

## Bit Severity & Bit Fitting

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Date: 10 May 1994 23:15:27 GMT Organization: Digital Equipment Corporation*

Due to renewed interest in the topic, I'm going to repost some articles on biting. Specifically, the topics are bit fitting and evaluating bit severity. The first is an intro to the severity scale I mentioned in some recent notes. Then, a questionnaire to evaluate snaffles. That will be followed by a questionnaire to evaluate curbs. By snaffles, I mean non-leverage bits. By curbs, I mean all leverage bits regardless of what kind of mouth it has or what you call it. On leverage bits, the reins attach \*lower\* than the mouthpiece.

The final installment will be about evaluating the horse's mouth and bits which work better for certain types of mouth conformation.

In the July 1993 EQUUS, there was an excellent article by Dr Deb Bennett on evaluating a bit in terms of severity. The basic principles/rating system she describes apply to all types of bits(Walker, show horse, trail, western dressage, etc).

The scoring scale described rates a bit with a total score of 1-5 as mild, 6-19 as moderate and 20 or more as severe. It evaluates the shape of the mouthpiece, the rings and how they attach to the mouthpiece, the thickness of the bit, length of the shanks for leverage bits, where the curb chain/strap attaches to the shanks, etc. It's by far the most comprehensive discussion of bit severity I've ever seen. It should allow one to compare/contrast bits and pick the mildest bit from those that work for your horse.

She also mentions (but doesn't discuss much) other factors which effect a bits action/severity. Those factors include:

- 1. The rider especially her/his hands
- 2. The horse especially the structure of its mouth parts...For example, a thick bit is generally regarded as milder than a thin version of the same bit. However, X-ray studies showed that a horse with a certain kinds of mouth would be caused PAIN by the thicker bit. For example, horses with shallow mouths and/or thick tongues would be uncomfortable with a thicker bit.
- 3. Correct fitting of the bit

Because there are so many variables, you can't generalize too much from the examples she gave. For example, one that she used was a Pelham which she scored at 15. A different Pelham with longer/shorter shanks or different mouthpiece to shank attachments would get a stronger/milder rating. So, you can't say "All Pelhams are the same severity."

Interestingly enough, she rated an eggbutt snaffle w/ mouthpiece of 1/2" or more thickness as the mildest bit. It scored a 1. A smiliar thickness French-link snaffle would score a 2. Many horseman would say that a French-link snaffle is milder than an ordinary snaffle because the third piece in the center reduces/eliminates the possible nutcracker effect. Dr Deb considers 1,2 or 3 pieces in the mouth as essentially the same in severity. The eggbutt snaffle was scored as milder because of the difference in how the rings attach to the mouthpiece. The French-link usually has loose rings and the eggbutt allows less movement.

The Western snaffle bit she used as an example got a 23 because of the broken mouth and the shank length. The walker bit with 7" shanks and a thin mouth w/ high port got a 29. The single twisted wire snaffle with a thin copper mouth: 15. Double twisted wire snaffle: 25...etc

I rated the bits in my dressage double bridle using her article. Even though I use a thickish loose ring bradoon(3/8"), it rated a 4. Still mild but near the high end of the range. The curb (2.5" shanks, wide low port, thick mouthpiece, solid attachment of shanks to mouthpiece) rated a 7. My wife uses a bradoon that is 1/2" and has an eggbutt attachment. It rates a 1.

To make a long story short, snaffles aren't always the mildest bit. Many of them are stronger than curbs(e.g. a twisted wire snaffle is stronger than my curb bit). Severity depends on LOTS of things.

### **Rating snaffles for harshness**

A couple months ago, someone asked about the relative severity of a full-cheek, copper-mouthed french snaffle with a slow twist on each of the cannons. They were surprised at how much stronger the bit seemed compared to the way her horses responded to a regular eggbutt snaffle.

I told her about the EQUUS article and it's rating scheme. Here's the method so you can apply it yourself, if you need to.

The article is long and complicated because it considered both curbs and snaffles in the same rating scheme. For snaffle(i.e. non leverage) bits, it can be simplified. To decide whether to use the snaffle or curb rating questions, answer this question: "Do the reins attach below the level of the mouthpiece of the bit?" If the answer is "No", use the snaffle rating scheme. If the answer is "Yes," the bit has leverage and you should use the curb rating scheme.

Answer the questions and write down the point value indicated. After you have answered all the questions, use the following formula to rate the snaffle:

$$\text{Answer} = Q1 + Q2 + (Q3 \times Q4) + Q5 - Q6 - Q7 - Q8$$

where Q1 = value from question 1, etc. In case, your algebra is rusty... the (Q3 x Q4) means "multiply the answer to question 3 by the answer to question 4 and \*then\* add the total to the other numbers.

Answers of 5 or less are mild; 6 to 19 moderate; 20 & up severe. At the end of the questions, I rated her bit as an example.

Question 1: How many pieces are there in the horse's mouth? A. 1 to 3 pieces 1 point B. More than 3 pieces 5 points

Question 2: What kind of texture or shape does the mouthpiece have? A. Sharp(e.g. triangular or edged) 10 points B. Prickly 10 points C. Rough(e.g. twisted wire or chain) 10 points D. Twisted metal 5 points E. Wrapped with smooth wire 3 points F. Smooth 1 point

Question 3: What is the ring shape? A. Round(i.e. rings are circles) 1 point B. Other shapes(e.g. egg, figure 8, D) 2 points

Question 4: How thick are the canons? A. 1/2" or more 1 point B. 3/8" but less than 1/2" 3 points C. Less than 3/8" 10 points

Question 5: Is it a gag/elevator bit? A. Yes 8 points B. No 0 points

Question 6: How are the rings attached to the canons? A. Through holes in the canons(i.e. all loose ring snaffles except Fulmer aka Australian loose ring) 1 point B. All others including Fulmer 3 points

Question 7: Are there players, keys or a cricket on the bit? A. Yes 3 points B. No 0 points

Question 8: Is the mouthpiece copper, sweet iron, or a flavored material? A. Yes 3 points B. No 0 points

As an example, her full-cheek, copper-mouthed french snaffle with a slow twist on each of the 1/2" canons(the part in the mouth) and non-round rings would rate as follows:

$$\text{Answer} = 1 + 5 + (2 \times 1) + 0 - 3 - 0 - 3 = 2$$

That's pretty mild. An eggbutt snaffle with 1/2" canons and plain steel mouth rates a 1. Gee, would the eggbutt get a -2 if it were copper or flavored plastic? Note that even without the bonus for copper, the twisted bit would still come out as a 5; a slightly higher but still mild rating.

A similar copper-mouthed bit with 3/8" canons rates:  
Answer = 1 + 5 + (2 x 3) + 0 - 3 - 0 - 3 = 6 (9 for plain steel)

### **Rating the severity of curb bits**

To complete the "How to rate your bit" theme, I'll summarize the curb rating formula from last year's EQUUS article. This scheme is based on that article but I've simplified things.

A curb is any leverage bit. It may have shanks (like most do) or get its leverage through some other means(e.g. the Kimberwicke gets leverage from a the combination of slots in the D-ring and square rings for the bridle cheek attachment). You can determine whether or not your bit is a leverage bit by answering this question:

Do the reins attach below the level of the mouthpiece of the bit?

If the answer to that is yes, then your bit has leverage.

The following formula can be used to rate curb bits:

$$\text{Answer} = Q1 + Q2 + Q3 + Q4 + Q5 + (Q8 \times (Q6 + Q7)) - Q9 - Q10 - Q11 - Q12$$

where Q1 = value from question 1, etc. In case anyone has forgotten algebra or never took it, (Q8 x (Q6 + Q7)) means "Add the answers from questions 6 and 7. Then multiply that total by the answer from question 8."

Answers of 5 or less are mild; 6 to 19 moderate; 20 & up severe. This formula is more complicated than the one for snaffles because there are more parts of a curb that have an effect. Therefore, very few curbs are mild. Most will end up with a moderate or severe rating. There \*are\* mild curbs. For example, I looked at the questions and selected answers that would describe a curb which rated a mere 1 even though it had 4" shanks!

Question 1: How many pieces are there in the horse's mouth? A. 1 to 3 pieces 1 point B. More than 3 pieces 5 points

Question 2: What is the size, height and shape of the port? A. No port and a broken mouth(i.e. more than 1 piece in the mouth) Use 0 for Questions 2 and 3 and skip to Question 4 B. High port with steep narrow tongue relief and the port meets the cross piece squarely(i.e. in 90 degree right angle) 10 points C. High port with broad tongue relief. Joint between port and cross piece is rounded 5 points D. Medium or low port with broad tongue relief. Joint between port and cross piece is rounded 1 point E. No port. Unbroken arched mouth 2 points F. No port. Straight unbroken mouth 3 points

Question 3: How is the port angled with respect to the shanks? A. Port slopes back more than the shanks 1 point B. Port is parallel to the shanks 1 point C. Port slopes forward more than the shanks 10 points

Question 4: How does the mouthpiece slope side to side? A. Broken mouth like a common snaffle \*WITH\* a solid bar connecting the shanks 1 point B. Broken mouth like a common snaffle \*WITHOUT\* a solid bar connecting the shanks 10 points C. Solid mouth which is perpendicular to shanks 1 point D. Solid mouth which slopes down to the shanks 10 points

Question 5: How are the shanks bent? A. They aren't bent. 3 points B. Backwards towards the horses chest 1 point C. Forward 5 points

Question 6: How long are the shanks? (For bits like Kimberwickes which don't actually have shanks, measure between the mouthpiece and where the reins attach.) A. 1" or less 1 point B. Over 1" up to 3" 2 points C. Over 3" up to 4" 4 points D. More than 4" 7 points

Question 7: What kind of texture or shape does the mouthpiece have? A. Sharp(e.g. triangular or edged) 10 points B. Prickly 10 points C. Rough(e.g. twisted wire or chain) 10 points D. Twisted metal 5 points E. Wrapped with smooth wire 3 points F. Smooth 1 point

Question 8: How thick are the canons? A. 1/2" or more 2 point B. 3/8" but less than 1/2" 3 points C. Less than 3/8" 4 points

Question 9: Where does the curb chain/strap attach? A. To the same ring as the bridle cheeks 0 points B. Separate ring below the ring for the cheeks 2 points C. Separate ring behind the ring for the cheeks 5 points

Question 10: How are the shanks attached to the canons? A. Through holes in the canons(i.e. like most Pelhams 1 point B. All others including welded solid 3 points

Question 11: Are there players, keys or a cricket on the bit? A. Yes 3 points B. No 0 points

Question 12: Is the mouthpiece copper, sweet iron, or a flavored material? A. Yes 3 points B. No 0 points

### **Fitting the bit to the horse's mouth**

I mentioned earlier that the fit of a bit was important but that Dr Deb didn't address correct fitting in her 1993 article on bit severity. In a side bar to her Apr 1992(EQQUS 174) article on bits, Dr Deb did discuss fitting.

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I also know that there have been X-ray studies which showed that thick bits aren't very mild for a horse that has a thick tongue and/or narrow jaw.  
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Curiously enough, such facts have been known to the horse world for many years. For example, De Carpentry has an entire chapter in "Academic Equitation" on selecting bits(size and shape, snaffle and curb) and in that chapter he mentions those facts. His book was written over 40 years ago and he doesn't claim credit for the 'discovery' of those observations. So, it ain't really news, folks. The info is just so old it's been forgotten and rediscovered.

The following note on bit fitting is a hash of Dr Deb's side bar and things from De Carpentry.

- 1. The correct width is important for all bits but especially so for jointed snaffles. A bit that is too wide will pinch the tongue(the dreaded nutcracker effect) more than a correctly fitted bit. A too wide bit may also poke the roof of the horse's mouth with the joint. To get the correct width, use a wooden dowel or metal rod about 8" long. Put it in the horse's mouth where the bit would go and, after the horse stops playing with it, mark the stick outside the horse's lips. The distance between the marks indicates the correct width. Actually, you'll have to round up to the nearest size that's at least that wide(e.g. a measurement of 4 7/8" requires a 5" bit, not 4 3/4"!)
- 2. To check the room inside the mouth, you have to check the jaw width, palate(roof of the mouth) and tongue. Put your fist between the horse's jawbones. If your fist doesn't fit easily and you wear a size 10 or smaller glove(Men's medium or Ladie's large), the horse has a narrow jaw. To check the roof of the mouth, put your straightened index finger where the bit goes and wait for the horse to stop playing. Crook your finger and if it hits the roof of the mouth, the horse has a low palate. To check the tongue close the horse's mouth and lift the upper lip. If the tongue slops over onto the bars, the horse has a thick tongue.

Any of these situations will require a different type of bit than a horse with a wide jaw, thin tongue and high palate. In general, French link or Dr Bristol type snaffles, mullen mouth bits and/or curbs with low broad ports will help.

De Carpentry shows a bit designed by James Fillis for horses with thick tongues. It looks a little like a French link but, instead of a plate in the middle, the bit has a large arch or 'hoop' to provide more room for the tongue. De Carpentry says that such a bit works well but only if the horse has a high enough palate to accept the 'hoop'. It may be necessary to use a slightly thinner bit to get tongue relief if the roof of the mouth is low.

- 3. Check the bars of the mouth. Various bit designs(especially those that provide relief for the tongue) but more pressure on the bars of the mouth. If the bars are thick and relatively low, that's no problem. If they are thin and/or high, such a bit would be uncomfortable(at best).

So, we've talked about severity and fitting the bit to the anatomy of the horse's mouth. The only other variable in the equation is us and how well/poorly we ride...but that's another topic