

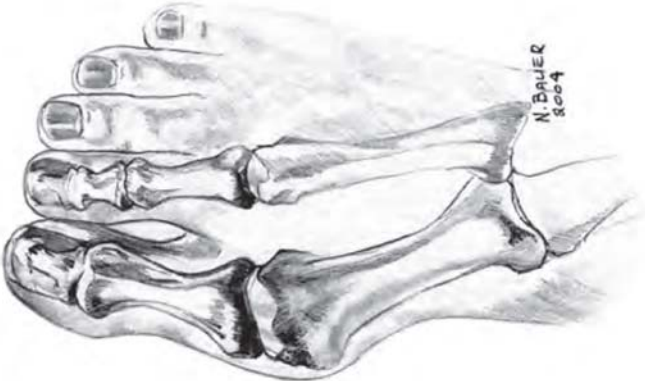
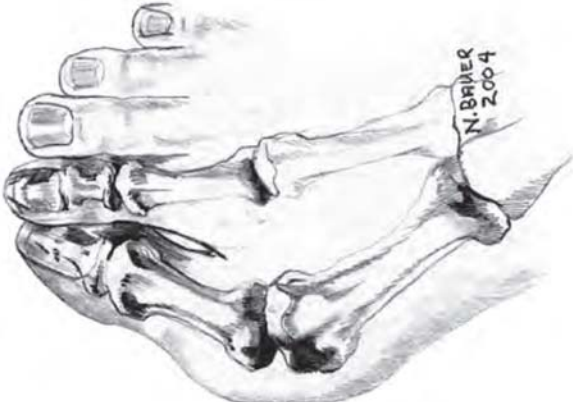
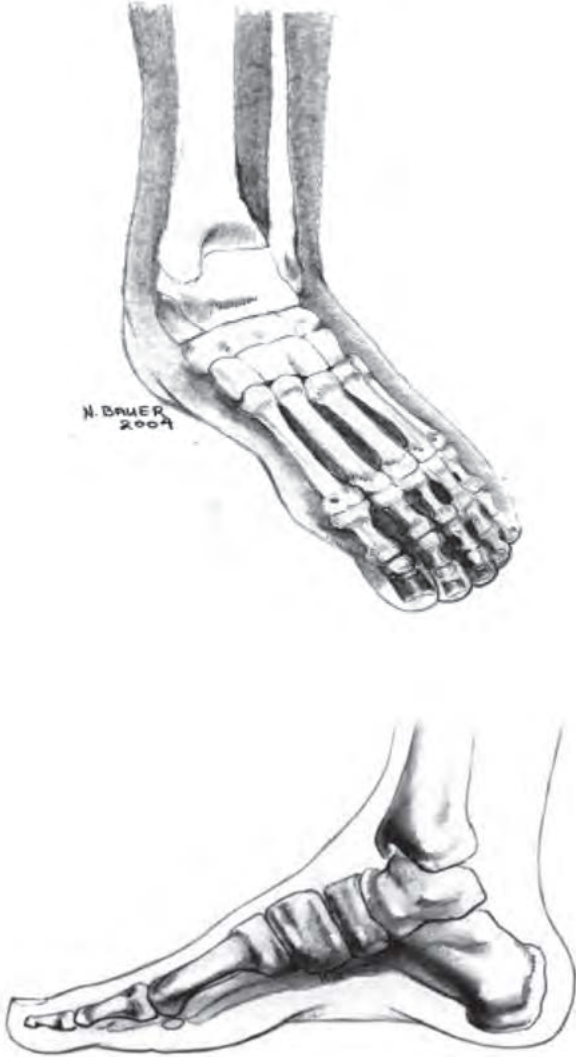


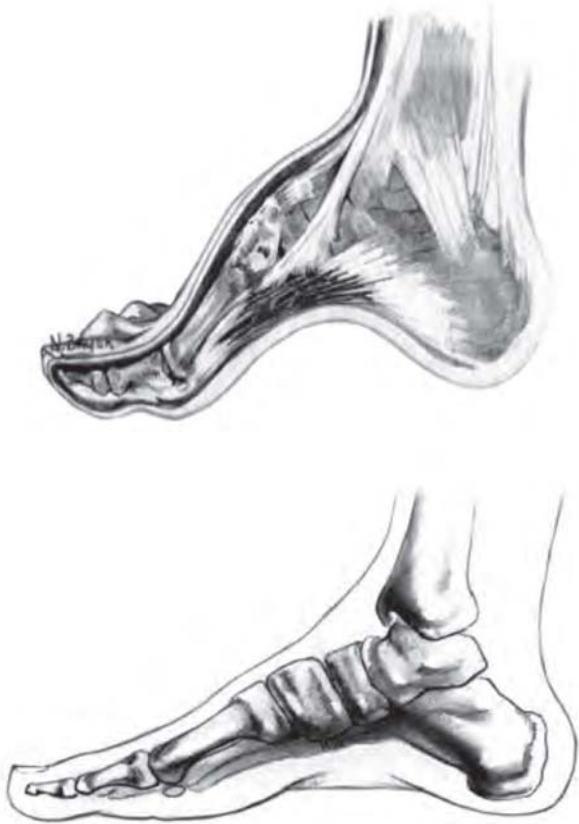
Appendix H: Description of Foot Deformities

The following table provides the description for several foot deformities: hammer toe, claw toe, hallux deformity, pes planus, pes cavus and charcot arthropathy.

DEFORMITY	DESCRIPTION
<p>* Hammer Toe – bent middle joint</p> 	<p>With atrophy of the intrinsic muscles of the foot, especially the toe plantar flexors, the flexor/ extensor balance at the metatarso-phalangeal joints is altered. This causes clawing at the toe and possible subluxation of the metatarso-phalangeal joints. As a result, the submetatarsal fat pads are displaced and there is reduced pressure absorbing subcutaneous tissue at the metatarsal heads. In addition, glycosylation of collagen from hyperglycemia results in thickened, waxy skin that affects joint mobility. All these factors contribute to foot deformity and ulcer risk (Bennett, Stocks & Whittam, 1996; Shaw & Boulton, 1997).</p>
<p>* Claw Toe – joint at base of toe is bent up and middle joint is bent down</p> 	

DEFORMITY	DESCRIPTION
<p>* Halgus Valgus or Small Bunion (Mild/Moderate) – joint at the base of big toe is pushed to the side</p> 	
<p>** Hallus Valgus or Large Bunion (Severe) – big toe may move under second toe</p> 	

DEFORMITY	DESCRIPTION
<p data-bbox="175 306 513 338">Pes Planus (vs normal arch):</p> 	<p data-bbox="841 306 1445 558">Pes planus produces flattening of the foot. Pes planus feet have increased lateral talometatarsal angle and increased second metatarsal length (Ledoux et al., 2003). There are many reasons for this condition, the first of which is heredity. Many have this condition and never experience problems of any kind.</p> <p data-bbox="841 583 1445 688">However, others will have this condition created through years in soft, unsupportive shoes on hard surfaces, injury, pregnancy, or other factors.</p> <p data-bbox="841 714 1445 1146">A broad band of fibrous connective tissue, called the longitudinal ligament, causes the arch in the foot. A ligament is nothing more than connective tissue that connects bone to bone. The longitudinal ligament connects the metatarsal phalangeal joints to the os calcis or heel bone. Like a string on a bow, they hold the two ends together and create an arch. This arch is a shock absorption structure and it also helps to maintain all the tarsals in proper erect anatomic position. As this arch decreases, impact from the concrete becomes worse.</p> <p data-bbox="841 1171 1445 1646">When the arch ligament stretches or tears, the arch falls. If it falls far enough, the tarsals may begin to shift to the inside or create pronation or a valgus (greater than 90 degree erect) position at the ankle. This can cause problems in the origin area (the metatarsals) or in the heel. It also may cause pressure on the medial (inner) knee and perhaps the hip and back. It is like pulling the string on a marionette too tight, the result is a kinked mass on one side. The human body is much the same; place too much tension on major muscle groups and the joints kink and yell back.</p>

DEFORMITY	DESCRIPTION
<p data-bbox="180 304 513 336">Pes Cavus (vs normal arch):</p> 	<p data-bbox="841 304 1437 520">In pes cavus, the arch is abnormally high on weight bearing. The heel is often tilted inwards at the ankle (but not always). In many, the toes will appear clawed. When not standing, the front half of the foot (forefoot) will appear to be dropped below the level of the rear foot.</p> <p data-bbox="841 541 1446 793">Ledoux et al. (2003) identified biomechanical differences among pes planus and pes cavus feet in persons with diabetes. They found pes cavus feet had more prominent metatarsal heads, bony prominences, hammer/claw toes, increased hallux dorsiflexion and pes cavus decreased hallux plantarflexion.</p>