

# Hip Dysplasia

## Clinical Signs and Physical Examination Findings

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### KEYWORDS

- Hip dysplasia • Hip laxity • Hip subluxation • Hip osteoarthritis • Ortolani test

### KEY POINTS

- Hip dysplasia is a common developmental disorder of the dog consisting of varying degrees of hip laxity, progressive remodeling of the structures of the hip, and subsequent development of osteoarthritis.
- Hip dysplasia is a juvenile-onset condition, with clinical signs often first evident at 4 to 12 months of age.
- A presumptive diagnosis of hip dysplasia can be made by collection of a thorough history and performance of a comprehensive physical examination.
- The Ortolani test is a valuable screening tool for hip dysplasia, particularly in the juvenile patient.

### INTRODUCTION

Hip dysplasia is a common developmental disorder of the dog, consisting of varying degrees of hip laxity, progressive remodeling of the structures of the hip, and subsequent development of osteoarthritis. Hip dysplasia may initially be suspected from signalment, history, and physical examination findings. This article outlines the typical clinical presentation of hip dysplasia and physical examination methods that can be used to help diagnose the condition and rule out other problems.

### SIGNALMENT

#### *Breed*

Any size or breed of dog can be affected with hip dysplasia but the condition is most commonly diagnosed in large and giant breed dogs. Breeds with the most evaluations by the Orthopedic Foundation for Animals for hip dysplasia over the last 40 years

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The author has nothing to disclose.

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include Labrador Retrievers (12.2% dysplastic), Golden Retrievers (20.1%), German Shepherds (20.4%), and Rottweilers (21.3%). Breeds with particularly high reported prevalence of dysplasia include the Bulldog (73.4%), Pug (69.7%), and St. Bernard (49.2%).<sup>1</sup> These numbers do not indicate a true prevalence because breeders typically will not submit radiographs from dogs that are obviously dysplastic. Although certain dog breeds are predisposed, mixed-breed dogs can also develop hip dysplasia. In one large study, purebreds and mixed-breed dogs were equally likely to develop hip dysplasia.<sup>2</sup>

## Sex

Multiple large prevalence studies show no sex predilection associated with hip dysplasia.<sup>3–6</sup> However, several studies suggest that male neutered dogs may be at increased risk for development of hip dysplasia, especially when neutered early.<sup>7–10</sup> Definitions of early neutering associated with increased incidence of hip dysplasia in these studies included dogs that were younger than 5.5 months, 6 months, and 12 months of age at the time of neutering.

## Age

### Juvenile patients

Hip dysplasia is by definition a juvenile-onset condition. Clinical signs of hip dysplasia are often first evident at 4 to 12 months of age.<sup>11–13</sup> Onset of signs is typically gradual and progressive, although an acute onset of signs may be seen, most often in juvenile patients. Dogs with this acute onset of signs are typically more severely affected, with pain thought to be caused by stretching and tearing of joint capsule and other supporting structures, along with acetabular microfracture.<sup>13</sup> Evidence of hip laxity is not present at birth but may be detectable as early as 7 weeks of age.<sup>11</sup> Clinical signs noted by the owner are listed in [Table 1](#).<sup>11–14</sup>

### Adult patients

Several reasons may exist for initial presentation of dysplastic patients older than 12 months of age. The patient may have had signs as a puppy that went unnoticed by the owner, undiagnosed by the family veterinarian, or there was a delay in referral. Alternatively, some dogs may not exhibit clinical signs until later in the disease process, often associated with progression of osteoarthritis. These cases may exhibit clinical signs similar to juvenile patients but clinical signs in older patients are often

**Table 1**  
Clinical signs of hip dysplasia

<b>Nonspecific Signs</b>	<b>Hind Limb Specific Signs</b>	<b>Gait Abnormalities</b>
<ul style="list-style-type: none"> <li>• Exercise intolerance</li> <li>• Reluctance to navigate stairs</li> <li>• Difficulty lying down or rising</li> </ul>	<ul style="list-style-type: none"> <li>• Audible click or clunk when walking</li> <li>• Perceived hip pain</li> <li>• Hind limb muscle atrophy</li> <li>• Unilateral hind limb lameness</li> </ul>	<ul style="list-style-type: none"> <li>• Hind end sways when walking</li> <li>• Wobbly or ataxic-appearing gait, with normal neurologic examination</li> <li>• Walking with an arched back</li> <li>• Base-narrow or base-wide stance of the hind limbs</li> <li>• Bunny hopping</li> </ul>

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