TRANS-FEMORAL GAIT DEVIATION REFERENCE CHART

Problem	Prosthetic Causes	Amputee Causes
Lateral bending of the trunk	1. Ramus pressure may cause the amputee to lean away to minimize discomfort. 2. Prosthesis may be too short 3. An improperly shaped lateral wall may fail to provide adequate support for the femur. 4. A prosthesis aligned in abduction may cause a wide-based gait, resulting in this defect.	1. Amputee may not have adequate balance. 2. Amputee may have weakness of the gluteus medius muscle. 3. The residual limb might be over-sensitive and painful. 4. A very short limb may fail to provide a sufficient lever arm for the pelvis. 5. Defect may be due to habit pattern.
Abducted gait	1. Prosthesis may be too long. 2. Too much abduction may have been built into the prosthesis. 3.A improperly shaped medial wall may cause amputee to hold prosthesis away to avoid ramus pressure. 4. An improperly shaped lateral wall can fail to provide adequate support for the femur. 5. Pelvic band may be positioned too far away from the patient's body.	1. Patient may have an abduction contracture. 2. Defect may be due to habit pattern.
Circumducted gait	1. Prosthesis may be too long. 2. Prosthesis may have too much alignment stability or friction in the knee, making it difficult to bend the knee in swing phase.	1. Amputee may have abduction contracture of the residual limb. 2. Patient may lack confidence for flexing the prosthetic knee because of muscle weakness or fear of stubbing toe. 3. Defect may be the result of habit pattern

Problem	Prosthetic Causes	Amputee Causes
Vaulting	1. Prosthesis may be too long. 2. Prosthesis may have too much alignment stability 3. Friction in the knee may be too strong, making it difficult to bend the knee in swing through.	1. Amputee may have abduction contracture of the residual limb. 2. Patient may lack confidence for flexing the prosthetic knee because of muscle weakness or fear of stubbing toe. 3. Defect may be the result of habit pattern
External rotation of the prosthetic foot on heel strike	1. This defect may be caused by too much resistance to plantar flexing by the plantar flexion bumper or heel wedge being too firm. 2. Too much toe-out may have been built into the prosthesis. 3. Socket may fit too loosely.	1. Patient may extend the residual limb too vigorously at heel strike. 2. Amputee may have poor muscle control of the residual limb.
Uneven arm swing	1. An improperly fitting socket may cause limb discomfort resulting in this defect.	1. Amputee may not have developed good balance. 2.Fear and insecurity accompanied by uneven timing will also contri-bute to this defect. 3. Defect may be due to habit pattern
Uneven timing	1. Improperly fitting socket may cause pain and a desire to shorten the stance phase on the prosthetic side. 2. A weak extension aid or insufficient friction in the prosthetic knee can cause excessive heel rise and thus result in uneven timing because of a prolonged swing-through. 3. Alignment stability may be a factor, if the knee buckles too easily.	1. Amputee may have muscle weakness. 2. Patient may not have developed good balance. 3. Fear and insecurity may contribute to this defect.
Uneven heel rise	1. Knee joint may have insufficient friction or flexion resistance. 2. There may be an inadequate extension aid	1. Amputee may be using more power than necessary to force the knee into flexion.

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Terminal swing impact	1. Insufficient knee friction may be a factor. 2. Knee extension aid may be too strong.	1. Amputee may try to assure himself that the knee is in full extension by deliberately and forcibly extending his residual limb.
Instability of the prosthetic knee	1.Inadequate alignment stability. 2. Insufficient initial flexion may have been built into the socket. 3. Plantar flexion resistance may be too great causing the knee to buckle at heel strike. 4. Failure to limit dorsiflexion can lead to incomplete knee control.	1. Patient may have hip extensor weakness. 2. Severe hip flexion contracture may cause instability.
Medial or lateral whips	1. Lateral whips may result from excessive internal rotation of the prosthetic knee. 2. A medial whip may result from excessive external rotation of the knee. 3. Socket may fit too tightly thus reflecting residual limb rotation.	1. Faulty walking habits may result in whips.
Drop-off at the end of stance phase	1. There may be inadequate limitation of dorsiflexion of the prosthetic foot. 2. The keel of a foot may be too soft or offer inadequate resistance. 3. The socket may have been placed too far anterior in relation to the foot.	1. There are no specific medical causes of this defect.
Long prosthetic step	1. Insufficient initial flexion in the socket can cause this defect, when an irreducible residual limb flexion contracture is present.	1. Amputee may have flexion contracture, which cannot be accommodated prosthetically.

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Excessive lumbar lordosis	1. Improperly shaped posterior wall may cause forward rotation of the pelvis to avoid full weight-bearing on the ischium. 2. Insufficient initial flexion may have been built into the socket.	1. Amputee may have hip flexor tightness. 2. Amputee may have weak hip extensors and may be substituting lumbar erector spinae. 3. Weak abdominal muscles may contribute to this defect. 4. Deviation may be due to habit pattern. 5. Patient may be moving his shoulders backwards in an effort to obtain better balance.