

Pre- and Post-Natal Behavioural Problems of a Tursiops Female Conceived in the Ocean

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History

In March '81 four Atlantic Bottlenose Dolphins (*Tursiops truncatus*) arrived in the Antwerp Dolphinarium. The dolphins, two adult females and two subadult males, were caught in Mexican coastwaters.

As operant conditioning methodology always has been quite successful in our facility, the training-crew started husbandry-training within days of arrival. Gate training showed no specific problem for any of the newcomers, so behavioural training started very soon.

The training scheme consisted of two to three sessions a day and most of the time the animals were trained in two groups each composed of two animals, with one trainer per animal.

Within the first weeks one of the females named Ina, displayed very different behavioural patterns than her companions. Her diet and training sessions fluctuated wildly: at times she was very active and playful and at other times she seemed to be extremely lethargic.

As time went on she became more and more isolated, because of her very slow progress and unreliable behaviour and food intake. Most peculiar in her downswings, she would spit out food, regardless of whether it was given as a reward for correct behaviour or not. Neither the quality or the type of fish had anything to do with her strange behaviour.

She was checked out for any kind of stomach-ulcers or other corporal deficiencies that could lead to this strange behaviour.

During a nine month period, the training-crew tried to teach Ina 7 different behaviours, including gating between her holding pool and the main pool.

Successes were very poor, varying from 10% to 50% reliability.

This poor result was related to Ina's very unusual behaviour: she seemed to refuse rewards for any behaviour! It is also possible that she did not understand the meaning of food following a behaviour!

I am sure that any trainer in this room must know how frustrated it feels when you ask an animal a behaviour, and it responds correctly, not being able to give it a reward!

Sometimes she refused a behaviour after ignoring completely any cue, and just swam away or started to play with an object thrown in: an object that, just a minute ago, she also ignored completely.

As this was not enough, her attention also fluctuated very wildly, as if she was disturbed by something unknown to the trainer!

Although things pointed in the other way, none of the trainers thought Ina was just stupid!

First signs of pregnancy

By December '81 Ina became more and more difficult. Someone also remarked that Ina looked fatter than ever. So the idea began to grow that we had to deal with a pregnant female, fertilized in the ocean just before capture.

Perhaps that was the reason Ina behaved so differently!

Beginning January all training was stopped, and very soon the first pre-natal exercises began.

Birth

On the 30th January the labour pains began at 11.45 PM. The birth itself took about one hour with a healthy baby as result!

Ina took very good care of the baby and behaved as a good mother! The baby, a male, also looked very well and regularly suckled every few hours! Although it is described in literature that newly calved females can double their food rate, Ina just ate her normal 3 to 4 kg.

The baby lived for 10 days and died, without any warning signal visible to the observers. Milk supply was more than sufficient (many times observers saw through the windows milk ejected whenever the baby suckled).

Also no double respirations or faster breathing was observed prior to its death.

A necropsy report by our veterinarian Dr. De Meurichy showed a muscle dystrophy.

The baby was removed very quickly from the pool, within approximately 20 minutes after the death (at

the end of this paper I would like to know the opinion of all of You who had the same problem: do You take out a dead baby immediately or do You wait until the mother ignores it completely?)

Post-natal behaviour

After 5 days, training restarted.

Again Ina showed the same kind of behaviour prior to the birth. So, to improve her overall behaviour, a variety of interventions were attempted.

At first the diet was changed and attempts were made to improve her daily food intake by trying to make her eat lean fish. As a result Ina took every fish, threw away everything but mackerel and ate only mackerel!

Many tricks were used to make her eat other fish also: cut fish in small portions, add some sprat or whiting and try . . . with the only result being a complete stop of food intake for the day.

During two years many of these attempts were made and resulted in one positive result: Ina sometimes ate sprat!

To improve her behavioural work Ina was put successively together in a holding pool with another female; a dominant male; an immature male and two females.

With all the training work here involved, no direct results were seen towards Ina's behaviour.

To improve her training-reliability Ina has been trained alone in the main pool; alone in a holding pool; together with one or several animals in the main pool; in the holding pool; also here no improvements were made.

This was the actual situation September '84.

Preparing a new strategy

During several months I had the opportunity to observe Ina (I started in Antwerp in April '84) and, together with the training crew, we decided to try a complete new approach towards Ina. We were going to attempt R.I.R. (Random Interrupted Reinforcement) (Brill, 1981).

We decided one person should make an attempt to try to make better contact with Ina.

During a period of a week one trainer stayed with Ina all day and tried to have more contact in any way. While the trainer lost a whole week sitting near the hold pool trying to get her attention, Ina very quickly began to display an aggressive behaviour towards any object in the pool, and, in a way, towards the trainer. Having made no progress at all, after another week, we moved Ina into the main pool three times

~~a day to give it another try~~ ~~Ina displayed more aggressive behaviour, probably because of the gating three times a day!~~ Again we stood for a complete failure, Ina's food intake collapsed again!

October '84 another approach was decided. In our facility we have two different groups, each capable of performing a similar show routine.

At night, all the animals stayed in the main pool, Ina as well. We were going to try something new for all animals: make daily shows together, all animals including Ina.

The first days Ina showed interested behaviour, she stayed during the routines together with the other animals, which meant a whole step forward for Ina.

Some of the behaviours she knew were also cued towards Ina. She seemed to enjoy performing some-days and some particular behaviours. Ina was watched very carefully and rewarded with whole mackerels for every correct behaviour.

Although Ina seemed to improve a lot, another kind of problem showed up!

Heavy fighting between the males and the two oldest females resulted in complete chaos during every new show. This fighting ended in a complete stop of the behavioural work of the two females!

So, again we had to change our attitudes towards our problem.

January '85 we decided to introduce Ina into the daily show routines, this time together with only the older two experienced females, who had been performing together for more than ten years. From the very beginning we could see a certain interest from Ina.

The first days she seemed to look around and watch everything that happened. Then she started to gain more confident behaviour and attempted also one or two behaviours, which were naturally very well rewarded!

The most important fact at that stage was she accepted the rewards EVERY TIME!

As time went on she performed more numbers and became more interested! Those behaviours she performed also became better and more and more reliable. Then something new happened:

Ina started to imitate behaviours!

The first one is what we call 'Pirouette' or 'dancing or waltzing'. She really imitated the other animals, because she NEVER LEARNED THAT BEHAVIOUR!

The second imitated behaviour was 'football'.

Meanwhile all of her exercises she did learn more or less during the previous years, became better every day.

Ina learned very quickly that she had to perform ON CUE and together with the other animals! Furthermore she became more involved during the ~~performance of another animal because she learned~~ also that she could get a reward just by positioning in front of the trainer!

Another spectacular improvement was her diet!

She accepted, like the other performers the same rewards, INCLUDING LEAN FISH, even squid! A regular 4 to 5 kg/day was now her daily meal!

We pushed our luck and also started to train, during shows, one behaviour: a 'flipper or hand-shake'! Naturally we did this behaviour just after the performance of her companions, and she seemed to understand this also was expected from her!

More numbers were imitated, encouraged of course by the trainers.

She was actually trying to imitate 'beaching' (by jumping practically on the beaching-platform!), she imitates a tail-wave perfectly, and her most fantastic imitated behaviour is the 'hurdles'! Ina never learned jumping over things, so she solved this problem by jumping with perfect timing just past the hurdles!

Imagine this picture: two dolphins jumping hurdles and one dolphin just in front of them, all in perfect timing!

Results

Ina became a completely changed animal who, by imitating behaviour became a reliable performer.

Her diet problems seemed to have disappeared and socially she is also more accepted as an individual.

Towards trainers Ina also displays a closer bond than ever before.

Discussion:

I know that Ina is surely not the first dolphin who displays imitated behaviours (Tayler and Saayman, 1973).

Herman also reported imitating behaviour in dolphins (L. Herman, 1980).

The responsiveness of an animal to specific types of training or to specific cues may depend on complex factors such as readiness to attend to various types of stimulation as much as on learning ability or on psychophysical factors (Defran and Pryor, 1973).

Can it be that all the problems we had with Ina was caused by her pregnancy?

It is also questionable that Ina, due to her pregnancy, had problems in adapting to her new environment.

And on top of that:

Can it be that the poor behavioural results we had during the first months and later, after the death of the baby, has some relation to pregnancy?

It is possible that, by taking away too soon a just died baby from the mother causes psychological problems!

Perhaps we can avoid such problems in the future by looking for reliable pregnancy tests!

In my opinion Ina related the changes that she felt in her body and the new environment that she was introduced to, and looked to training and trainers as the cause of all her problems!

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