

TEMPER IMPROVEMENT WITH DIET AND PHYSICAL ACTIVITY ACCORDING TO THE KIND OF TEMPERAMENT BASED ON TRADITIONAL MEDICINE OF IRAN

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Abstract:

Introduction and aims: Diet and physical activity can be linked to the human temperament. Moderation of an individual's temperament may produce health benefits and improve bodily functions. This study was done with the aim of temperament improvement using diet and physical activity according to procedures based on ancient Iranian medicine.

Materials and methods: This clinical trial was performed in a gymnasium facility in Ahvaz on a sample of 200 individuals (120 men and 80 women) who exhibited four different temperaments. Temperament condition was determined from a self-administered questionnaire. After adjusting for different sports categories, four groups of 50 participants each were developed based on the kind of temperament reported. After 90 days, temperaments were reassessed questionnaire.

Results: Results showed that between gender ($p=0.120$), marital status ($p=0.67$), level of education ($p=0.055$), and temperament type, there was no a correlation. But there was a correlation between temperament, sportsmen age ($p=0.011$) and body mass ($p<0.001$). After the interventions, dependent t-test showed that there was a significant improvement through physical activity in sportsmen who had Blood ($p=0.001$), Yellow bile (.015), Black bile ($p=.038$) and Phlegm ($p=.002$) temperaments.

Conclusion: Temper improvement by physical activity and diet based on the Iranian ancient medicine is an effective way to bring an individual's temperament more into balance.

Key words: temper improvement, physical activity, diet, traditional medicine.

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Introduction:

Recently World Health Organization according to its standards had known the traditional medicine as a corresponding for common medicine. In these years, European scientists accepted that ideology which is based on the inner liquid or organism and with gradual changes made it more expressible (1). Effectiveness of these medicine methods beside its side effects has been demonstrated (2, 3). Ideology of traditional medicine which people know Hippocrates as its originator, for 16 centuries in all over the world has dominated the principles of medicine science and all the doctors in the world little or more has been following it (4). Definitely traditional medicine existed before Hippocrates and he adapted it's principles from ancestors (5). He divided individual's temperament in four groups: warm, cold, dry and wet and confirmed that being healthy is in making balance in these four groups (4,6). Centuries later,

Ebne Sina, the father of Iranian medicine, presented his experiences and also remained old discovers, in a book named medicine rules (Canon of Medicine)(5). undeniably Ebne Sina's hard works and his book which was educated in all over the world for many years is considered as an inflectional point in the history of medical science(7). Whereas, there is no absolute real moderate person and everybody is under the predomination of one temperament, therefore the similar and temperate temperaments are rare. For that reason this medicine is grounded in the four humors concept: Blood (Dam: warm and wet), Yellow bile (Safra: warm and dry), Black bile (Sauda: cold and dry) and Phlegm (Balgham: cold and wet) (7,8).

Traditional medicine interference of these four humors in all the body's conditions such as physiological changes, diseases and improvements are impressive (5). while there are the natural and mild ratio of these four humors in the body, it is healthy and if the amount of one or some humors or quality of them changes, illness will appear(7). Also predomination of one temperament based on the physical condition is obvious. In this way, based on the patient's age, we can diagnose the type of predominant temperament.

The Scholars of temperament science believed that nature does changes to enhanced body's condition and the direction of its main state and also makes it diluted or concentrated if the nature of humor is unbalanced and repels it to out of the body. When the natural situation of the body can't repel the additional and decayed humors, these substances sediment in tissues and inner parts of body, instead of fixed it, But usually because of its right operation and connection, works as a consolidated system (11,7). If the natural operation of each part of the body faces a problem that part will encounter mal-temperament and if a trouble raises in the process of humor production it can be related to disposed food, the kind of activity, the problem in the digestive system or many items at the same time(9).

Furthermore, in the Iranian ancient medicine about the relationship between body activity and temperament it is said that, each body's tissue has its own temperament trait and everybody's general temperament includes one or coupled form of four temperaments (10).

Also it is said that heavy body activities in sportsmen causes the increase of the Yellow bile in blood and if its level stays high for a long time, it will cause mal-temperament of Yellow bile and after that the drainage of energy will be happened and the predomination of Black bile or Phlegm temperament in body. For this reason, the heavy body activity is not recommended to people who have Yellow bile temperament. Also the people who have dry temperament during long time sport activities or heavy sports will be involved in muscles spasm and kin (12).

I will present comprehensive and complementary explanations about the variety of body types from the sight of ancient medicine in nest articles.

The suitable type of body activity for every sportsman, considering to the knowledge of the type of individual's temperament is necessary. In 2016 Zar and his colleagues (12) showed that there is relationship between temperament and the level of body activity and it is reported that there were direct relationship between being blood and Yellow bile temperament, whereas there were no significant relationship between being Black bile and Phlegm temperament. Also Shahabi and his colleagues in 2007 arrived to the conclusion that people with warm temperament have less parasympathetic nervous system activity than people whit cold temperament. Till now few studies on the kind of nourishment diet and suitable physical activity basis on the kind of individual temperament have been done. Therefore this study tries to answer this question that, is there any relationship between the type of individual's temperament, diet and proportional physical activity from the viewpoint of traditional medicine of Iran for achievement to temperament balance in person or not? And can we recommend special diet and sport basis on the individual's temperament?

Materials and methods:

This applied study is from the kind of nonrandomized clinical trial while is done on 120 sportsmen and 80 sportswomen in Asoo semiprofessional sport club in 2017. The average of age in all samples was 31 ± 11 and maximum and minimum ages were 66 and 15, respectively. %58 of samples were single and %42 of samples were married.

Power analysis indicated 50 participants would produce a power of 0.90, with an effect size = 0.70, and an alpha = 0.05 (Faul). Present statistic society of this study is selected by using multiprocess sampling and considering previous studies, the needed necessary samples with the accuracy of 0.5 and

potentiality of %80 and the confidence level of %95 from Asoo Academy sportsmen. For diagnose the type of temperament, we used the researcher questionnaire because there was no standard questionnaire and after distinguishing the temperament type, for each kind 50 people and in general 200 men and women. This questionnaire had two parts that include the part of demographics (gender and age), marital status, level of education, height and weight and the part of temperament knowledge include 56 questions that was planned in four parts. For controlling intervener factors not having chronic disease (heart disease, kidney diseases, respiratory, diabetic, blood pressure, severe headache, asthma, migraine, nerve system and spirit), addiction to alcohol and drugs, pregnancy for females, not using pharmacological drugs continuously (anti blood pressure, depression, harmonic drugs, anti colitis) and written consent for using study methods on these samples, were the criteria for entrance to this study. For validity confirmation, we get benefit from scientific articles which were, in accordance with some teachers' view, related to the subject. The persistency of this questionnaire were confirmed by usage of pretest and Spearman- Brown's interrelationship coefficient ($r=0.83$) and within 15 days. After filling questionnaires and checking up by traditional medicine doctor and diagnostic work to distinguish the kind of temperament and predominant temperament, recommendations related to the kind of body activity and diet with necessary explanations for moderation of temperament was given to samples and within 90 days the temperament correction under supervisions and complete advice related to following the diet (Table 1) and exercises (60-75 Vo_2max) were given. After finishing the period of temperament correction, filling the questionnaires through interview and checkup by doctor was done. After collection by using SPSS software version 24 data was analyzed. For determination the average and standard deviation of descriptive statistic and for data contribution we used Kolmogorov-Smirnov test. After data distribution distinction, for checking the distribution of variables in under studying group, we used dependent T-test. Also for testing research hypothesis of study and checking the relationship between variables we used Pearson's correlation coefficient test and the following Tukey's test in the significant level of $P \leq 0.05$.

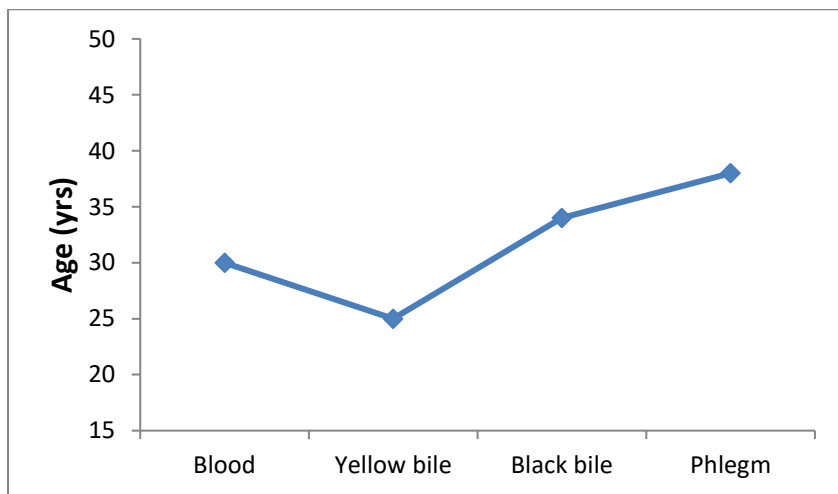
Table 1: Meals used in different groups

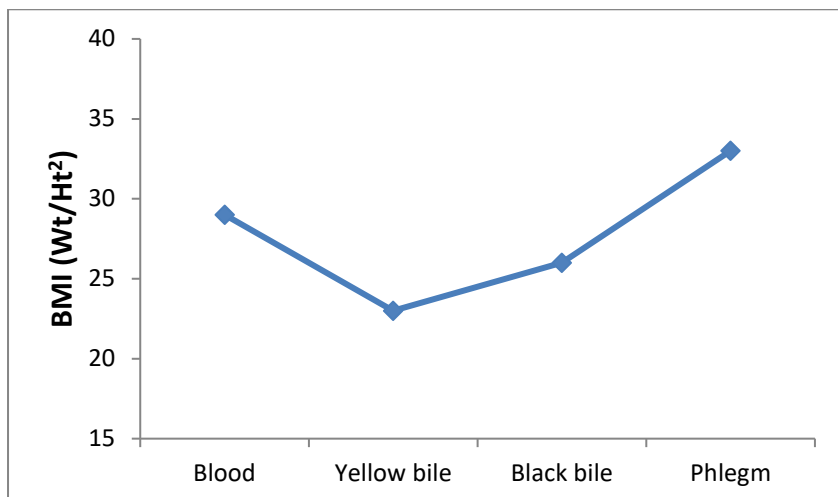
Black bile (Sauda: cold and dry)		Phlegm (Balgham: cold and wet)		Blood (Dam: warm and wet)		Yellow bile	
Allowed foods	Prohibition	Allowed foods	Prohibition	Allowed foods	Prohibition	Allowed foods	Prohibition
Wheat bread	Tea	Whole Grain bread	cow	Rice	turkey	Abundant water	Tea
	Coffee	honey	calf	barley bread	Quebec	Natural lemon juice	Coffee
Honey	Nescafe	almond	chicken		camel	Senjed	Nescafe
Flixweed	Cocoa	hazelnut	fish	Barberry juice	ostrich	Flixweed	Chocolate
Chia seeds	Chocolate	walnut	Milk	Chicken	Pear	Yoghurt	Cocoa
Lamb and mutton	Bread Barley	pistachios	Dough	Lamb and mutton	grapes	Cheese	Lasagna
turkey	White rice	Ostrich	purslane	Lamb and mutton	figs	Oatmeal	Pasta
Quebec	Meat (Remains, Old and stale)	Quail	Coriander	Pomegranate	olive	barley	date palm
apple,	Fish	Quebec	Cucumber	Blackberry	coconut	soup	Banana
pineapple	Rooster	date palm	Watermelon	Peach	mango	Cucumber	Celery
coconut	Pomegranate	Bananas	Melon	Watermelon	pineapple	Lettuce	Honey
mango	nectarine	Apple	Potatoes	Nectarine	fumitory	Watermelon	Pepper
papaya	Plum	Figs	Blackberry	Cheese	Basil	Rooster chick	quails
grapes	sour cherry	Olives	nectarine	Whey	Mint	sheep	all grilled meat
						fish	Turkey
pear	Strawberry	Persim				Strawberry	Fig
raisins	Blackberry	mons				blackberry	olive
currants	cucumber	Raisins				Nectarine	Fast Food
Parsley	lettuce	Grapes				peach	cakes

Purple Basil	Dough	fumitory				sloe	pastries
Watermelon	Cheese	basil (Purple and Green)				sour cherries	beverages
cantaloupe	Whey	Chestnuts				Tangerine	Confectionery types
Carrots		Radishes				sour lemon	banana
		Celery					pears
							grapes
							raisins
							hazelnuts
							almonds

Results:

We obtained a correlation between temperament and age through One Way ANOVA test (different temperaments had different average ages ($p=0.011$ and $f=3.815$). the following Tukey's test showed that between for humors exists different age average. Average age diagram for different temperaments shows that Phlegm temperament as compared with the other temperaments has older age ($M=34.66$) and Blood temperament has less age average ($M=28.92$). Also between sample's BMI and temperament showed significant statistic difference. And this statistic test showed that different temperaments has different BMI average as compared to each other ($F=11.402$ and $P<0.001$). Also Tukey's following test showed that there is no big difference between Blood and Phlegm temperaments. But they have different average with two other groups. Average diagram of BMI in temperaments shows that Blood temperament has the higher average ($M=26.63$) in the amount of BMI.





Dependent t-test showed that there is significant difference between Blood average before and after temper improvement with sport and diet in individuals who have Blood temperament ($P=0.001$ and $DF=49$ and $t=3.5$). The Blood average degree before temper improvement was 36.48 and the average after temper improvement equalized 334.62. Their average difference is 1.860. The Blood average of Blood samples has decreased in a kind of significant manner. Table 2 shows the average changes in Blood samples humors before and after temper improvement.

Table 2: the results of Blood temperaments with dependent T-test

Temperament	Average (before temper improvement)	Average (after temper improvement)	Mean Difference	Correlation	T rate	P-Values
Blood	36.48	34.62	1.860	.671	2.840	0.001
Yellow bile	31.04	30.14	.900	.697	2.003	0.041
Black bile	26.74	27.94	-1.200	.884	3.670	0.001
Phlegm	29.38	28.14	1.240	.555	2.279	0.027
Total average	30.9100	30.2100	.70000	.861	3.030	0.004

The results of table 2 show that the average of all humors except Black bile after improvement has decreased. In all humors there is high correlation and significant statistic relationship before and after temper improvement.

Table 3: the result of Yellow bile data analysis with dependent T-test

Temperament	Average (before temper improvement)	Average (after temper improvement)	Mean Difference	Correlation	T rate	P-Values
Blood	32.68	31.92	.760	.845	2.182	.034
Yellow bile	38.08	36.86	1.220	.565	2.524	.015
Black bile	29.76	29.06	.700	.865	2.069	.044
Phlegm	30.00	30.94	-.940	.755	2.023	.049
Total average	32.6300	32.1950	.43500	.935	2.840	.007

About samples who had Black bile temperament, also dependent T-test showed that there is significant difference between the average of Black bile before and after temper improvement with sport and diet in these people ($p=0.38$ and $df=49$ and $t=2.137$). The average mark of Black bile humor before temper improvement was 42.44 and after temper improvement it was 41.14. Their difference in average is 1.30. The average of Black bile humor has been reduced significantly.

Table 4 shows the average change of humors in Black bile temperament individuals before and after the temper improvement. As shown in the table about individuals with Black bile temperament also there is high interrelationship and significant statistic correlation before and after temper improvement and for all humors except Blood humor the average before and after the temper improvement has been reduced.

Table 4: the result of Black bile temperament analyze through dependent T-test

Temperament	Average (before improvement)	temper	Average (after improvement)	temper	Mean Difference	Correlation	T rate	P-Values
Blood	33.62		34.46		-.840	.774	1.336	.048
Yellow bile	32.88		31.40		1.480	.874	3.111	.003
Black bile	42.44		41.14		1.300	.530	2.137	.038
Phlegm	33.24		31.92		1.320	.862	3.831	.001
Total average	35.54		34.73		.81500	.886	2.786	.008

Also dependent T-test about people with Phlegm temperament showed that there is significant difference between the average of Phlegm humor in these individuals before and after the temper improvement by sport and diet (P=0.02 and df=49 and t=3.245). The average of phlegm mark before temper improvement was 36.72 and the average after temper improvement has been equal 35.32. The average difference of them is 1.400. The average of phlegm has been reduced significantly in Blood temperament individuals.

Table 5 shows the average changes in phlegmatic individuals' phlegm before and after temper improvement. As it is shown in the below table, between the level of phlegm before and after temper improvement, there is high significant statistic correlation. In phlegmatic individuals the average of all phlegm humor except Yellow bile, after temper improvement has been reduced.

Table 5: the results of Phlegm temperament data analysis with dependent T-test

Temperament	Average (before temper improvement)	Average (after temper improvement)	Mean Difference	Correlation	T rate	P-Values
Blood	30.70	30.08	.620	.899	2.828	.007
Yellow bile	28.90	29.94	-1.040	.391	-2.101	.041
Black bile	27.54	26.28	1.260	.812	3.009	.004
Phlegm	36.72	35.32	1.400	.760	3.245	.002
Total average	30.96	30.40	.56500	.796	2.216	.031

Discussion and conclusion:

This study has been done for temper improvement in different individuals by using diet and physical activity recommended from the view of Iranian traditional medicine. The data obtained from this study has showed that there is no significant correlation between temperament and gender of samples, also between marital status and level of education. Nevertheless, in a study that Farsani and his colleagues (14) in 2016 have done, they found that there is relationship between individuals' temperament and gender, age and the level of their activeness. Our findings also showed that there is significant statistic correlation between age and type of temperament. These results can mention that one of the humors will be predominate than the others in our body in different ages (4). Also from the view of traditional medicine humanities in their four periods time of life (growth, youth, old age and antediluvian) will experience one of the four humors (15). In early ages of life Blood humor and after that in youth ages Yellow bile humor predominates and as much as individuals enter to middle ages predomination of Black bile is obvious and in older ages phlegm humor appears (7). This obtained results with the Amoli and his colleagues (16) in 2009 and Ebne Sina's point of view in the book Principles in Medicine (Canon of Medicine) are concordant (7).

In other study which has been done by Qafari and colleagues (6) in 2011, they observed that body's mass index (BMI) is in relationship with temperament and temperament has effect on body's mass index that agree to the results of present study this relationship also exists. Moradi and colleagues' results (17) in 2012 showed that the quality of nourishment and the kind of food diet related to individual's temperament has a basic role in medical science and prevention of weight increase for health protection and prevention of weight increase. The kind of food diet must be in balance with temperament and digestive system for everybody for health protection and weight increase prevention (17). Anderson and his colleagues in 2004 observed that, there was more body activity in warm temperament girls compared to the girls who had cold temperament and this more body activity is possible to have more effective

role in being low in fatness rate in these individuals. Also in ancient medicine it is expressed in such a way that samples with wet temperament have the higher wetness than individuals who have dry temperament and this increase can cause rise in weight (7,17). These findings are concordant to our observation because in this study we saw that samples who have Blood and phlegm temperaments have higher rate of BMI than other people and the least amount of BMI related to Black bile individuals.

The results of studies shows that for reaching to balance in temperament we can through nourishment and suitable body activity balance the predominant humor and with reduction of additional elements and through intervention in body's nature cause balance in individual's body parts(17). In this study which is done about temperament correction by diet and proportional sport to the kind of temperament, the results showed that in all humors average of predominant humor after temper improvement always has been reduced and individuals get closer to temperament balance in their bodies. Also deliberately point in the result of the present study is that in individuals who have wet temperament (Blood and Yellow bile) the reduction of predominant humor has been more than dry temperaments(Black bile and Phlegm) that is similar to Harati and his colleagues findings (19) in 2013. Their results showed that following suitable diet is effective in improvement the quality of life and disease prevention and following nourishment diet in coordination with their temperament can be as a complementary solution in individual life.

According to the traditional medicine scientists sight Blood temper persons because of their warm temperament have more body activity and they can do heavier sport activities than other people and lead to increase their heart beat and their body activity level. As a result they can achieve to temperament balance through suitable diet and body activity (7). In this study these individuals in comparison to others have had higher reduction in predominant humor after temper improvement. The result of this hypothesis with the results obtained by Zar and his colleagues (12) and E'bne Sina (7) is in concordant to. Also Zar and his colleagues observed that there is a direction relationship between the level of body activity and Blood temperament (12). Also the result of this study showed that at the same time with Blood phlegm reduction, Black bile humor fairly increases that it can be as a result of natural body response for attainment to balance condition.

About the Yellow bile individuals, according to the sight of traditional medicine these individuals have a higher energy level and also considering the theory of traditional medicine basis on increase of blood bills at the time of heavy body exercises related to their temperament correction by diet and body activity in proportion to predominant humor, in these individuals temperament correction program has not been included any heavy exercises and the nourishment diet in proportion to their temperament has caused increase the Yellow bile humor in their organism(21,20,7). This hypnosis's is in concordant to the results obtained by Naseri and his colleagues (8). Therefore individuals who have Yellow bile temperament attain to temperament correction by nourishment diet more than body activity and at the time of reduction the Yellow bile humor, phlegmatic humor in these individuals' increases and this can also be considered as body natural response in direction of phlegm balance in body. Mehdizadeh and his colleagues (13) in 2013 reported that individuals' temperament is an determiner for his motivation for doing body activity and sport. Warm temperament individual's body and mental characteristic shows that these people have some traits that are necessary for doing body activity.

One of the main these warm temperament people's traits is high motion and overflowing cheerfulness whereas cold temperament individuals generally are slow, weak and infirm and from the point of digestion are little digestive(9) and also at the same time with less thyroid activity, have less body activity(22). Also Sardar and his colleagues (23) in study which they have done in 2016 they reached to a result that paying attention to individual temperament characteristic and traits, warm temperament individuals have more tendency to take part in sport activities and cold temperament individuals considering their temperament traits such as being weak and indecisive, they have less tendency to take part in sport activities. The findings of this study showed that cold temperament individuals had lower level of body activity than warm temperament individuals and the effect of sport considering existing suitable warmth in many times is higher than the condition of cool temperament. So these individuals' temperament correction can be done through nourishment correction in accordance with the type of temperament. These obtained results were in concordant to Anderson and his colleagues (18) and Zar and his colleagues (12).

This study was faced to limitations such as no following the complete nourishment diet or not doing body exercises completely by under studying samples. By the reason of limitation in time for studying,

we recommend that devoting more time, more expanded studies in this field for presentation complementary medicine and traditional medicine in effective and safe way be done. Therefore, we suggest that this new science be as an introduction to more expanded studies in the field of the effect of temperament correction on tripartite aim: sportive, the level of energy and sportsmen muscle formation.

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