



Research Article

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## The Effect on Visual Feedback on Static Balance of Overweight Women

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### ABSTRACT

*The present study aimed to investigate the effects of visual feedback on static balance of overweight women. In this quasi-experimental study with comparative approach, a total of 30 patients (15 women with ideal weight, and 15 overweight women) were chosen using convenience sampling where the effect of the independent variable of visual feedback of overweight women on the dependent variable of static balance was measured through pre- and post-test. Volunteers were divided according to the BMI table to two groups of ideal weight and overweight and stretch for 5 minutes to warm up. To evaluate the subjects' static balance, stork balance test was used where the person does the test with eyes open and closed in a random order. Data analysis was done in two levels of descriptive and inferential statistics. In the descriptive statistics (mean, standard deviation) and in inferential statistics (t-test) were used. Afore-mentioned statistical methods were done by using the SPSS 19 software, and the significance level 0.05. The results showed that each of the variables of visual feedback, and weight alone has significant impact on the women's balance.*

**Keywords:** Visual feedback, Balance, Static balance, Women, Overweight.

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### INTRODUCTION

In the recent world, movement, activity & sport are considered as parts of routine activities that man forces to do it. To maximum the ability of skills doing & also to minimum the undesirable results, need to survey & checkup the human's body properly [1]. Keeping the stature to doing correct & productivity routine activities or it is a documentary in sport complex movements. So Balance has essential role in the evaluation & to determine the level of neuromuscular performance at different age levels and various levels of sporting activities [2].

Balance is a perceptual-motor response which relates to integration of stimulus received from sight & motor senses machines. Sight sense (eyesight) says that the status of body in environment? Motor sense data says from receiver inside the body & body organs & parts status in compared others? When need to the balances, the sensory data must be integrated in the central nervous system & muscles regarding to the mechanical movement involved to this. Balances must be protected to unlimited status [3]. In fact, blocking sight eliminating is one of three input sources to maintain balance [4]. Mosavi's results research (2013) showed that blocking the sight caused to bad balances among men swimmers athletes. The most disorders is in keeping status in lack of sight in both groups; posterior & anterior [5]. In this order Meshkati (2010) did research, the role of sight in static postural balance stability athletes & non-athletes indicated that postural sway velocity in athletes is more than non-athletes. In the other words, COP velocity was higher in athletes' foot. But maybe just considering the level of sway is not the proper criterion for explaining the athletes' balances & also increasing the amount of karate players' swing has not to be considered as a limiting & confounding factor. Other researches showed that there are not significant differences in terms of sight dependence among two groups. So the Karate characteristics caused to don't need the sight so much & maybe Karate players need more to proprioception sense than their balance. Then the athletes trying to block their sight data & finally can keep their balance better than non-athletes. Therefore surveying on visual feedback in balancing is still controversial among special groups [4]. Growing & increasing the age & some of pathological problem often caused to increasing

the body's level of static disorders may lead to fall. One of the pathological characteristics is fat that affected on lack of balances & life quality [6]. Excess body fat can alter the geometric form [7] & caused to & adds extra volume to other body parts which subsequently impacted on the biomechanical daily activities performance & caused to limitation in activities & finally damaging the body organs [8]. There are some witnesses that show high weight has negative effects on the resulting movements from sitting to standing [9, 10] walking [7, 9, 11] & also body balance [12]. That's why fat (obese) people toward normal weight ones are more pressures on the spine and balance [13]. Regarding to above data this research is designed to answer the question; does the sight feedback effect on the female static balance that will be overweight?

### EXPERIMENTAL SECTION

The recent research is kind of semi-experienced ones with compared process that measured the effects of independent sight feedback variable among overweighted people on static balance dependent variable by doing pre-test & post-test. This research is sectional in terms of time & was done as field method. The population is included all women who referring to the HashtBehesht Gym in Isfahan in 2014 & they were 30 persons (15 overweighted women, 15 optimal weight women). The sample is available & taking into consideration the voluntary inclusion criteria were selected;

- Lack of regular physical exercises & sport experienced
- Having BMI between 18.5 & 24.9 for women with optimal weight
- Having BMI between 25 & 29.9 for women with overweighted
- Lack of any cardiovascular & respiratory diseases, metabolic disorders, dizziness, refractive disorders, upper & lower extremity fracture during last 6 months.
- Lack of taking drugs that effect on awareness & balance.
- Having informed consent to participate in the study [14]
- Lack of familiarity with the Stork Balance Test.

Stork Test [15] was used for measuring the static balance. In this test was used subjects to stand on the one foot on flat stage & put the hands besides the body & the other leg's knee was medial border of their reliance. For familiarity of subjects, let them to exercise one minute before taking test. Fixed stand with a stopwatch how long that person was & could not keep his case, it was recorded in seconds. If the reliance subjects' foot are turned & moved, the other leg was separated from the knees, hands opened, or someone jumped then stopwatch was stopped by the experimenter. In this order Johnson & Nelson reported 0.87 stability of Stork Test [16].

Written informed consent was obtained from participants in the first & voluntarily participated in the research. Volunteers are classified in to the two groups; optimal weight & overweight according to BMI table & then for 5 minutes stretching to warm up. For evaluation the subjects' static balance was used Stork Test that subjects with opened & closed eyes exercises random order. For familiarity of subjects, let them to exercise one minute before taking test. Fixed stand with a stopwatch how long that person was & could not keep his case, it was recorded in seconds. Stand on one foot & rely on the other leg's knee medial border. Fixed stand with a stopwatch how long that person was & could not keep his balance with eyes open & closed was recorded in seconds. If the feet are turned & moved reliance subjects, the other leg was separated from the knees, hands, opened, or someone jumped stopwatch was stopped by the experimenter.

The analyzing the data was done in the deductive & descriptive statistic level. In the descriptive statistics was used mean, standard deviation & in deductive statistic level was used paired-t. Above statistic methods were done by SPSS version 19 in the P-value 0.05.

### RESULTS

There is not difference between sight feedback effects on women's static balance with overweight.

**Table (1): Interactive effects of sight feedback on balance optimal weight & overweight women**

Statistic	Mean Square	Freedom rate	F	P-value
Interactive effect				
Sight X weight	164.151	1	15.420	0.001*

*Meaningful P-value ( $\leq 0.05$ )*

Obtained results of table (1) showed that, F is lower than 0.05. So 95% be sure that there is difference between the sight feedback effects on women's static balance with optimal weight & overweight. In the other words, the effects of sight feedback are meaningful on the women's static balance with optimal weight & overweight.

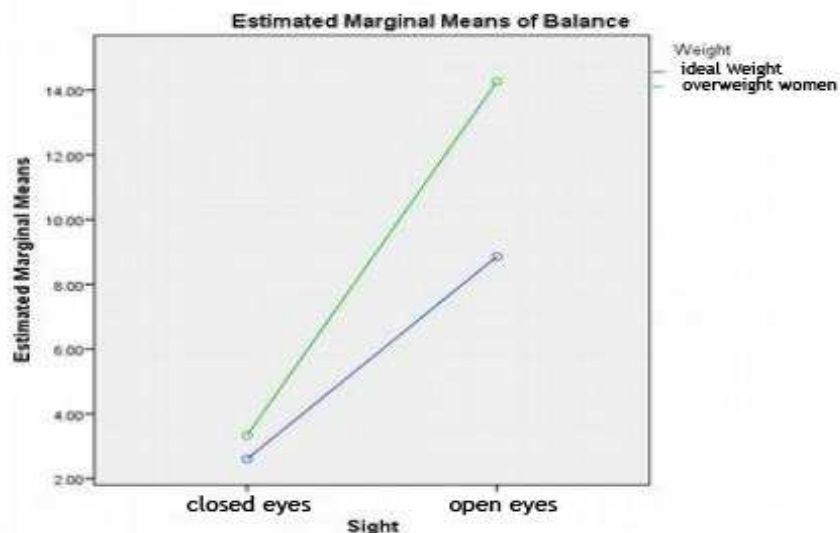


Figure (1): the effects of sight feedback on women's static balance with optimal weight & overweight

As seen in diagram (1) there is interactive effects between sight feedback & weight in women's static balance.

According that the table (1) the reaction between sight feedback & weight is meaningful for balance parameter ( $P=0.001$ ). So the effect of sight on the women's static balance with optimal weight & overweight is determined. For this purpose, we will further explore the parameters & sight effects in both groups consider the weight and overweight (Table 2).

Table (2): the results of independent-t for comparing balance parameter in sight status among women with optimal weigh & overweight

Sight	Weight/Balance	Mean	t	P
Closed eyes	Optimal weight	3.33	1.96	0.055
	Overweight	2.60		
Opened eyes	Optimal weight	14.3	3.43	0.001*
	Overweight	8.86		

Meaningful  $P (\leq 0.05)$

The results of test showed that there is no significant difference with closed eyes for balance parameter among two groups optimal weight & overweight ( $P=0.055$ ,  $t=1.96$ ).but there is significant difference with opened eyes for balance parameter among two groups optimal weight & overweight ( $P=0.001$ ,  $t=3.43$ ). In the other words, he balance in open eyes in a group that has the optimal weight was significantly higher than overweight.

## DISCUSSION AND CONCLUSION

Zero hypotheses: there is not difference between the sight feedback effects on women's static balance with optimal weight & overweight.

The results showed that there is difference between the sight feedback effects on women's static balance with optimal weight & overweight. In other words, the effect of sight feedback on women's static balance with optimal weight is. There is little research in about this hypothesis, because the related research hypothesis is that only one or two variables have expressed.

Pren (2002) reported that there is no significant difference between dependence on sight balance between the two activities stand at different levels of competitive athletes in judo [17].

Mosavi et al (2013) studied with the goal of comparison the role of opened & closed system sight in controlling dynamic balance among male & female young elite athletes. The results showed that eliminate sight to a greater extant aggravate the balance of the athletes among male swimmers ( $P=0.001$ ) also caused to most disorders in maintaining stability in the lack of sight in both groups anterior – posterior ( $P=0.001$ ) [5].

Norbakhsh et al (2010) studied on research that named "effects of three kinds of fatigue protocol on dynamic balance among girl athletic students in Karaj Islamic Azad University & among voluntary athletic students were selected 20 persons randomly. In order to measure balance & fatigue were used stellar balance Borg Fatigue Scale.

All participants participated with a week interval in 3 protocols (aerobic, anaerobic, composition and performance). The results of ANOVA showed that there is a significant difference between the dynamic balances in the significant level of fatigue protocols ( $P \leq 0.05$ ). The follow-up test showed that anaerobic protocol mean (90.30) than aerobic group mean (95.75) & combined group mean (101.59) has less balance [2].

Among strategies associated with balance, sight toward change in person's head & movement charges in the relation to the environment. Due to the ability to move in several directions, information about the target, head & eyes can be detected through visual system. Heavy reliance to sight for controlling balance can be meant as an inadequate proprioception sense & can be lead to injury [18]. It seems that to prevent damage as well as the evolution process of rehabilitation after injuries, must be reduced dependence on visual perception. Optimal weight is one of factor that has role in balance & needs to it why overweight & fat caused to decreasing balance & thus lead to problems which hypotheses represented this problem, too.

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