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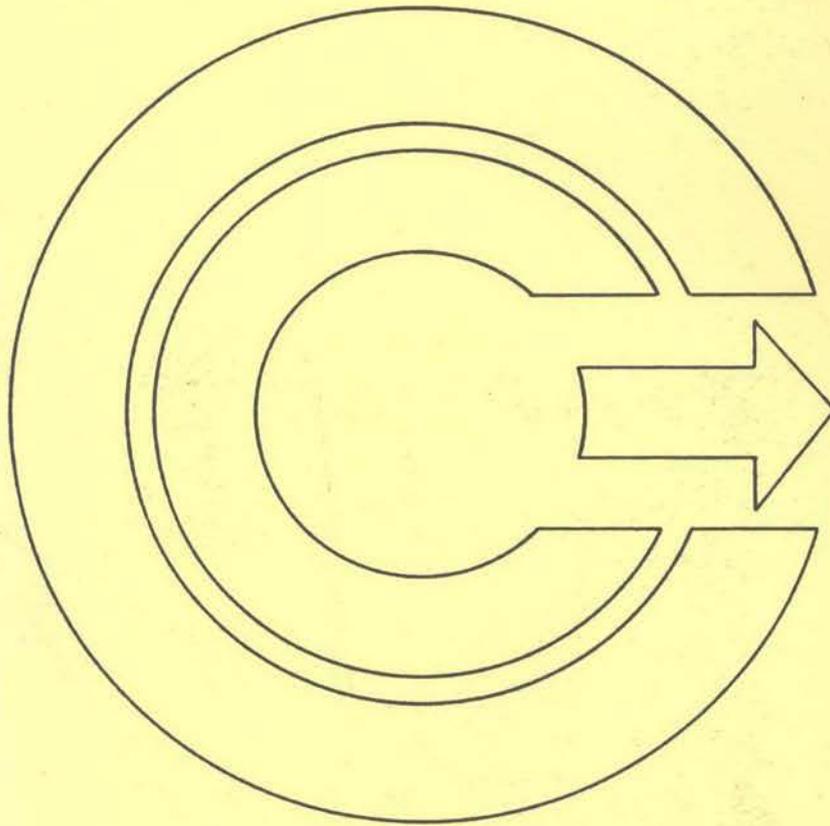
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**DIET, ENVIRONMENT AND CRIME
CONFERENCE**

sponsored by
**The Alberta Criminology and
Corrections Association**
June 13 - 14, 1985

by James A. Tittlemore



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Diet, Environment and Crime
Conference (1985: Red Deer, Alta.)

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ABSTRACT

The conference entitled Diet, Environment and Crime was held on June 13 and 14, 1985, in Red Deer, Alberta. Topics, in order of presentation, included: 1) Colour Psycho-dynamics; 2) Body Chemistry and Behaviour; 3) Allergies and Nutrition; and, 4) Brain Dysfunction.

While the quality of style of presentation varied considerably, the information was generally intellectually stimulating, pragmatic and readily applicable in most diagnostic and therapeutic settings.

In the interest of integration and perspective, a concluding general forum designed to present the relative practical implications of the various areas would have been helpful.

Format of this Report

The format, in the case of each presentation, will be that of identifying the speaker and the presentation topic, reviewing the content of the presentation, providing some personal impressions, and lastly, rating the speaker for presentation style and content.

Presentation by Dr. Wohlfarth Topic: Colour Psycho-dynamics

Dr. Wohlfarth briefly reviewed the phenomenology and psychology of colour, indicating that behavioural reactions to colours are both measurable and predictable. There are also methods of measuring the response of the autonomic nervous system to colours, including the measurement of blood pressure, pulse rate, and respiration rate.

Experimental Findings:

(1) The colour of an environment can affect behaviour. Evidence suggests that colours, as seen through the eye, affect the body through the endocrine system. The colour pink, for example, has been demonstrated to reduce the incidence of aggressive behaviours among violent inmates or delinquents.

Findings of a study conducted in a juvenile correctional facility in New Orleans varied colours from a stimulating yellow to a relaxing and comfortable blue. It was discovered that yellow led to poorer attention span and poorer behaviour, while blue led to a decrease in the incidence of disciplinary measures and noise level.

(2) Colour itself, or even the mental visualization of a particular colour can affect the healing time of wounds. With respect to the latter, it was indicated that exposure to the colour yellow can lead to shorter healing times, whereas exposure to the colour blue can lead to longer healing times.

(3) The introduction of specific colours into the environment of children can significantly affect behaviour.

An experiment using both mentally and physically handicapped children as subjects took measures of systolic blood pressure and various behavioural indices as responses to changes

in the colour of the environment, e.g., the walls, door frames, etc., of a classroom. It was found that changes in the colour were related to statistically significant reductions in systolic blood pressure and various behavioural measures including aggression, self-abuse and destruction.

(4) Both the quality and quantity of light and colour can affect behaviour. An experiment conducted in a Wetaskiwin school included in its design both the variables of light and colour. The effects on blood pressure, disciplinary counts, absence due to illness, mood estimates, and general noise level were measured. It was found that both colour and light could have significant positive affects upon the measured variables. For example, both systolic blood pressure and absence due to illness were found to be significantly lower. An interesting point brought out in this experiment is that the invisible, ultrabands of light can affect the behaviours of even blind children. It appears that the wavelength cast off by the colours has affects upon the dermal-optical receptors in the skin.

Comment

Dr. Wohlfarth's presentation contained some very practical information. It was pointed out that the introduction of both colour and ultraviolet light in a number of environments serves to improve both health and personality disposition. The audience was encouraged to install black lights in their daily environments and to consider interior colours as major contributors to behavioural responses. On the basis of much of what Dr. Wohlfarth presented, it appears that an ideal "relaxation room" environment would include blue colours and a "black light".

Rating of Presentation

It must be noted by the author that, while the presented information was informative and useful, Dr. Wohlfarth's presentation style and organization left much to be desired.

	Poor			Excellent
Style	①	2	3	4
Content	1	2	③	4

Mr. Alexander Schauss Topic: Body Chemistry and Behaviour

An Ecological Viewpoint

Mr. Schauss indicated that body chemistry variables tend to be fundamentally missing from the ecology of human behaviour. One should view the behaviour of individuals in light of some of the practical implications of the chemical content of the body.

An ecological view of human behaviour should consider the following:

Physical Organism

Genetics
Metabolism
Nutrition
Disease
Exercise
Appearance

Physical Environment

Air
Light
Sound
Environmental
Antagonists
Community

It was pointed out that the proper ecological view of human behaviour should include both the "internal" and the "external", some of which are listed above. Often too little attention is paid to the above variables in both assessing and predicting behaviour. While recognizing other contributing factors, particular emphasis in this presentation was placed on the nutritional and environmental impact on body chemistry.

Changes Affecting Diet and Behavior

A number of 20th Century changes have affected the North American diet: 1) the refrigerator; 2) radio and television; 3) automobiles, buses and subway; 4) telephone; 5) food technology and chemistry; 6) birth control; 7) women and jobs; 8) fast food establishments; 9) less regard for physical and environmental health; 10) agri-business moving in on family farms; 11) allopathic medicine predominating (i.e., not preventative); 12) the advent of nuclear families and single parent homes.

Mr. Schauss pointed out that the most frequently deficient vitamins and minerals in the North American diet are A, B6, C, zinc and iron. It was further pointed out that the foods most likely to cause behaviour disorders are as follows: food additives, soy, cow's milk, chocolate, wheat, corn, and sugar. When these foods are systematically removed from diets, highly

significant behavioural changes are noted. The combination of sugar and food additives is apparently a significant contributor to behavioural anomalies, particularly among children. Further, high milk consumption can deteriorate behaviour. It was noted that among delinquents the diet was usually poor, providing very low nutrient levels. It was stressed that those dealing with individuals in the criminal system should consider the high likelihood of the very real contributing factors of diet and nutrition.

Physiology and Behaviour

The most primitive areas of the brain, including the medulla, pons, and cerebellum are affected most by nutrition. In some cases of behaviourally disordered children the result is seen in their ability to cognitively and intellectually demonstrate insight but, nonetheless, have an inability to behave appropriately. Impulse control is apparently lacking.

Vitamins and Behaviour

Vitamin B1 is a co-enzyme which helps metabolize carbohydrates (sugar or starch) and can, thus, radically affect behaviour. A deficiency in this vitamin, resulting in a high content of refined carbohydrates in the body may result in changes in emotional sensitivity, aggression, irritability, poor impulse control, sleep disturbance (including nightmares), insomnia, fatigue, recurrent fever, diarrhea and constipation, abdominal or chest pain, headaches, and depression. The effects of this particular vitamin were reviewed in detail to exemplify vitamin deficiency-related behavioural difficulties. Mr. Schauss encouraged extensive reading in the area of vitamin deficiency effects in order to ensure fuller appreciation of a dynamic view of human behaviour and to understand some of the many contributing factors.

Minerals and Behavior

The content of iron in your body is related to cognitive functioning. Lower iron has led to lower scores in school achievement tests and to increasing conduct disorders. It was emphasized that a balance of body chemistry is essential to feeling healthy and helping ensure adequate behavioural control. In further relating the cognitive effects of hypoferrremia (low iron) it was indicated that the iron-deficient child and the anaemic child, for example, are apparently less attentive to the actual environmental cues that facilitate problem-solving, i.e., once the information is received the

child appears to process as well as other children who are not deficient in iron; the problem is that the information is not adequately received.

In looking at other trace minerals, the low level absorption of lead is frequently associated with hyperactivity and there are suggestions that lead and cadmium may be related to childhood learning disabilities. Exposure to lead can result in a decrement in performance on neuropsychological tests, a decrement in visuo-motor functioning, poor perceptual integration, poor right-left orientation, and poor verbal abstraction. It was pointed out that interpretation of intelligence test results in some cases should take into consideration the possible effects of these various trace minerals.

Low levels of another trace mineral, zinc, can lead to moodiness, depression, irritability, sensitivity to light, antagonistic behaviour, anger, and learning problems. As zinc is involved in virtually every brain neurochemical action, it is felt that a deficiency thereof can lead to serious behavioural difficulties. Other trace minerals such as magnesium and copper are identified as being critical to behaviour as well.

Information on trace minerals in the body can predict criminally-related behaviour. The mineral cobalt and its presence thereof in the body is viewed as perhaps the best predictor of violent offenders. Mr. Schauss pointed out numerous experiments and research projects in which almost perfect predictions of various types of behavioural anomalies were made through the blind analysis of trace minerals in the hair.

Comment

This was a dynamic and informative presentation.

<u>Rating Scale</u>	Poor			Excellent
Style	1	2	3	4
Content	1	2	3	4

Dr. Saul Pilar Topic: Allergies and Nutrition

Definition

An allergy was defined as an inappropriate reaction to a relatively harmless substance.

Dr. Pilar reviewed allergic reactions of the Type 1 and Type 2 nature. Type 1 is generally quite rapid in which any part of the body can be affected (often by swelling). One can often logically connect the allergic reaction to exposure to various allergic elements. The Type 2 allergic reaction is a delayed reaction from which it is much less likely that one can draw logical connections.

Methods of Detection

There are essentially two methods of identifying allergies: 1) in vitro (laboratory tests), and, 2) in vivo (skin tests). With respect to the latter, one can also engage in testing at home through trials of avoidance, usually involving a period of fasting followed by the systematic introduction of foods in a partial diet.

Dr. Pilar emphasized the informative nature of hair mineral analysis and encouraged its use among participants who are dealing directly with disordered behaviour.

Comment

The author apologizes for this rather uninformative summary of Dr. Pilar's material. The content herein, however, reflects the nature of the presentation itself.

Rating of Presentation

	Poor			Excellent
Style	①	2	3	4
Content	1	②	3	4

Dr. Lorne Yuedall Topic: Brain Dysfunction

Brain Systems

The brain systems, which can generally localize functioning, include the left (dominant), right (non-dominant), front (anterior), back (posterior), up (cortical), and down (limbic-brain stem). It was pointed out that the left portion of the brain is generally temporal-sequential, segmental, and deals with propositional speech. The right part of the brain is generally non-segmental, has to do with mood, affective speech, and spatial skills. The front part of the brain deals with organization, programming, abstraction, inhibition, while the back part of the brain deals with sensory perception and "psychometric IQ".

(For anyone interested, the brain systems can be related to Freudian theory. The Id is probably localized in the amygdala, the ego is localized in the prefrontal lobe, while the super ego is localized in areas of higher emotional control (which include guilt, shame, and remorse).

The Differential Approach

Dr. Yuedall stressed the advantages of a "differential approach" to the identification of problems and to actual diagnosis. This approach includes the identification of psycho-social factors, neurological lesions, and brain dysfunction, while also involving a multi-modal assessment which includes social history, medical history, neurological factors, and psychological and psychiatric factors. In investigating procedures for differential diagnosis one can employ the following: 1) brain stem evoked potentials to test the integrity of the brain stem and relative assymetry; 2) psychophysiological tests which include blood flow, GSR, and various other measures of autonomic functioning; 3) psychological testing which assesses sensory, cognitive, motor, achievement, and ability profiles; and, 4) quantitative EEG.

Sex Differences and Behaviour

Dr. Yuedall pointed out that there appears to be a preponderance of males who suffer from schizophrenia, psychopathology, agoraphobia, obsessional thinking, violent aggression, sexual difficulties, hyperactivity, etc. These generally involve left hemisphere functioning. Females, on the other hand, have a greater number of depressive components and

affective disorders, which are generally related to right hemisphere dysfunction.

Neurochemical Intervention

It was pointed out that numerous behavioural problems are frequently brought under control with right versus left brain medication and the selective administration of medication to various functional areas of the brain. Dr. Yuedall emphasizes the localization and identification of problem areas and the medical treatment of same.

In conjunction with the above, the presence and discharge of neurochemical transmitters including dopamine, noradrenaline and serotonin, can often be linked to behavioural difficulties. That there is a definite link between brain chemicals and behaviour indicates that brain systems are selectively neurochemically organized and that the introduction of various neurochemicals can radically affect behaviour of juvenile delinquents, hyperactive individuals, learning disabled students, etc.

Dr. Yuedall notes the preponderance of delinquents who are also learning disabled, pointing out that there is not necessarily a specific causal relationship between the two, and that delinquents may simply have a myriad of problems. There does appear, however, to be a covariation between hyperactivity and delinquency and delinquency and biological depression. Here again Dr. Yuedall emphasizes that these behavioural disorders may be treated medically. This may also be the case with learning disabled children. The importance of identifying individuals when they are young and treating them accordingly through chemical means, is stressed. For example, hyperactive individuals may well genetically inherit a chemical structure which predisposes them to this active behaviour pattern. Criminal psychopaths may also be born with this disorder.

Comment

Dr. Yuedall gives the impression that the biochemical approach is a panacea and that there should be a heavy medication component in the treatment of delinquents, learning disordered individuals, etc.. One is left with the impression that everything is a biological disorder and that "verbal therapy" is virtually useless as an approach with most of these individuals. Dr. Yuedall appeared to have little time for many of the other areas covered in this conference including nutrition, diet and psychotherapy.

Rating of Presentation

	Poor		Excellent	
Style	1	2	3	4
Content	1	2	3	4

Concluding Comments

The conference is viewed as a success. With the exception of the rather poor presentation style of two of the speakers, the actual content and the intellectually stimulating nature of the areas covered resulted in two days well spent. Colour and light, body chemistry, nutrition, and brain organization and neurochemistry are areas which should not be overlooked in responsible and intelligent diagnosis and treatment of many cases. With respect to the criminal element per se, these factors should be given substantial consideration in attempting to identify the etiology of difficulties and in working towards modifying behaviour.

By way of general comment, it was evident that each of the four major speakers was a strong proponent of his respective approach (although the importance of considering a variety of contributing factors was implicit in all but Dr. Yuedall's presentation). In this author's opinion, a forum designed to discuss and integrate the information would have been extremely helpful. This would have provided a good basis for appreciating the relative contributions of each approach as applied to the more common cases handled by the professionals present.

In sum, the conference was intellectually stimulating, highly informative, and eminently practical to the extent that this author has already implemented some of the suggestions and approaches in his clinical practice. Probably the more practical applications with respect to the day-to-day dealings of nonmedical professionals involve diet and nutritional variables and body chemical make-up as reflected through blood and/or hair analysis.

The author thanks the Ministry of the Solicitor General for the invitation to participate in this conference.

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