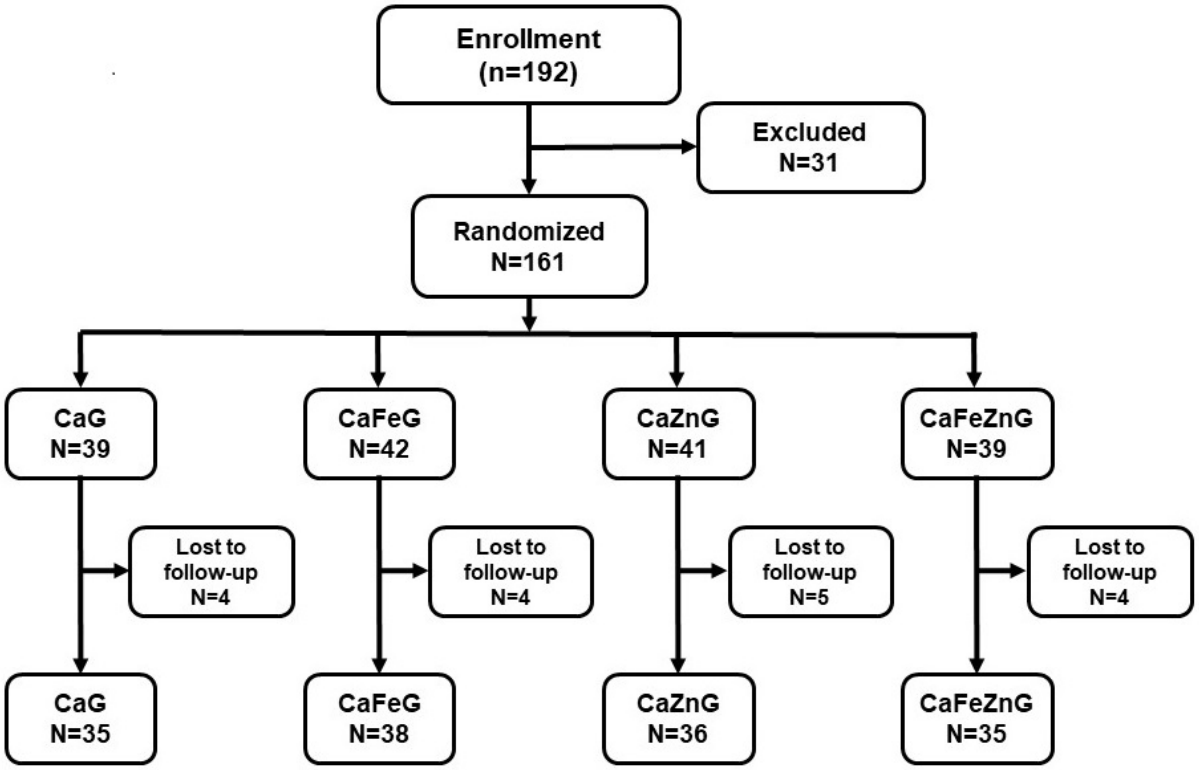
1. Participant Flow



2. Baseline Characteristics

Table 1. Baseline characteristics

Supplementation Groups	Ca	Ca+Fe	Ca+Zn	Ca+Fe+Zn	P[a]
	(36)	(39)	(36)	(38)	
Age*	16.7 ± 0.71	16.7 ± 0.68	16.9 ± 0.81	16.8 ± 0.91	NS
Sex**					NS
Male	19 (53%)	20 (51%)	18 (50%)	22 (58%)	
Female	17 (47%)	19 (49%)	18 (50%)	16 (42%)	
Nutritional Status					
Z-BMI**					<0.05
Low weight (<-1)	0	1 (3%)	0	4 (10%)	
Normal (≥-1 y ≤+1)	18 (50%)	23 (59%)	24 (66%)	12 (32%)	
Overweight (>+1)	10 (28%)	7 (18%)	6 (17%)	8 (21%)	
Obesity (>+2)	8 (22%)	8 (20%)	6 (17%)	14(37%)	
Body fat percentage**					NS
Low (M<15% F<20%)	0	1 (3%)	1 (3%)	1 (3%)	
Normal (M 15-25% F 20-30%)	6 (17%)	8 (20%)	8 (22%)	5 (13%)	
Overweight (M 25-30% F 30-35%)	10 (28%)	13 (33%)	10 (28%)	5 (13%)	
Obesity (M ≥30% F≥35%)	20 (55%)	17 (44%)	17 (47%)	27 (71%)	
Dietary calcium intake**					NS
Normal (≥ 3 portion/day)	4 (11%)	2 (5%)	5 (14%)	6 (16%)	
Loq (<3 portion/day)	32 (89%)	37 (95%)	31 (86%)	32 (84%)	
Smoking**					NS
Y	11 (31%)	14 (37%)	21 (58%)	12 (32%)	
N	25 (69%)	24 (63%)	15 (42%)	26 (68%)	
Alcohol consumption**					NS
Y	14 (39%)	19 (49%)	20 (56%)	20 (53%)	
N	22 (61%)	20 (51%)	16 (44%)	18 (47%)	
Physical activity**					NS
Good (10-7 points)	2 (5%)	2 (5%)	6 (16%)	1 (3%)	
Regular (6-4 points)	24 (67%)	20 (51%)	15 (42%)	19 (50%)	
Bad (</= 3 points)	10 (28%)	17 (44%)	15 (42%)	18 (47%)	
SPISE index					NS
sensitive insulin (>6.61)	23 (64%)	28 (72%)	25 (69%)	20 (53%)	
resistant insulin (<6.61)	13 (36%)	11 (28%)	11 (31%)	18 (47 %)	

Data presented as mean and SD* and n(%)**; [a] p values correspond to Chi2 test and one way ANOVA

3. Outcome Measures

Table 2. Effect of Ca, Fe and Zn supplementation on Bone mineralization (BMD)

Supplementation Groups	Ca		Ca+Fe		Ca+Zn		Ca+Fe+Zn		Time	Intervention	Interaction
	(36)		(39)		(36)		(38)				
	Beginning	Final	Beginning	Final	Beginning	Final	Beginning	Final	p[a]	p	P
BMD z score	0.73±0.91	0.74±0.91	0.28±0.91	0.09±0.98	0.48±0.78	0.5±0.78	0.57±0.97	0.22±1.01	<0.001	NS	<0.001
BMD (g/cm^2)*	1.19±0.12	1.21±0.13	1.13±0.09	1.14±0.09	1.15±0.09	1.17±0.09	1.16±0.12	1.16±0.11	<0.001	NS	<0.001

Data presented as mean and SD *; [a] p values correspond to two way repeated ANOVA

Table 3. Categorization of Bone mineralization z score at the trial beginning and final

	GCa	GCaFe	GCaZn	GCaFeZn	
	(36)	(39)	(36)	(38)	p[a]
BMD z score beginning*					NS
Osteopenia (≤-1)	2 (5%)	3 (8%)	0	2 (5%)	
Normal (>-1 y <+1)	19 (53%)	28 (72%)	26 (73%)	22 (58%)	
High (≥+1)	15 (42%)	8 (20%)	10 (28%)	14 (37%)	
BMD z score final*					<0.05
Osteopenia (≤-1)	1 (3%)	6 (15%)	0	3 (8%)	
Normal (>-1 y <+1)	19 (53%)	26 (67%)	26 (72%)	26 (68%)	
high (≥+1)	16 (44%)	7 (18%)	10 (28%)	9 (24%)	

Data presented as n(%); [a] p values correspond to Chi2 test

Table 4. Effect of Ca, Fe and Zinc supplementation on Zinc nutrition status measured by circulating Zn levels

Supplementation Groups	Ca		Ca+Fe		Ca+Zn		Ca+Fe+Zn		Time	Intervention	Interaction
	(36)		(39)		(36)		(38)				
	Beginning	Final	Beginning	Final	Beginning	Final	Beginning	Final	p[a]	p	p
Serum Zinc (ug/dl)*	83 ± 9	77 ± 12	85 ± 11	83 ± 9	82 ± 7	78 ±10	85 ± 9	82 ±10	<0.05	<0.001	NS

Data presented as mean and SD *; [a] p values correspond to two way repeated ANOVA

4. Adverse Effects

There were no adverse effects associated with this trial.