A Critical Analysis of the Fleiss-Swoboda Biorhythm Theory and Its Relationship to Industrial Accidents and Psychic Ability

by John Cronin

Abstract: Recent popularity of a predictive behavior system known as biorhythms has not been accompanied by substantial scientific research. Four experiments covering industrial accidents, psychic ability, athletic performance and political decisions were designed to test the validity of the critical day hypothesis associated with biorhythm theory. Except for several unusual and important "coincidences", no significant correlations could be found to justify the extensive claims of biorhythm advocates.

Introduction

In the last several years there has been a phenomenal rise in the popularity of a predictive system known as biorhythms. Popular books on the subject such as Biorhythms: A Personal Science (Gittleson, 1976) have gone into multiple printings at as much as $9 a copy, special pocket calculators are available for $29, college courses on the subject are offered in several areas and even sidewalk computers deliver a daily biorhythm for 25¢. It has long been recognized that astrology is the most popular of the "pseudo-sciences" (Truzzi, 1972) and it is quite possible that the same people are now being drawn to biorhythms.

The reason for this recent revival of biorhythm theory, does not seem to lie in any major scientific breakthrough. A survey of the literature in the field indicates a severe lack of studies that are generally considered scientifically acceptable. In fact most of the research is being done by proponents of the theory such as Harold Willis of Missouri Southern State College and only occasionally does a balanced article reach public attention (Hirsch, 1976).

The most probable explanation for biorhythm popularity is in an understanding of the mechanics of the method. With the accessibility of computers and calculators, it is now possible to create a personal biorhythm chart quickly and inexpensively. Mass publications such as the National Enquirer advertise yearly charts for as little as $3.50, do-it-yourself devices cost about $7.50 and most popular books on the subject include all the necessary charts and directions. No other predictive method such as astrology, palm-
reading, graphology, etc. can offer such instant and easy to understand results.

The biorhythm print-out especially seems to have the aesthetic quality of making the inexperienced user feel a part of a technological discovery. I have often observed how people are fascinated by the computer lettering, the long wavey bio-curves and the precision of picking a specific date and knowing exactly whether it is a "good" day or a "bad" day. It appears from these observations that the biorhythm chart satisfies the average person's desire both to be a part of the new scientific age as well as know the future. It is a very powerful attraction.

**History of Biorhythms**

A popular history and interpretation of biorhythms can be found in any of the introductory books on the subject. For those unfamiliar with the subject, I will present a brief summary from those works.

Shortly before 1900, Dr. Herman Swoboda, a professor of psychology at the University of Vienna and Dr. Wilhelm Fleiss, an eminent nose and throat specialist in Berlin, discovered the theory through independent research. Both men observed rhythmatic fluctuations in the emotional and physical health of their patients. The 23-day and 28-day cycles that are the foundation of biorhythm theory were found to be the best explanation for the ebb and flow of resistance to disease.

Fleiss developed an elaborate mathematical table to enable his patients to check their own rhythms, while Swoboda produced a biorhythm slide rule. The necessary mathematical apparatus was still formidable and the theory did not enjoy widespread use.

Another cycle was added in the 1920's by Alfred Teltscher, a teacher in Innsbruck. Taking the results of scores on school exams, he found that students had high and low peak performances fluctuating in a definite 33-day cycle. Unfortunately, Teltscher was never able to formally publish his work. Following this addition to the theory, other researchers contributed varying degrees of information about biorhythmic activities of railroad workers, athletes, and medical cases involving surgery.

At no time was a rational explanation given for why these rhythms existed or how they worked. Extensive scientific research into other forms of rhythms (menstrual, circadian) rapidly took
place on plants, animals and humans. While this was taking place
the Fleiss-Swoboda-Teltscher biorhythms appeared to quietly fall
into the broad category of living cycles. Proponents of this theory
tended to treat all rhythms as part of the same process without
indicating the sketchy nature of past biorhythm research. The
very comprehensive bibliography in the *Biorhythm Newsletter*
(July, 1976) includes only a few biorhythm sources and a complete
selection of human cycle literature.

The most upsetting aspect of the biorhythm theory is that all
rhythms start at the same level at the moment of birth and con­
tinue in a precise, unvarying pattern until the moment of death.
This uniformity both within a given individual (repetition of a sine
curve) as well as between individuals (same cycle for all humans)
is inconsistent with our knowledge of other biological cycles that
vary within lifetimes and between people (Ward, 1971). The bio­
rhythm advocates admit that some variations take place, but most
of the population conforms to the normal pattern and this makes
meaningful correlations possible.

**Interpretation of the Chart**

According to most biorhythm advocates, the biological clock
begins ticking at the moment of birth. It is assumed that the cycles
are initiated by a massive stimulation of all the sensory organs and
drastic changes in the vital functions. Each of the cycles starts at
a neutral baseline where it begins to rise in a positive phase in
which the energies and abilities associated with each cycle are
high. Gradually declining, the cycles cross the zero point midway
through their complete periods.

For the balance of the period each rhythm is in a negative
phase in which our energies are recharged and our capabilities are
low. We pick up increasing amounts of energy as the negative
phase continues until, at the end of each cycle, the zero point is re­
crossed. Here the whole process begins again.

The physical cycle lasts 23 days and affects a broad range of
physical factors including resistance to disease, strength, speed,
coordination and the sensation of physical well-being. The emo­
tional cycle governs creativity, sensitivity, mental health, mood
and to some degree, the sex of our children conceived during dif­
ferent phases of the 28-day cycle. Finally, the intellectual cycle,
which takes place over a 33-day period, regulates memory, alert-
ness, receptivity to knowledge and logical and analytical functions of the mind.

Since the three cycles last for different numbers of days, they rarely coincide and cross the baseline at exactly the same time. Therefore, we are usually affected by mixed rhythms and our behavior is influenced by a composite of these differing rhythms. It is difficult to generalize about which rhythms in which phases will dominate. Except when the implications are obvious (all cycles are up or down), precise analysis of a particular profile is left up to the individual because he is the only one who can adequately judge its personal effects.

Our weakest and most vulnerable moments occur when each cycle crosses the baseline and switches from positive to negative or vice versa. At these points, the rhythms become unstable. They seem temporarily out of step, as though unsettled by the change of energy direction. These days of flux are called critical days and are considered by biorhythm proponents to be of prime importance. These critical days are identified by the researchers as the periods of greatest statistical correlations.

On physically critical days, we are most likely to have accidents, catch colds and suffer other types of bodily harm. Senseless frustration, fights, quarrels and depressions are typical of emotionally critical days. On the intellectually critical day one can expect bad judgements, difficulty in expressing things clearly, remembering material we already know and learning anything new.

It was assumed that if the biorhythm theory was as clearcut and predictable as its advocates claimed, there would be little difficulty in duplicating the results of their experiments. Once an acceptable biorhythm program was written for our computer, it was then possible to test the theory under carefully controlled experimental conditions.

**Procedure and Results**

In an effort to test as many different aspects of the biorhythm theory as possible, four different experiments were designed. Two of these dealt with industrial accidents and athletic performance, the most popular and successful aspect of modern biorhythm research. Two other fields, psychic ability and political decision-making, have not received much attention and therefore these studies could be considered a first of their kind.
Industrial Accidents

The Insurance Company of North America provided the data on 134 industrial accidents for a major New England plastic’s firm covering a five year period. These accidents include all the injuries on which claims were filed and thus represented only the major accidents in the factory. Twelve accidents were eliminated because they occurred under conditions which were completely unavoidable and in no way caused by human error. Each victim’s biorhythm was computed for the time period surrounding the accident.

In order to test the statistical integrity of the biorhythm program, several preliminary checks were performed. First, the theoretical calculations for critical days were computed for five time periods of twelve hours each. Thus I found the percentages of critical days that would occur by chance on the exact twelve hour period of the accident, 12 hours after, 12 hours before, 24 hours after and 24 hours before. By combining these figures it was possible to calculate the theoretical chance of an accident occurring 12, 24, 36, 48, and 60 hours from a critical curve crossing.

These numbers are extremely important because a critical crossing occurs approximately every 4.5 days or 80 times a year. This means that in any twelve hour period an individual has a 14.52% chance of having a biorhythm cross the critical line and in any 60 hour period (24 hours before and after a give date) there is a 58.32% chance of a critical crossing. Without reference to this theoretical chance value any biorhythm research is worthless.

A control date of January 1, 1976 was then run on the computer for a six year period. Six days in each month were checked for a critical crossing resulting in 432 individual cases. In seven out of the eight periods measured, the deviation from chance was never more than one standard deviation and in only one period did it exceed at a probability of .046 (22 to 1). The total variance from chance was at a probability of .3 (3 to 1) over a 60 hour period. Thus the theoretical value conformed within satisfactory limits to a random selection of dates on a control sample.

Having thus established a reliable measure for the chances of a critical crossing, we proceeded to analyze the actual charts of the accident victim. Two methods were used; the first measured five of the 12 hour periods before, during and after the accident,
the second measured eight time periods that included a combination of 12 hour segments before, during and after the accident.

In the first method we found 22 accidents occurred within the first 12 hour period of a critical rhythm crossing. This was approximately four cases above chance for a probability of .3 (3 to 1). This level or below was maintained in all the other 12 hour periods tested. No significant biorhythm correlations using the critical day criterion could be found for any of the 12 hour periods starting from the day before the accident and continuing to the day after the accident.

In the second method, six out of the eight time periods contained results that were no greater than one standard deviation, which is approximately a probability of .32 (3 to 1). Thus for example, the exact 24 hour day of the accident had only 3 cases above the chance level which was statistically insignificant.

There were two exceptions to this pattern. One minor deviation was the period which included the exact date of the accident and 24 hours preceding it. In this case there were ten accidents above the chance level for a probability of .07 (14 to 1). Although this is not a very significant figure, it might support some of the theories of Harold Willis.*

The other positive result came from the 60 hour period which included not only the exact date of the accident, but 24 hours before and after. In this case there were 13 critical crossings above chance at a probability of .018 (55 to 1). This figure is still short of the .01 level generally required for statistical significance. The smallness of the sample and the large period of time (almost three days) tends to make the probability figure even less important. Nevertheless the results did indicate a very slight increase in critical rhythm crossings during the sixty hour period surrounding the specific industrial accident.

A two-tailed probability test was used exclusively in computing the probability statistics. Most of the data lent itself to this analysis and in those few cases where a single-tailed test might have been applicable, the significance level would not have been meaningfully affected.

*Willis feels that his research points to an earlier starting time for the biorhythm. Instead of starting at birth, he suggests starting at the onset of labor (about 24 hours earlier) when the fetus makes its first attempt to separate from the mother. While he contends that traditional theory produces impressive correlations, his modification would improve these figures even more. (from personal communication on his forthcoming book, Biorhythms: The Science of You).
### Table 1: Comparison of critical biorhythm crossings expected by chance with those actually occurring for selected 12 hour periods [-2 to +2] before and after the exact time of accident [0]. (N=122)

<table>
<thead>
<tr>
<th>Time Period</th>
<th>-2</th>
<th>-1</th>
<th>0</th>
<th>+1</th>
<th>+2</th>
</tr>
</thead>
<tbody>
<tr>
<td>Chance %</td>
<td>14.52</td>
<td>9.38</td>
<td>14.52</td>
<td>7.38</td>
<td>14.52</td>
</tr>
<tr>
<td>Expected</td>
<td>17.7</td>
<td>8</td>
<td>17.7</td>
<td>9</td>
<td>17.7</td>
</tr>
<tr>
<td>Actual</td>
<td>20</td>
<td>12</td>
<td>22</td>
<td>8</td>
<td>22</td>
</tr>
<tr>
<td>Difference</td>
<td>+2.3</td>
<td>+3</td>
<td>+4.3</td>
<td>-1</td>
<td>+4.3</td>
</tr>
<tr>
<td>S.D.</td>
<td>3.89</td>
<td>2.88</td>
<td>3.89</td>
<td>2.88</td>
<td>3.89</td>
</tr>
<tr>
<td>C.R.</td>
<td>.6</td>
<td>1.0</td>
<td>1.1</td>
<td>.34</td>
<td>1.1</td>
</tr>
<tr>
<td>Probability</td>
<td>.55</td>
<td>.32</td>
<td>.27</td>
<td>.73</td>
<td>.28</td>
</tr>
<tr>
<td>Odds</td>
<td>1.8:1</td>
<td>3:1</td>
<td>3.7:1</td>
<td>1.3:1</td>
<td>3.5:1</td>
</tr>
</tbody>
</table>

### Table 2: Deviation of the actual accident cases from chance for selected, combined time periods. (N=122)

<table>
<thead>
<tr>
<th>Period</th>
<th>Difference</th>
<th>SD</th>
<th>Probability</th>
<th>Odds</th>
</tr>
</thead>
<tbody>
<tr>
<td>A (12 hrs)</td>
<td>+6</td>
<td>7.3</td>
<td>.412</td>
<td>2.4:1</td>
</tr>
<tr>
<td>B (24 hrs)</td>
<td>+3.3</td>
<td>4.4</td>
<td>.453</td>
<td>2.2:1</td>
</tr>
<tr>
<td>C (36 hrs)</td>
<td>+6.3</td>
<td>5.0</td>
<td>.208</td>
<td>4.8:1</td>
</tr>
<tr>
<td>D (36 hrs)</td>
<td>+9.6</td>
<td>5.3</td>
<td>.072</td>
<td>14:1</td>
</tr>
<tr>
<td>E (36 hrs)</td>
<td>+5</td>
<td>5.3</td>
<td>.072</td>
<td>2.9:1</td>
</tr>
<tr>
<td>F (48 hrs)</td>
<td>+8.3</td>
<td>5.4</td>
<td>.126</td>
<td>7.9:1</td>
</tr>
<tr>
<td>G (48 hrs)</td>
<td>+7.6</td>
<td>5.4</td>
<td>.159</td>
<td>6.3:1</td>
</tr>
<tr>
<td>H (60 hrs)</td>
<td>+13</td>
<td>5.5</td>
<td>.018</td>
<td>55:1</td>
</tr>
</tbody>
</table>

A. 12 hours of exact date of accident  
B. 24 hours of full day of accident  
C. 12 hrs before, 12 hrs after and date of accident  
D. 24 hours before and date of accident  
E. 24 hours after and date of accident  
G. 24 hrs before, 24 hrs after, and date of accident  
H. 24 hrs before, 24 hrs after and date of accident
Political Decisions

Following the 1976 presidential election, a four year chart of Jimmy Carter was computed. I noticed that on February 9, 1977 he would experience a perfect triple critical day, something that occurs only once every 1521 days. If there was any validity to the biorhythm theory this was certainly an excellent test for here was a combination of both an ideal biorhythmic situation and a prominent individual who had to maintain peak emotional, physical and mental abilities.

As background preparation for this test, approximately fifty major political decisions were selected from the World Almanac’s News Review section. These included such events as major Viet Nam decisions, Watergate decisions, important appointments and major deaths. In no case was there ever a triple critical day, so it became impossible to compare the Carter experience with any former example we could find.

Several important events did occur in our sample. A triple low day occurs about twice a year (175 to 1) and Gerald Ford ordered the beginning of the aborted swine flu program on just such a day. A double critical day occurs about 14 times a year (25 to 1) and these events happened at that time: Lyndon Johnson ordered the first bombing of Hanoi, Richard Nixon ordered the first invasion of Cambodia, Tom Eagleton accepted the Vice-Presidency, Earl Butz made his racial joke, Richard Nixon made the first order to limit the FBI investigation of Watergate and Ted Kennedy drove off the Chappiquidick bridge.

While the odds of 25 to 1 are not very significant, the magnitude of these decisions are quite impressive. It is impossible to objectively judge the statistical significance of these biorhythm correlations. For example no poor decisions appear in the sample to have been made by John Kennedy and yet Richard Nixon had two very important ones. It should also be pointed out that the exact day of a political decision is seldom the same day that it is formulated or implemented.

In any case this background did give some encouragement, subjective as it was, to the validity of the use of biorhythms in predicting political events. The important test, however, still dealt with President Carter’s activities on February 9th. A survey of the New York Times and Washington Post of February 10th and 11th indicated that no major event, emotional, physical or mental ap-
pears to have happened to the President on that date nor for that matter on the day before or after.

I concluded that biorhythms probably have little value as a predictive tool in political analysis. It should be pointed out, however, that some very interesting "coincidences" did appear in the study which had significant critical curve components. These anomalies may result from a highly subjective selection process and are too imprecise for scientific assessment.

Superbowl 1976, 1977

It is very common in the popular biorhthym research to check on the performances of athletes. This is caused by the value such a study would have to the average bettor as well as the ease in identifying a specific day for measurement. We picked the two recent Superbowls for our experiment and ran the charts for the major participants a week in advance of the game. These results were published in the local newspaper before the games took place.

In the 1976 Superbowl I made thirteen predictions and concluded that Pittsburgh would be the winner. Although this latter conclusion was correct, twelve of the thirteen predictions were wrong. The most significant mistake was in indicating a below average day for wide-receiver Lynn Swann. After making two sensational catches, he was voted the game's most valuable player. One interesting prediction stated that the Dallas punter would have a very bad day and it was his blocked punt which was the turning point in the game.

In the Superbowl of 1977, I picked Minnesota as the winner, yet cautioned against an extremely poor performance of Fran Tarkenton their quarterback. The winner was choosen on the basis of an absolutely terrible day for all Oakland receivers. In the results of this game I missed picking the correct winner and Fred Biletnicoff who was supposed to have a below average game won the Most Valuable Player award. Interestingly Tarkenton did have a very poor day and some sport's commentators felt this was one of the most important factors in the game's outcome.

It is difficult to objectively measure the success of the bio-rhythm predictions for the two Superbowls. I had picked two most valuable players in a row to have bad days. At the same time I accurately identified the major negative factor in each losing teams performance. It would appear from these experiments that positive results are too haphazard to provide a reliable model.
Biorhythm Chart Analysis

a: President Jimmy Carter had a triple critical day on February 9, 1977 as shown by the perfect line-up of the M, E, and P letters. According to the published reports of that day, nothing unusual happened to the President even though this event happens only once every four years.

b: Ted Kennedy drove off the Chappaquidick bridge on July 19, 1969 a day in which he had a mental and physical critical crossing. Such a situation supposedly would cause an inability to think clearly (notify help promptly) and physical weakness (unable to save his passenger). There are approximately fifteen such combined crossings a year (25 to 1).

c: Except for June 22, 1972, Richard Nixon showed no unusual biorhythm correlations during the entire Watergate period. On that day, however, Bob Halderman notified him of CIA and FBI leads in the case and the President made what has become known as the “smoking gun” order to halt their investigations. His mental and emotional curves were crossing the critical line which supposedly would have combined an extremely nervous state with an inability to think clearly. As in the Kennedy situation, this double crossing occurs about fifteen times a year.

d: Fran Tarkenton by all accounts had one of his poorest performance days as a professional football player on January 9, 1977. His scrambling, one of his strongest characteristics was extremely weak. The physical curve was critical and the mental and emotional cycles were at low points which according to biorhythm advocates would have explained his very poor showing.

e: Fred Biletnikoff’s biorhythms showed all the indications of a poor day. He had a physical critical crossing and was low in both mental and emotional cycles. Along with Tarkenton, he had one of the poorest charts of anyone in the Superbowl '77. The actual performance of Biletnikoff was excellent, however, with several fine pass receptions in addition to being named the games MVP.

f: Lynn Swann’s chart indicates what most biorhythm analysts would probably predict as a below average day for a wide receiver. The important mental curve is critical causing a lack of concentration, an absolute necessity for a player who must catch the ball. Swann made two of the most spectacular catches ever seen in a Superbowl game and was given the most valuable player award for his efforts.
a Jimmy Carter - Triple Critical Day

February 9, 1977

b Ted Kennedy - Chappaquiddick Incident

July 19, 1969

c Richard Nixon - Ordered Watergate Cover-up

June 22, 1972
Psychic Ability

A class on psychic phenomena was given a standard telepathy test using a deck of playing cards minus the picture cards. One run of forty cards was performed, the students graded their scores and recorded their birthdates next to them. The biorhythms were then charted for each of the scores.

Seven scores were slightly above the chance level, ranging from a .13 (8 to 1) on correct guessing of the card color to a .003 (333 to 1) hit of five correct cards. In this group of seven high scores there was one critical day and five critical crossings in a 60 hour measuring period. This figure was extremely close to the chance expectancy level. While it appeared that the curves in general followed a random pattern, no person scoring high had all three curves above the critical zero line on the day of the test.

Eleven scores were slightly below chance and these ranged from a .13 (8 to 1) to a .008 (120 to 1) incorrect guesses of the card color. More significant psi-missing was prohibited because only one run of the deck was used. There were two critical days and seven total critical crossings in a 60 hour period, both well within the chance range. The only two charts which showed any unusual pattern was a triple high day on a .13 probability score and a triple high day on a .008 probability score. A triple high of this kind happens only once every 100 days and for two similar cases to occur in a sample of eleven would make the odds over 1000 to 1.

Because of the small sample, it was felt that this situation may be more coincidental than statistically significant. Nevertheless, these two high biorhythm curves in the poor ESP scores and the large number of low biorhythm curves in the high scoring group might indicate an inverse relationship. Thus when a person is at their emotional, physical and mental peaks, they loose touch with their psychic abilities and conversely when they are at a mental, physical and emotional low they become more psychic. Such a thesis would be compatible with finds that show a correlation between ESP scores and relaxation techniques (Braud, 1973). There was only a very slight indication of this trend, but it may indicate a possible direction for further study. The critical days hypothesis produced results at the chance level and indicated no relationship to the ESP scores.

Another variation of the psychic-biorhythm relationship was
explored using Uri Geller as the subject. A series of dates was selected which covered the range of his important psychic experiences. These included such things as the failure on the Johnny Carson show, the day he bent Nitinol, the week he was tested at Stanford and the day he claims to have dematerialized in New York.

The biorhythms were charted for approximately fifteen such dates and no significant correlations were found in either the cases of failures or successes. In the case of Uri Geller, biorhythms appeared to have no affect on his psychic performances.

**Analysis**

The most important part of our study was the experiments with industrial accidents. It is in this area that biorhythm research has achieved its greatest amount of respectability. While our sample of 122 cases was modest, I felt that if any relationship did exist it would certainly be detectable in some manner.

The early part of the research was influenced by the exaggerated claims that came from the biorhythm proponents. Reference is made to over 5,000 companies which use biorhythms in varying degrees with results as high as 85% effectiveness. (Gittelson, p. 55) In no case did any of my research suggest the validity of statistics of that magnitude.

According to the *National Safety News*, the use of Biorhythms appears to be widely exaggerated at least in North America. "Only a handful of organizations will admit to using the theory and in almost every case it is used to promote safety awareness not to predict accidents." (Hirsch, 1976) This apparent reluctance to use biorhythms was encountered in my limited attempts to contact businesses in the area concerning their possible uses in controlled safety programs.

Misinterpretation of statistical results also appears to be a common problem. Kenneth Tyler of the Truck Underwriter’s Association initially found a 50 percent incident of accidents on critical days, however, when a statistician checked the figures it was found to be the same as might be expected by chance. (Hirsch, 1976) This happened in the preliminary stages of this study. A quick perusal of the accident figures showed a 52 percent rate of critical days and I quickly concluded that this was 100% above
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chance. It was almost a month latter that a methodical analysis of the figures displayed a more modest result.

A similar statistical problem is caused by a lack of knowledge of the theoretical chance level. Without comparing the actual percent of critical crossings with the number that would occur from chance, the researcher is unable to know if the findings are significant. A perfect example of this happened in the Ohmi Railway Company study, supposedly one of the leading biorhythm users. According to their reports, 59 percent of all accidents occurred on critical days, the day previous to and the day following the accident were taken into consideration. (Willis, Biorhythm and Its Relationship to Human Error).

We have interpreted this time as the 60 hour period and have found that the chance value would be 58.32%. Thus without realizing it, the Ohmi study found no significant deviation from the chance level, but never labelled it as such. Interestingly, on the basis of this information, the company began issuing advanced warnings to its drivers on their critical days and such a program resulted in a 50 percent drop in accidents. (Gittelson, p.54)

This effect should be recognized for what it really is, the influence of a self-fulfilling prophecy. Many of the safety programs cited inform the participants in advance of the critical day. For example at United Airlines, “Each participant in the program attends an introductory talk on Biorhythms and is given a personalized Biorhythm chart.” (Biorhythm Newsletter, May 1976) The results showed a decrease in accidents. It is my feeling that such early notification may increase personal awareness of safety precautions, but it does not indicate a cause and effect relationship with biorhythms.

It is interesting to note that at NL Industries, pipefitters were given wrong information about their rhythms and accidents decreased anyway. (Hirsch, 1976) This is reminiscent of the Hawthorne effect which indicates that any interest shown to workers improves productivity. A large number of the classic biorhythm studies (especially in the transportation industries) appear to be of this advanced warning type.

There are several studies which are similar to mine in that the analysis is done after the accidents have occurred and in general they tend to confirm my findings. One study of 4,279 aircraft accidents ruled out Biorhythms as a causal factor in the accidents. A
much larger study of 13,285 accidents in British Columbia found no correlation between critical days and the occurrence of industrial accidents. (Hirsch, 1976)

These studies appear to treat biorhythms fairly. They have been criticised for not separating accidents which are personally caused from ones over which the victim had no control. This separation was made in the Canadian study with no resulting change.

A study which seems to fall most closely in line with my results was performed by G. Robert Schwarz of the Bureau of Indian Affairs. In one study of 275 accidents of field workers, he found a 64 percent rate of critical crossings in a 60 hour period. His study, like mine, specifically concentrated on worker-influenced accidents. (Biorhythm Newsletter, Nov. 1976)

Swartz’s error which is common in much of the research is the lack of concern about applying a measure of statistical significance. While the 64 percent figure sounds impressively high, it is only 16 cases above a chance level for a probability of .055 (18 to 1). While this result, along with my own (.019, 55 to 1) is a positive trend, given the size of the sample and the length of time being measured, it is far from convincing.

State of the Art

A brief word should be said about the amount of deceptive and misleading statements which are written about biorhythms. It has already been shown how the extent of their use and the convincingness of their results has been overstated. (Smukler, 1976) In some cases this has been done on purpose by people who wish to make money, in other cases it has been an unconscious act by well-meaning researchers.

I have seen in my own experience how easily biorhythm research can be misconstrued. When the results of the 1977 Superbowl were predicted, a press release was sent to the local TV stations. After the game it was clear that the wrong team had been picked to win. While listening to the evening news, I was shocked to hear the announcer say that the Occult Studies Program had accurately predicted the outcome of the contest. According to him, the identification of Tarkenton’s poor performance was the critical factor and he completely failed to mention the negative results.

Some cases of misrepresentation are not so innocent. A recent
article in the National Star stated that Gary Gilmore tried to commit suicide on a triple critical day. The accompanying chart had an exactly perfect intersection of the three biorhythm lines. A copy of Gilmore’s chart from our computer program indicated that the curves crossed the critical line over a three day period and not as indicated at one moment.

Another irritating habit of biorhythm analysts is to pick dramatic events, find an interesting biorhythm curve and describe the event in cause and effect terminology. The average reader does not realize that there are a great number of critical days and low times in everyone’s life. As mentioned before, there are 80 critical days a year and 80 absolute low points. Consequently 44 percent of one’s life could be interpreted as a bad day biorhythmically. Statistically this means that out of every five important events, slightly more than two of them will have biorhythmic information that will appear to be significant.

An excellent example of this kind of distortion can be found in a listing of the death dates of prominent people selected by George Thommen (Is This Your Day, 1973). The following people died on a day in which one of their rhythms was in a critical state: David Lawrence, Lester Pearson, Edgar Snow, Walter Winchell, Erle Stanley Gardner, J. Edgar Hoover, General Douglas MacArthur and Robert Frost. The list seems impressive, but Thommen does not mention that about one out of every four people will die on a critical day. Similar errors are found in the recording of heart attack victims, airline pilots and assassination attempts.

In all fairness it should be stated that both Gittelson as well as Thommen have accumulated an incredible number of interesting biorhythm “coincidences.” This is especially true of the Biorhythm Newsletter which tries to keep a running commentary on the biorhythmic influences in contemporary events.* Such things as the Jimmy Carter’s emotional low on the day of the Playboy interview or Bobby Fischer’s chess successes on high days are typical of their fascinating discoveries. The nagging problem of subjective selection and large number of critical days, however, is a constant hindrance to making these kinds of studies scientifically useful.

*It is interesting to note that in Gittelson’s Biorhythm Newsletter he has printed several of the major negative pieces of biorhythm literature. Although the publication in general is slanted toward a positive image of biorhythms, a commendable amount of objectivity is included in its pages.
Conclusions

1. In a study of 122 human-error caused industrial accidents, biorhythm demonstrated no meaningful relationships in twelve of thirteen time categories. In a 60 hour period (24 hours before, 12 hours during, 24 hours after the accident) a probability of .019 (55 to 1) of critical crossings above chance was discovered. It was felt that the smallness of the sample and the largeness of the time period being measured made this slightly positive result even less significant.

2. Except for a few interesting “coincidences” in the data, there generally appeared to be no relationship between biorhythm curves and psychic ability or predictive success in the 1976 and 1977 Superbowl games. A very slight indication of an inverse relationship between ESP scores and the highs and lows of biorhythm curves does desire further investigation especially as it affects the “relaxation” hypothesis of psychic performance.

3. A rather large number of important political mistakes have occurred on critical biorhythm days, however as a predictive tool the system is still unreliable.

4. The study of biorhythms lends itself to a great deal of miscalculation and misinterpretation especially in the popular media. Extreme care should be used to avoid common statistical errors whenever research is undertaken. Unfortunately much of the material written on the subject is guilty of making these errors and consequently the results are of questionable validity.

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Biorhythms and Its Relationship to Human Error, monograph

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A drawing by famous occultist Agrippa demonstrates how the microcosm of the human body is a harmoniously functioning interrelationship of archetypal physical, geometric and cosmic symbols.
A Graphological Analysis of the Handwritings of Individuals Claiming Direct Contact With Extraterrestrials

by Marc Seifer

Abstract: The handwriting of fourteen people who claim to have been in contact with extraterrestrials was analyzed using a highly objective and quantitative measuring device known as the psychogram. In a classic bimodal curve distribution half of the sample scored in the area indicating unusually high creativity, while the other half scored in the area indicating borderline psychotic personalities. There were no scores in the area of the mean verifying the extreme nature of the people involved in the study.

Introduction

Recently an increasingly large number of individuals have claimed direct contact with beings not of the earth. These contacts have ranged from a form of telepathic communication to the physical act of boarding a UFO. At the same time that these “bizarre” claims have been made, scientists have become more liberal in their belief in the possibility of extraterrestrial life. There have been responsible estimates of as high as nine million earth-like worlds in the universe. (Sullivan, 1976). The coming together of this theoretical probability with the actual claimed contacts is a fascinating modern-day phenomena.

Over the last year, I had the opportunity to collect the handwritings of a large number of people with purported extraterrestrial links. The letters-to-the-editor file of a national magazine called Ancient Astronauts provided a rich source of information from people in this category. In addition to this group of relative unknowns, I was able to obtain the handwritings of some of the more famous contactees. It is this latter group which has greatly added to the public’s awareness of the extraterrestrial hypothesis.

The most well-known personality in this category is Uri Geller. His extraterrestrial links begin with a UFO encounter at the age of three and extended into his dealings with Andrija Puharich. According to their account (URI, 1973) the rulers of a place known as Hoova are in contact with Geller and provide him with the source of his powers. In recent years, Geller has tended to