



FIRST WORLD CONGRESS ON INFANT PSYCHIATRY

PROF. LOUIS FRAIBERG

SAN FRANCISCO, CA

HOTEL ESTORIL SOL
CASCAIS, PORTUGAL

MARCH 30 - APRIL 3, 1980



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PROF. SELMA FRAIBERG
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MARCH 30 - APRIL 3, 1980
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 MARIA ISABEL SOUSA BRAGA QUERIOZ Lisboa
 MARIA TERESA FRANCO OLIVEIRA REDOL Lisboa
 CLESTE FONSECA MATOS RIBEIRO Porto
 JAO SALVADO RIBEIRO Lisboa
 MARIA TERESA DA CONCEICAO LOPES RIBEIRO Porto
 MEA DA GRACE GONCLAVES ROBALO Beja
 ESTELA CORDEIRO RODRIGUES Porto
 MARIA LUISA MACHADO RODRIGUES Coimbra
 EMILIA CERQUEIRA SANCHES Lisboa
 MARIA PAULA RONCON SANTOS Carcavelos
 JOSE AUGUSTO GRIJO SANTOS Lisboa
 MARIA DE LURDES DE CARVALHO SANTOS Coimbra
 MARIA AMALIA CARVALHO SILVA SASPORTES Lisboa
 TULIA DE JESUS FERNANDES LOPES SILVA Custodias
 MARIA FERNANDA ELIAS SILVA Dafundo
 MARIA EMILIA SILVESTRE Lisboa
 FERNANDA DA SILVA FLORES E SOUSA Porto
 ANTONIO TORRADO Coimbra
 FERNANDA VALLE Lisboa
 ANTONIO JOSE SANTOS BRANCO VASCO Lisboa
 ANA BELA GOMES CARDOSA VASCO Lisboa
 MARIA LUISA BRANCE VICENTE ESTORIL
 TERESA NUNES VICENTE COIMBRA
 MARIA JOSE VIDIGAL Lisboa
 RUI MANUEL XAVIER VIERA Lisboa
 JOSE LUIS PAIS RIBEIRO Porto
 ORLANDO FIALHO Lisboa
 CARLOS SILVA BRANCO Lisboa
 PEDRO FERRO DE SILVO MENESES Sacavem
 ALBERTO JOSE RODRIGUES QUEIRO Coimbra
 ALDA MARIA DE BRITO DUARTE Coimbra
 MARIA TERESA PEREIRA GONSALVES FAGULHA Lisboa
 MARIA FILOMENA MESQUITA ANDRADE Lisboa
 MARIA EDUARDA PEDROSA FRANCO Ingreja Nova
 MARCO ANTONIO DA SILVA PIRES PAULINO Oeiras
 JOAO DOS SANTOS Lisboa
 MARIA ANTONIA BORGES LAVINHA Lisboa
 MARIA ANTONIA CARDOSA FRASQUINHO Linda-a-Velha
 MANUEL JOAQUIM GUERREIRO Linda-a-Velha
 MARIA ETELVINA DE OLIVEIRA BRITO Lisboa
 MARIA MARGARIDA TAVERES DE OLIVEIRA Lisboa
 MARIA FERNANDA GONSALVES ALEXANDRE Lisboa
 NUNO DUQUE NUNES DE LACERDA Loures
 MARIA DA CONCEICAO REIS SARDINHA Lisboa
 AMELIA MARIA LERIAS DUARTE Lisboa
 MARIA ISABEL ALVES DA CRUZ Oeiras
 JOSE MANUEL ARRAIS PEDROSO FLORES Lisboa
 MARIA ISABEL CRUCHINHO BRITO Lisboa
 MANUEL LUIS DE CARVALHO LUIS Linda-a-Velha
 TERESA LEAL Lisboa
 JOSETE MARIA CARDOSO Evora
 IDALINA DE SOUSA MORAIS PEREIRA Lisboa
 MARIA DE FATIMA RIBEIRO SEQUEIRA Coimbra
 MARIA ELISA CELESTE JORGE Lisboa
 CAMILA MA UELA SILVEIRA DA COSTA Parede
 ADILIA RAMOS CABRAL Lisboa
 MERCES SOARES SILVA Lisboa
 MARIA AUGUSTA HORTA Lisboa
 MAGDA BARRETO Rio de Mouro
 MARIA TERESA SERRA Lisboa
 MARIA DO LIVRAMENTO KEATING Coimbra
 MARIA DO CARMO SILVA RAMOS MONTEIRO Lisboa
 MARIA RAES PIRES DE LIMA Peredo
 TERESA ANDRADE FERREIRA Lisboa
 JOSE LUIS PAIS RIBEIRO Porto
 MARIA ANTONIETA ALMEIDA MARCOS LOPES Portela da Sacavem
 RICARDO MANUEL BRAS DA SILVA MARTINS Oeiras
 MARGARIDA FRAZO Lisboa
 ANTONIO QUINTAS Lisboa
 MARIA GALAMBA DE OLIVEIRA Lisboa
 FRANCISCO DE VILHENA E SILVA Lisboa
 MARIA DA GRACA BARBOSA DE CARVALHO Lisboa
 MARIA VITALIA MORAIS ROQUE Sacavem
 JULIA VON ZELLER DE SERPA PIMENTAL Lisboa



FIRST WORLD CONGRESS ON INFANT PSYCHIATRY

HOTEL ESTORIL SOL
CASCAIS, PORTUGAL

MARCH 30 - APRIL 3, 1980

PROGRAM CHANGES

(Please read carefully)

Thursday, April, 3

Afternoon 2:00 PM - 5:00 PM

PAPERS I

Banquet Room North
(Portuguese translation)

Dr. Bertrand Cramer, Chairman

1. Dr. James Herzoj
2. Deborah Rosenblatt
3. Dr. Klaus Minde
4. Dr. José Cordeiro

PAPERS II

Banquet Room South

Fifi Piene, Chairman

1. Dr. Solyom's Paper will be read
by Dr. Jack Stack
2. Dr. Carol Falender
3. Dr. Lucile Ware
4. Dr. John Sonne
5. Dr. Raquel Berman

DISCUSSION GROUP I

Breakfast Room
(R floor)

Dr. Eleanor Pavenstedt, Leader
(as in Program Book)

DISCUSSION GROUP III A
(2:00 to 3:30 PM)

Penthouse Cascais A
(16th floor)

PREVENTIVE INTERVENTION

Dr. Elsie Broussard, Leader

DISCUSSION GROUP III B
(3:30 to 5:00 PM)

Penthouse Cascais A
(16th floor)

FILM ON "RAPPROCHEMENT AND RAPPROCHEMENT CRISIS"

Dr. John McDevitt

DISCUSSION GROUP IV

Penthouse Belavista
(16 th floor)

MOVEMENT PROFILE

Mrs. Arnhilt Buelte

SECTION ON FOLLOW-UP

moved to Penthouse Cascais B
(16 th floor)

Dr. Sol Nichtern, Chairman
(As in Program Book)

CONTINUATION OF WEDNESDAY'S
DISCUSSION GROUP ON PSYCHO-
SOMATIC DISTURBANCES IN INFANCY

Bridge Room (R floor)

(English speaking, no translation)

Dr. Anna Potamianou, Co-Leader
Dr. Sydney Margolin, Co-Leader

Papers by:

Drs. Cullen and Connolly
Dr. J. M. Ramos de Almeida
Dr. Suse Weber

Dr. Barton Blinder "Eating Disorders in Infancy"
Dr. Nathan Szanjberg "Visual maturation and Part-
-Object Development in the
First 6 Months of Life"

CLOSING BANQUET AND ENTERTAINMENT

8: 15 P.M.

Dining Room
(R floor)

Tickets (for those who do not have them) may be purchased at
Hospitality Desk.

THE EXPLORING SELF...EMERGES

Barbara Harris Fiese
Research Associate

Anna R. D'Orazio
Research Assistant

Bertram A. Rutterberg, M.D.
Director

DEVELOPMENTAL CENTER FOR AUTISTIC CHILDREN
Philadelphia, Pennsylvania

1st World Conference on Infant Psychiatry
Estroil, Portugal

The Exploring Self...Emerges - A preliminary report on observational assessment of normal and seriously emotionally disturbed children: implications for early detection of abnormal development.

"I just don't know what to do with her anymore. It takes us two hours to walk around the block. She has to stop and get into everything along the way".

Mother of 15 month infant

This excerpt from a conversation with a mother of one of our babies typifies the 15 month old infant. The drive to explore and interact with the social environment surges between 15 and 18 months. Of course this is not new information. Twenty-five years ago the Gesell studies described the 15 month period as the dash and fling age...getting into everything (Ilg and Ames, 1955). However, what we set out to determine was how the infant's motivational behavior develops in the eight areas mentioned previously. We are not focusing so much on the skills the infant acquires in the first two years of life, although they certainly enter into the picture. Rather we are interested in how the infant matures from a physiologically activated and regulated organism to a developing exploring self with a strong motivation to interact with the social environment.

This report will discuss our preliminary findings on a group of normal infants aged 3 - 24 months of age. In addition, we will compare the BRIAAC ratings of our normal infants with those of 16 seriously emotionally disturbed atypical children who appear to lack the motivation necessary to interact with the social environment. We will also briefly discuss our preliminary findings with high risk infants.

PROCEDURE: The normal population: The BRIAAC ratings obtained on the infant population were all conducted in their homes. Each mother, father, or primary caretaker and child are observed for approximately an hour and a half. The observation period is usually scheduled close to lunch time

This research is supported in part by the Pennsylvania Department of Health, Bureau of Professional Health Services, contract #633107

in order to insure an opportunity to observe the child's Social Responsiveness behaviors. Outside of this we do not require special scheduling and are able to obtain the information we need through the infant's regular schedule. The observer remains non-intrusive during the observation period but will interact naturally if approached by the infant. Our population has been drawn from personal friends and mothers and infants recruited at an inner city well-baby clinic.

In order to insure a somewhat homogeneous population of normal children, background information is obtained. The prenatal care, delivery and postnatal care records are used to obtain scores on the Obstetrics Complications Scale (Littman, 1974), and Postnatal Complications Scale (Littman, 1974), as outlined by Parmelee (Parmelee et al, 1976). In addition, each mother is asked to complete a confidential questionnaire that includes education of mother, SES, and perinatal environmental stress. In addition a temperament questionnaire is completed by the mother to determine whether she perceives her infant as difficult, or easy to take care of. Each of these four areas receive a quantitative score and are summed for a cumulative risk score. Those infants included in our normal population are relatively free of prenatal or postnatal complications and have not had disruption in their home life since birth. In general they are perceived as relatively easy to take care of. (A more detailed description of these factors will be discussed in a later publication concerning at-risk population).

PRELIMINARY FINDINGS: Paired ratings were conducted on the first infants observed in each age group. The Spearman rank coefficients ranged from .88 to .995 indicating an acceptable level of inter-rater reliability, insuring comparability of ratings across observers. See Table 1 for correlations.

[INSERT TABLE 1 ABOUT HERE]

TABLE 1

INTER-RATER RELIABILITY

SCALE	SPEARMAN RANK CORRELATIONS
Relationship to an adult	.91
Communication	.96
Drive for Mastery	.93
Vocalization and Expressive Speech	.95
Sound and Speech Reception	.97
Social Responsiveness	.88
Body Movement	.93
Psychobiological Development	.98
Total Score (all 8 scales)	.995

A total of 49 BRIAAC observations on normal infants are included in this preliminary report.

Each infant is seen once at either 3,6,9,12,15,18,21, or 24 months[†] one week. The distribution of the population is outlined in Table 2.

INSERT TABLE 2 ABOUT HERE

In our observations, relationship to an adult was observed with the primary caretaker, which in most cases was the mother. The child responds to the mother as early as 3 months old. The infant begins with sporadic eye contact which becomes more regular as the months progress.

At nine months, the infant begins to initiate contact by crawling to his/her mother and by twelve months the child selectively searches for her. The second year of life sees the child developing an active relationship with his/her mother. At 15 and 18 months the child directs vocalizations to the adult and seeks attention from her. Separation anxiety may also be apparent. By 21 months, the child begins teasing the adult and by 24 months enjoys being teased by the adult in return. By 24 months the child is beginning to be regularly responsive to the adult's requests, but may still maintain the relationship on his/her own terms.

In the first six months of life the infant's communications consist of smiling, crying and an increase in exertion level. This communication is not clearly directed to anyone until around 9 months when the infant subtly directs his communications to people around him. At 12 months, the child still subtly looks and glances for communications, but simple and limited behaviors such as pointing to or reaching for desired objects are appearing. This continues into the second year, with the development of the concept of the needful self. By the 18th month, the child gives evidence of knowing what he/she wants and whom to get it from. More varied patterns of communication emerge with the development of speech. For example, the child will indicate when he/she wants to be left alone or wants attention. At 24 months the quality of mutuality appears.

TABLE 2

DISTRIBUTION OF INFANTS OBSERVED

<u>AGE (1 week)</u>	<u>MALE</u>	<u>FEMALE</u>	<u>TOTAL</u>
3 months	4	4	8
6 months	1	5	6
9 months	4	4	8
12 months	4	2	6
15 months	4	3	7
18 months	5	0	5
21 months	3	1	4
24 months	<u>3</u>	<u>2</u>	<u>5</u>
TOTALS	28	21	49

The earliest forms of co-ordinated manual manipulation of objects which are rated include stereotypic banging, shaking, mouthing and biting of objects and tactile exploratory behaviors at 6 to 9 months. The child begins picking up objects and toys on his own by 12 months with the onset of walking which continues through the second year. A fragile attention span continues through to 24 months, but the child progressively develops more varied ways of exploring objects and continues to show initiative by searching for new toys, or new ways of playing with familiar objects.

The earliest vocalizations are in the form of cooing, gurgling, crying, and babbling pre-vowel sounds. Vowel/consonant combinations begin at 6 months developing into musical babbling by 9 to 12 months. Individual differences are more apparent in the second year. Generally, jargoning, i.e. pre-speech sounds, begin at 12 months, increasing until single word phrases appear at 15 months. As the child develops 2 and 3 word phrases by 21 months and simple sentences by 24 months, jargoning may still appear, but in decreasing quantity.

The child shows reflexive and inconsistent reactions to sounds in their environment in the early months of life. They seem aware of sound, but in general seem to ignore them. An interest in sound toys develops by 9 months and the infant will also localize or turn his head towards sounds and voices. By 12 months the infant will search out the source of sound, such as walking over to a ringing phone and enjoys making his own sounds. In the second year, words are becoming meaningful to the child, with the child understanding prohibitions. By 18 months, the child can follow commands when they are accompanied by gestures and at 21 months, the need to cue commands with gestures is decreasing. By 24 months, the child understands commands out of context with individual words having specific meanings for the child.

In social responsiveness, the first year shows the child being dependent on his/her parent for his basic needs. A response to the social situation of feeding begins at 6 months with the child grabbing the spoon, and, by 9 months many children can hold their own bottle. The child still needs monitoring in the second year, but, motivation to perform social skills, such as feeding themselves, continues to grow. By 21 months, the child has an awareness of the feeding routine and may begin to test the limits of the social situation. By 24 months, the child has a desire to function

autonomously and may enjoy opposing the social requirements placed on him/her.

The 3 month old infant's body movements are seen as simple, repetitive movements having the same rhythm and spatial pattern, such as waving his/her arms back and forth. By 6 months, the child will consistently follow movements in the environment. At 9 months, the infant's movements appear more quick and jerky as they begin to pull themselves up. Echocorpia¹, such as waving "bye-bye" may be seen. By 12 months the child shows an awareness of the environmental space as he/she begins to walk and will change his/her facial expressions with consistent visual following. The child at 15 months can use his/her body movements to tease and is beginning to have an awareness of kinesphere, i.e. the space directly around his body, which is established by 18 months. Beginning signs of deferred imitation is also apparent by 18 months. At 21 months, the child is consistently aware of their spatial environment and will show a body change when a stranger enters the room. At 24 months, the child has a variety of movements, but there is still an absence of integrated flow to the movements. The child may now be able to incorporate fantasy into action.

Psychobiologically, the first year of life is characterized by the proprioceptive/kinesthetic stimulation thru repetitive movements, guttural, non-speech vocalizations and perseverative grasping and oral stimulation, mouthing, biting and babbling. However, by 9 and 12 months, the infant begins to modulate these drive behaviors into personality trait equivalents.

The child begins to integrate proprioceptive/kinesthetic, tactile and oral stimulation into the social environment in the forms of enjoying being swung, tickled, and being tossed in the air, and showing curiosity and an optimistic attitude about his/her environment. The driven global behaviors decrease throughout the second year of life with the traits becoming more established. By 18 months, the child enjoys rocking horses and throwing a ball to satisfy his proprioceptive/kinesthetic drives and becomes more demanding of attention which is an integral part of the oral traits. Also, at 18 months, anal drive behaviors appear in the form of temper tantrums and destructive movements such as smashing toys. Though tantrums are still present at 24 months, anal traits are developing in the form of being selectively stubborn and possessive of toys. Please see the developmental charts

¹Echocorpia is the mechanical mirroring of an action than can not be spontaneously repeated at a later time.

for a summary of these behaviors.

In general when we look at the behaviors described in the first two years we are observing the awakening of the infant to the social environment. During the first year of life, the infant becomes more aware of the social environment through physical contact with caretakers, develops a growing attention to auditory stimulation, manipulation of objects and the integration of psychobiologically driven behaviors into social interaction. During the second year, the child becomes less dependent on others actions and is actively involved in exploring his world through locomotion, vocalization, paying attention to social routines, communicating needs in a more refined manner and developing initiative in response to objects. The infants growing autonomy allows him to activate, interact, learn and sometimes even control those around him. The infant progresses from an organism that is originally driven by internal physiological needs to an increasingly independent, autonomous individual adapting to the social environment. What happens , however, when these needs are not met, development lags from the onset, or the child does not take a development surge around 9 and/or 15 months? To explore this question we compared the BRIAAC ratings of our infants with those of 16 seriously emotionally disturbed children clinically diagnosed as autistic and atypical. These children fit within the classification of (Infantile) Psychosis of Early onset which is characterized by prior to 2 - 3 years with disturbances in social relationship and affective control, failure to communicate, delayed or abnormal language development, and sensori-motor imbalances.

These children ranged in age from four years to seven years eleven months with a mean age of 5 years 7 months. Thirteen males and three females are included in the analysis. There was no significant difference between those atypical children age 4 -5 years 9 months and those 6 years - 7 years 11 months. Therefore their scores were combined for further analysis.

$\bar{X}$ Relationship score for both groups was equal.

Communication	F = .857	Social Responsiveness	F = 1.17
Mastery	F = .032	Body Movement	F = .027
Vocalization	F = .242	Psychobiological	F = .742
Sound & Speech			
Reception	F = .021	TOTAL SCORE	F = .829

$$F.95(1,14) = 4.60$$

An analysis of variance was computed in all 8 areas and the total score comparing all ages and the atypical population. The F values exceeded the .01 level of significance. See Table 3.

[INSERT TABLE 3 ABOUT HERE]

In order to determine at what age levels there was a significant difference, a Newman-Keuls analysis of differences between pairs of means was computed (Winer, 1962). See Table 4 for these results.

[INSERT TABLE 4 ABOUT HERE]

Our preliminary results indicate two general classes of deviancies in the autistic/ atypical population as compared to normal infants.

The first area includes the autistic/atypical child's apparent plateau of motivational development roughly equivalent to that of the 12 - 15 month old normal infant. As will be demonstrated, the average scores of the autistic/atypical children are statistically comparable to the 12 - 15 month old normal infant.

The second class of behaviors to prove discernable are those behaviors exhibited by the autistic/atypical child which do not have normal development equivalencies even when compared to 3 month old infants.

Let us first examine the 12 - 15 month motivational plateau attained by the autistic/atypical population.

In the area of relationship to an adult the 18, 21, and 24 month old infants scored significantly higher than the autistic/atypical children. You will recall that at 18 months the normal infant consistently searches out his/her mother and develops a give and take relationship in play. The selective searching out behaviors of the normal 18 month old are significantly absent in our autistic/atypical population. If a relationship does develop, it does not develop beyond the level of the 12 month old which is characterized by the emergence of these searching behaviors but not yet fully esta-

TABLE 3

ANOVA SUMMARY

RELATIONSHIP TO ADULT				df	M.S.	F
SS (treatment)	2866.87			8	358.36	10.99*
SS (error)	1825.53			56	32.59	
				F.99(8,56) = 2.85		
COMMUNICATION				df	M.S.	F
SS (treatment)	6104.29			8	763.04	8.05*
SS (error)	5305.77			56	94.75	
				F.99(8,56) = 2.85		
DRIVE FOR MASTERY				df	M.S.	F
SS (treatment)	6718.26			7	959.75	28.47
SS (error)	1617.45			48	33.70	
				F.99(7,48) = 3.05		
VOCALIZATION AND EXPRESSIVE SPEECH				df	M.S.	F
SS (treatment)	4772.9			8	1516.49	9.83*
SS (error)	8642.28			56	154.33	
				F.99(8,56) = 2.56		
SOUND AND SPEECH RECEPTION				df	M.S.	F
SS (treatment)	4772.9			8	596.61	26.65*
SS (error)	1253.96			56	22.39	
				F.99(8,56) = 2.85		
SOCIAL RESPONSIVENESS				df	M.S.	F
SS (treatment)	5222.34			8	652.79	6.87*
SS (error)	5227.1			55	95.04	
				F.99(8,55) = 2.86		
BODY MOVEMENT				df	M.S.	F
SS (treatment)	12781.44			8	1597.68	39.54*
SS (error)	2263.17			56	40.41	
				F.99(8,56) = 2.85		
PSYCHOBIOLOGICAL DEVELOPMENT				df	M.S.	F
SS (treatment)	15715.95			8	1964.49	22.91*
SS (error)	4801.1			56	85.73	
				F.99(8,56) = 2.85		
TOTAL SCORE				df	M.S.	F
SS (treatment)	30426.2			7	43465.89	39.23
SS (error)	52064.6			47	1107.75	
				F.99(7,47) = 2.98		

TABLE 4 NEWMAN-KEULS ANALYSIS
TESTS ON DIFFERENCES BETWEEN ALL PAIRS OF MEANS

<u>RELATIONSHIP TO AN ADULT</u>										
GROUP	3 MO.	6 MO.	Atypical	9 MO.	15 MO.	12 MO.	18 MO.	21 MO.	24 MO.	
3 mos.						9.92*	17.89*	18.25*	19.55*	
6 mos.							16.23*	16.33*	17.63*	
Atypicals							16.1 *	16.2 *	17.5 *	
9 mos.							13.77*	13.87*	15.17*	
15 mos.									11.66*	
						critical value	9.78	10.44	10.69	10.92
						Q .95(r,56)				

	<u>$\bar{X}$ Scores</u>	<u>Standard Deviations</u>
3 mos.	50.25	.66
6 mos.	52.16	.805
Atypical	52.3	7.14
9 mos.	54.63	3.57
15 mos.	58.14	3.337
12 mos.	60.17	5.222
18 mos.	68.4	1.2
21 mos.	68.5	2.69
24 mos.	69.8	3.187

* The cells with astericks indicate that the corresponding differences between the means are statistically significant at the .05 level

COMMUNICATION

(Table 4 continued)

GROUP	3 MO.	6 MO.	9 MO.	12 MO.	Atypical	15 MO.	18 MO.	21 MO.	24 MO.
3 mos.						16.76*	25.02*	28.12*	31.02*
6 mos.							21.4 *	24.5 *	27.4 *
9 mos.								19.37*	22.27*
12 mos.									19.07*

critical value	16.72	17.84	18.28	18.68
Q .95(r,56)				

	<u>X Scores</u>	<u>Standard Deviations</u>
3 mos.	24.375	1.218
6 mos.	28.	2.516
9 mos.	33.125	2.027
12 mos.	36.33	4.307
Atypical	39.56	4.636
15 mos.	41.14	7.989
18 mos.	49.4	1.74
21 mos.	5.25	8.077
24 mos.	55.4	6.28

GROUP	MASTERY							
	6 MO.	9 MO.	12 MO.	Atypical	15 MO.	18 MO.	21 MO.	24 MO.
6 mos.		7.88*	16.33*	19.87*	24.5*	31.8*	32*	36.6*
9 mos.			8.45*	11.99*	16.62*	23.92*	24.12*	28.72*
12 mos.						15.47*	15.67*	20.27*
Atypical						11.93*	12.13*	16.73*
15 mos.								12.1 *

critical values	6.90	8.28	9.11	9.72	10.16	10.52	10.84
Q .95(r,48)							

	<u>$\bar{X}$ Scores</u>	<u>Standard Deviations</u>
6 mos.	23	6.298
9 mos.	30.875	6.45
12 mos.	39.33	5.02
Atypical	42.87	6.08
15 mos.	47.5	5.795
18 mos.	54.8	3.54
21 mos.	55.	7.81
24 mos.	59.6	4.36

VOCALIZATION

GROUP	3 MO.	6 MO.	9 MO.	12 MO.	Atypical	15 MO.	18 MO.	21 MO.	24 MO.
3 mos.					25.68*	29.73*	32.47*	39.87*	43.12*
6 mos.					20.65*	24.7 *	27.44*	34.84*	38.09*
9 mos.						22.36*	21.5 *	32.5 *	35.75*
12 mos.									24.58*

critical values 20.4 21.3 22.74 23.3 23.8
 Q .95(r,56)

	<u>$\bar{X}$ Scores</u>	<u>Standard Deviations</u>
3 mos.	18.13	2.89
6 mos.	23.16	2.6
9 mos.	25.5	3.91
12 mos.	36.67	8.98
Atypical	43.81	10.76
15 mos.	47.86	5.72
18 mos.	50.6	10.93
21 mos.	61.25	16.63
24 mos.	58.	20.46

SOUND AND SPEECH RECEPTION

GROUP	3 MO.	6 MO.	9 MO.	12 MO.	Atypical	15 MO.	18 MO.	21 MO.	24 MO.
3 mos.		8.66*	15.5*	17.83*	18.94*	20.14*	28. *	28.6 *	29.2 *
6 mos.			6.84*	9.17*	10.28*	11.48*	19.34*	19.94*	20.54*
9 mos.							12.5 *	13.1 *	13.7 *
12 mos.							10.17*	10.77*	11.37*
Atypical							9.06*	9.66*	10.26*
15 mos.								8.46*	9.06*
critical values		5.51	6.61	7.27	7.76	8.11	8.65	8.86	9.05
Q .95(r,56)									

	<u>$\bar{X}$ Scores</u>	<u>Standard Deviations</u>
3 mos.	37	4.24
6 mos.	45.66	4.07
9 mos.	52.5	1.8
12 mos.	54.83	2.27
Atypical	55.94	5.33
15 mos.	57.14	2.03
18 mos.	65.6	4.96
21 mos.	65.	4.85
24 mos.	66.2	7.11

SOCIAL RESPONSIVENESS

GROUP	3 MO.	6 MO.	9 MO.	12 MO.	Atypical	15 MO.	18 MO.	21 MO.	24 MO.
3 mos.				17.2 *	21.06*	24.14*	30.4 *	33.5 *	36.8 *
6 mos.					17.56*	20.64*	26.9 *	30. *	33.3 *
9 mos.							19.9 *	23. *	26.3 *
12 mos.									19.6 *

critical values	14.81	15.76	16.47	17.06	17.57	18
Q .95(r,55)						

	<u>$\bar{X}$ Scores</u>	<u>Standard Deviations</u>
3 mos.	20	0
6 mos.	23.5	3.64
9 mos.	30.5	4.97
12 mos.	37.2	6.99
Atypical	41.06	8.54
15 mos.	44.14	4.7
18 mos.	50.4	2.87
21 mos.	53.5	7.92
24 mos.	56.8	7.63

BODY MOVEMENT

GROUP	3 MO.	6 MO.	9 MO.	12 MO.	15 MO.	Atypical	18 MO.	21 MO.	24 MO.
3 mos.			9.5 *	19.33*	24.93*	28.25*	37.7 *	38.5 *	43.5 *
6 mos.				17.03*	22.63*	25.95*	35.4 *	36.2 *	41.2 *
9 mos.				9.83 *	15.43*	18.75*	28.2 *	29 *	34 *
12 mos.							18.37*	19.17*	24.17*
15 mos.							12.77*	13.57*	18.57*
Atypical									15.25*
critical values		8.9		9.79	10.44	10.91	11.65	11.93	12.19
Q .95(r,56)									

	<u>$\bar{X}$ Scores</u>	<u>Standard Deviations</u>
3 mos.	23.5	3.46
6 mos.	25.83	4.22
9 mos.	33	4.36
12 mos.	42.83	5.24
15 mos.	48.43	6.25
Atypical	51.75	7.23
18 mos.	61.2	4.49
21 mos.	62	4.06
24 mos.	67	9.65

PSYCHOBIOLOGICAL

GROUP	3 MO.	6 MO.	9 MO.	12 MO.	15 MO.	Atypical	18 MO.	21 MO.	24 MO.
3 mos.		14.12*	21.5 *	30.12*	36.44*	38.78*	43.87*	50.67*	51.37*
6 mos.				16 *	22.32*	24.66*	29.75*	36.55*	37.25*
9 mos.						17.28*	22.37*	29.17*	29.87*
12 mos.								20.55*	21.25*
critical values		10.82	12.99	14.29	15.24	15.93	16.99	17.41	17.79
Q .95(r,56)									

	<u>$\bar{X}$ Scores</u>	<u>Standard Deviations</u>
3 mos.	13.13	1.05
6 mos.	27.25	10.77
9 mos.	34.63	4.88
12 mos.	43.25	8.95
15 mos.	49.57	10.39
Atypical	51.91	9.71
18 mos.	57	8.20
21 mos.	64.5	11.37
24 mos.	63.8	7.82

TOTAL SCORES

GROUP	6 MO.	9 MO.	12 MO.	Atypical	15 MO.	18 MO.	21 MO.	24 MO.
6 mos.		46.17*	105.52*	130.51*	137.84*	209.28*	233.67*	248.02*
9 mos.			59.35*	84.34*	91.67*	163.11*	187.5 *	201.85*
12 mos.						103.76*	128.15*	142.5 *
Atypical						78.77*	103.16*	117.51*
15 mos.						71.44*	95.83*	110.18*
critical values	39.30	47.29		52.12	55.43	58.05	60.26	62.05
Q .95(r,47)								

	<u>X Scores</u>	<u>Standard Deviations</u>
6 mos.	248.58	19.63
9 mos.	294.75	18.52
12 mos.	354.1	25.16
Atypical	379.09	29.64
15 mos.	386.42	35.91
18 mos.	457.2	21.63
21 mos.	482.25	49.35
24 mos.	496.6	44.65

blished.

In the area of communication, the mean score of the atypical child fall between the 12 and 15 month old infants. This period is characterized by mostly subtle signs of communication such as glancing and hovering. Only rarely did the autistic/atypical population exhibit signs of the more varied approach of the 24 month olds which involves mutuality and typically the use of words to communicate desires.

In the area of mastery, the autistic/atypical children scored significantly higher than the 6 and 9 month olds. However, the 18, 21 and 24 month olds scored significantly higher than the atypical population. It is during this period that the normal infant develops true initiative with physical objects. The autistic/atypical population on the other hand remains at the stage that is typified by brief attention span and primarily responds to objects that are easily accessible.

In the area of vocalization, the autistic/atypical population's mean score was between that of the 12 and 15 month old. These vocalizations show a wide range of utterances including guttural sounds, babbling, echolalia, jargon and single word utterances.

In the area of Sound and Speech Reception, the autistic/atypical population's scores were most similar to those of the 12 and 15 month olds with the 18, 21 and 24 month olds scoring significantly higher. It is during this period that the infant localizes and repeats sounds and begins to understand specific words in familiar context or with the aid of gestures. The autistic/atypical child however, is functioning at the level of the 12 - 15 month old which is characterized by the understanding of conditioned prohibitions and the beginning indication that words are meaningful but does not always know the specific meaning of individual words.

In the area of Social Responsiveness, the autistic/atypical child's scores fall in the range between the 12 and 15 month old infant. This period is characterized by the infant expecting to be cared for and the need for monitoring in attempts to comply with social demands.

In the area of Body Movement, the autistic/atypical child's scores fall between those of the 15 and 18 month old infant with the 24 month old infants scoring significantly higher. The movement behaviors of the 15 month, 18 month and an autistic/atypical child can be described as showing a variety

of movements which are mostly quick and jerky. The atypical children did not show movement behaviors typical of the 24 month olds which includes conscious deferred imitation and the ability to incorporate fantasy into action.

The autistic/atypical child's psychobiological development resembles that of the 12 - 15 month old. This is a period characterized by the infantile sensory and oral stages. Typical behaviors during this period include socially integrated games involving the whole body such as tickling games and oral mouthing of objects and an attitude of optimistic expectation.

In comparing the total scores (summing the scores in all 8 scales), the autistic/atypical population was statistically comparable to the 12 and 15 month olds with the 18, 21, and 24 month olds scoring significantly higher. Implications for the atypical child's inability to consolidate different areas of functioning will be discussed later.

In general, the autistic/atypical population failed to exhibit behaviors beyond those typical of the 12 - 15 month old infants. This is an important transition period for normal infants. The following developmental milestones are attained by the end of this period:

- 1) The infant can now walk and explore areas of the world that were previously inaccessible.
- 2) The infant is beginning to develop a mutual relationship with his/her primary caretaker which culminates at 21 - 24 months when the child is able to leave the caretaker without separation anxiety.
- 3) The infant develops a wider repertoire of communicating his desires, thus facilitating his ability to express his/her own demands without being dependent on the interpretation of the caretaker.
- 4) He/she is beginning to understand the significance of language both productively and receptively, thus expanding the contexts in which she/he can interact.
- 5) He/she develops a variety of ways of dealing with objects thus developing a drive to master the world around him.
- 6) He/she is able to follow social routines and develops a desire to function on his/her own.
- 7) Finally, the physiological urges that directed his/her behavior previously expressing itself in the bodily zones are now becoming incorporated into his/her character and an individual personality is formed.

It is this critical period of motivational development that the autistic/atypical child fails to attain.

In addition to the similarities between the 12 - 15 month infants and the autistic/atypical children, there are some significant behaviors and patterns that occur in the autistic/atypical population but not the normal population.

Because of the nature of the weighted scores in BRIAAC it is possible to receive the same score while exhibiting a different range of behaviors. A further analysis was made on the specific behaviors exhibited on each of the 10 levels of the eight scales. (See Table 5).

One of the most significant differences between the infant population and the autistic/atypical children is in the area of Relationship to an Adult.

Whereas the normal infants exhibit behaviors typical of 2 or 3 levels with behaviors scattered in different areas, the autistic/atypicals scored on 7 different levels. The behaviors exhibited by the autistic/atypicals not seen in our normal infants include intermittent imperviousness and/or obliviousness, active and passive resistiveness and attending to adults only at a distance, followed by withdrawal when approached or establishing contact by backing into the adult. Although we have seen at-risk infants establish contact by backing into adults we have not seen imperviousness or resistiveness in our infants. However, others (Brazelton et al 1971, Greenspan 1979), have documented resistiveness in infants who have shown failure to bond. Even at one month of age most normal infants establish eye contact with their mother or caretaker and physically mold to their caretakers body. When we do observe resistiveness it is usually in response to a specific demand or task not to the relationship per se. This appears to be a critical sign for infants at risk for emotional problems.

In the area of communication we see a preponderance of undirected communication behaviors and exertion level in the autistic/atypical population. This behavior does not drop out completely by 24 months in the normal population but is not firmly established as in the autistic/atypicals.

In the area of Drive for Mastery, the autistic/atypical children scored on 8 levels whereas the infants scored on 3 - 4 levels. One area that the autistic/atypicals scored on which the infants did not was extreme general resistiveness to task. If the infants were resistive to a task it would be

TABLE 5

RELATIONSHIP TO AN ADULT (mean scores on individual levels)

Imperviousness or obliviousness	Withdrawal or intermittent passivity	Active and passive resistiveness	Attends at a distance or backs into adult	Sporadic or recurring attending	Regularly recurring response	Active relationship established	Regularly responsive to request, mutuality	Sharing of an experience	Empathetic behavior
1	2	3	4	5	6	7	8	9	10
3 MO.				9.75 (.66)					
6 MO.				7.83 (.897)	2.16 (.897)				
9 MO.				6.57 (2.06)	3.875 (2.26)	1.5 (.5)			
12 MO.				4 (1.63)	5.83 (1.34)	2.6 (2.45)			
15 MO.				3.2 (.98)	5.71 (1.16)	2.5 (1.6)			
18 MO.					3 (.7)	6.8 (.83)	1.33 (.47)		
21 MO.					2.5 (.5)	6 (1.58)	2 (1)		
24 MO.					2.75 (2.24)	5.8 (.748)	3.33 (.47)		
Group A *	1 (0)	2.33 (.745)	1.57 (.73)	3.07 (1.07)	3.5 (1.62)	1.9 (.7)			

* Autistic/Atypical

A total of 10 points are distributed on each scale. Since there are 10 levels on each scale it is possible for a child to receive one point on each 10 levels (thus 10 points are distributed) which would indicate that the child exhibited behaviors that fall into every level. These tables illustrate the mean points given on each level for the different age groups and autistic/atypicals. (Standard deviations are in parenthesis.

COMMUNICATION

	No signs	Undirected exertion	Undirected distress and content	Subtle glancing	Regular simple, limited	Concept of the needful self	Varied pattern	Communication of observations	Communication about the past	Communication about the future
	1	2	3	4	5	6	7	8	9	10
3 MO.		5.62 (1.21)	4.375 (1.22)							
6 MO.		4.16 (1.46)	3.67 (1.25)	2.6 (1.02)						
9 MO.		2.88 (.78)	2.38 (.99)	4.125 (1.36)	1.2 (.4)					
12 MO.		2.2 (.98)	1.6 (.8)	4.8 (1.47)	2.25 (1.08)					
15 MO.		2.34 (1.37)	1.6 (.8)	2.42 (.49)	3.16 (1.06)	2.2 (1.17)				
18 MO.		1.5 (.5)		2.5 (.5)	3.5 (.86)	2.25 (.82)				
21 MO.				2.5 (1.5)	3.25 (1.48)	3 (0)	1.5 (.5)			
24 MO.		1.33 (.47)		1.67 (.47)	2.5 (.5)	3.6 (.49)	2.6 (1.01)			
A		2.21 (.77)	1.8 (.74)	2.5 (.94)	2.69 (.77)	1.8 (.75)				

MASTERY

	Stereotypy	General resistiveness	Momentary engaging	Some activity with little interest	Responds to easily accessible objects	Varied activity attention	Seeks out new objects	Goal-oriented	Concept to the achieving self	Self-monitoring
	1	2	3	4	5	6	7	8	9	10
3 MO. (N.O.)										
6 MO. 4.6 (2.8)			6.8 (2.31)							
9 MO. 4.5 (2.5)			6.5 (2.6)	3.25 (1.09)	2 (0)					
12 MO.			5 (2.08)	2 (.81)	3.67 (2.05)					
15 MO.			2.4 (1.85)	2.67 (.94)	4.16 (.69)	4.25 (1.09)				
18 MO.				1.5 (.5)	4.25 (1.09)	3 (.70)	1.5 (.5)			
21 MO.					4.33 (1.25)	6 (1.63)	2.5 (.5)			
24 MO.					3.6 (1.02)	3.4 (.8)	2.6 (1.02)			
Group A 1.33 (.47)		1.75 (.43)	2.46 (1.08)	2.78 (1.01)	3.18 (1.55)	2.2 (.6)		1 (0)		

VOCALIZATION

	Generally non-verbal	Repetitive vowel sounds	Babbling	Musical babbling	Echolalia	Jargon	Single words	Use of own name in place of first person pronoun	First person pronoun used in place of second person	Sentences of 3 or more words (at least one word can not be stimulus bound)
	1	2	3	4	5	6	7	8	9	10
3 MO.	4.25 (1.64)	6.5 (2.06)	2 (1.09)							
6 MO.	2 (0)	5.83 (2.34)	3.16 (1.67)							
9 MO.		5.62 (2.34)	3.25 (1.39)	3 (1.63)						
12 MO.		2.83 (2.79)	2.5 (2.06)	5.25 (2.04)		3 (2.35)				
15 MO.		1.5 (.5)	3 (1.67)	2.4 (1.02)		3.83 (1.21)	2.6 (1.02)			
18 MO.			4.33 (3.39)			3.33 (1.70)	3.25 (2.86)			
21 MO.				2 (0)	1 (0)	1.67 (.47)	3.75 (2.85)			
24 MO.		4.5 (.5)	3 (0)			1.5 (.87)	3.2 (1.47)	2.33 (.47)	1 (0)	
Group A		2.73 (.96)	2.89 (1.37)	2.5 (1.11)	2.46 (1.62)	3 (1.30)	2.36 (.98)	1 (0)		

SOUND AND SPEECH									
Obliviousness	Startle response	Negativism	Inconsistent response	Understand prohibitions	Localize selectivity	Understands in context	Understands without gestures	Understands identifying objects by use	Adequate limited environment
1	2	3	4	5	6	7	8	9	10
3 MO.	2.25 (.43)		8.62 (1.11)						
6 MO.			5.8 (2.04)	4 (1.63)	3 (1)				
9 MO.			2 (.82)	6 (.71)	3.25 (.83)				
12 MO.				5.83 (1.77)	3.83 (1.95)				
15 MO.				2.33 (.05)	6.33 (1.49)	2.5 (.5)			
18 MO.				2.5 (.5)	3.67 (1.25)	2.67 (.47)	2.5 (1.5)		
21 MO.				1.67 (.47)	3.75 (1.48)	3 (.71)	2 (.81)		
24 MO.				1 (0)	2.6 (.48)	4 (1.09)	3 (.63)		
Group A		1.33 (.47)	2.36 (.98)	2.57 (.73)	2.4 (.88)	2.64 (.81)	1.57 (.49)		

SOCIAL RESPONSIVENESS

	Obliviousness	Dependent passivity		Needs monitoring	Needs to be verbally reminded	Carry our limited behaviors on own	Large repertoire strategy planning	Consciously imitative	Takes on attitude of authority	Sustained interaction
	1	2	3	4	5	6	7	8	9	10
3 MO.		10 (0)								
6 MO.		8.33 (1.70)		2.25 (1.30)						
9 MO.		5.57 (1.29)		4.87 (1.69)						
12 MO.		5 (1.41)		6.2 (1.83)	2 (0)					
15 MO.		2.2 (.026)		3.86 (2.29)	4.5 (2.43)					
18 MO.				3.75 (2.05)	3.67 (.47)	3.5 (1.12)				
21 MO.				4 (2)	3.33 (.94)	6 (2.16)				
24 MO.				3.25 (.47)	2.5 (.87)	2.75 (.83)	3 (2.91)	1.33 (.47)		
Group A		2.83 (1.46)		4.71 (1.98)	3.09 (.90)	2.87 (1.83)				

BODY MOVEMENT

	Rigidly held body, repetitive movements	In-out movements	Rigidly held body parts	Mirroring of movement.	Variety of movements quick and jerky	Development of Kinesphere	Body movements appear affective to states	Movement from joints imitation	Development of body image	All movements present- runs, jumps, skips, hops
	1	2	3	4	5	6	7	8	9	10
3 MO.	2 (.92)	3.75 (.83)	3.5 (1.89)	2 (0)						
6 MO.	1.67 (.75)	3 (1)	3.16 (1.30)	2 (0)	1.5 (.5)					
9 MO.		2.43 (.73)	3.63 (1.32)	2.88 (.13)	2 (.63)					
12 MO.		1.5 (.5)	2.67 (.94)	1.6 (.49)	3.16 (.22)	1.75 (.47)	1.5 (.5)			
15 MO.		1.5 (.5)	1.83 (.90)	2 (.63)	3.57 (.66)	2.2 (.75)	2.25 (.83)			
18 MO.					2.67 (1.25)	3.25 (1.08)	2.5 (2.5)	2 (0)		
21 MO.					2.67 (.94)	4.33 (1.25)	2.5 (.5)	1.5 (.5)		
24 MO.					2.33 (.47)	3 (0)	2.6 (1.49)	2.2 (1.47)		
Group A		1.33 (.47)	2.14 (.74)	1.57 (.72)	2.37 (1.16)	2.5 (1.41)	2.36 (1.80)	1 (0)		

PSYCHOBIOLOGICAL

	Infantile sensory drive	Oral mouthing drive	Oral biting drive	Anal expulsive drive	Anal retention	Phallic drive	Infantile sensory trait	Oral traits	Anal traits	Phallic traits
	1	2	3	4	5	6	7	8	9	10
3 MO.	5.86 (2.08)	4 (1.14)								
6 MO.	3.91 (1.59)	3.33 (1.97)	2 (.82)				1.5 (.5)	1.5 (1.08)		
9 MO.	2.81 (.61)	2.06 (.88)	2.5 (1.12)				2.81 (1.66)	2.5 (1.71)		
12 MO.	1.83 (.84)	2.6 (1.02)	2 (.64)				2 (.44)	2.08 (.93)		
15 MO.	1.21 (.75)	1.5 (1.10)	1.64 (.74)				2.36 (1.03)	2.64 (1.25)		
18 MO.	.75 (.25)	1.67 (.62)	1.67 (.47)	.75 (.25)			2.38 (.41)	3.87 (1.24)		
21 MO.	1.5 (.5)	.75 (.25)		1 (0)			3.62 (.82)	3.63 (1.71)	1 (0)	
24 MO.	1 (.61)	1 (0)	1 (0)	.63 (.22)			2.6 (.86)	2.9 (.8)	2 (.71)	
Group A	1.96 (.69)	1.38 (.91)	1.53 (.78)	1.14 (.78)	1.1 (.49)	1.25 (1.03)	2.15 (.67)	1.78 (.72)	1.6 (.89)	

in response to a specific task rather than a disinclination to relate to all objects. In addition the autistic/atypicals continue to exhibit stereotypy to objects which drops out of the normal infants repertoire by 12 months. This is another area that may prove significant for early detection.

In the area of Sound and Speech Reception there is a critical difference between the normal infants and the autistic/atypical population. The autistic/atypical population exhibited negative responses to sound; that is an active attempt to push away the sound as if it were painful to the child. In addition the autistic/atypical children retained a reflexive response to sound which usually drops out by the time the infant is 6 months old. This negative response to sound appears to be an additional early detection sign.

In the area of Body Movement, the 4 - 7 year old autistic/atypical child retains some behaviors typical of the 18, 21, and 24 month olds. Those earlier movement behaviors retained by the atypical child include extreme tension focused in one part of the body - (i.e. flexed hand and fingers) and tense repetitive movements involving the whole body (i.e. rocking). The significant areas that do not develop in the autistic/atypical population include deferred imitation and the beginning development of a body image.

In the area of Psychobiological Development an interesting phenomena appears to be occurring. Whereas the normal population begins to modify drive into socially oriented behaviors by nine months, the autistic/atypical children retain these global, unfocused drive, self stimulating and self centered characteristics for a longer period of time. The significance of these findings are now under investigation (Kalish and Wenar, 1979).

In terms of early detection of behaviors that may indicate the later onset of developmental or emotional problems, two classes of behaviors occur:

- 1) Those that signify pathology at any time of development and
- 2) Those that signify pathology within a particular developmental range.

Those characteristics that appear to indicate possible pathology from the outset are in the areas of relationship to an adult, sound and speech reception, and relation to objects. See Table 6 for a summary of these behaviors.

TABLE 6

ATYPICAL BEHAVIORS NOT OBSERVED IN NORMAL INFANCY

Relationship Behaviors:

- 1) Withdrawal or intermittent imperviousness to significant adults.
- 2) Active resistiveness to significant adults including physically turning away, consistent gaze aversion.
- 3) Passive resistiveness to significant adults - may become limp when picked up, no eye contact, generally affectless.
- 4) Attending to an adult at a distance followed by physical retreat or gaze aversion when approached by an adult.
- 5) Backing into an adult without establishing eye contact.

Sound and Speech Reception:

Pervasive negative response to sound that is unselective. Most sounds appear painful and/or noxious to the child followed by an active attempt to push away or destroy the source of sound.

Drive for Mastery:

General resistiveness or avoidance of all task or objects presented by others.

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Those behaviors that may be considered pathological in a developmental schema occur around 9 months and again around 15 - 18 months.

Around 9 months critical behaviors to examine are the child's response to objects, sounds and body movement patterns. See Table 7 for a description of these behaviors.

TABLE 7

BEHAVIORS THAT SHOULD DECREASE OR BE SIGNIFICANTLY ABSENT BY 9 MONTHS IN
NORMAL CHILDREN

Drive for Mastery:

- 1) Continued stereotypical response to objects. Child responds to all objects in the same manner: i.e. shaking, banging, or flicking.

Response to Sound:

Continued reflexive response to sounds without further exploration.

Body Movement:

Continued erratic, repetitive movements such as arm and leg flailing or rocking of the whole body without signs of more varied movement patterns.

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By the time the child is 15 - 18 months old, certain motivational and interactional behaviors should be exhibited. See Table 8.

TABLE 8

BEHAVIORS THAT SHOULD BE CONSISTENTLY PRESENT AT 15 - 18 MONTHS

Relationship:

An active relationship established with a primary caretaker including the development of mutuality in play.

Communication:

The use of varied approaches in communicating to others basic needs and calling for attention.

Drive for Mastery:

The development of initiative in seeking out new toys and varied activity with familiar objects.

Vocalization:

Wide range of vocalizations including musical babbling, jargon and the cooperative repeating of single words.

Sound and Speech Reception:

Consistent localization to sounds and the understanding of words in familiar context and/or with gestures.

Social Responsiveness:

The beginning acceptance of social requirements with only verbal reminders needed to comply.

Body Movement:

Exhibits wide range of movement behaviors and beginning signs of imitation.

Psychobiological Development:

Integration and adaptation of drive impulses into the social environment to include kinesthetic social games and curiosity about interacting with the social environment.

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To illustrate the importance of this developmental period, let us examine three case studies.

TINA:

Tina is a 24 month old black infant who has a 6 year old autistic brother. Her parents are divorced and she is taken care of by a friend of the mother while the mother works. When asked how the mother felt after the birth of her child, she responded "unaffected".

When we first started to observe Tina, I felt she was an extremely shy child thus explaining her inactivity. However, over the 1½ hour observation period, she remained lethargic and generally affectless.

Her relationship to her primary caretaker included a deviant behavior mentioned earlier, that of backing into the adult without establishing eye contact. Although she did show signs of sporadic attending, she rarely established direct eye contact. When approaching the adult she would stand with her back to the adults side changing her position as the adult did.

In communicating her needs she showed mostly simple signs such as pointing or holding her arms out in order to be picked up off the floor. She also exhibited many subtle signs such as glancing and hovering around adults without the adults really understanding what she wanted.

She explored only objects presented to her, never seeking out toys although they were available. When she did react to toys it was either of a momentary primitive engaging (mouthing) followed by inactivity or a brief attention span followed by affectlessness. During the observation period Tina was generally non-vocal most of the time with only a few consonant-vowel sounds.

She demonstrated inconsistent responses to sound and a delayed response to her name being called. She was able to follow some simple commands but not without continual gesturing from the adults.

She did not show a great deal of interest in eating and needed monitoring in order to wipe her face and hands.

Her body movements gave one the feeling of incipient action and an alternation between the appearance of lethargy and tentative stiffness.

Her psychobiological development was characterized by undirected kinesthetic stimulation, facial grimacing and perseverative looking at her hand.

In addition she showed a reluctance to chew, an inappropriate lack of curiosity and reluctance to explore.

After observing Tina at home and again on videotapes, I felt an urge to shake her or in some other way try to stimulate some kind of developmental push.

Her behavior can easily be contrasted and compared to a normal active 15 month old - AMY.

AMY:

Amy is the first born to a middle-class family. She does not have a remarkable medical history and was a planned welcomed pregnancy.

Amy is a very expressive active child who likes to call attention to herself and the world around her.

Her relationship to her mother is characterized by the establishment of an active relationship through vocalizations and games. She is regularly responsive to suggestions and will follow play on her mother directions. In addition she shows some separation anxiety when her mother leaves the room but this quickly subsides when her mother returns.

Amy communicates what she wants in a variety of ways. She uses some simple signs such as pointing. In addition she has the concept of the needful self: she knows what she wants and knows who to approach for attention and/or help.

She responds to easily accessible objects and maintains her attention span with some toys. In addition she shows a variety of activities with familiar objects.

Amy has a wide range of vocalizations including vowel-consonant combinations, jargon and single words.

Amy understood most words or commands accompanied by gesture and showed signs of understanding some words without gestures (such as "mooing" when mother asked "What does cow say"?)

Amy has accepted the social routine of eating and performs these functions on her own with minimal assistance.

Amy showed a variety of movements, mostly quick and jerky. In addition she showed appropriate changes in facial expression.

The majority of Amy's psychobiological behaviors were socially integrated including enjoying kinesthetic games on her trike. Amy exhibited

a great deal of curiosity, scanning and attending to her environment.

Finally, let us look at a 5½ year old autistic child.

CARL:

Carl's behaviors appear to fall closer to those of Tina than Amy. His behavior to his mother is characterized by passive resistiveness and fleeting eye contact. He, like Amy, exhibits separation anxiety. However, unlike Amy, he was unable to calm himself and remained somewhat anxious even when his mother returned.

His communication behaviors do not develop beyond subtle signs of pointing and directed protest. He retains a high degree of indiscriminate exertion level and undirected vocalizations. He also shows an undirected announcing of distress without seeking relief from a specific person.

His response to objects is similar to that of Tina's. He showed brief exploring of objects through mouthing. His attention span remained fragile when responding to easily accessible objects.

Carl showed a variety of vocalizations similar to Amy, babbling, jargon and single word naming.

Carl's response to sounds were brief and inconsistent. Like Tina, he showed some awareness of social requirements, but needed to be monitored most of the time.

Carl had a wide range of movement behaviors including repetitive movements, such as rocking, shifting tensions, quick and jerky movements and a beginning understanding of the space around him.

Unlike Amy or Tina, Carl did not integrate his behaviors into the social environment. He exhibited undirected, driven behaviors such as rocking, mouthing, biting, and explosive tantrums.

Although these children are chronologically different, their BRIAAC scores are approximately at the same level. (See interscale profile). Amy's scores are slightly higher than the mean scores for the 15 month olds and probably reflect the surge of motivational development between 15 and 18 months. They have all reached the point at which they can actively explore the world around them. However, two of these children have not actively entered the social milieu. What is strikingly absent from Carl and Tina is affective expression. Whereas Amy actively expresses joy and

BEHAVIOR RATING INSTRUMENT FOR AUTISTIC AND OTHER ATYPICAL CHILDREN

INTERSCALE PROFILE

Child's Name: _____ Birthdate: _____

Program: _____

Rating 1 ■ ——— ■

Age: X̄ 15 Months Rater: _____

Rating 2 ▲ - - - - ▲

Age: Tina @ 24 Months Rater: _____

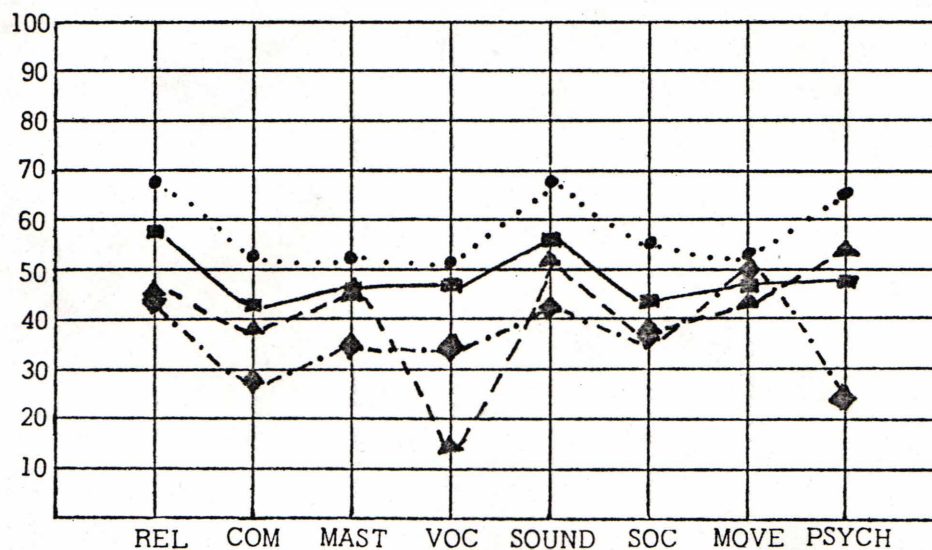
Rating 3 ● ······ ●

Age: Amy @ 15 Months Rater: _____

Rating 4 ◆ - · - · - ◆

Age: Carl @ 5½ Years Rater: _____

TOTAL
SCORES:



calls attention to herself, Carl and Tina remain lethargic and affectless in expression.

More specifically, Amy has formed an active relationship with her mother, obtaining pleasure and important social/emotional information from her. Tina and Carl either remain passively detached or immobilized by anxiety.

The title of this section of this paper is, The Exploring Self...Emerges. Tina and Carl are similar to only the tip of the iceberg emerging with the mass still submerged, whereas Amy is bounding upwards to encompass as much of the world as she can. Their relationship to objects clearly illustrates this. Whereas Carl and Tina respond briefly to objects presented to them, Amy actively seeks out objects on her own and experiments in a variety of ways.

Previously, two categories of identifying behaviors that may be signs of pathology were discussed; pathological signs outside of developmental considerations and pathological signs considered within the developmental context. Tina and Carl exhibit behaviors that fall in both of these categories.

The most obvious area in the first category is relationship. Tina's backing into or siding up to adults appears to be her way of becoming minimally involved with adults. Carl showed signs of passive resistiveness, allowing close physical contact without becoming involved with the adult either through directed eye contact or physical approaches.

The second category of behaviors are somewhat more subtle. Let us review briefly the transition period between 12 months and 15 - 18 months. Prior to 12 months, the social environment accomodates the infant. If the infant cries, someone will change, feed or hold him/her. There is no need for the child to express his desires beyond signalling for general attention. During this period, the caretakers spend considerable time anticipating the desires of the infant and basically making all decisions for the child. However, as the child gains independence through locomotion, he expands the world with which he interacts. Concurrently, the social environment begins to expect the infant to accomodate more to their regulations than the infants expecting the world to only accomodate him/her. As the demands change, so do the types of behaviors expected from the child change. The infant can no longer cry out to the world and expect his/her needs to be met. As

his/her needs develop, so must his/her expression of these needs develop. Thus, with the development of pointing, gesturing and language, the child and the social environment can better accomodate each other. Mutuality develops and the foundation for social interaction is greatly expanded.

Tina and Carl are still functioning at the level of expecting the social world to accomodate them. Toys have to be brought to them, subtle signs of communication must be interpreted by others and social routines need to be monitored. In interpreting these results several implications for early detection arise. Two class's of behaviors may be present that are grossly pathological from birth (i.e. aberrant relationships and abnormal responses to sound). Secondly, it might not be possible to detect some behaviors until the social demands on the child become more clearly evident.

These questions cannot be fully answered until more longitudinal work is done. Hopefully, when our population of infants are four and five years old, we will be able to make more reliable predictions about the importance of early motivational development, and later emotional development. Until this time, however, suffice it to say that, of course the 15 month old is getting into everything. That is what they are suppose to do and thank goodness they do.

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