Experimental

SIMILARITIES AND DISSIMILARITIES OF MERIDIAN FUNCTIONS BETWEEN GENDERS

Hiroshi Motoyama, Ph.D.; Gaétan Chevalier, Ph.D.; Osamu Ichikawa, Ph.D. & Hideki Baba, Ph.D.

ABSTRACT

The Single Square Voltage Pulse (SSVP) method was applied on specific acupuncture points of about 2,500 male and female subjects who live in California. Data was gathered during a period of six years from 1994 to 2000 at the California Institute for Human Science (CIHS). The gathered data were examined to investigate possible gender differences regarding meridian function. From the current curve generated by the application of the SSVP method, only the BP (Before Polarization; the pre-polarization current in the dermis) was used in this study. Analysis of the data showed that male meridian function is more active and has more energy than female meridian function during cold and hot seasons, whereas female subjects have more energy and have more active meridian function during mild seasons. On the contrary the distribution of the most active meridians and the most inactive meridians shows the same pattern between males and females, which indicates that males and females are almost the same in their vital energy system.

KEYWORDS: Acupuncture, meridian, AMI, BP, gender difference

PURPOSE

This study aims at investigating gender differences in meridian function. If there is a difference, which meridian(s) has a distinctive feature? Or are they the same with no distinguishing characteristics between human beings? In this study, about 2,500 male and female subjects (including White, Asian, and Hispanic) who live in California were measured with the Apparatus for measuring the functioning of the Meridians and their corresponding Internal organs (AMI) during a period of six years from 1994 to 2000 at the California Institute for Human Science (CIHS). The gathered data was examined to investigate possible gender differences regarding meridian function.

MEASUREMENT

The AMI was used to obtain BP, AP, and IQ data of the 14 meridians and the data was analyzed by the AMI program. (Appendix A).

STATISTICAL ANALYSIS AND DISCUSSION

Analysis and examination of frequency distribution of BP values for [male > female]: meaning male value greater than female value, and [male < female]: meaning male value less than female value by month.

SUBJECTS

We randomly chose 50 subjects (both male and female) for each month, and we constructed a frequency distribution table showing which group has greater than average BP value between male and female for each month.

DISCUSSION

We calculated the frequency distributions of [M>F] and [M<F] for BP average values of 14 meridians using 50 male and female subjects each month, and

Table I

Analysis, Discussion, and Conclusion on male > female [M>F], male < female [M<F] (to compare M>F or M<F regarding the averages of right and left on each meridian)

	LU	LI	HC	DI	TH	HT	SI	SP	LV	ST	SB	GB	KI	UB	M>F	M<F
Jan.	>	>	>	>	>	>	>	>	>	>	>	>	>	>	14	0
Feb.	>	>	>	>	>	>	>	<	<	<	>	<	>	>	10	4
Mar.	>	>	>	>	>	>	>	<	>	>	>	>	<	>	12	2
Apr.	<	<	<	<	<	>	<	<	<	<	>	<	<	>	3	11
May	<	>	>	>	<	<	<	<	<	<	<	>	<	>	5	9
Jun.	<	<	<	<	<	<	<	<	>	<	<	<	<	>	2	12
Jul	>	>	>	>	>	>	>	>	>	>	>	>	>	>	14	0
Aug	<	>	>	>	<	>	>	>	<	<	<	>	<	>	8	6
Sep.	<	<	<	>	>	<	>	<	>	>	>	>	>	>	9	5
Oct.	<	<	<	<	<	<	<	<	<	<	<	<	<	<	0	14
Nov.	<	<	<	<	<	<	<	<	<	<	<	>	<	>	2	12
Dec.	>	>	>	>	>	>	>	>	=	<	>	>	<	>	11	2

Note: In December, male and female average BP values for the LV meridian are the same, therefore 13 comparisons are picked up for that month.

displayed them in Table I. Then, we conducted a chi square test (χ^2 test) based on an m x n distribution (Table II). This calculation gives significant differences with a p-value < .001 (2.47×10^{-12}) in frequency distribution of M>F and M<F.

M>F] is dominant in the cold season during December, January, February, and March. This indicates that the BP values, that is meridian function and Ki-energy, of the male subjects is in general more active than those of the female subjects in the cold season. On the contrary, [M<F] is dominant in mild season, from April until June. This indicates that meridian function and Ki-energy of female subjects is very active in mild season. However, [M>F] becomes dominant in the hot season of July. This means that male subject's Ki-energy is more active than female Ki-energy during those months. There is no big difference in August and September. During October and November, the meridians of the female group are active in a similar manner to the mild climate of April to June and are more active

Table II
m x n Contingency Table
Observational Frequency

Month	M>F	M<F	Total
January	14	0	14
February	10	4	14
March	12	2	14
April	3	11	14
May.5	9	14	
June	2	12	14
July	14	0	14
August	8	6	14
September	9	5	14
October	0	14	14
November	2	12	14
December	11	2	13
Total	90	77	167

Results of χ^2 test:

df	11
χ^2 Value	78.8394
p Value (one sided)	2.47×10^{-12}
χ^2 (0.95)	19.67515

than the meridians of male. This may suggest that the active Ki energy of females in Fall has a close relationship with conception.

Conclusion from Subjects and Discussion

For male subjects, meridian function and Ki-energy are energetic in both cold and hot season, and female subjects have an active meridian function and Ki-energy in mild season such as between April and June and between October and November. This shows that male's meridians function is competing with extreme climate such as hot and cold, and female meridian function has less functioning in hot and cold seasons but has lively meridian functions in mild seasons. *The results show that female body functions are adjusting to the climate while male body functions are antagonistic to condition.*

Table III
Frequency Distributions of [M>F] and [M<F] in Different Climates (hot, mild, cold)

	LU	LI	HT	DI	TH	HT	SI	SP	LV	ST	SB	GB	KI	UB
Winter (cold) *December–March*														
>	4	4	4	4	4	4	4	2	2	2	4	3	2	4
<	0	0	0	0	0	0	0	2	1	2	0	1	2	0
Spring (mild) *April–June*														
>	1	1	1	1	0	1	0	0	1	0	1	1	0	3
<	2	2	2	2	3	2	3	3	2	3	2	2	3	0
Summer (hot) *July–September*														
>	1	2	2	3	2	2	3	2	2	2	3	2	2	3
<	2	1	1	0	1	1	0	1	1	1	0	1	1	0
Fall (mild) *October–November*														
>	0	0	0	0	0	0	0	0	0	0	0	1	0	1
<	2	2	2	2	2	2	2	2	2	2	2	1	2	1

There is not a significant difference between male and female in August and September.

Next, we looked for significant differences in the frequency distribution of [M>F] and [M<F] in three climates; cold, hot, and mild (Table III).

Male Meridian is More Active than Female Meridian in Cold Season

Table IV shows that there is more [M>F] than [M<F] (Mann-Whitney test). This result is the same as the result gained by the χ^2 test shown in (1) and (2) of Table III. That is, almost all meridians of male subjects in cold climate are more active than those of female subjects. Figure 1 shows that male's BP value of all meridians in January are higher than female values.

Table IV

Mann-Whitney Ranking Test based upon the Table III Analysis of Frequency Distribution for Dec.–Mar.

	LU	LI	HC	DI	TH	HT	SI	SP	LV	ST	SB	GB	KI	UB
M>F	4	4	4	4	4	4	4	2	2	2	4	3	2	4
M<F	0	0	0	0	0	0	0	2	1	2	0	1	2	0

	Number	Rank Sum	Mean Rank
M>F	47	1225.5	26.07447
M<F	8	314.5	39.3125

Test Result

U Value	97.5
U' Value	278.5
Z Value	-2.16049
p Value (two sided)	0.030735
Z' Value (revised Z Value)	-2.16573
p' Value (revised p Value)	0.030332
Rank Number	14
Z(0.975)	1.959961

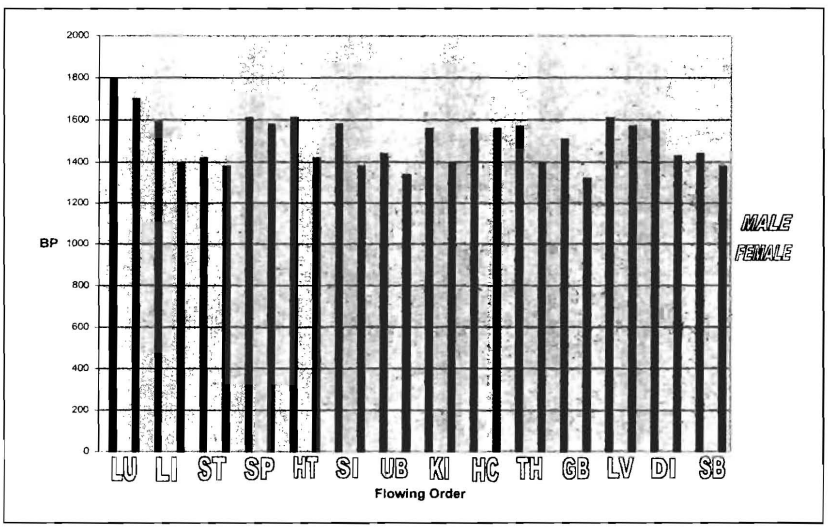

Figure 1. *Average BP values of male and female in January.*

Table V
Mann-Whitney Ranking Test based upon the Table III Analysis of Frequency Distribution for Apr.-Jun.

	LU	LI	HC	DI	TH	HT	SI	SP	LV	ST	SB	GB	KI	UB
M>F	1	1	1	1	0	1	0	0	1	0	1	1	0	3
M<F	1	2	2	2	3	2	3	3	2	3	2	2	3	0

p' Value 0.21

Mann-Whitney Ranking of Jul.-Sept.

	LU	LI	HC	DI	TH	HT	SI	SP	LV	ST	SB	GB	KI	UB
M>F	1	2	2	3	2	2	3	2	2	2	2	3	2	0
M<F	2	1	1	0	1	1	0	1	1	1	1	0	1	0

p' Value 0.28

Male in Hot and Cold Season & Female in Warm Season

In Table V, a significant difference is not seen in BP values of [M>F] and [M<F] during spring and summer, between April and June, and between July and September. This shows that there is no significance difference in activity of Ki-energy between male meridians and female meridians in mild and hot seasons. However, even if there is no significance difference, female meridians are more active than male meridians from April until June, the mild season between spring and summer.

On the contrary, in the hot season, from July to September, male meridians function is more lively than that of female meridians. This is also the same result as the conclusion stated in the Discussion and Conclusion above. Statistical analysis and discussion that *female body functions are adjusting to the climate while male body functions are antagonistic to external condition.*

Next, the test result of October and November shows a 5% significance difference between [M>F] and [M<F] (Table VI).

A higher frequency of [M>F] is observed in the cold season (December through March) but BP values of female meridians are higher than male BP meridian

Table VI
Mann-Whitney Ranking Test based upon the Table III Analysis of Frequency Distribution for October–November.

	LU	LI	HC	DI	TH	HT	SI	SP	LV	ST	SB	GB	KI	UB
M>F	0	0	0	0	0	0	0	0	0	0	0	1	0	1
M<F	2	2	2	2	2	2	2	2	2	2	2	1	2	1

p' Value 0.049

values in fall. This indicates that female meridians are more active than male meridians and the female organs corresponding to each meridian are also more active in fall. This result suggests that there is a close relationship between fall and possibility for conception.

Conclusion From Statistical Analysis of BP Values for Male and Female by Month

Through the above data analysis and consideration, it is possible to conclude that the activity of male meridians, Ki-energy, and the corresponding organs are higher than those of females in cold season, and are more active for females in fall (October and November).

There is no significant difference in frequency between male and female subjects from April-June and July-September. However, if we look at Table V in detail, we can see active female meridians from April until June and active male meridians from July until September.

Next, we want to make sure that there is a difference between male and female subjects in the most active meridians and in the most inactive meridians throughout a calendar year.

Table VII
Average BP values of each meridian for January, February and March

	January Order		
	Male		**Female**
LU	1865.98	LU	1692.65
HT	1630.15	SP	1565.85
SP	1622.60	LI	1532.23
LV	1616.37	DI	1450.73
DI	1605.40	HT	1473.12
LI	1574.37	TH	1401.53
SI	1572.57	KI	1392.90
TH	1564.93	LI	1366.67
KI	1533.42	SI	1374.35
HC	1528.43	SB	1366.53
GB	1482.47	GB	1352.05
UB	1463.48	ST	1346.27
SB	1462.47	HC	1326.17
ST	1439.35	UB	1323.63

STUDY AND ANALYSIS OF WHETHER THERE EXISTS A DIFFERENCE OF MOST ACTIVE (THE HIGHEST BP VALUE) AND MOST INACTIVE (THE LOWEST BP VALUE) MERIDIANS BETWEEN MALE AND FEMALE SUBJECTS

Comparison of Common Meridians and Different Meridians Between Male and Female Subjects, Which are Most Active and Most Inactive

There are three most active meridians, which have the top three highest BP values among the 14 meridians of each subject. They are the most energetic and active meridians. Most inactive meridians are the three lowest BP values.

Table VII shows the average BP values of each meridian of each 50 male and 50 female subjects respectively for January, February, and March.

Table VII (cont.)

February Order

Male		Female	
LU	1744.73	LU	1716.50
SP	1562.40	SP	1602.53
LV	1522.88	LV	1583.20
HT	1496.08	GB	1421.08
DI	1468.72	HT	1420.72
LI	1445.07	DI	1394.60
KI	1426.70	SB	1393.25
GB	1420.37	KI	1390.75
TH	1419.97	ST	1381.82
SI	1418.78	TH	1357.98
SB	1410.95	SI	1357.17
HC	1401.13	LI	1353.40
ST	1373.70	HC	1299.06
UB	1360.48	UB	1273.92

March Order

Male		Female	
LU	1850.32	LU	1765.77
HT	1619.00	SP	1505.90
LI	1592.70	LI	1584.90
SP	1582.90	KI	1493.02
LI	1577.92	KAKU	1464.30
SI	1573.17	HC	1463.88
DI	1572.65	HATI	1432.45
TH	1551.65	GB	1429.97
HC	1545.90	LI	1419.20
KI	1480.90	ST	1412.65
GB	1478.42	SI	1403.95
SB	1466.38	TH	1392.03
ST	1422.25	HC	1378.98
UB	1418.60	UB	1373.55

Table VIII was derived from Table VII based on frequencies which were shown to be common and to be different in male's and female's active and inactive meridians.

Table VIII

Common meridians between male and female subjects (extracted from Table VII).

The most active and inactive meridians showing common high frequency through January to December for male and female.

Table VIII-1

(most active meridian)

	LU	SP	KI	HT
Male	12	10	7	5
Female	11	11	12	0

Table VIII-2

(most inactive meridian)

	UB	ST	HC	DI	LI	TH	GB	SI
Male	8	11	3	9	0	1	1	0
Female	9	8	8	3	1	1	2	1

Meridians that behave differently when comparing male and female subjects.

Table VIII-3

(active meridians)

	HT	LV	SP
Male	3	0	0
Female	0	2	1

Table VIII-4

(inactive meridians)

	GB	ST	SB	SI	UB	HC	LI	TH
Male	1	2	6	0	1	1	0	1
Female	2	0	0	1	2	6	1	1

Based on Table IX, a χ^2 test with m x n contingency table was calculated. From this Table, no significant difference was found between male and female subjects.

*Table IX**

Contingency table for common male and female active meridians

	LU	SP	LV	HT	Total
Male	12	10	7	5	34
Female	11	11	12	0	34
Total	23	21	19	5	68

Result

df	3
X^2 Value	6.406887
P Value (one sided)	0.93408
X^2 (0.95)	7.814725

* derived from data of Table VIII

Lung (LU), spleen (SP), and liver (LV) meridian have a high frequency showing that they are active in both male and female subjects throughout the year. For LU meridian, male subjects demonstrate a heightened activity for 12 months and female subjects are most active for 11 months. In male subjects, the SP meridian tends to be most active for 10 months, contrasted by 11 months in female subjects. Also, female subjects show LV meridian active for 12 months.

Table X indicates that there is no significant difference between most inactive meridians of male and female subjects throughout the year. Urinary bladder

Table X

(from VIII-2): m x n contingency table (most inactive meridian commonly in male and female)

	UB	ST	HC	DI	LI	TH	GB	SI	SUM
Male	8	11	3	9	0	1	1	0	33
Female	9	8	8	3	1	1	2	1	33
Total	17	19	11	12	1	2	3	1	66

Test Results:

df	7
Chi-square value	8.138568
P value (one sided)	0.320534
chi-(0.95)	14.06713

(UB) and stomach (ST) meridian show high frequencies. Male subjects have the most inactive UB meridian for 8 months and female subjects for 9 months. For ST meridian, male subjects show low activity for 11 months and 8 months for female subjects.

This study shows that there is no significant difference in the most inactive meridians comparing male and female subjects, but both male and female subjects show common low activity meridians as mentioned above.

Conclusion from Comparison of Common Meridians and Different Meridians Between Male and Female Subjects Which Show the Most Active and Inactive Meridians.

The discussion above illustrates that there tends to be little to no difference between male and female subjects regarding most active and inactive meridian frequency through the year.

Next, we calculated χ^2 test regarding meridians showing differently most active and inactive frequencies between male and female.

Comparison of Different Meridians Showing the Most Excess and Most Deficient Activity Between Male and Female

Table XI shows a significant difference at the 5% level in the most active meridians between male and female subjects. Heart (HT) meridian function is active in male subjects for 3 months and liver (LV) meridian is the most active meridian for female subjects in 2 months. We can say from this result, that the male's heart and HT meridian function is more active than the female subjects tested. On the flip side, female liver and LV meridian functions are more active than the male. However, the heightened activity recorded appears to be sustained for only a 2-3 month period. This finding appears less impressive compared to the most active meridians (4 meridians) and the most inactive meridians (8 meridians) which are common during 8-12 months.

Table XI

Comparison of frequency of the most active and most inactive meridians which are shown differently between male and female subjects (from Table VIII-3)

***m* x *n* contingency table**

Most Active	HT	LV	SP
Male	3	0	0
Female	0	2	1

Test Result

df	2
χ^2 Value	6
P Value	0.49
χ^2-(0.95)	5.991476

Next, the meridians which show the most inactive differently between male and female show their significant difference regarding their frequency.

For male subjects, the stomach branch (SB) meridian has the highest frequency at 6, and the HC meridian has the highest frequency for female subjects at 6. Other meridians have frequencies of zero, 1, or 2, which is considered low. The most inactive meridian that differs between male and female subjects is the SB meridian for male and the HC meridian for female. This indicates that a male's stomach functions less effectively than a female's and that the HC meridian for female subjects functions less than in male. The frequency within 12 months is 6 (months) for male's SB meridian and female's HC meridian and this reflects a difference in meridian function between male and female subjects.

Conclusion from Comparison of Different Meridians Showing the Most Excess and Most Deficient Between Male and Female

As a result of the analysis and consideration of the difference between meridian functions that are the most active or inactive between male and female subjects, it became apparent that there is no big difference in overall meridian function

between male and female subjects. The most active meridians for both male and female subjects are LU, SP, and LV, and the most inactive meridians for both male and female are UB and ST.

Besides common meridian functions between male and female subjects, the most active meridians that show significant differences between male and female subjects have such low frequencies that we do not mention them here. However, the most inactive meridians with low function are SB, ST, and LV for male subjects, and HT and HC meridians for female.

As a whole, there is not an impressive difference in function between the most active and the most inactive meridians comparing male and female subjects, rather there is commonality between them.

Next, we want to examine the correlation between BP values of meridians flowing from LU to LV between male and female subjects.

ARE THERE SOME CORRELATIONS AMONG ACTIVITIES AND KI ENERGY QUANTITY OF MERIDIANS FLOWING FROM LUNG (LU) TO LIVER (LV) BETWEEN MALE AND FEMALE?

In order to calculate a correlation coefficient, the data must have a gaussian distribution. We randomly selected data from February and October and examined whether their distributions show the gaussian distribution. The result is as follows. The February data shows a gauss distribution for male with $p_{.16} > p_{.05}$ (one sided), $\chi^2 = 1.96 < \chi^2_{.05} = 3.84$, but it does not shows a gauss distribution for female with $p_{.003} < p_{.01}$, $\chi^2 = 8.8 > \chi^2_{.05} = 3.84$.

In the gaussian distribution test of October data, male data does not show gauss distribution with $p_{.014} < p_{.05}$, $\chi^2 = 6.03 < \chi^2_{.05} = 3.84$, but female data show gauss distribution with $p_{.12} > p_{.05}$, $\chi^2 = 2.38 < \chi^2_{.05} = 3.84$. Thus, the chosen data does not show gauss distributions in either of the male or female subjects so we calculated the spearman's rank correlation coefficient.

Table XII

Frequency distribution of meridians that differ between male and female subjects (extracted from Table VIII-4).

***m* x *n* contingency table**

Most Active	GB	ST	SB	SI	UB	HC	LI	TH
Male	1	2	6	0	1	1	0	1
Female	2	0	0	1	2	6	1	1

Test Result:

df	7
χ^2 Value	14.22085
p value (one sided)	0.04739
χ^2 (0.95)	14.06713

The meridian flowing order is the order of Ki-flow based upon ancient clinical experience. This order of flow is thought to start at the Chu-kan (CV12) point of ST meridian and move to LU at first then to the large intestine (LI), stomach (ST), spleen (SP), heart (HT), small intestine (SI), urinary bladder (UB), kinder (KI), heart constrictor (HC), triple heater (TH), gallbladder (GB), and liver (LV). On the other hand, the AMI measuring order is in order of measurement as indicated in Table XIII, which starts at the "well" (sei) points on the left hand and goes to those of the right hand and then to those of the left foot and right foot.

According to Table XIII, the data that showed significant correlation are the measuring order data of March, September, November, and December. The data of October shows a significant correlation coefficient in the meridians flowing order and the measuring order. Measuring order data indicate significant correlation for 5 months out of 12 months but flowing order data show significance only in October. The possible reason for this may be that BP value of the points next to each other in the hands and feet have an approximate value close to each other.

Regarding BP values of the measuring order, because of their significant correlation for 5 months out of 12 months, we can say that BP value between male and female subjects are to a certain extent correlated.

Table XVI
Spearman rank order correlation coefficient test on male and female for each meridian.

January Measuring Order			January Flowing Order		
	Male	**Female**		**Male**	**Female**
	1	2		1	2
LU	1865.98	1692.65	LU	1865.98	1692.65
LI	1574.37	1386.87	LI	1574.37	1386.87
HC	1528.43	1326.17	ST	1439.35	1346.27
DI	1605.40	1450.73	SP	1622.60	1565.85
TH	1564.93	1401.53	HT	1630.15	1437.12
HT	1630.15	1437.12	SI	1572.57	1374.35
SI	1572.57	1374.35	UB	1463.48	1323.83
SP	1622.60	1565.85	KI	1533.42	1392.90
LV	1616.37	1532.23	HC	1528.43	1326.17
ST	1439.35	1346.27	TH	1564.93	1401.53
SB	1462.47	1366.53	GB	1482.47	1352.05
GB	1482.47	1352.05	LV	1616.37	1532.23
KI	1533.42	1392.90	DI	1605.40	1450.73
UB	1463.48	1323.83	SB	1462.47	1366.53
Correlation coefficient r		0.134206	Correlation coefficient r		0.130094
p value (two-tail)		0.172108	p value (two-tail)		0.696625

However, within the 5 months of significant correlation, cold season (from December until March) tends to show a positive correlation. *The BP value relationship between male and female subjects in this phase is [Male > Female]; if the BP value of the male increases than the female's BP value increases as well.* On the other hand, the BP value in the warm season of September, October, and November (as recorded in California) is of the relationship [Male < Female] and in these months we find a negative correlation, which is when female BP values increase, male BP values decrease.

The factors mentioned above is a phenomena that shows the differences of meridians and Ki functions between male and female subjects.

OVERALL CONCLUSION

From the Analysis of Meridian Function (BP values) of Male and Female

Male meridian function is more active and has more Ki energy than female meridian function during cold and hot climates, whereas female subjects have more Ki energy and more active meridian function during the mild climates.

From the Analysis of Difference in Active and Inactive Meridians Between Male and Female.

1. No significant difference was found in the distribution of the meridians which are active and inactive between male and female subjects.

   Throughout the year, there are many common active and inactive meridians between males and females among the 14 meridians. This indicates that the meridian function, as compared between male and female subjects is not significantly different.

2. The meridians that are the most active throughout the year, in both male and female subjects, are the LU, SP, and LV; and the most inactive meridians are the UB and ST. This phenomenon can also be seen in data obtained from about 2,000 Japanese subjects measured in Tokyo.[1] The most active meridians for Japanese subjects are LU, LV, SP, and KI, and the most inactive meridians in order of strength are SI, GB, ST, and UB. This phenomena, seen in meridian function, may be common to all human beings.

3. Among the most inactive meridians, the meridians that differ between male and female in six months out of a year are the SB meridian for male subjects and the HC for female subjects. This shows a difference in meridian function between male and female subjects.

From the Correlations Among Activities and Ki Energy Quantity of Meridians Flowing from Lung (LU) to Liver (LV) Between Male and Female

The BP values of the 14 meridians between male and female subjects obtained by measuring order data show significant correlation in 5 months out of 12 months compared to flowing order data. The correlation in cold season (December and March), when male meridian function and Ki energy are more active than the female ones, shows a positive correlation. This indicates that when male meridian function becomes active, then female meridian function is also active. On the contrary, in September, October and November, when female meridian function is active, the correlation is negative. This indicates that when female meridian function becomes active, male meridian function becomes inactive.

The above mentioned conclusions lean towards the acknowledgement that there are similarities and differences in meridian functions between male and female subjects over the course of a calendar year as tested amongst a group of California residents. In light of similar results recorded from a group of subjects in Japan, we may be on the verge of uncovering a natural order of male/female meridian functions in all human beings.

• • •

CORRESPONDENCE: Hideki Baba, Ph.D. • California Institute for Human Science • 701 Garden View Court • Encinitas, CA 92024 • Email: info@cihs.edu

ACKNOWLEDGMENTS: The authors wish to thank Dr. Hideki Baba for the translation of the manuscript from Japanese into English.

REFERENCES & NOTES

1. H. Motoyama, *Measurements of Ki Energy, Diagnosis & Treatments* (Human Science Press, Tokyo, Japan, 1997).

∞ ∞ ∞

Appendix A
INTRODUCTION TO THE AMI

AMI is an abbreviation of Apparatus for measuring function of Meridian and a corresponding Internal organ.

Electric current pattern measured with the AMI

The AMI was invented by Dr. Motoyama and so far tens of thousands of people have been measured and diagnosed with the AMI by acupuncturists, M.D.s, and medical professors in many countries around the world.

1. Indifferent electrodes are contacted at the wrists of both hands and active electrodes are contacted at "well" (sei) points of 28 meridian located near the tip of fingers and toes. Then a 3V DC is applied between both electrodes for one millisecond.

2. A current is measured (Figure A-1).

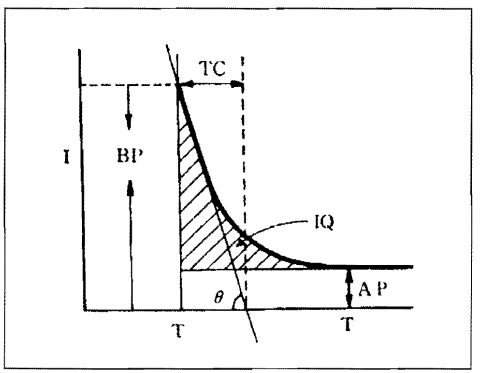

Figure A-1. *Parameter Derivation Schematic.*

3. BP is a current flowing in dermis resulting from the applied electrical potential before reverse polarization is generated at the basal membrane of the skin in response to the electrical potential. BP is a parameter of meridian and Ki energy.

4. AP is a current flowing in epidermis after the completion of polarization. This current is the same as GSR. AP is a parameter of the Autonomic Nervous System.

5. IQ is the sum of the ionic charges that gather on either side of the basal membrane. It thus represents the extent of the polarization. This is a parameter of immune system.

6. TC is the duration of time for completing the polarization.

7. The following is deduced from these four measurements.

8. L% and R% is the percentage which is calculated through dividing each BP, AP, IQ and TC of 28 meridians by the mean values. L% is the standardized value of the each left meridian through the above method. R% is the standardized value of the each right meridian.

9. D% is the percentage which is calculated dividing each difference between the left and the right values by the mean value of the difference between each of 14 pairs of well points.

10. AVE is the mean value of the values measured at 28 well points.

11. SD is the standard deviation of values measured at 28 well points.

12. F/T is the ratio of the average value of the hand (14) meridians to that of the feet (14) meridians.

13. L/R is the ratio between the left 14 meridians average value and that of the right. Regarding the above mentioned data, a computer print out of the data can indicate whether a meridian is normal or not by the program.

    Based on the above data, we can diagnose as follows.

    - Whether a meridian and the corresponding internal organ to this meridian is normal or diseased.

    - According to the above diagnosis, the treatment of meridian points are determined by the included program.

    - According to the diagnosed meridian situation, the state of the astral chakra (which is an energy center of the astral spiritual body) is diagnosed whether it is activated or not.

    - Based on A and C above, the constitution and character of a person can be diagnosed.

∞ ∞ ∞