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Certain limb conformational defects in equine

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Abstract
A total of 90 horses were screened in the equine survey which included stud of Bihar military police, horses registered for treatment at clinical complex of Bihar veterinary college Patna and at different veterinary hospitals and villages in and around 10 Km area of Patna. Abnormal conformation in forelimb and hind limb were recorded and on the basis of collected data prevalence of lameness due to abnormal conformation were declared. The abnormal conformations were detected on the basis of physical appearance, outline of muscles and structures of bones of a horse. The horses were observed from poll to tail and down to gaskin for alignment of vertebral column, straightness and symmetry. Abnormal conformation were evaluated by viewing the horse from the left side and assessing balance by comparing the head, neck and forelimb with the hind limb and croup. Out of ninety horses screened during the survey eleven horses were detected with abnormal conformation which were two toe-out, one toe-in, seven cow-hock and one bow leg. The bad conformations in forelimb were toe-out and toe-in. In toe-out base narrow condition was observed and toes were pointed away from each other which are one of the worst conformations of forelimb. In toe-in condition toes were pointed towards one another accompanied by base narrow condition. The most common abnormal hind limb conformations were cow-hock and bow-leg. In cow-hock the horses were base narrow up to hock and base wide from hock downwards whereas in bow legs the line drawn from *tuber ischii* did not bisect the legs.

Keywords: Toe-in, toe-out, cow-hock, bow-leg, horse, abnormal, conformation

Introduction
Conformation refers to the physical appearance and outline of a horse as dictated primarily by bone and muscle structures, Mawdsley (1996) [5]. To develop an appreciation of lameness and gait defects, it is important to have an understanding of conformation and movement.
The present study was undertaken to record the prevalence of lameness due to abnormal conformation of forelimb and hind limb and to prepare a judging technique for confirmation of good and healthy horses for riding, policing and sports purpose. Keeping in view the importance of abnormal conformation the present study was envisaged to relate the conformational evaluation to eliminate lameness through responsible breeding in horses essential for sound management and training programme.

Materials and Methods
In the present study the survey was carried at stud of Bihar military police, horses registered for treatment at clinical complex of Bihar veterinary college Patna and at different veterinary hospitals and villages in and around 10 Km area of Patna. A total of ninety horses were screened out of which four types of abnormal conformation were recorded in eleven horses. The horses were observed from poll to tail and down to the gaskin and the attachments of the appendicular skeleton (limbs) to the axial skeleton (head and trunk) were observed and limb angles were evaluated. The limbs and hooves were evaluated from front for straightness and symmetry. The tail, straightness and symmetry of the back, the croup, and the point of hip and buttock were evaluated directly from behind. As the fore limb supports approximately 60 to 65% of the horse's body weight and hind limbs are the source of power for propulsion and stopping, observations were made slowly from poll to tail for evaluating back muscling, alignment of the vertebral column and left to right symmetry.

Results and Discussion

Out of eleven horses having abnormal conformation, the forelimb of two horses was identified as having toe-out abnormal conformation. This conformation was noticed by viewing horse from the front. In this conformation toes were pointed away from one another and base narrow condition was observed which was one of the worst conformations of fore limb. This finding corroborates the findings of Adams (1974) [1] which suggests that the limb may be crooked as high as its origin at the chest or as low as the fetlock down. It was usually accompanied by base- narrow conformation but rarely was present when the horses were base wide. In base narrow conformation the distance between the center lines of the feet at their placement on the ground was less than the distance between the center lines of the fore limbs (fig 1).

Another abnormal conformation detected was toe in. It was present in one out of eleven horses having abnormal conformation The horses when viewed from the front were having toes which were pointed towards one another accompanied by base narrow conformation Adams (1974) [1]. As a result of this conformation more strain was detected on lateral collateral support of carpus, fetlock and phalangeal joints and the animal was showing slight lameness after excessive work Adams (1974) [1]. Base narrow and toe out conformation resulted in plaiting due to which the horses were declared as not fit for racing purposes (fig-2)

Normal hind limb conformation was examined by dropping a line from the point of the buttock (*tuber ischii*) to bisect the limb as per Dalin G Magnuson LE and Thafvelin BC (1985) [3]. In the present survey the most common abnormal hind limb conformation noticed was cow hock which was recorded in seven out of eleven horses having abnormal conformation. The horses were usually base narrow as far as the hock and base wide from the hocks down. In these horses the hock joint appeared to be in excessive stress on movement and showed swelling on hock joint which resembled symptoms similar to bone spavin. These horses showed difficulty in trotting and such type of abnormal conformation was recorded to be one of the worst hind limb conformations in which the horses were not fit for racing. These findings were in accordance with the observations of Beeman GM (1983) [2]. (fig-3).

In the present survey another hind limb abnormal conformation observed in one out of eleven horses was bowleg in which the horse was viewed from front after dropping a line from the point of buttock (tuber ischii) and it was observed that it did not bisect the limb. These horses were base wide as far as hocks and base narrow from hocks down. These findings collaborate with the observations of Halmstrom *et al.* (1995) [4]. (Fig-4)

Fig 1: Toe-out abnormal conformation in the forelimb of horse

Fig 2: Toe-in abnormal conformation in forelimb of horse

Fig 3: Cow hock abnormal conformation in hind limb of horse

Fig 4: Bowleg abnormal conformation in hind limb of horse

References

1. Adams OR. Lameness in horses.3rd ed. Phladelphia: Lea & Febiger, 1974.
2. Beeman GM. Correlation of defects in conformation to pathology in the horse. Proc AM Assoc. Equine pract. 1983; 19:177.
3. Dalin G, Magnuson LE, Thafvelin BC. Retrospective study of hind quarter asymmetry in standard bred trotter and its correlation with performance. Equine Vet J. 1985; 17:292-296.
4. Halmstrom M, Magnuson LE, Philipssen J. Variations in conformation of Swedish Warm blood horses and conformational characteristics of elite sport horses. Eqiune Vet J. 1995; 22:186-193.
5. Mawdsley A, Kelly EP, Smith FH. Linear assessment of the Thoroughbred horse: An approach to conformation evaluation. Equine Vet J. 1996; 28:461-467.