

## DWARFISM



### DEFINITION:

Dwarfism, as defined by Little People of America (LPA), is an individual with an adult height of 4 ft., 10 in. or shorter as a result of a medical or genetic condition. However, Dwarf Athletic Association of America (DAAA), uses a criterion of 5 ft. or less. In general, dwarfs are at least three standard deviations below the mean height of the general population.

### CATEGORIES AND CAUSES:

While there are over 250 types of dwarfism, there are two main categories for classification. The categories are disproportionate (the most common) and proportionate. Disproportionate dwarfs have average-sized torsos with shorter arms and legs. The major cause of disproportionate dwarfism is skeletal dysplasia, the failure of cartilage to develop into bone. Skeletal dysplasia is either inherited or caused by spontaneous gene mutations. In the proportionate category, individuals' body parts are proportionate but unusually short. While the main cause is pituitary gland dysfunction (also called growth hormone deficiency), there are numerous other causes. However, many of these conditions are treatable so that the prevalence within this category is decreasing.

### TYPES:

**Achondroplasia:** In this most common form of dwarfism, the student has a disproportionate body structure with an average size trunk, short limbs, and, in many cases a relatively large head. Associated problems include lumbar lordosis, waddling gait caused by abnormally short femoral heads, restricted elbow extension, and bowed legs.

**Hypoachondroplasia:** Students with this form have less achondroplasia and, as a result, are the tallest dwarfs.

**Spondyloepiphyseal Dysplasia:** This form dwarfism causes disproportionate short trunk with various spinal and limb irregularities. The arms typically look unusually long. Eye complications are common.

**Diastrophic Dysplasia:** This is the most disabling of the common forms of dwarfism. This condition usually involves spinal deformity (scoliosis in most cases) clubfoot, hand deformities, and hip and knee dislocations. Many students require crutches or wheelchairs for ambulation.

## CONTRAINDICATIONS:

**Atlantoaxial Instability (AAI):** Nonachondroplasia dwarfism is associated with atlantoaxial instability. Physical educators must have a report from a physician indicating the result of the neck x-ray. Contraindicated activities when atlantoaxial instability is suspected are diving, jumping, gymnastics, heading soccer balls, and contact sports.

**Limited Range-of-Motion (ROM):** Several joint defects limit ROM and contribute to a high incidence of dislocation and trauma. Areas typically affected are the shoulder, elbow, hip, and knee.

## SUGGESTED ACTIVITIES:

Students with dwarfism are disadvantaged in most sports; however, there are some sports in which the average truck size and short limbs are advantageous.

- Powerlifting
- Gymnastics

Other sports that these students can participate in:

- Swimming
- Track
- Field
- Bowling
- Basketball-nets set at the standard height, regulation court size, and ball size used by average-sized women
- Volleyball - net slightly lowered for spiking
- Boccia - players take turns throwing small balls toward a target ball

## TEACHING TIPS:

- Classes playing basketball and volleyball should be equated on heights.
- Teams with shorter students starts with a set number of points.
- Stretch daily with ROM exercises to increase flexibility.

*Information on this sheet contains only suggested guidelines. Each student must be considered individually, and in many cases, a physician's written consent should be obtained.*