



The geriatric care of elephants. February 2009.

I want to write about a program and an understanding of elephants that we could all take on board and that we could all started to implemented at our zoos, a program that will assist us in the monitoring of elephants particularly where ageing elephants are concerned.

One zoo to my knowledge implements this type of program in England and started it on my advice a couple of years back when an older elephant in the zoos collection started showing signs of wear and tear when she was approaching fifty years of age. Of course you have to have elephants of a certain age at your zoo to think about and initiate such a program I am suggesting, we monitor our elephants all the time, I can hear you say. Well, I tell you, the general you out there, we are not doing enough because many elephants pass on before their time, we need to get better at observing and monitoring. We need to recognize the mile stones in an elephant's physical life after a certain age and monitor how it's doing life. But I feel we see elephants as any elephant and it all fades together at some point, we don't discriminate with age sufficiently and we certainly don't do things proactive where elephant aging is concerned. Elephants are individuals and have different characters and physical disposition and as such need individual care under our care.

Geriatric monitoring of zoo elephants. Basically all I am talking about is to observe your elephants through the golden years of their lives, no different than we do with humans. There are what I call a number of giveaway years during an elephants life providing it does not suffer from any genetic abnormality or rickets etc, or develop facility or behavioral injuries. The giveaway years last from birth if it's with its mother of coarse and not in a hand raising situation till around mid-twenties even into their thirties with some individuals. During these years very little support care other than the normal husbandry is needed. Under near ideal conditions and still in a zoo/captive environment and elephant can deceive the eye particularly if you have seen a lot of western housed zoo elephants, as I have done. The elephant to the right in the photo is in a zoo in India, now when I first saw this elephant I would have been forgiven in thinking she is around her late twenties, her feet were in perfect condition, her skin also, she was strong didn't hang too much had had a number of calves to her credit, basically she looked very healthy. I came to find out she was in her early forties and pregnant again. The reason for her excellent appearance was three things, her support system and care staff with its long history of elephant care and the climate and environment. Her mahouts were with her all the time and the weather was normal for her needs, her diet was basic elephant food, green and varied and her movement was sufficient with cardio vascular and muscle toning elements.



As an elephant grows older their needs change, lots of changes happen physically and mentally, but a lot is missed or deemed unimportant subject to the philosophy and experience of the elephant staff at that time. Care team's change, people move on, zoo managements change so

the life of the elephant is unbalanced again and again, with shifting foundation of care. If I was to take one elephant I have known for forty-one years she has been under, conservatively, 10 head keepers and an array of keeping staff, since I have known her. Now, I don't have to tell you that the quality and standard of care was always shifting over that period. There will be and are elephants right now under the same circumstances and towards the end of their lives entering into the years of their lives when things start to go wrong, things hurt more than usual this is the time when an experienced eye should be on them.

So what can go wrong? Well, just looking at the things we can see with just visual monitoring and not to mention all the infections, bacteria's etc a geriatric care program for an older elephant should monitor and is in no particular priority, *weight, teeth, blood composition, mouth color, gait, stance are all four legs squarely under the elephant, diet composition % and ratio wise, food quantity intake, fecal output, size of boluses, number of boluses in a twenty-four period, food mastication capability, sizes of fiber in boluses, gut transit time, sleeping and resting habits, social standing and compatibility, vaginal, penis and rectal exams*, most of these items are pretty easy to monitor, but it will take time before it becomes a zoo culture, a general thought process within your zoo something to be followed every day. The above items are extra and not including the general husbandry and medical routines we have to perform every day.

Check the teeth!!

A close friend of mine, Dr David Fagan, reminds me regularly that the teeth and mouth, even ours, is the first process in the digestion. Dave is a dentist by trade, who many years ago took a shot at animal dentistry, needless to say he is the best in the business and always has an answer.



Asian elephant.



African elephant.



The above photos are of teeth in both species of elephant and these particular teeth have no issues, yet. Other than the obvious differences in the ridges there are a number of other important differences particularly when we view through the care of the animals. Asians get more problems than Africans on the



whole mainly because of teeth transition. As you can see by the Asian elephants teeth as they get older they tend to fill up the mouth creating mastication issues at the plain of occlusion, that's where the teeth meet on the cutting face. The bigger the teeth there seems to be less space inside the mouth for chewing and moving food around, now if the teeth are bent like the elephant to the left, the cutting edges are less effective and that means less nutrition to the elephant, which normally only has a 45% digestion rate. So Dave was right if the mouths not working properly we have a problem. Checking the mouth in older elephants is one of the top priorities. Top teeth are easy to see if you train your elephant to open wide. The bottom teeth are a different proposition but with the help of a mirror on a stick and a compliant animal, one who does eat mirrors you should get a short overview of the bottom teeth enough to see if there is a problem or not.

African elephants tend to have less tooth problems because the teeth transition is different and the teeth are cast with less root attached making them easier to remove when it is time to fall out. That's another story for another article.

Elephants will lose teeth or teeth wear down as in the elephant to the top right and the bottom left teeth have become useless in the process of preparing food ready to swallow.



Check fecal length!!

Talking about preparing the food in the mouth. If the elephant does not have tooth power all it will be able to do is mildly masticate the food roll it around in the saliva and swallow it. Another important monitoring item is the measuring of feces length. This of course does not have to be done every day but

you can take a quick measurement every month checking bite sizes. Now, bare-in-mind, as the elephant becomes older the size of the boluses can have a critical effect on its health, slow gut transit time, large bolus, lack of exercise an elephant can develop colic and have real trouble with stomach pains. It's not a good idea at this point in the elephant's life to introduce too many fibrous plants like palm or banana tree trunks; it has a way of binding and blocking.

Check bolus count!!

How often does your elephant defecate? A normal evacuation time is every two hours, depending on what they



eat; an abundance of green food in their diet might speed up the process. That would calculate out to 12 piles in a twenty-four hour period. Consistency of the feces should also be checked, a bolus should be firm but light and break when it hits the ground. Africans will run a little loose and watery if their diet consist of too much protein, fruit, veggies or supplements. Now if you have multiple elephants in your group and elephants of the same size it's a good idea to feed one a less digestible item like corn or a whole grain so it passes through the animal and it give a clear identification without too much thinking and looking. Color dye might work the same but be sure it is none toxic coloring.

Weighing of elephants!!

This is a section that should not need explanation as it should be a part of most progressive animal care routines. Weigh loss is very difficult to detect when you see your animals everyday and when it has detected and the elephant is on the down curve it is harder to increase weigh particularly if there are physical reasons such as teeth transition abnormalities or even worst the elephant should be sick. If the weighting of your elephant is not a part of weekly routines and not under regular keeper observation, by the time the animal starts to lose weigh this would not be, understandably, the right time to start training your elephant to stand on a weighbridge or mobile scale. Weight loose can be immediately tracked with a preventive weighing program.

Resting and sleeping!!



Although sand and natural flooring for elephants is gaining attention in zoos as a beneficial welfare addition for elephants, sleeping and resting patterns for elephants are still a little known important aspect of elephant welfare. Older zoo elephants are overweight and out of condition because they are not allowed to follow their natural life patterns, elephants need many different support considerations to live long in our zoos.

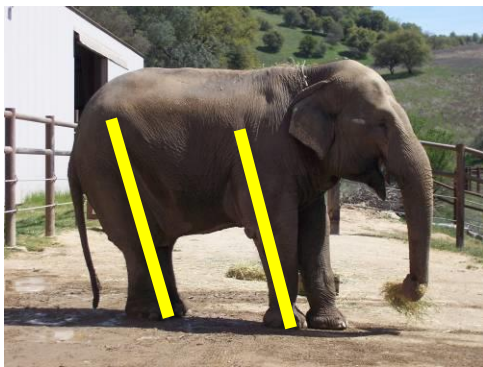
Gait and motivation!!

Watching how an elephant walks and move can redeem many health facts. Wrist flexibility for instance is highly important to an elephant's basic health in many areas. The range of motion can be seen in the photo to the right, but can only be seen in an elephant in full motion. As a comparison think of how a Rhino or Tapier moves in the front feet when they walk. The Rhino and Tapier lift their front feet quite high off the ground flicking the foot backwards as they step forward to the next step. This wrist motion is instrumental in good blood flow to the feet and legs in the elephant

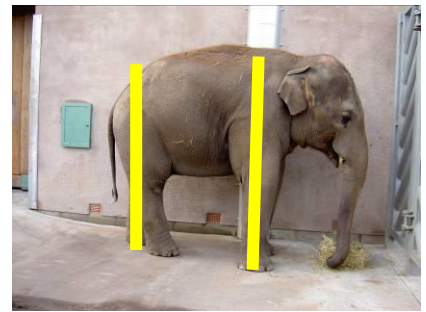


also and when this action is absent particularly when arthritis has taken hold, foot problems will be exaggerated as blood flow is reduced. Good wrist health can also be the difference of an elephant lying down or not. As an elephant starts to lie down they support their weight on the front feet shuffling forward lowering themselves into a stretch position, under arthritic pain or a reduction in flexibility of the wrists an elephant might stop lying down. Good observation during exercise periods and outside time possibly with the implementation of A to B's, watching for any abnormalities in their gait and irregularities in their length of step could mean catching the beginning of a possible problem. Other areas of importance where health monitoring and motivation is concerned, body motion and details, like tail movement, flapping ears, trunk swinging and being used always inquisitive, other than for eating, even their eyes should be bright.

Body confirmation!!



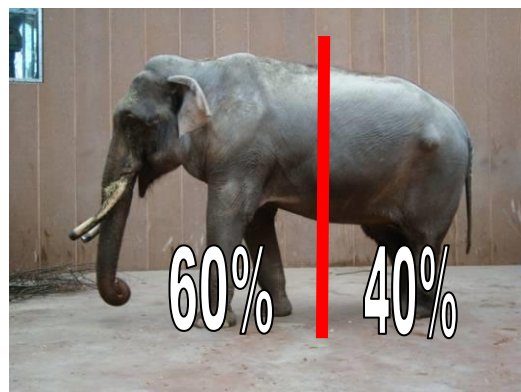
This is a difficult topic because if your elephant has reached this condition it is probably too late to turn around, extreme pain in the front feet, wrist and legs will cause this situation. The elephant tragically



shifts its weight onto the back leg to avoid the pain in the front, but it does have a beginning these things do not happen in a vacuum, a beginning that observation could have caught and altered the outcome. It takes long term experience to recognize and intercept these situations and a keen eye on the elephant.

Weight distribution.

An elephant has a weight distribution that should be carefully monitored over the course of its life. Carrying an enormous weight as it does the elephant in nature must be aware of its footing and elements in its environment that are a possible threat. In our zoos the elephant does not have control over these elements as they are delegated to us, the caregivers. Any disruption to these percentages, any shifting of weight, any weight compensation to another foot or leg so any disorders to the elephant's important body confirmation like foot abscesses, arthritis, out of conditioned muscles will have drastic effects on the elephant long term health. Its natural support system will be affected if the weight distribution is not maintained.



Vital areas to check!!



What is a vital area, anywhere really where something can go wrong? But I want to mention two areas that probably won't be on many lists. Anal polyps photo one and vaginal lesions photo two. These are two areas that are not exactly easy to find and do go unnoticed if you don't have reliable focused access to your elephants. Anal polyps will develop in older elephants and I have seen them in a thirty

year olds. These photos are meant to show that your evaluation and monitoring program has to be complex and health issues could develop even in the best situations. Even a blood picture is a good idea, with blood sampling you will have closer understanding of health issues your elephant might be facing. I think my point is at this stage of the article is, what extent will you and your institution go to monitor the health of your elephant?
Support Equipment.



Night cameras and written documentation.

Observing any elephant in captivity is a good idea because with long term written documentation you can establish behavior patterns and individual idiosyncrasies that would be normally missed on a day to day basis. I also swear by night cameras, over night recordings are a normal part of any professional elephant program and allow behavioral observation of any particular elephant. Not only does the night camera give you heads up for medical and social issue it is a good tool in any twenty four hour enhancement program. Being able to see and evaluate elephant behavior at night will offer the chance to intercept abnormal behavior and hopefully be critical in recognizing and preventing stereotypical tendencies from the onset. With older and potentially geriatric animals night cameras allow for you to have a closer eye on them when you are not around filling in the blanks, this technology in concert with written documentation such as hours slept, fecal counts, fecal consistency and length, weekly weights, regular photos of teeth growth and transition, motivation and gait observation.

What is the spinoff of implementing such programs to our business? Working with older elephants that are becoming sickly and physically compromised is a challenge for any team but these animals are a fact of life. Elephants can live into their 70's, they are programmed to live long life's but at the moment elephants reach points in their lives, under poor care, where they just fade away with no real knowledgeable support system around them.

It is only in fragmented places in my opinion where professionally educated groups of limited to a small number of places in the world people believe to be the long term benefit's to our business after such programs are instituted, is possibly a positive cultural shift and a need within our ranks for a stronger philological stance when it comes to elephant management

matters and by promoting an awareness to the excellence of the elephant of all ages with all its needs as it travels through its life cycles we will create a new based line of information, that will be past down to future elephant caretakers, people who if given better tools to manage elephants long term, animals of all ages, will find themselves in a place of time where all elephants no matter what their age can benefit from a productive health program and not fall through the cracks of our lack of knowledge.

Dementia. (*Memory disorders and disorientation*).

We have, so far, discussed only the physical aspects of the geriatric process in elephants, the clearly visible things that can happen to an elephant as it get older and senile. Very few people in the business have been able to follow an older elephant's mental deterioration process, the time when old Betty loses it completely, so to speak. However I would think in Asia this happens more often because there are more elephants in captivity and the care, climate and feeding practices are far superior to ours, in some locations.

To be honest not too many elephants reach this area of their life without other more concerning complaints, which most of you have all seen, but an elephant just leaning against a wall still blinking and breathing but doesn't know what day it is, these elephants are few and far between in our zoos. I myself have not been round elephants long enough in one place, to have witnessed this condition. I can only imagine judging how people grow old and like people if the elephant is in good physical health there would be a period of disorientation a period of wandering not knowing what is up or what is down and even in facilities where the elephant has been for the most part of its life all the doors start to look the same and the quality of life starts to slip. The combination then of not knowing where she is, no teeth, not eating plus whatever else is effecting the elephant obviously becomes too much. Unfortunately it's not always as clear as that and some elephant's don't have clear ailment

I have been told the story of old Meni a female working elephant at the Hagenbeck's Tierpark many time over my stay of 10 years, old Meni was 73 years old when she couldn't do it anymore. She was the tallest elephant my boss had ever worked with, from Vietnam I understand, you can still see her in the old photographs from after the second world war; she was used to clear the bombed out areas around the park in the districts around Hamburg. Sadly the trainers found her one morning leaning with her fore head supporting her weight on one of the pillars of the house not able to right herself. She was euthanized shortly thereafter. The organization is well known for its proactive and elephant welfare orientated elephant management practices, over 150 years worth of experience has molded a thought process, where elephants have grown old and become incapable of continuing, the institutional evaluation making process at this point is important but hard decisions were made quickly at this animal park.