

# Strategic Measures for Novel Medical Information Systems for the Treatment of Muscle Reduction

Seong-Ran Lee\*

\*Dept. of Medical Information, Kongju National University  
e-mail:leesr@kongju.ac.kr

## 근감소증 치료를 위한 새로운 의학정보체계의 전략적 방안

이성란\*

\*공주대학교 의료정보학과

### Abstract

The paper is to explore new strategies for the medical information system to treat muscle reduction. This study surveyed 106 people who visited orthopedics at general hospitals in A area from December 8, 2020 through February 3, 2021. Health practice through the application of the information system for muscle reduction was analyzed as a t-test. After the application of the medical information system, the effectiveness of treating muscle reduction was measured at 7, 14, 21, 28, 35 and 42 days. As a result, the experimental group significantly increased than the control group when the squat movement was frequent( $t=1.47$ ,  $p<.05$ ). Also, muscle strength has steadily increased since seven days of medical information system application. Therefore, the application of the medical information system through this study will enable muscle reduction and contribute to muscle strengthening.

## 1. Introduction

Muscle reduction is a significant reduction in the skeletal muscles that make up arms and legs[1, 2]. Older people lose energy and lack energy because of reduced muscle mass. Muscle reduction can strain bones and joints, increasing the risk of people with cartilage damage and arthritis. About 50% of cancellous bone are reduced over 25 years of age from 50 to 75, leading to osteopenia and osteoporosis[3, 4]. Measures are needed to treat muscle reduction. Therefore, the paper is to explore new strategies for the medical information system to treat muscle reduction.

## 2. Materials and Methods

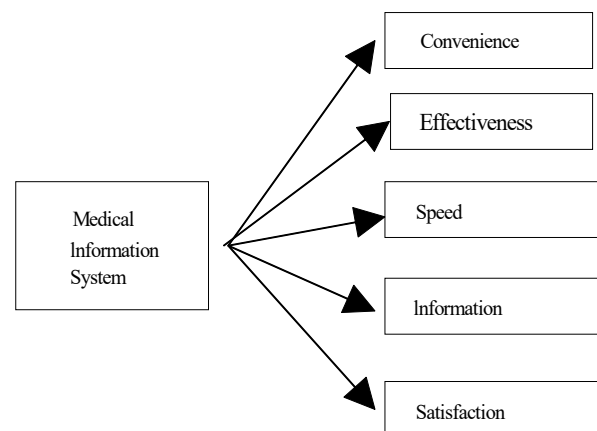
### 2.1 Materials

This study surveyed 106 people who visited orthopedics at a general hospital in A area from December 8, 2020 through February 3, 2021. After the application of the medical information system, the effectiveness of treating muscle reduction

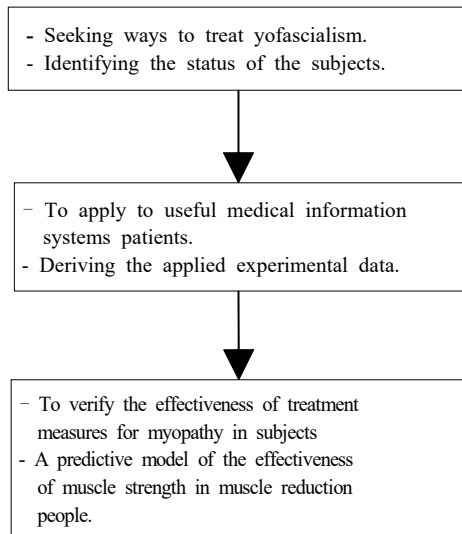
was measured at 7, 14, 21, 28, 35 and 42 days. Figure 1 illustrates the status of the medical information system for treating muscle reduction. Figure 2 shows a conceptual framework for the treatment of muscle reduction.

### 2.2 Methods

Health practice through the application of the information system for muscle reduction was analyzed as a t-test.



[Fig. 1] The state of the medical information system to treat muscle reduction



[Fig. 2] Conceptual framework for treating muscle reduction

### 3. Results

#### 3.1 Health practice before and after medical information system application.

Table 1 shows the status of health practice before and after the application of the medical information system. The experimental group significantly increased than the control group when the squat movement was frequent( $t=1.47$ ,  $p<.05$ ).

[Table 1] Health practice before and after medical information system application.

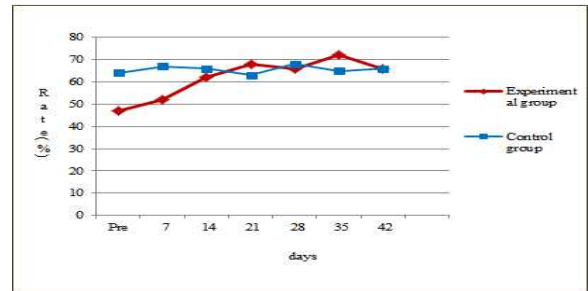
Variables	Experimental group	Control group	t
Omija Tea			
Seldom	42(79.2)	30(56.6)	3.18
Frequently	11(20.8)	23(43.4)	
Sunburn			
Sufficiency	15(28.3)	28(52.8)	1.75*
Insufficiency	38(71.7)	25(47.2)	
Acupressure			
Seldom	44(79.0)	34(64.2)	5.39**
Frequently	9(21.0)	19(35.8)	
Squat movement			
Seldom	14(26.4)	21(39.6)	1.47*
Frequently	39(73.6)	32(60.4)	
Garlic intake			
Seldom	29(54.7)	16(30.2)	4.07**
Frequently	24(45.3)	37(69.8)	

Total	53(100.0)	53(100.0)	
-------	-----------	-----------	--

\*  $p<.05$  \*\*  $p<.01$ 

#### 3.2 Comparison of muscle strength before and after system application

Figure 3 shows a comparison of muscle strength before and after the application of the medical information system. Muscle strength has steadily increased since seven days of medical information system application



[Fig. 3] Comparison of muscle strength before and after system application

### 4. Discussion

The paper is to explore new strategies for the medical information system to treat muscle reduction. As a result, garlic intake was significantly higher in the experimental group than in the control group. The finding was similar with the previous studies on arthritis[4, 5]. Health habits such as omija tea, acupressure and sunburn have been confirmed to be effective in muscle reduction. Garlic is associated with muscle strength and bones and is believed to be able to treat muscle loss when consumed steadily.

Squat movement has increased significantly since the application of the system than before the application of the medical information system. This is similar to prior researches[6, 7]. This confirms its effectiveness through the application of the medical information system. Therefore, the application of the medical information system through this study will enable muscle reduction and contribute to muscle strengthening.

#### References

- [1] J. B. Fice, P. S. Gunter, J. S. Blouin, "Neck Muscle Biomechanics and Neural Control", J Neurophysiol, Vol. 120, No 1, pp. 361-371, 2018.
- [2] T. B. Arruda, R. A. Barbieri, V. L. Andrade, J. A. Cursiol,

- C. A. Kalva-Filho, D. R. Bertucci, M. "Proposal of a Conditioning Activity Model on Sprint Swimming Performance", *Front Physiol*, Vol. 22, No. 11, 2020
- [3] F. C. Fernandex, A. R. Teba, G. L. Contreras, R. Arellano, "Effects of 2 Types of Activation Protocols Based on Postactivation Potentiation on 50-m Freestyle Performance", *J Strength Cond Res*, Vol. 34, No. 11, pp
- [4] Y. L. Oh, J. H. Go, C. K. Park, S. G. Jeon, H. J. Son, J. J. Kim, "Inflammatory Fibrinoid Polyp of the Stomach Associated with Gastritis Cystica Profunda", *Korean J Gastrointestinal Endosc*, Vol. 17, pp 684-688, 2007.
- [5] I. Galat, D. D. McGovern, S. C. Larson, D. R. Harrington, J. R. Hanssen, A. D. Larke, "Surgical Treatment of Early Wound Complications Following Primary Total Knee Arthroplasty", *J Bone Joint Surg Am*. Vol. 91, pp .48-54. (2009).
- [6] J. R. Garrett, E. William, "American Board of Orthopedic Surgery Practice of the Orthopaedic Surgeon : Part-H Certification Examination Case Mix," *The Journal of Bone and Joint Surgery*, Vol. 88, No. 3, pp. 660-557, 2006.
- [7] G. R. Scuderi, J. N. Insall, R. E. Windsor, M. C. Moran, "Survivorship of Cemented Knee Replacements", *Journal of Bone and Joint Surgery, British* Vol. 71, No. 6, pp. 798-799, 2009.