Assessing Foot Placement – Foundation of Fall Prevention

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A fall results when an individual's weight is not centered of the body's base of support. For someone who is ambulatory, that base of support is the feet. Foot stability begins with placement of that foot on the supporting surface. Place the foot correctly and a stable foundation is begun. Place the foot incorrectly, and there is, literally, no firm foundation for weight placement and a fall can result. Assessing foot placement and correcting errors is an important part of any fall prevention program. Here's how you can assess foot placement.

Create a Distinctive Assessment Environment

It is more difficult to visualize body parts when they are under water. This is particularly true for feet, way down on the bottom of the pool. To assist in visualization, first you and the individual to be assessed must stand absolutely still (or as still as possible). Stillness will reduce water turbulence, which, in turn will result in a sharper image of the feet. This might mean standing and waiting for moving water to quiet. It also means that any movements done should be made slowly, so as to not create turbulence. If you, as the assessor, must move around to view from several positions, move slowly and carefully, causing as little water turbulence as possible.

Next, isolate the foot, or feet, against a contrasting background. A polyspot works well for this purpose. Polyspots come in a variety of colors and sizes and can accommodate different skin tones, foot sizes, and one or two feet. For a description of polyspots, go to http://my.execpc.com/~sjgrosse.

Assess Critical Factors

Once distinct visualization of the foot is established, assess the following characteristics –

- Weight distribution on the foot. Is the weight carried along the outside edge, hell, and all five toes?
- Do the toes "grip" the supporting surface for balance?
- Is the foot in line with the long bone of the lower leg?
- Is the foot stable?
- Is the foot providing support?

If the individual is walking during the assessment, also assess –

- Heel strike. Does the heel strike first.
- Weight shift. Does the weight shift from heel to full foot to ball?
- Is stride length equal between left and right sides?
- Is stride stable, reciprocal, with appropriate arm use?

Document Observations on the *Foot Placement Matrix*

The Foot Placement Matrix can be used to document observations. The center column is the desired outcome. The columns to the right and left are variations which could contribute to falls if the variation is not corrected.

*Foot Placement Matrix**

Name_____ Date _____ Assessor_____

Assessment done (check one) Right ____ Left_____ Both _____

Place a check in the box which most closely described the observed behavior. If both feet are assessed, rather than check, enter R and L for description of each foot.

Component	Inappropriate	Appropriate	Inappropriate
Stationary			
Weight distribution	Inside edge	Outside edge, heel, toes	Center on toes or heel
Toe grip	Toes curl under	Toes grip surface	Toes hyperextended, off surface.
Foot alignment	Toes point in (medial)	Toes aligned with lower leg	Toes point out (lateral)
Stability	Foot moves during assessment	Foot stable during assessment	Steps taken during assessment
Support	Knee and/or hip are flexed more than 5 degrees	Leg is straight, but not locked.	Must hold support.
Ambulation			
Heel strike	Ball of foot strikes first	Heel strikes first	Flat foot strikes first
Weight shift	Weight all at once	Weight shifts gradually from foot to foot, in direction of travel	Weight shifts gradually from foot to foot, but in a direction perpendicular to direction of travel.
Stride length	Short stride on L	Stride length even	Short stride on R
Stride stability	Stride bounces	Stride even and steady	Stride dips and wobbles
Reciprocal stride	Left leg lead	Alternating stride	Right leg lead
Arm use	Arms stiff at sides	Arms reciprocal to legs	Arms random, elevated, or flailing.

*From: Grosse, S. (2010). ***Functional Assessments for Therapeutic Aquatics.*** **Milwaukee, WI: Aquatic ?Consulting & Education Resource Services (7252 W. Wabash Avenue, 53223; sjgrosse@execpc.com; http:my.execpc.com/~sjgrosse. Used with permission.**

Remediate Foot Placement Problems

Once assessment of foot placement assessment has been done, plan activities what emphasize correction of foot placement errors. Once again poly equipment can be very useful. Poly forms come in circles (small, medium, and large), footprints, critters, signs, and arrows. Spots provide the most general foot target and the easiest background for viewing feet. Footprints provide the most specific foot target for the individual, as footprints come in different colors, as well as right and left feet. It is possible to pair the color of poly foot with the color of a wrist band for work on reciprocal.

Footprints can be combined with poly spots and critters to make poly trails which the individual then walks through, concentrating on foot placement.

Focusing on correct foot placement can assist an individual in managing shift as well as weight distribution. Better weight management contributes to better balance. Better balance means fewer falls.

Assessing and remediating foot placement problems is an important aspect of any fall prevention program. How do your clients feet look? Better, what can you do to give your clients better balance through improved foot placement?

Additional ideas for using poly equipment for foot placement remediation can be found in Grosse, S. (2008). *Functional and Creative Ideas for Balance and Gait*. Milwaukee, WI: Aquatic Consulting & Education Resource Services. (7252 W. Wabash, 53223)