

# Hematological Assessment in Pet Guinea Pigs (*Cavia porcellus*)



## Blood Sample Collection and Blood Cell Identification

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### KEYWORDS

- Guinea pig • Guinea pig blood collection • Guinea pig hematology
- Guinea pig hemogram • Guinea pig WBC morphology • Guinea pig differential count

### KEY POINTS

- Pet guinea pigs are presented to veterinary clinics for routine care and treatment of clinical diseases.
- In addition to obtaining clinical history and physical exam findings, diagnostic testing may be required, including hematological assessments.
- Guinea pigs are subject to dental problems (malocclusion), nutritional problems (vitamin C deficiency), bacterial infections (cervical lymphadenitis, pneumonia), reproductive/metabolic problems (dystocia, pregnancy toxemia), internal and external parasites, and musculoskeletal problems (fracture of the spine), some of which may require hematological assessment by veterinary clinicians.

Approximately 1.3 million guinea pigs are maintained as pets in about 0.84 million homes in the United States.<sup>1</sup> They have a long lifespan (5–7 years)<sup>2,3</sup> compared with other, smaller rodents, and are more likely to be presented for clinical care than other rodent species. Guinea pigs are subject to dental problems (malocclusion), nutritional problems (vitamin C deficiency), bacterial infections (cervical lymphadenitis, pneumonia), reproductive/metabolic problems (dystocia, pregnancy toxemia), internal

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This article originally appeared in *Veterinary Clinics of North America: Exotic Animal Practice*, Volume 18, Issue 1, January 2015.

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Clin Lab Med 35 (2015) 641–648  
<http://dx.doi.org/10.1016/j.cll.2015.05.012>

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and external parasites, and musculoskeletal problems (fracture of the spine), some of which may require hematological assessment by veterinary clinicians. As a resource for veterinarians and their technicians, this article describes the methods for manual restraint, collection of blood, and identification of blood cells in guinea pigs.

## METHODOLOGY FOR BLOOD COLLECTION

### *Restraint*

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Although guinea pigs may be naturally curious, they dislike change (eg, changes in diet, environment, handlers, unfamiliar noise), and may make an attempt to flee to avoid restraint. Some people refer to them as whistle pigs, because they make high-pitched vocalizations when excited or frightened; this sound should not be interpreted as pain when standard, nonpainful procedures, including manual restraint, are used. Some handlers abandon efforts to restrain a vocalizing animal for fear of causing harm, even though the restraint is needed for proper clinical diagnosis and treatment of the animal.

The handler should not attempt to restrain or pick up the animal by grasping the skin over the scruff of the neck; that is distressing to the animal, and should not be attempted. When picking up the guinea pig for examination or to move it from one area to another, the handler should place one hand over the dorsum, behind the shoulders, and grasp the animal gently but securely with the thumb and fingers around the rib cage, taking care not to restrict respiratory movements of the ribs. When lifting the animal, the other hand should be placed under the hindquarters for support. If the hindquarters are not supported, the animal may struggle and twist, causing injury to the spine, with resultant paresis or paralysis of the hind limbs.

Guinea pigs may become distressed if restrained in lateral or dorsal recumbency.<sup>4</sup> Guinea pigs may be wrapped securely in a towel, which seems to calm or comfort them. However, swaddling a guinea pig tends to make most vessels used for venipuncture inaccessible. Thus, additional care should be taken when wrapping the animal to allow access to the intended venipuncture site.

Compared with other pet rodent species and rabbits, the guinea pig is unlikely to bite the handler.

Drugs that can be used in sedation, tranquilization, and anesthesia of guinea pigs have been described in published literature.<sup>5–7</sup> However, professional judgment should be used to assess whether it is safe, based on the animal's clinical status, to anesthetize the animal.

### *Blood Collection Sites: Location and Preparation, and Venipuncture Techniques*

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Several veins are used as common venipuncture sites in guinea pigs, including the lateral saphenous and metatarsal veins of the hind limbs, and the cephalic veins of the forelegs.<sup>8–10</sup> Additional methods include the jugular vein, cranial vena cava, femoral vein, pricking a tiny vein in the pinna, or close clipping of a nail. **Table 1** provides a comparison of the advantages and disadvantages of the various blood collection sites in guinea pigs.

Given the small diameters of the commonly used veins, the phlebotomist should select an appropriately sized needle (eg, 22–30 gauge).

To induce vasodilation and facilitate blood collection, the animal can be placed in an incubator with an internal temperature of 40°C (104°F) for several minutes. As an alternative, an examination glove can be filled with water, tied off, microwaved until its temperature is warm but not scalding to the touch, and applied to the venipuncture site for about a minute.

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