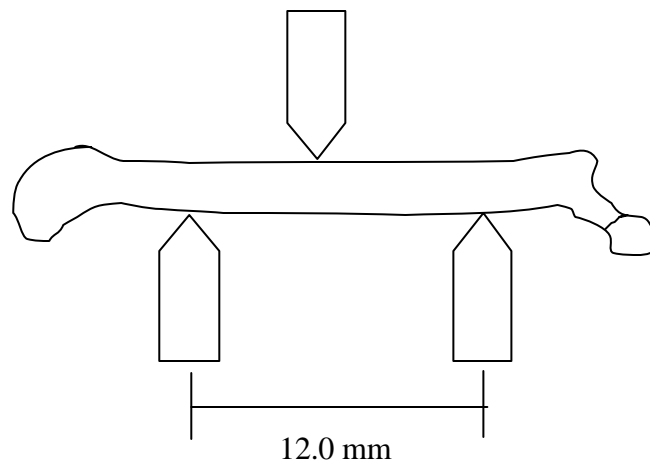


Fig. 1-1. Example of the three point-bending test of femurs. : load shaft, : femur.

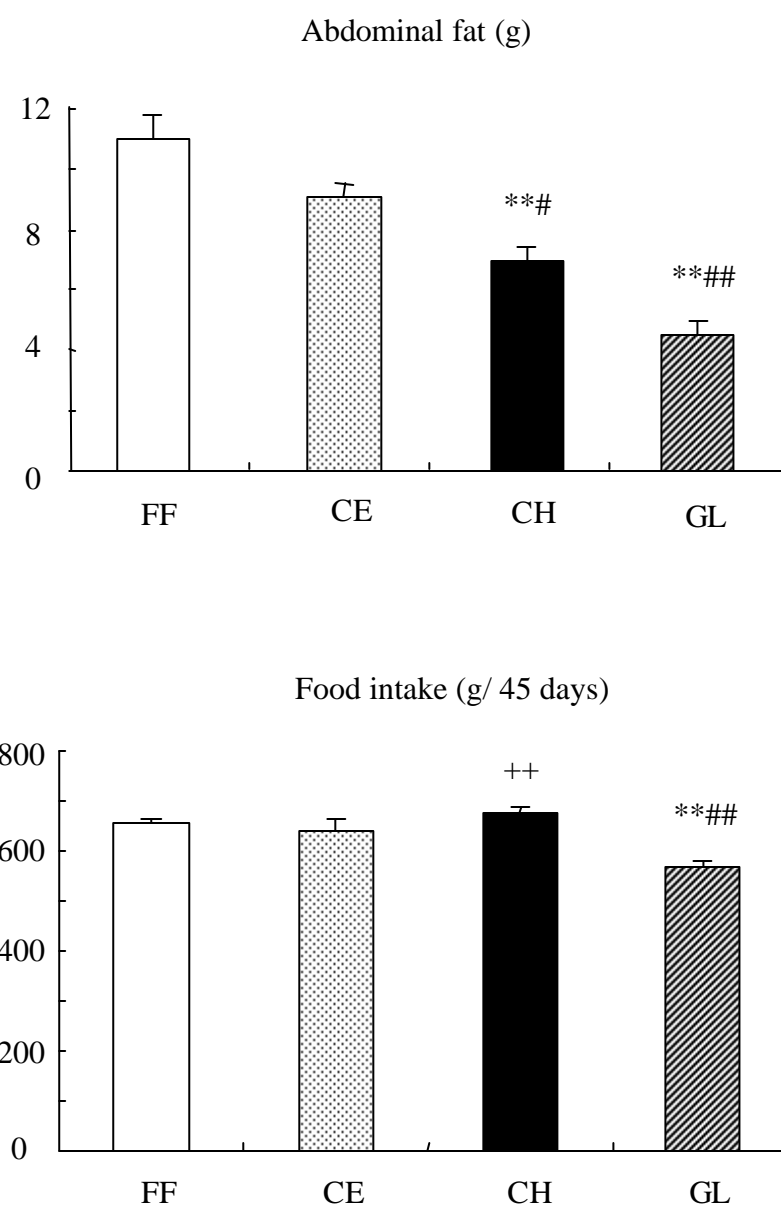


Fig. 1-2. Abdominal fat and food intake. Values are means \pm SE (FF: $n=8$, CE: $n=6$, CH, GL: $n=7$). **: $P<0.01$ vs FF. #: $P<0.05$, ###: $P<0.01$ vs CE. ++: $P<0.01$ vs GL. FF: fiber-free. CE: cellulose, CH: chitosan, GL: glucomannan.

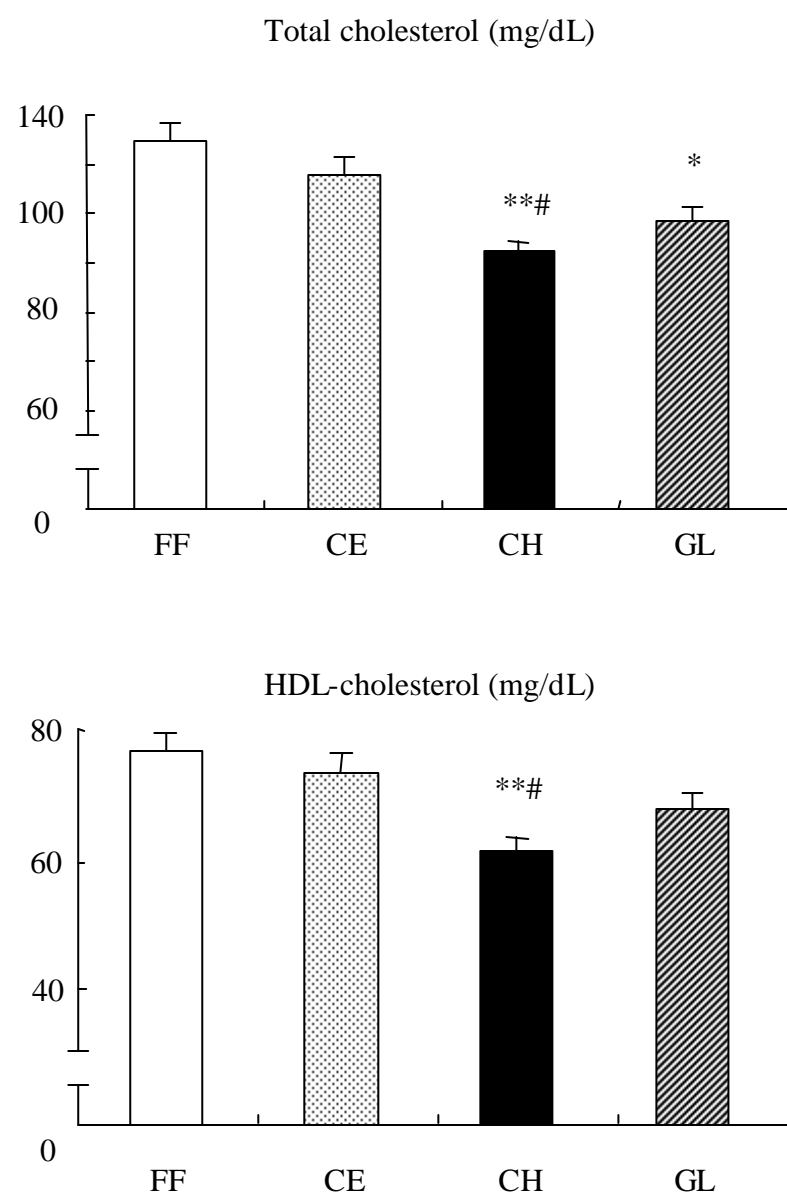


Fig. 1-3. Effects of the experimental diets on serum total and HDL cholesterol (mg/dL) levels in OVX rats. Values are means \pm SE (FF: $n=8$, CE: $n=6$, CH, GL: $n=7$). *: $P<0.05$, **: $P<0.01$ vs FF. #: $P<0.05$ vs CE. FF: fiber-free. CE: cellulose, CH: chitosan, GL: glucomannan.

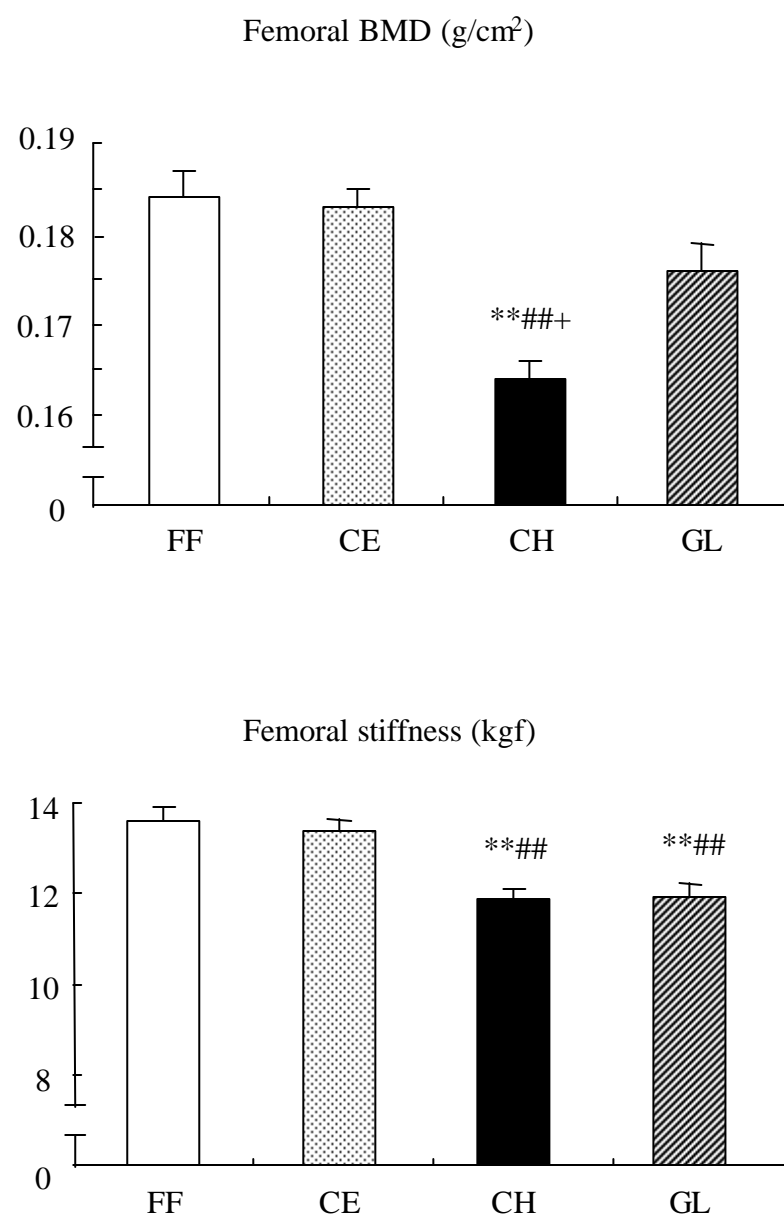


Fig. 1-4. Effects of the experimental diets on femoral BMD and stiffness in OVX rats. Values are means \pm SE (FF: $n=8$, CE: $n=6$, CH, GL: $n=7$). **: $P<0.01$ vs FF. ##: $P<0.01$ vs CE. +: $P<0.05$ vs GL. FF: fiber-free. CE: cellulose, CH: chitosan, GL: glucomannan.