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3

= Abstract =

Osteoarthritis and bone mineral density among women  
- Korean national health and nutrition examination survey in Kuri-

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420 women from Kuri Korean national health and nutrition examination survey were studied to examine the hypothesis that osteoarthritis and bone mineral density are inversely related. Total 420 women had radiographs of the hands, knees, and hip. Also all women had bone mineral density measured at right heel. Mean bone mineral densities were compared between no osteoarthritis and osteoarthritis group. In order to adjust the effect of possible confoundings(age, parity, BMI, mensturation history, bioimpedance, diabetes), multiple linear regression analysis was done. Mean bone mineral densities of osteoarthritis group was significantly lower than that of no osteoarthritis group(0.4269 vs. 0.5057). But, after adjusting the effect of possible confoundings, significant differences of bone mineral density between osteoarthritis and no osteoarthritis groups did not exist any more. These results suggest that there are no relationship between osteoarthritis and bone mineral densities in Korean women among aged 20s-70s. These results are opposite to the many studies which suggest the inverse relationship of osteoarthritis and osteoporosis.

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Key words: osteoarthritis, osteoporosis, bone mineral density, relationship, cross-sectional



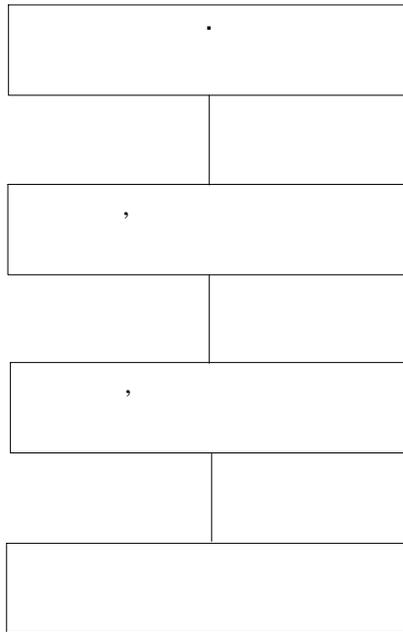
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## II.

### 1.

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### 2.

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1997 8 18 9 10

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 704 가 가 6  
 (segment) 6 가  
 867 52.4% 519 1,656

**3.**

1)

, Dynarad  
 HF-110A 1  
 (Moskowitz, 1992).

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1.

				*
1)		1)		1)
2)		2)		2) ‡
a.		3)		
b.		a.	40	3)
c.	20	b.		
mm/h			30	4)
				a.
		c.		
				b. ‡

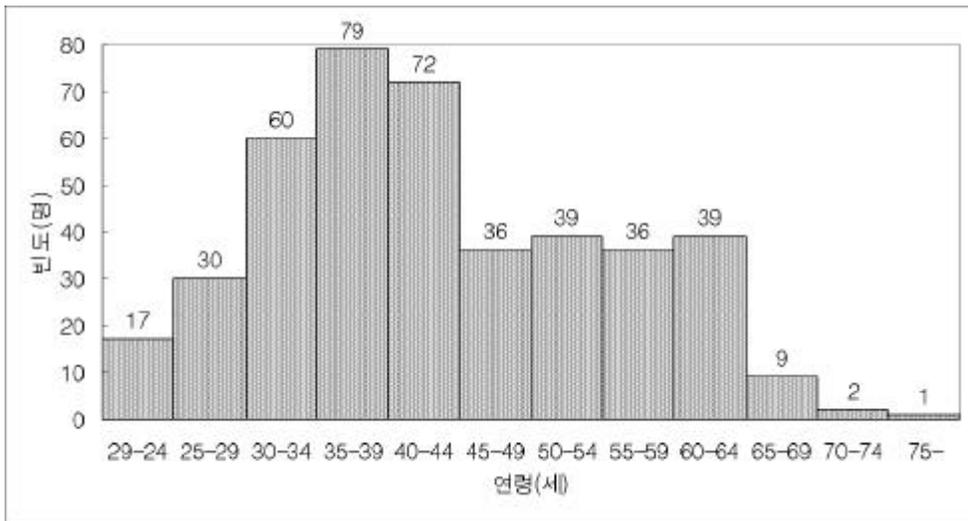
: Moskowitz (1992) pp.18, table 2-2  
 ‡ 2, 3, 2, 3, 1  
 \* 1) 2) 1) 3)

2)

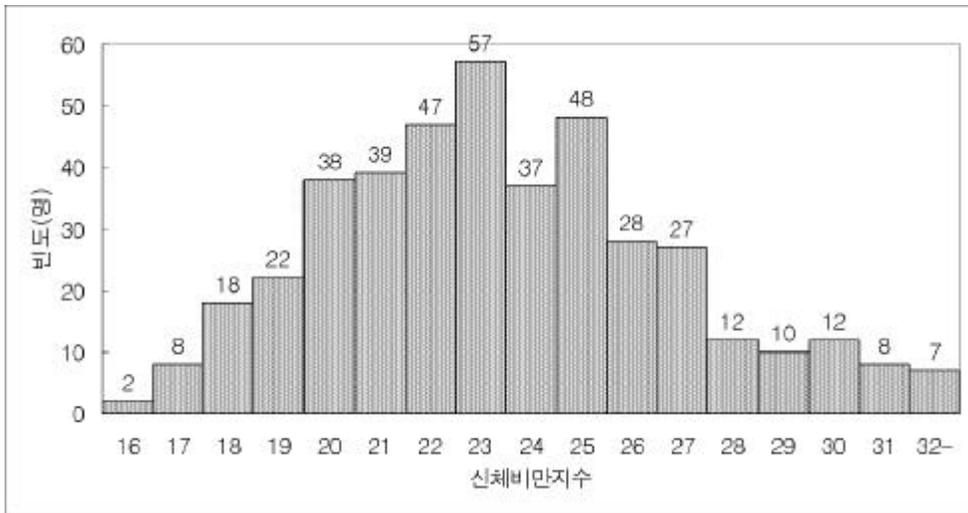


2.

43.0 , 11.8 . 2  
 155.6 cm, 5.65 cm , 57.9 kg,  
 8.54 kg . 23.9,  
 3.48 . 3 .



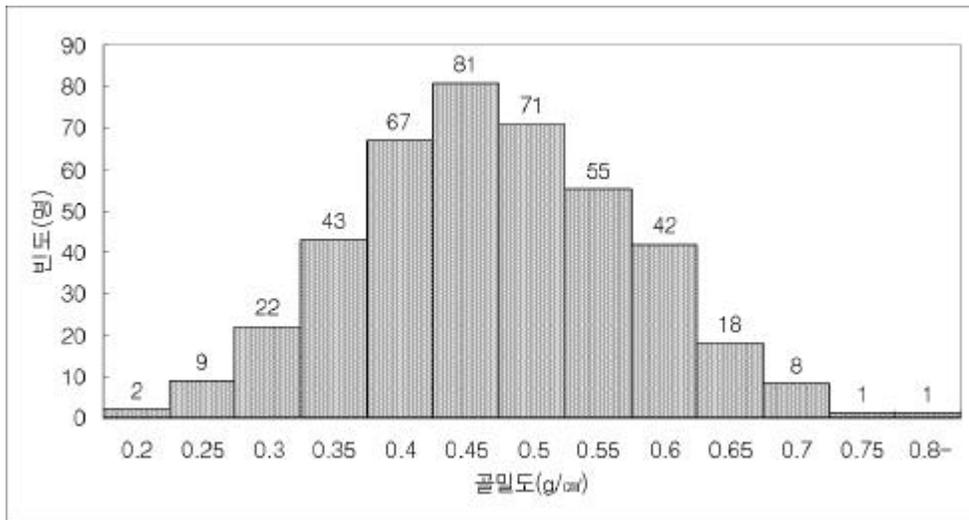
2.



3.

(body mass index, BMI)

, 0.493 g/cm<sup>3</sup>, 0.103 g/cm<sup>3</sup> ( 4).



4.

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가 , 가 64 ,  
가 ( 3).

3. ( : )

가		(%)
420	0	0.0
418	64	15.2
407	2	0.5

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( , , )  
( , , , )  
: ,  
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( )  
( )  
(%)  
(mm)  
(cm)  
(cm)

( )  
( , , , )

293 , 106

19 ( 4),

( $p < 0.05$ ).

4. ( : )

	(%)	(g/cm <sup>2</sup> )			
		95%			
293	69.8	0.5204	0.0916	0.5099	0.5309
106	25.2	0.4206	0.0988	0.4016	0.4399
19	4.5	0.4881	0.0826	0.4483	0.5280
418					

$p < 0.05$ , by analysis of variance test

29 6.9%

( 5).

5.

( )	(g/cm <sup>2</sup> )			
	95%			
26	0.4797	0.1238	0.4297	0.5296
3	0.4603	0.0207	0.4089	0.5117
389	0.4941	0.1014	0.4840	0.5042
42	0.5171	0.0891	0.4921	0.5420
4	0.4044	0.0546	0.3174	0.4914
190	0.4924	0.0967	0.4786	0.5062
182	0.4899	0.1123	0.4734	0.5063

by analysis of variance test

가 ( 6), , 가

가 ( 5 , 0 , 3 , 0 )  
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 9 ( 1 , 0 , 0 , 1 , D 0 , 9 , 4 )  
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6.

* ( )	(g/cm <sup>2</sup> )			
	95%			
28	0.4297	0.0938	0.3934	0.4661
68	0.4874	0.1049	0.4620	0.5128
286	0.5057	0.0985	0.4943	0.5172

p<0.05, by analysis of variance test

\*

- 1) 140 mg/dℓ :
  - 2) 140 mg/dℓ 2
- 200 mg/dℓ :  
 140-199 mg/dℓ: (impaired glucose tolerance, IGT)  
 140 mg/dℓ :

가 가  
 .  
 t- ( 7),  
 (p<0.05).

7.

	(g/cm <sup>2</sup> )			
	95%			
64	0.4269	0.0918	-0.1051	-0.0525
354	0.5057	0.0997		

p<0.05, by independent sample t-test

가 ( 8). 가  
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9.

I ( $R^2$  0.221, adjusted  $R^2$  0.204)

	(b)	95%		p	
(Constant)	0.607	0.038	0.532	0.682	0.000
	-0.00267	0.001	-0.004	-0.001	0.000
	0.00371	0.002	-0.001	0.008	0.090
	-0.04438	0.018	-0.080	-0.009	0.013
	-0.00228	0.024	-0.049	0.044	0.923
	-0.00004	0.002	-0.004	0.004	0.986
	0.00015	0.002	-0.003	0.003	0.925
	-0.02163	0.015	-0.052	0.009	0.160
	-0.01026	0.008	-0.026	0.006	0.214

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(stepwise regression)

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( 10).

10.

II ( $R^2$  0.208, adjusted  $R^2$  0.204)

	(b)	95%		p	
(Constant)	0.617	0.023	0.571	0.662	0.000
	-0.00256	0.001	-0.004	-0.001	0.000
	-0.04605	0.016	-0.078	-0.014	0.005

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11. , ( : )

	15	278	293
	46	60	106
	3	16	19
	64	354	418

( 12).

( 0.021).

$g/cm^2$

가  
가

0.080  
가

가

가

(0.759)가

가

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12.		III			
		(b)	95%		p
: R <sup>2</sup> 0.021, adjusted R <sup>2</sup> -0.001					
(Constant)	0.570	0.043	0.486	0.655	0.000
	-0.001362	0.001	-0.003	0.000	0.130
	0.004110	0.003	-0.002	0.010	0.203
	-0.002441	0.002	-0.007	0.002	0.309
	0.001885	0.002	-0.002	0.006	0.344
	-0.01844	0.027	-0.071	0.034	0.493
	-0.004673	0.011	-0.026	0.017	0.671
: R <sup>2</sup> 0.238, adjusted R <sup>2</sup> 0.182					
(Constant)	0.826	0.126	0.575	1.077	0.000
	-0.006939	0.002	-0.010	-0.003	0.000
	0.002813	0.003	-0.004	0.009	0.380
	0.002754	0.004	-0.005	0.011	0.503
	-0.003005	0.003	-0.009	0.003	0.344
	-0.01656	0.020	-0.056	0.023	0.404
	-0.001362	0.014	-0.030	0.027	0.925
: R <sup>2</sup> 0.759, adjusted R <sup>2</sup> 0.627					
(Constant)	0.917	0.158	0.568	1.265	0.000
	-0.006526	0.002	-0.010	-0.003	0.004
	0.002893	0.005	-0.008	0.014	0.585
	-0.01158	0.007	-0.027	0.004	0.122
	0.007248	0.008	-0.009	0.024	0.356
	-0.08028	0.035	-0.157	-0.003	0.043
	-0.009307	0.021	-0.056	0.038	0.671

13.		IV				
		(b)		95%		p
: R <sup>2</sup> 0.215, adjusted R <sup>2</sup> 0.206						
(Constant)	0.844	0.087	0.671	1.018	0.000	
	-0.007276	0.001	-0.010	-0.004	0.000	
: R <sup>2</sup> 0.656, adjusted R <sup>2</sup> 0.610						
(Constant)	0.811	0.084	0.632	0.989	0.000	
	-0.006220	0.002	-0.010	-0.003	0.002	
	-0.09301	0.035	-0.167	-0.019	0.017	

## IV.

### 1.

가 ( )가 가 Dequeker (1996) 가

(Dequeker, 1985).

(Yu , 1995, Gevers , 1988),

osteocalcin, local growth factor, insulin-like growth factors(IGF-I, IGF-II), transforming growth factor- (TGF- )가 가 가 (Dequeker , 1995).

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Hologic Sahara Bone Sonometer  
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Speed of Sound(SOS)  
Broadband Ultrasound Attenuation(BUA) SOS BUA  
가 가  
가 Sahara Bone Sonometer  
Quantitative Ultrasound Index(QUI) Stiffness

가 QUI 가

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(Food and Drug Administration, FDA)

(Baran, 1997).

## 2.

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(longitudinal study design)

(Sowers ,

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(Cooper, 1991).

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(Dequeker, 1996).

(Radin, 1970).

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(Dequeker, 1985, Dequeker, 1995).

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