I have been prompted to write the following article and to include letters from other people because since I last wrote in The Low Down about this, people have forgotten the details or in fact did not read the first article. I also intended to have an article on exactly what a prolapsed disc is but I left it a bit late and the Vet I was getting to do the article is on holidays. Maybe we can cover those details at a later date.

Sue Rose
Nasus Dachshunds

Way, way back in 1983 the Dachshund Cub of NSW had an After Meeting Guest Speaker named Dr Hood. He spoke about using massive doses of Vitamin C, injected intravenously, to get a dog up after it has suffered a prolapsed disc.

About a month after the talk, my pet bitch, Heidi, went down. As usual I hadn’t listened properly and I only had one injection of Vitamin C the same day she went down and she got up but the next day she was down again. So I rang Dr Hood and got the full information on what I was supposed to do.

He recommended the 1000mg of Vitamin C be given intravenously for seven (7) days in a row along with normal cortisone treatment and total cage rest. The dog should then be given 500mg of Vitamin C in tablet form, morning and night, or the rest of its life.

I had trouble convincing my Vet (at that time) to go along with the treatment as he said he couldn’t see how it would help and in desperation I asked if it would hurt. The answer was no, it would not hurt. Reluctantly, he did the injections.

After only three days she was up and by the fifth day she was walking again. She walked with a slight wobble for the rest of her life. She only died last year (a stroke) aged thirteen (13).

Since 1984, when I wrote an article in The Low Down, I have recommended this treatment to a lot of people. All but one of the dogs it was used on responded and were up and walking. It takes longer to work on dogs that are not started on the treatment within forty-eight (48) hours.

I have successfully had three dogs treated. Because prevention is much better than a cure I start all my dogs on Vitamin C at six (6) to twelve (12) months of age.

I recommend to the people I sell puppies to that they do the same. I have not had a dog down in the last six years.

As a result of the article I wrote in The Low Down, a lady in America contacted me in December 1984 because she had an eleven (11) year old go down. She asked for information for her Vet so I contacted Dr Hood and asked him to send her full details.

I have retyped his reply because the carbon copy he sent me is now very tatty from being photocopied and folded a million times.
VITAMIN C

The letter was dated January 16, 1985, from W Hood, B.V.Sc. Veterinary Surgeon and Physician

Sue Rose rang me and asked me to tell you all about my use of Vitamin C in Dachshunds with prolapsed discs.

I first decided to try out this treatment after reading “Vitamin C and the Common Cold” by Linus Pauling. In the book he talks about how at Baylor College, which is in either Dallas or Houston, they were using large doses of Vitamin C to avoid surgery in quite a number of human patients. I tried it out in conjunction with long-acting corticosteroids and cage rest and was amazed at how quickly most of the dogs recovered compared to corticosteroids and rest alone. Most of them went from dragging their back legs to up and walking in four (4) to seven (7) days. After these dogs are discharged from hospital I recommend that they be given Vitamin C tablets, 500mg morning and night, for life. If this is maintained we rarely have a relapse.

The use of Vitamin C intravenously (I recommend 1000mg daily) works best when given as soon as possible after the injury has taken place. In older cases which have been going on for a few weeks the response is not so dramatic. In these cases I usually use acupuncture in conjunction with the Vitamin C therapy. Acupuncture is another excellent way of treating this problem, but I only usually need to resort to it on these chronic long-standing cases.

If you are showing this letter to your Vet the dose of Vitamin C I use is 1000mg intravenously daily. Over here it comes as 500mg/ml for intramuscular or subcutaneous injections. Even though it is not recommended for intravenous use I have been doing so now for about nine (9) years without any adverse side effects. In conjunction with this I use a long-acting corticosteroid (any brand OK) and cage rest.
DACHSHUND BACK PROBLEM
CASE STUDY—SANDY

We have all heard it said “Dachshunds are prone to have back problems” and, whilst one is aware of the problem, until it affects one of your dogs, you do not give it much thought.

I have been breeding and exhibiting Dachshunds for thirty-five (35) years and in all that time have only had one bitch ever have back problems. So when Sandy was observed to be in some discomfort she was taken to my local Veterinarian for a check.

The initial diagnosis was arthritis in the left hip joint and the usual advice from members of the medical and veterinarian profession “take these tablets and we will see what happens”.

As the days went by Sandy got progressively worse and went totally in the hindquarters, being only able to get about by dragging herself with her hind legs dangling behind.

Back to the Vet’s, and this time the diagnosis was disc trouble. Treatment, injection of pain killer and tablets. The next day Sandy was up on her feet and was perceived to be improving and then back down she went after a couple of days. Another injection and a course of different tablets did not help the situation and she progressively got worse.

Three weeks had passed and I was becoming extremely concerned about the situation.

The Veterinarian was consulted again and I insisted that an X-Ray be taken. The X-Ray did not reveal any abnormality of the spine.

The Veterinarian could not explain to me why I had a bitch that could not stand up on her hind quarters. When asked what was the next step the Veterinarian advised that I could send Sandy to a specialist who will inject a dye into her spine and then an X-Ray would reveal if there is any leakage of dye, thus revealing where the problem was. This test alone would cost $1,200 and then treatment, if any, would be on top of that with possibly a spinal operation that could cost another $1,000 plus. All with no guarantee that Sandy would ever walk again.

The family were all becoming most concerned that if Sandy did not improve she would have to be put down.

I remembered that Sue Rose had experienced this problem with several smooth bitches and rang Sue for advice. Sue advised me that she had been most successful with the Vitamin C treatment of intravenous injections of 1000mg daily for seven (7) days and then 1000mg a day in tablet form for life.

I went back to my Veterinarian and requested that he give Sandy the Vitamin C injections. He advised that he did not know of any medical reason why it should work but he was prepared to do as I asked. Sandy was caged and injected daily with the Vitamin C.

After four (4) days we were excited to see that she could get to her feet and take a few steps. Every day she slowly improved and after ten (10) days she could actually walk across the yard (even though very shakily). Several weeks later she is back with the other dogs and whilst she has a little wobble is gaining strength in the hindquarters every day and is living a normal life, much to our relief.

Our Veterinarian is amazed and cannot explain:
1. What actually caused the problem in the first place.
2. Why or how the Vitamin C worked.

The facts are:
1. Dachshunds are prone to back problems and the danger time appears to be around five (5) to six (6) years of age.
2. If a dog goes down immediately insist that your Veterinarian administer 1000mg of Vitamin C intravenously for seven (7) days.
3. Cage the dog to prevent further damage and keep the dog as quiet as possible.
4. At the end of the seven (7) days of injections commence 1000mg Vitamin C tablets a day for life.
5. Sandy has been able to resume her role as ‘boss’ of the kennels.

It is recommended that all dogs from the age of three (3) be given Vitamin C tablets daily for life. It most certainly will not do any harm and if it prevents just one of your dogs going down with back problems it will have been well worth it.

Robin Hill
Dalton Dachshunds
Clinical Trial of
Ester-C
POLYASCORBATE
from
the Norwegian Veterinary Journal Volume 102,
August/September 1990

POLYASCORBATE (C-Flex),
AN INTERESTING ALTERNATIVE BY PROBLEMS
IN THE SUPPORT AND MOVEMENT APPARATUS IN DOGS

Geir Erik Berge
Groruddalen Dyreklinikk
Oslo, Norway

PRELIMINARY DISCUSSION

Ever since Dr Lind in the year 1740 discovered that juice from citrus fruits could prevent survey in sailors, Vitamin C has had a natural place in human nutrition.

All species except primates, guinea pigs, certain types of bats, salmon varieties, certain insects and shellfish, have enzyme systems that convert glucose to ascorbic acid\(^1\). Vitamin C has hence received little attention within modern veterinary medicine.

The assumption that animals at all times are capable of producing sufficient quantities themselves is, however, probably not a valid one.

Ascorbic acid plays a role in a large number of biochemical reactions in the metabolism of collagen and in the immune system as well as in a series of redox reactions.

Also metabolites of Vitamin C are reactive components. Today’s research gives these substances the attention they deserve. The conversion of ascorbic acid into these metabolites is believed to be dependent on the intracellular ascorbic acid concentration. Under certain circumstances, like infections, traumatic, or physical stress, larger amounts of ascorbic acid and its metabolites are being consumed by various tissues.

Under these conditions, it is very well possible that the animal’s own production cannot cope with the demand of supplying all tissues with optimal levels of ascorbic acid.

Ascorbic acid is an acidic, water soluble molecule which after ingestion is very rapidly excreted through the kidneys. Ascorbic acid has pka 4.17. The ideal Vitamin C would be a pH neutral molecule that would not cause irritation to the gastro-intestinal tract, that is rapidly absorbed from the gut, that is more slowly excreted, and that has the ability to cross cell membranes in a more efficient way than does ascorbic acid, so that higher intercellular levels can be reached.

Such a Vitamin C (classified as a polyascorbate) has been developed and patented by Inter-Cal Corporation of Prescott, Arizona, under the trademark C-Flex.

Polyascorbate is a complex mixture of calcium ascorbate molecules and the above mentioned metabolites. In water solution the polyascorbate is pH neutral, which influences the osmolarity in
the intestinal tract less than does ascorbic acid, which has a pH 2.4. It is absorbed faster in both animals and humans.

Furthermore, slower excretion and higher intracellular concentrations are achieved. Clinical studies suggest that the metabolites created during C-Flex’s unique manufacturing process are of vital importance in its increased ability to penetrate cell membranes and thus give higher intracellular ascorbate absorption.

Robert Davis, Ph.D., at the Pennsylvania College of Podiatric Medicine, observed that polyascorbate lessened both symptoms of pain and stiffness in arthritis patients.5

Indications of similar effects in dogs were found by Charles Dockter, DVM, in Prescott, Arizona.5 It is assumed that the metabolism in support bone and tissue is being stimulated and optimised.

The target for this study was to observe the effect of the polyascorbate in dogs with clinical symptoms of chronic inflammation processes in joints, skeleton and muscles, as routinely treated with antiphlogistics and corticoids.

**MATERIALS AND METHODS**

The study was carried out at Groruddalen, Dyrelinikk, over a six-month period in 1988. One hundred (100) dogs of different breeds and ages were given C-Flex approximately 30 mg/kg bodyweight three (3) times a day orally.

All treatments were given because owners saw the animals’ symptoms of limping, lameness, limited movement ability and pain. Diagnosis was made on the basis of journals, clinical evaluation and, if necessary, X-Ray. The effect was measured as changes in symptoms partly by new clinical assessment and partly by owners reporting their evaluation of treatment. The effect was measured after seven (7) to ten (10) days, more than six (6) weeks and after approximately six (6) months. A

<table>
<thead>
<tr>
<th>Number of dogs showing</th>
<th>Total</th>
<th>Good improvement/ free from symptoms</th>
<th>Small Improvement/ no improvement</th>
</tr>
</thead>
<tbody>
<tr>
<td>After 1 week</td>
<td>100</td>
<td>75</td>
<td>25</td>
</tr>
<tr>
<td>6 weeks</td>
<td>100</td>
<td>79</td>
<td>21</td>
</tr>
<tr>
<td>Available months</td>
<td>85</td>
<td>65</td>
<td>20</td>
</tr>
</tbody>
</table>

Splitting these numbers after diagnosis gives the following

**TABLE 2**

<table>
<thead>
<tr>
<th>Limping/pain from hip dysplasia:</th>
</tr>
</thead>
<tbody>
<tr>
<td>After 1 week</td>
</tr>
<tr>
<td>6 weeks</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Spondylosis back prolapse:</th>
</tr>
</thead>
<tbody>
<tr>
<td>After 1 week</td>
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<tr>
<td>6 weeks</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Arthrosis changes:</th>
</tr>
</thead>
<tbody>
<tr>
<td>After 1 week</td>
</tr>
<tr>
<td>6 weeks</td>
</tr>
</tbody>
</table>
series of both acute and chronic ailments were treated. With acute problems and conditions that rapidly change, it is very difficult to distinguish between effect of treatment and other influential factors. Such patients were therefore excluded from the study. One has hence limited the study to observe the effect of:

- symptoms that have a known cause and that are permanent, and
- where symptoms had been stable over a minimum of six (6) weeks, and
- must be assumed to persist without treatment.

Dogs with the following ailments were included:

- Arthrosis
- Spondylosis
- Hip Dysplasia
- Older disc prolapses with permanent secondary changes
- Senile wear changes in support and movement tissue.

RESULTS

The results of the study are shown in Table 1. Results related to the different diagnoses are shown in Table 2. No clear variations between the studied ailments were found.

There were no side effects seen during treatment.

C-Flex was administered both as tablets and powder. This did not seem to make a difference in effect.

In agreement with some owners, six (6) dogs with chronic arthrosis were divided into two (2) groups. Group 1 received C-Flex, Group 2 a placebo. After one (1) week all the dogs in Group 1 showed improvement, while no one in Group 2 did. Treatment was postponed for four (4) weeks. Groups 1 this time received the placebo and Group 2 received C-Flex. After one (1) week all the dogs in Group 2 showed improvement and none in Group 1 did. A second crossover was then made with the same results.

CONCLUSION

This study shows an interesting tendency that polyascorbate orally administered gives symptomatic relief of chronic deforming changes in the joint and skeleton system in many of these patients.

One realises that it would have been preferable to have larger groups. However, as the treatment seemed to give some clear-cut effects, one deems it appropriate to mention this at this point. Further studies with larger groups are under way.

Polyascorbate should prove to be a good alternative to current treatment of these ailments. Many older dogs showed a general improvement during treatment. That the substance gives effect to all dogs, a species that should be able to produce its own Vitamin C, points in the direction that the dog’s own production gives sub-optimal concentration in some tissues under certain conditions.

REFERENCES

Vitamin C Therapy

My Experience With Vitamin C

I had a seven and a half year old Standard Smooth bitch who for no apparent reason started limping badly on one hind leg. I took her to my Vet and she was diagnosed as having a disc slightly out. I was given pain killers and told to rest her.

After a few days I remembered Sue Rose’s article in *The Low Down* about Vitamin C. I contacted Sue for more information and asked my Vet if he would administer Vitamin C intravenously for five days in conjunction with Cortisone tablets. He replied that there was no evidence to suggest that this would be successful.

I told him I would like to try it. He then agreed and I was to ring to find out when he had the Vitamin C as it was not kept at the surgery. I duly rang to be told that he could not find a supplier.

My answer to that was that if I could get it would he go ahead. The answer was yes. My trusty chemist was able to find a supplier and I was able to get it that very afternoon.

By then six days had elapsed since my first visit to the Vet.

Having made an appointment to start the injections, I took Lannie over to find that the Vet’s partner was on duty. He was aware of the situation as he had been briefed on the case. He did inform me that there was no evidence that Vitamin C would have any effect on disc trouble. However at my insistence he went ahead but only after I agreed to sign a paper stating that I would take sole responsibility.

We had the treatment, and though Lannie was no worse the condition did not immediately improve.

The Vet suggested I make an appointment for blood tests and X-rays after the weekend. I replied I would wait and see.

**Two days later she had no sign of a limp.**

I gave her 1000mls of Vitamin C daily for the rest of her life and if I had occasion to visit the Vet with one of my other dogs I was always asked how Lannie was. It gave me great pleasure to state that she was well and still on her Vitamin C. Lannie lived happily for just over another five years and never had a recurrence or had to go to the Vet for any reason.

**My older dogs are on Vitamin C and will be for the rest of their lives. I would never hesitate to insist on this treatment should one of the dogs ever suffer from disc problems.**

Ann J Sutton

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Yet more evidence

We have been using Vitamin C since the fifties with good results.

Quest of Wendlitt was paralysed; his only movement was to turn his head. I was advised to put him down by two Vets.

Questie was a dear little dog and he was in the crate to be taken down to the Vet when I changed my mind. I thought that I would battle on.

Armed with Disprin (for intermittent pain) and Vitamin C—given four times a day and again through the night—Quest recovered and went on to sire a lot of really good mini smooths!

By the way, Vitamin C has another valuable attribute in an emergency!

Sheridan Pausey
Vitamin C Breakthrough
A non-acidic vitamin called Ester C has been having remarkable success in easing the suffering of arthritis

Six years ago, at the age of fifteen, Scott Rutherford was in such agony from back pain that sitting in class was torture and playing sport was impossible.

A surgeon studied X-Rays, diagnosed an inflamed disc and advised immediate surgery, at the same time warning Scott that there would be a 50/50 chance he would spend the rest of his life in a wheelchair.

Scott’s family was appalled, and his sister, who worked for a doctor, arranged for a consultation with her employer Dr Edwin Goertz.

Dr Goertz believed that Scott had arthritis and prescribed Ester C, a unique form of Vitamin C that had recently been manufactured locally in Prescott, Arizona, in the US.

Initially, Scott took ten tablets a day. Within six months he was back at school and a year later he was playing softball.

He is now a mechanic with the Chevrolet dealer in Prescott and often works ten to twelve hours a day, standing on a concrete floor.

He says: “I can do anything I want to do now. I take four to six Ester C every day and I only ever get a twinge in my back if I work really hard. I’ve never had to go back to see a doctor about my arthritis and generally I’m very healthy.

“Six years ago I couldn’t even sit comfortably and I was really scared I’d be in a wheelchair. Now I play softball and do martial arts and have no trouble at all doing the exercises.”

Ester C is a non-acidic, pH balanced form of Vitamin C. It was developed in Prescott by the Inter-Cal Corporation, a group of local people dedicated to finding the perfect way to provide arthritis sufferers with a neutralised Vitamin C.

The product recently received the endorsement of the US medical establishment when highly respected nutritionist and author Dr Jeffrey Bland described it as “the most remarkable nutritional substance available today”.

Dr Bland, a former director of the LINUS PAULING LABORATORY OF NUTRIENT ANALYSIS, says: “Optimum levels of Vitamin C are necessary for good health, and research evidence suggests that Vitamin C may be the most powerful anti-viral substance known to us.

“Ester C was born when Vitamin C was added to calcium carbonate and heated under the right conditions. The trial results have shown remarkable success in the treatment of arthritis and osteoarthritis.

“Two years ago I was a ‘doubting Thomas’ but I was impressed with the product—a remarkable change from what usually happens in this industry.

“But today, with all the evidence that is available, it is obvious Ester C is preferable in all ways to normal Vitamin C.

“I have heard some remarkable anecdotes from arthritis sufferers who say Ester C has had a favourable effect.

Of course, anecdotes prove nothing, so there have been scientific studies. People taking part in semi-blind trials with other forms of Vitamin C have come right back to the researchers and say, ‘Hey, you didn’t give me the right stuff’.

“They knew, because of the positive effects on their arthritis, when they were getting the authentic Ester C.”

Don Smith, a builder, is another Prescott resident who uses Ester C to combat arthritis. In his
case, the results were almost immediate. Don, 49, says: “I developed arthritis about ten years ago, but I had suffered back pain for about eight years before that. I was often in pain and I was never sure when my back would ‘go out’.

“About ten years ago I was so crippled that I walked like a chimpanzee. I was virtually doubled over and was in terrible pain. I was on my way to visit my grandmother when I met a friend who noticed my back was twisted.

“She suggested I try Ester C and when I told her I couldn’t take any sort of Vitamin C, she assured me this was something new, developed in Prescott, and that there had been some amazing results in the treatment of arthritis.

“I bought some and took a tablet right then. About ten minutes later I arrived at my grandmother’s house. I took another tablet, then spent a few minutes talking to relatives before I sat down at the table.

“Now I know that this is going to sound like a testimonial for a miracle cure, but as I sat down, I felt heat at the back of my neck and down my spine, then all the pain and distortion in my back disappeared.

“That was just on two tablets and I wondered what had hit me. Since then I’ve been talking two Ester C tablets a day and the arthritis has flared only a couple of times. Then I just increase the dose by two or three tablets for a day and pain goes.

“I think it is a matter of maintaining the pH balance. I don’t drink alcohol or coffee and I think it’s a good idea to sleep in a waterbed.”

Prescott travel agent Michael Ross is an amateur weightlifter. Until a fellow sportsman, a doctor, recommended Ester C six years ago, Michael often had problems with cramp in his lower back, neck and triceps.

He says: “I would be in a lot of pain about thirty minutes into a work-out. The back of my neck would start to knot up and my triceps were so sore it was hard to lift.

“Then I followed my friend’s advice and started taking Ester C. Since a couple of weeks after that I have never been in pain again during a work-out. I work out about four times a week.

“I’m sure Ester C has also improved my general wellbeing. I smoke but I don’t get colds in the winter like my wife and daughter, nonsmokers, do.”

Dr Charles Dockter runs Prescott’s largest veterinary practice. He takes Ester C and gives it to many of his patients, particularly dogs with arthritis or hip dysplasia.

He says: “Inter-Cal asked me to do some trials several years ago. The results were very interesting, with about twenty-five percent of dog owners reporting their dogs were much better, fifty percent saying there was some response but nothing remarkable, and twenty-five percent saying there was no change.

“However, when that fifty percent stopped using the Ester C, they soon saw there had indeed been an improvement in the dog’s condition and they came back for more.

“I remembered one twelve-ear-old German shepherd that was brought in totally paralysed, to be put to sleep. I put it on Ester C and a week to ten days later it was walking around. I have the same sorts of results with hunting dogs.

“I start the dog on one tablet per five kg of body weight and if there is no improvement in ten days, the dose is doubled. If, ten days after that, there is no change, Ester C is probably not going to help the dog and I have to try medication such as aspirin, then steroids.

“I use Ester C with many breeds, generally on older dogs, and on those that are just stiff. It is soon evident the dogs are more active, alert, energetic, happy and responsive.”

Dr Dockter has also used Ester C on horses and has read research about its use with fish and rabbits. He suspects it could be used to great effect in the sheep and cattle industries, to combat lameness and respiratory problems.

However, Dr Dockter has discovered that Ester C does not seem to work with cats, probably, he says, because of the animal’s particular muscular structure.
Vitamin C continued …

Dr Dockter has been in practice for twenty-three years. He says: “I have no shares in or connection with the Inter-Cal Corporation, but I believe in Ester C or I certainly would not be taking it myself. “I injured a knee playing football and it got to the stage I thought I would have to have surgery and give up skiing. But I take three tablets morning and evening and do anything I want, including skiing and playing basketball. My orthopedic surgeon says I shouldn’t be able to do these things on my knee, but I can.

“My father had an artificial leg below the knee and he complained about muscle spasms. He was really suffering and I suggested he try three Ester C tablets a day.

“As soon as he did the pain stopped and didn’t come back until he ran out of Ester C. But, as soon as he started taking Ester C again, the pain just disappeared.

“Scientific evidence proves Ester C assists in building collagen, and collagen’s the thing that holds our bodies together. That makes sense to me and from my experience I know Ester C made my knee joint stronger.

“And the beautiful thing about it is that it can’t hurt you—not like steroids, that can have so many side effects.”

Reprinted with kind permission of New Idea

My Own Tips for Preventing Disc Problems in Dogs

These are aimed mostly at Dachshund owners, but remember Dachshunds aren’t the only dogs likely to suffer from disc problems.
1. If you live in a two-storey house, preferably move to a single-storey one.
2. If this isn’t possible, stop your dogs using the stairs. Keep them downstairs and block off the bottom of the stairwell with a gate. This is what we did when we lived in a two-storey house in Auckland. The gate automatically closed behind us and was fitted with a magnet to keep it closed.
3. Even a single-storey house is likely to have stairs at either the back door or the front, sometimes both. We have trained our dogs to use only the back door, where we have fitted a ramp for them. Of course, we also needed a pet door, and this couldn’t be placed in the back door because the dogs would then be able to use the stairs instead of the ramp. We cut a hole through the laundry wall for the cat door, which leads onto a platform from which a ramp leads down the wall of the house to the carport floor. Both platform and ramp are walled in so the dogs can’t accidentally fall off. Since the carport has a ranchslider (sliding glass, aluminium-framed full-length window) we had to put another cat door beside that. We stuck old carpet on the ramp to stop the dogs slipping. It also helps dry their feet. Not that this is all that useful; if their feet are wet their bellies are often even wetter.
4. Don’t allow the dogs on the beds and furniture. A few scoldings as you pick them up and put them back on the floor will soon teach them. However, this doesn’t mean you have to deprive them of the comfort of your knee in the evenings. Just don’t let them jump up (lift them up) or jump down.
5. When picking up your dog, support it with one hand on its chest and the other under its back legs, and keep it in a horizontal position.
6. Discourage Dachshunds from “begging”. It’s very appealing but it isn’t good for their backs.
6. Keep your Dachshund’s weight down. To be eligible for shows a miniature Dachshund has to be no more than 11 lb. or 5 kg. This is an extremely good guideline, though obviously some minis will be overweight at 11 lb. or 5 kg. We weigh our dogs regularly and adjust their diet accordingly.

Laraine Anne Barker