WEBVTT

NOTE duration:”00:21:56.5600000”

NOTE recognizability:0.901

NOTE language:en-us

NOTE Confidence: 0.887577624347826

00:00:17.920 --> 00:00:20.580 So we're going to talk today about

NOTE Confidence: 0.887577624347826

00:00:20.580 --> 00:00:22.965 the assessment of gait and how

NOTE Confidence: 0.887577624347826

00:00:22.965 --> 00:00:24.905 you can use evaluating someone's

NOTE Confidence: 0.887577624347826

00:00:24.905 --> 00:00:27.439 gait to help identify problems,

NOTE Confidence: 0.887577624347826

00:00:27.440 --> 00:00:28.880 target your examination and

NOTE Confidence: 0.887577624347826

00:00:28.880 --> 00:00:31.040 learn what might going on might

NOTE Confidence: 0.887577624347826

00:00:31.107 --> 00:00:32.877 be going on with the patient.

NOTE Confidence: 0.950882137777778

00:00:34.920 --> 00:00:38.217 So we're going to talk about the

NOTE Confidence: 0.950882137777778

00:00:38.217 --> 00:00:41.920 actual physical components of walking,

NOTE Confidence: 0.950882137777778

00:00:41.920 --> 00:00:45.076 about the muscles used in walking,

NOTE Confidence: 0.950882137777778

00:00:45.080 --> 00:00:46.892 about the disorders that

NOTE Confidence: 0.950882137777778

00:00:46.892 --> 00:00:48.554 might occur in walking,

NOTE Confidence: 0.950882137777778

00:00:48.554 --> 00:00:50.439 about the evaluation of gait

NOTE Confidence: 0.950882137777778

00:00:50.439 --> 00:00:52.758 and then what to do with that,

NOTE Confidence: 0.950882137777778

00:00:52.760 --> 00:00:54.812 what the next steps are once

NOTE Confidence: 0.950882137777778

00:00:54.812 --> 00:00:57.040 we've done our gait evaluation.

NOTE Confidence: 0.950882137777778

00:00:57.040 --> 00:00:59.260 So walking is taken for granted

NOTE Confidence: 0.950882137777778

00:00:59.260 --> 00:01:01.440 until there is a problem.

NOTE Confidence: 0.950882137777778

00:01:01.440 --> 00:01:03.396 So that problem might be acute,

NOTE Confidence: 0.950882137777778

00:01:03.400 --> 00:01:05.760 such as a hip fracture or a stroke,

NOTE Confidence: 0.950882137777778

00:01:05.760 --> 00:01:09.228 or more typically a chronic neurologic

NOTE Confidence: 0.950882137777778

00:01:09.228 --> 00:01:11.540 or musculoskeletal condition will

NOTE Confidence: 0.950882137777778

00:01:11.628 --> 00:01:14.278 cause some difficulty in walking.

NOTE Confidence: 0.950882137777778

00:01:14.280 --> 00:01:16.276 Gait abnormalities may indicate

NOTE Confidence: 0.950882137777778

00:01:16.276 --> 00:01:19.270 a fall risk or provide early

NOTE Confidence: 0.950882137777778

00:01:19.361 --> 00:01:22.356 evidence of an underlying condition.

NOTE Confidence: 0.950882137777778

00:01:22.360 --> 00:01:25.000 So the goals of walking are two things.

NOTE Confidence: 0.950882137777778

00:01:25.000 --> 00:01:25.696 First of all,

NOTE Confidence: 0.950882137777778

00:01:25.696 --> 00:01:27.320 you have to get your leg from

NOTE Confidence: 0.950882137777778

00:01:27.378 --> 00:01:28.995 behind you to in front of you.

NOTE Confidence: 0.950882137777778

00:01:29.000 --> 00:01:31.149 So to Lance, to advance your leg

NOTE Confidence: 0.950882137777778

00:01:31.149 --> 00:01:33.357 from behind you to in front of you,

NOTE Confidence: 0.950882137777778

00:01:33.360 --> 00:01:35.076 you have to flex your hip,

NOTE Confidence: 0.950882137777778

00:01:35.080 --> 00:01:38.104 bend your knee and dorsiflex your ankle

NOTE Confidence: 0.950882137777778

00:01:38.104 --> 00:01:41.120 to clear your foot off the ground.

NOTE Confidence: 0.950882137777778

00:01:41.120 --> 00:01:43.466 And you also want to, by walking,

NOTE Confidence: 0.950882137777778

00:01:43.466 --> 00:01:45.838 navigate your environment safely.

NOTE Confidence: 0.950882137777778

00:01:45.840 --> 00:01:48.984 And you do that by advancing

NOTE Confidence: 0.950882137777778

00:01:48.984 --> 00:01:51.080 your center of gravity.

NOTE Confidence: 0.950882137777778

00:01:51.080 --> 00:01:53.420 So when the erect position you

NOTE Confidence: 0.950882137777778

00:01:53.420 --> 00:01:55.653 move your center of gravity

NOTE Confidence: 0.950882137777778

00:01:55.653 --> 00:01:57.664 forward to maintain your balance.

NOTE Confidence: 0.950882137777778

00:01:57.664 --> 00:02:00.224 You want to keep that center of

NOTE Confidence: 0.950882137777778

00:02:00.224 --> 00:02:02.318 gravity over your base of support,

NOTE Confidence: 0.950882137777778

00:02:02.320 --> 00:02:05.632 and the base of support is an area

NOTE Confidence: 0.950882137777778

00:02:05.632 --> 00:02:09.040 bounded by the placement of your feet.

NOTE Confidence: 0.950882137777778

00:02:09.040 --> 00:02:11.870 To attain stability, the spine

NOTE Confidence: 0.950882137777778

00:02:11.870 --> 00:02:15.600 balances both static and dynamic function,

NOTE Confidence: 0.950882137777778

00:02:15.600 --> 00:02:17.460 including both weight,

NOTE Confidence: 0.950882137777778

00:02:17.460 --> 00:02:19.320 bearing, and balance.

NOTE Confidence: 0.950882137777778

00:02:19.320 --> 00:02:21.996 Once the center of gravity moves,

NOTE Confidence: 0.950882137777778

00:02:22.000 --> 00:02:25.798 reaction forces activate other body parts,

NOTE Confidence: 0.950882137777778

00:02:25.800 --> 00:02:29.040 particularly those in the lower extremity.

NOTE Confidence: 0.950882137777778

00:02:29.040 --> 00:02:31.840 Active control of muscles at the hip,

NOTE Confidence: 0.950882137777778

00:02:31.840 --> 00:02:35.800 knee, and ankle is required.

NOTE Confidence: 0.950882137777778

00:02:35.800 --> 00:02:37.768 As the cycle repeats,

NOTE Confidence: 0.950882137777778

00:02:37.768 --> 00:02:40.228 the body displaces in space

NOTE Confidence: 0.950882137777778

00:02:40.228 --> 00:02:42.678 for a specific distance.

NOTE Confidence: 0.950882137777778

00:02:42.680 --> 00:02:44.935 The segment or distance covered

NOTE Confidence: 0.950882137777778

00:02:44.935 --> 00:02:48.242 from 1 foot strike to striking the

NOTE Confidence: 0.950882137777778

00:02:48.242 --> 00:02:51.116 ground again is called a stride.

NOTE Confidence: 0.950882137777778

00:02:51.120 --> 00:02:54.160 To achieve energy efficient ambulation.

NOTE Confidence: 0.950882137777778

00:02:54.160 --> 00:02:55.688 There's a synchronized patent

NOTE Confidence: 0.950882137777778

00:02:55.688 --> 00:02:58.408 of movement at the foot, ankle,

NOTE Confidence: 0.950882137777778

00:02:58.408 --> 00:03:01.640 knee, hip and pelvis,

NOTE Confidence: 0.950882137777778

00:03:01.640 --> 00:03:04.160 so muscles are important in walking.

NOTE Confidence: 0.950882137777778

00:03:04.160 --> 00:03:06.578 The gluteus maximus muscle is the

NOTE Confidence: 0.950882137777778

00:03:06.578 --> 00:03:09.075 largest muscle in the human body

NOTE Confidence: 0.950882137777778

00:03:09.075 --> 00:03:11.896 and it prevents the body from moving

NOTE Confidence: 0.950882137777778

00:03:11.896 --> 00:03:14.796 forward when the foot strikes the ground.

NOTE Confidence: 0.950882137777778

00:03:14.800 --> 00:03:17.716 The abductor muscles of the hip

NOTE Confidence: 0.950882137777778

00:03:17.716 --> 00:03:21.248 prevent tilt of the body when the

NOTE Confidence: 0.950882137777778

00:03:21.248 --> 00:03:24.720 opposite leg is lifted off the ground.

NOTE Confidence: 0.950882137777778

00:03:24.720 --> 00:03:27.504 The ankle dorsiflexor keeps the foot

NOTE Confidence: 0.950882137777778

00:03:27.504 --> 00:03:30.519 clear of the ground when walking.

NOTE Confidence: 0.950882137777778

00:03:30.520 --> 00:03:33.076 The ankle plantar flexor is one

NOTE Confidence: 0.950882137777778

00:03:33.076 --> 00:03:36.020 of the major muscles to provide

NOTE Confidence: 0.950882137777778

00:03:36.020 --> 00:03:38.316 propulsion to drive ambulation.

NOTE Confidence: 0.950882137777778

00:03:38.320 --> 00:03:41.264 The extension, hip flexion,

NOTE Confidence: 0.950882137777778

00:03:41.264 --> 00:03:45.680 and hip extension are all important.

NOTE Confidence: 0.950882137777778

00:03:45.680 --> 00:03:48.794 Postural reflexes are a series of

NOTE Confidence: 0.950882137777778

00:03:48.794 --> 00:03:51.840 adjustments that occur in the trunk

NOTE Confidence: 0.950882137777778

00:03:51.840 --> 00:03:54.866 and leg muscles during stance,

NOTE Confidence: 0.950882137777778

00:03:54.866 --> 00:03:58.278 sometimes called writing reflexes.

NOTE Confidence: 0.950882137777778

00:03:58.280 --> 00:04:00.728 These reflexes require reliable

NOTE Confidence: 0.950882137777778

00:04:00.728 --> 00:04:04.400 afferent information from the visual system,

NOTE Confidence: 0.950882137777778

00:04:04.400 --> 00:04:06.332 the vestibular system,

NOTE Confidence: 0.950882137777778

00:04:06.332 --> 00:04:10.196 and proprioception in the lower limbs.

NOTE Confidence: 0.950882137777778

00:04:10.200 --> 00:04:13.420 So gait disorders may be the result

NOTE Confidence: 0.950882137777778

00:04:13.420 --> 00:04:14.800 of motor defects,

NOTE Confidence: 0.950882137777778

00:04:14.800 --> 00:04:16.440 weakness or difficulty with

NOTE Confidence: 0.950882137777778

00:04:16.440 --> 00:04:18.080 the initiation of walking,

NOTE Confidence: 0.950882137777778

00:04:18.080 --> 00:04:20.772 usually due to degenerative

NOTE Confidence: 0.950882137777778

00:04:20.772 --> 00:04:22.118 neurologic conditions,

NOTE Confidence: 0.950882137777778

00:04:22.120 --> 00:04:24.794 may be due to impairment of balance,

NOTE Confidence: 0.950882137777778

00:04:24.800 --> 00:04:29.216 or may be due to a joint or

NOTE Confidence: 0.950882137777778

00:04:29.216 --> 00:04:30.320 musculoskeletal problem.

NOTE Confidence: 0.950882137777778

00:04:30.320 --> 00:04:31.940 To evaluate the gait,

NOTE Confidence: 0.950882137777778

00:04:31.940 --> 00:04:33.560 we first checked the

NOTE Confidence: 0.920580182

00:04:33.560 --> 00:04:35.940 person's posture, Any difficulty that

NOTE Confidence: 0.920580182

00:04:35.940 --> 00:04:38.320 person might have with initiation,

NOTE Confidence: 0.920580182

00:04:38.320 --> 00:04:39.760 the velocity of gait,

NOTE Confidence: 0.920580182

00:04:39.760 --> 00:04:42.128 the length of the step, the cadence.

NOTE Confidence: 0.920580182

00:04:42.128 --> 00:04:44.116 The cadence is the number of steps

NOTE Confidence: 0.920580182

00:04:44.116 --> 00:04:46.550 that occur in a minute, fluidity of

NOTE Confidence: 0.920580182

00:04:46.550 --> 00:04:50.435 movement and in the instability of gait.

NOTE Confidence: 0.920580182

00:04:50.440 --> 00:04:51.880 So in the gait cycle,

NOTE Confidence: 0.920580182

00:04:51.880 --> 00:04:56.598 1 foot is raised and accelerated forward,

NOTE Confidence: 0.920580182

00:04:56.600 --> 00:04:58.760 the hip and the knee flex,

NOTE Confidence: 0.920580182

00:04:58.760 --> 00:05:00.400 and the ankle dorsal flex.

NOTE Confidence: 0.920580182

00:05:00.400 --> 00:05:02.759 So again you need to do that.

NOTE Confidence: 0.920580182

00:05:02.760 --> 00:05:04.518 Flex the hip, flex the knee,

NOTE Confidence: 0.920580182

00:05:04.520 --> 00:05:06.752 endorse the flex the ankle to get your

NOTE Confidence: 0.920580182

00:05:06.752 --> 00:05:09.116 foot from behind you to in front of you.

NOTE Confidence: 0.920580182

00:05:09.120 --> 00:05:10.720 So to clear the ground,

NOTE Confidence: 0.920580182

00:05:10.720 --> 00:05:14.158 those 3 maneuvers have to occur.

NOTE Confidence: 0.920580182

00:05:14.160 --> 00:05:16.420 Muscle action on the

NOTE Confidence: 0.920580182

00:05:16.420 --> 00:05:18.115 supporting contralateral leg,

NOTE Confidence: 0.920580182

00:05:18.120 --> 00:05:20.680 primarily the ankle plantar flexors,

NOTE Confidence: 0.920580182

00:05:20.680 --> 00:05:22.472 accelerate the body's central

NOTE Confidence: 0.920580182

00:05:22.472 --> 00:05:24.712 of center of gravity forwards.

NOTE Confidence: 0.920580182

00:05:24.720 --> 00:05:27.918 The contralateral leg pushes the leg,

NOTE Confidence: 0.920580182

00:05:27.920 --> 00:05:30.086 pushes the body forward and pushes

NOTE Confidence: 0.920580182

00:05:30.086 --> 00:05:32.120 the center of gravity forward.

NOTE Confidence: 0.920580182

00:05:32.120 --> 00:05:35.000 The moving foot is placed on the ground

NOTE Confidence: 0.920580182

00:05:35.000 --> 00:05:38.560 and the weight then transferred to that leg.

NOTE Confidence: 0.920580182

00:05:38.560 --> 00:05:41.080 The heel strikes the ground first.

NOTE Confidence: 0.920580182

00:05:41.080 --> 00:05:42.650 The weight is then transferred

NOTE Confidence: 0.920580182

00:05:42.650 --> 00:05:44.600 to the sole and the toes.

NOTE Confidence: 0.920580182

00:05:44.600 --> 00:05:46.315 But as you know from Olympic walking,

NOTE Confidence: 0.920580182

00:05:46.320 --> 00:05:49.317 the heel has to strike the ground first to

NOTE Confidence: 0.920580182

00:05:49.317 --> 00:05:52.396 be considered to be considered walking.

NOTE Confidence: 0.920580182

00:05:52.400 --> 00:05:54.825 The other foot is raised

NOTE Confidence: 0.920580182

00:05:54.825 --> 00:05:56.280 and accelerated forward.

NOTE Confidence: 0.920580182

00:05:56.280 --> 00:05:57.880 The body is erect,

NOTE Confidence: 0.920580182

00:05:57.880 --> 00:05:59.080 the head forward,

NOTE Confidence: 0.920580182

00:05:59.080 --> 00:06:03.434 the arm swing equally smoothly and loosely.

NOTE Confidence: 0.920580182

00:06:03.440 --> 00:06:05.590 The pelvis and the shoulder

NOTE Confidence: 0.920580182

00:06:05.590 --> 00:06:06.880 should remain level.

NOTE Confidence: 0.920580182

00:06:06.880 --> 00:06:09.141 As the body passes over the weight

NOTE Confidence: 0.920580182

00:06:09.141 --> 00:06:11.866 bearing leg it displaces the center of

NOTE Confidence: 0.920580182

00:06:11.866 --> 00:06:14.398 gravity towards the weight bearing side.

NOTE Confidence: 0.920580182

00:06:14.400 --> 00:06:16.896 There is side to side movement

NOTE Confidence: 0.920580182

00:06:16.896 --> 00:06:19.492 with each step and the body

NOTE Confidence: 0.920580182

00:06:19.492 --> 00:06:22.036 rises and falls with each step.

NOTE Confidence: 0.920580182

00:06:22.040 --> 00:06:24.116 So in a normal gait cycle,

NOTE Confidence: 0.920580182

00:06:24.120 --> 00:06:26.230 it begins when the right

NOTE Confidence: 0.920580182

00:06:26.230 --> 00:06:27.918 heel touches the ground.

NOTE Confidence: 0.920580182

00:06:27.920 --> 00:06:30.030 That's the initial stance phase

NOTE Confidence: 0.920580182

00:06:30.030 --> 00:06:33.445 for the right leg and 60 to 65% of

NOTE Confidence: 0.920580182

00:06:33.445 --> 00:06:35.795 the time the right foot maintains

NOTE Confidence: 0.920580182

00:06:35.795 --> 00:06:39.005 contact with support surface and is

NOTE Confidence: 0.920580182

00:06:39.005 --> 00:06:42.079 considered to be in stance phase.

NOTE Confidence: 0.920580182

00:06:42.080 --> 00:06:44.920 Swing phase begins when the

NOTE Confidence: 0.920580182

00:06:44.920 --> 00:06:47.760 right toe leaves the ground.

NOTE Confidence: 0.920580182

00:06:47.760 --> 00:06:50.693 Now about 20 to 25% of the time,

NOTE Confidence: 0.920580182

00:06:50.693 --> 00:06:53.279 both legs are in stance phase.

NOTE Confidence: 0.920580182

00:06:53.280 --> 00:06:55.593 So when both feet are on the ground together,

NOTE Confidence: 0.920580182

00:06:55.600 --> 00:06:58.720 we call that double limb support.

NOTE Confidence: 0.920580182

00:06:58.720 --> 00:07:01.324 The flexor muscles are very important

NOTE Confidence: 0.920580182

00:07:01.324 --> 00:07:04.717 and active in the swing phase of gait.

NOTE Confidence: 0.920580182

00:07:04.720 --> 00:07:07.045 The extensor muscles have their

NOTE Confidence: 0.920580182

00:07:07.045 --> 00:07:10.119 role in the stance phase of gait.

NOTE Confidence: 0.920580182

00:07:10.120 --> 00:07:12.240 So you observe somebody walk,

NOTE Confidence: 0.920580182

00:07:12.240 --> 00:07:14.505 watch your patient place their

NOTE Confidence: 0.920580182

00:07:14.505 --> 00:07:16.317 foot on the ground,

NOTE Confidence: 0.920580182

00:07:16.320 --> 00:07:19.200 Does their heel touch first?

NOTE Confidence: 0.920580182

00:07:19.200 --> 00:07:22.070 Then the heel and foot should be

NOTE Confidence: 0.920580182

00:07:22.070 --> 00:07:24.820 flat and then finally this push

NOTE Confidence: 0.920580182

00:07:24.820 --> 00:07:28.240 off with the heel off the floor.

NOTE Confidence: 0.920580182

00:07:28.240 --> 00:07:30.100 Does the patient shift weight from

NOTE Confidence: 0.920580182

00:07:30.100 --> 00:07:32.440 the right to the left leg equally?

NOTE Confidence: 0.920580182

00:07:32.440 --> 00:07:34.966 Do they spend the same amount

NOTE Confidence: 0.920580182

00:07:34.966 --> 00:07:37.120 of time on each leg?

NOTE Confidence: 0.920580182

00:07:37.120 --> 00:07:39.916 What is the length of stride?

NOTE Confidence: 0.920580182

00:07:39.920 --> 00:07:42.960 Is the gate wide based?

NOTE Confidence: 0.920580182

00:07:42.960 --> 00:07:46.758 Does the patient search with his or her feet?

NOTE Confidence: 0.920580182

00:07:46.760 --> 00:07:50.120 Does the patient bend forward when they walk?

NOTE Confidence: 0.920580182

00:07:50.120 --> 00:07:52.838 Do they pick up their feet off the ground?

NOTE Confidence: 0.920580182

00:07:52.840 --> 00:07:56.070 Does the patient leave their foot flat

NOTE Confidence: 0.920580182

00:07:56.070 --> 00:07:58.718 on the ground for as long as possible?

NOTE Confidence: 0.920580182

00:07:58.720 --> 00:08:00.940 Do they walk in a relatively

NOTE Confidence: 0.920580182

00:08:00.940 --> 00:08:02.420 straight line or shift

NOTE Confidence: 0.939152199285714

00:08:02.494 --> 00:08:03.798 from side to side?

NOTE Confidence: 0.939152199285714

00:08:03.800 --> 00:08:06.278 Do they lean forward or lean

NOTE Confidence: 0.939152199285714

00:08:06.278 --> 00:08:08.840 towards one side when they walk?

NOTE Confidence: 0.939152199285714

00:08:08.840 --> 00:08:11.710 Do they look at the ground

NOTE Confidence: 0.939152199285714

00:08:11.710 --> 00:08:12.760 when they're walking?

NOTE Confidence: 0.939152199285714

00:08:12.760 --> 00:08:16.117 Do they walk slowly or at a normal pace?

NOTE Confidence: 0.939152199285714

00:08:16.120 --> 00:08:18.514 And do they have a normal swing of arms,

NOTE Confidence: 0.939152199285714

00:08:18.520 --> 00:08:20.760 important to look for Swing of arms,

NOTE Confidence: 0.939152199285714

00:08:20.760 --> 00:08:22.800 particularly the patients

NOTE Confidence: 0.939152199285714

00:08:22.800 --> 00:08:25.520 that might have Parkinson's.

NOTE Confidence: 0.939152199285714

00:08:25.520 --> 00:08:27.140 So if the patient bends

NOTE Confidence: 0.939152199285714

00:08:27.140 --> 00:08:28.436 forward when they walk,

NOTE Confidence: 0.939152199285714

00:08:28.440 --> 00:08:31.037 there are two common causes for that.

NOTE Confidence: 0.939152199285714

00:08:31.040 --> 00:08:33.640 One of them is immobility of the hips.

NOTE Confidence: 0.939152199285714

00:08:33.640 --> 00:08:35.680 So the hips are the hinge

NOTE Confidence: 0.939152199285714

00:08:35.680 --> 00:08:37.520 on which the legs move.

NOTE Confidence: 0.939152199285714

00:08:37.520 --> 00:08:39.795 So if the hinge is quite limited,

NOTE Confidence: 0.939152199285714

00:08:39.800 --> 00:08:42.558 the patient bends forward as they walk.

NOTE Confidence: 0.939152199285714

00:08:42.560 --> 00:08:44.480 There's also condition known

NOTE Confidence: 0.939152199285714

00:08:44.480 --> 00:08:46.400 as lumbar spinal stenosis,

NOTE Confidence: 0.939152199285714

00:08:46.400 --> 00:08:49.250 and that produces pain as the

NOTE Confidence: 0.939152199285714

00:08:49.250 --> 00:08:52.135 nerve roots are irritated by the

NOTE Confidence: 0.939152199285714

00:08:52.135 --> 00:08:54.360 structures of a lumbar spine.

NOTE Confidence: 0.939152199285714

00:08:54.360 --> 00:08:56.040 When you flex your spine,

NOTE Confidence: 0.939152199285714

00:08:56.040 --> 00:08:58.882 you open up the lumbar spine so

NOTE Confidence: 0.939152199285714

00:08:58.882 --> 00:09:01.306 patients realize they can walk further

NOTE Confidence: 0.939152199285714

00:09:01.306 --> 00:09:04.409 if they bend forward and open up that

NOTE Confidence: 0.939152199285714

00:09:04.409 --> 00:09:07.160 spine and have less nerve root pain.

NOTE Confidence: 0.939152199285714

00:09:07.160 --> 00:09:08.960 If the patient looks at the

NOTE Confidence: 0.939152199285714

00:09:08.960 --> 00:09:10.160 ground when they're walking,

NOTE Confidence: 0.939152199285714

00:09:10.160 --> 00:09:12.358 that may be because they have a

NOTE Confidence: 0.939152199285714

00:09:12.358 --> 00:09:14.218 loss of proprioception or they may

NOTE Confidence: 0.939152199285714

00:09:14.218 --> 00:09:15.928 have a tremendous fear of falling

NOTE Confidence: 0.939152199285714

00:09:15.928 --> 00:09:18.080 and have a so-called cautious gait,

NOTE Confidence: 0.939152199285714

00:09:18.080 --> 00:09:19.564 which we'll talk about.

NOTE Confidence: 0.939152199285714

00:09:19.564 --> 00:09:21.790 So we one test that's essential

NOTE Confidence: 0.939152199285714

00:09:21.860 --> 00:09:23.600 to evaluate gait is what we

NOTE Confidence: 0.939152199285714

00:09:23.600 --> 00:09:25.640 call the get up and go test.

NOTE Confidence: 0.939152199285714

00:09:25.640 --> 00:09:28.076 Very simple. You need to do that.

NOTE Confidence: 0.939152199285714

00:09:28.080 --> 00:09:30.160 Not your nurse, not your MA, OK.

NOTE Confidence: 0.939152199285714

00:09:30.160 --> 00:09:33.240 The patient gets up from a chair,

NOTE Confidence: 0.939152199285714

00:09:33.240 --> 00:09:35.192 walks 10 feet, turns,

NOTE Confidence: 0.939152199285714

00:09:35.192 --> 00:09:38.840 walks back and sits on the chair.

NOTE Confidence: 0.939152199285714

00:09:38.840 --> 00:09:40.040 You can time that.

NOTE Confidence: 0.939152199285714

00:09:40.040 --> 00:09:41.840 But the most important part of

NOTE Confidence: 0.939152199285714

00:09:41.909 --> 00:09:44.003 this test is observing the patient

NOTE Confidence: 0.939152199285714

00:09:44.003 --> 00:09:45.959 as they're getting off a chair,

NOTE Confidence: 0.939152199285714

00:09:45.960 --> 00:09:48.640 walking, turning and sitting down.

NOTE Confidence: 0.939152199285714

00:09:48.640 --> 00:09:50.796 That's the key part of this test.

NOTE Confidence: 0.939152199285714

00:09:50.800 --> 00:09:52.557 So we're going to talk about different

NOTE Confidence: 0.939152199285714

00:09:52.557 --> 00:09:54.040 types of gait abnormalities.

NOTE Confidence: 0.939152199285714

00:09:54.040 --> 00:09:56.160 So to understand frontal gait,

NOTE Confidence: 0.939152199285714

00:09:56.160 --> 00:09:58.120 you need to understand this

NOTE Confidence: 0.939152199285714

00:09:58.120 --> 00:10:00.080 concept that we call apraxia.

NOTE Confidence: 0.939152199285714

00:10:00.080 --> 00:10:02.942 So patients with dementia often cannot

NOTE Confidence: 0.939152199285714

00:10:02.942 --> 00:10:05.640 carry out a purposeful movement.

NOTE Confidence: 0.939152199285714

00:10:05.640 --> 00:10:07.305 Even though the muscles and

NOTE Confidence: 0.939152199285714

00:10:07.305 --> 00:10:08.637 nerves are fully intact,

NOTE Confidence: 0.939152199285714

00:10:08.640 --> 00:10:11.440 they can't coordinate that movement.

NOTE Confidence: 0.939152199285714

00:10:11.440 --> 00:10:14.038 So if they have that problem,

NOTE Confidence: 0.939152199285714

00:10:14.040 --> 00:10:15.558 they have a practice or gait.

NOTE Confidence: 0.939152199285714

00:10:15.560 --> 00:10:17.198 We call it a frontal gait.

NOTE Confidence: 0.939152199285714

00:10:17.200 --> 00:10:20.518 Patients stand with their feet wide apart.

NOTE Confidence: 0.939152199285714

00:10:20.520 --> 00:10:22.472 They have difficulty initiating

NOTE Confidence: 0.939152199285714

00:10:22.472 --> 00:10:23.936 ambulation and difficulatory

NOTE Confidence: 0.939152199285714

00:10:23.936 --> 00:10:26.159 picking feet off the ground.

NOTE Confidence: 0.939152199285714

00:10:26.160 --> 00:10:27.960 They walk as if their feet

NOTE Confidence: 0.939152199285714

00:10:27.960 --> 00:10:29.720 are stuck to the ground.

NOTE Confidence: 0.939152199285714

00:10:29.720 --> 00:10:32.160 They take small shuffling steps,

NOTE Confidence: 0.939152199285714

00:10:32.160 --> 00:10:34.612 variating with moderate steps

NOTE Confidence: 0.939152199285714

00:10:34.612 --> 00:10:37.677 as a start start cycle.

NOTE Confidence: 0.939152199285714

00:10:37.680 --> 00:10:40.180 The inability to perform coordinated

NOTE Confidence: 0.939152199285714

00:10:40.180 --> 00:10:43.256 movements in the absence of motor

NOTE Confidence: 0.939152199285714

00:10:43.256 --> 00:10:45.701 or sensory impairment is called

NOTE Confidence: 0.939152199285714

00:10:45.701 --> 00:10:48.190 gait apraxia and this can be seen

NOTE Confidence: 0.939152199285714

00:10:48.190 --> 00:10:49.398 in normal pressure hydrocephalus,

NOTE Confidence: 0.939152199285714

00:10:49.400 --> 00:10:53.000 but also can be seen in all types of

NOTE Confidence: 0.939152199285714

00:10:53.000 --> 00:10:55.124 dementia. A cautious gait patent.

NOTE Confidence: 0.939152199285714

00:10:55.124 --> 00:10:58.640 If someone has a tremendous fear of falling,

NOTE Confidence: 0.939152199285714

00:10:58.640 --> 00:11:01.415 then they'd go through strategies

NOTE Confidence: 0.939152199285714

00:11:01.415 --> 00:11:03.635 to minimize their disequilibrium.

NOTE Confidence: 0.939152199285714

00:11:03.640 --> 00:11:06.930 So they widen their stance based they

NOTE Confidence: 0.939152199285714

00:11:06.930 --> 00:11:10.159 slightly flex their hips and their knees,

NOTE Confidence: 0.939152199285714

00:11:10.160 --> 00:11:12.000 they take shallow short steps,

NOTE Confidence: 0.939152199285714

00:11:12.000 --> 00:11:14.275 keeping their feet flat on the ground,

NOTE Confidence: 0.939152199285714

00:11:14.280 --> 00:11:16.545 and they reduce and guard

NOTE Confidence: 0.939152199285714

00:11:16.545 --> 00:11:18.357 their upper body motion.

NOTE Confidence: 0.939152199285714

00:11:18.360 --> 00:11:20.412 And they do this to lower

NOTE Confidence: 0.939152199285714

00:11:20.412 --> 00:11:21.780 their center of mass

NOTE Confidence: 0.920415676842105

00:11:21.859 --> 00:11:24.089 and limit their motion of

NOTE Confidence: 0.920415676842105

00:11:24.089 --> 00:11:25.873 that center during stepping.

NOTE Confidence: 0.920415676842105

00:11:25.880 --> 00:11:27.362 And this is normal if you're

NOTE Confidence: 0.920415676842105

00:11:27.362 --> 00:11:29.320 walking on a very slippery surface.

NOTE Confidence: 0.920415676842105

00:11:29.320 --> 00:11:31.520 So this is all how we all walk.

NOTE Confidence: 0.920415676842105

00:11:31.520 --> 00:11:35.413 Walking across a an icy driveway

NOTE Confidence: 0.920415676842105

00:11:35.413 --> 00:11:38.878 in February in New England,

NOTE Confidence: 0.920415676842105

00:11:38.880 --> 00:11:40.344 a ******* hemiparadicate.

NOTE Confidence: 0.920415676842105

00:11:40.344 --> 00:11:44.560 The affected arm is adducted at the shoulder,

NOTE Confidence: 0.920415676842105

00:11:44.560 --> 00:11:46.008 flexed at the elbow,

NOTE Confidence: 0.920415676842105

00:11:46.008 --> 00:11:49.159 and flexed at the wrist and the fingers.

NOTE Confidence: 0.920415676842105

00:11:49.160 --> 00:11:52.254 The upper extremity does not swing and

NOTE Confidence: 0.920415676842105

00:11:52.254 --> 00:11:55.720 is held against the chest or the abdomen.

NOTE Confidence: 0.920415676842105

00:11:55.720 --> 00:11:58.037 It's difficult to flex the hip and

NOTE Confidence: 0.920415676842105

00:11:58.037 --> 00:12:00.518 the knee and dorsiflex the ankle.

NOTE Confidence: 0.920415676842105

00:12:00.520 --> 00:12:03.496 Therefore, the patient walks by sweeping

NOTE Confidence: 0.920415676842105

00:12:03.496 --> 00:12:07.319 their leg out to avoid foot dragging.

NOTE Confidence: 0.920415676842105

00:12:07.320 --> 00:12:09.948 This is a so-called circumducted gait

NOTE Confidence: 0.920415676842105

00:12:09.948 --> 00:12:14.014 and the upper body often rocks to the

NOTE Confidence: 0.920415676842105

00:12:14.014 --> 00:12:16.799 contralateral side during this circumduction.

NOTE Confidence: 0.920415676842105

00:12:16.800 --> 00:12:19.260 Parkinson's disease is a disease where

NOTE Confidence: 0.920415676842105

00:12:19.260 --> 00:12:21.404 we've always diagnosed by observing

NOTE Confidence: 0.920415676842105

00:12:21.404 --> 00:12:24.038 the patient and examining the patient.

NOTE Confidence: 0.920415676842105

00:12:24.040 --> 00:12:27.040 Those are the key steps in

NOTE Confidence: 0.920415676842105

00:12:27.040 --> 00:12:28.040 diagnosing Parkinson's.

NOTE Confidence: 0.920415676842105

00:12:28.040 --> 00:12:30.101 And one of the first things we notice is

NOTE Confidence: 0.920415676842105

00:12:30.101 --> 00:12:32.116 that people aren't swinging their arms.

NOTE Confidence: 0.920415676842105

00:12:32.120 --> 00:12:34.360 So if your patient's not swinging their arms,

NOTE Confidence: 0.920415676842105

00:12:34.360 --> 00:12:36.760 you start looking for Parkinson's.

NOTE Confidence: 0.920415676842105

00:12:36.760 --> 00:12:38.880 The patients stand immobile.

NOTE Confidence: 0.920415676842105

00:12:38.880 --> 00:12:43.040 They have a lack of spontaneous movements.

NOTE Confidence: 0.920415676842105

00:12:43.040 --> 00:12:44.800 They have a flexed posture.

NOTE Confidence: 0.920415676842105

00:12:44.800 --> 00:12:46.240 Their spine is flexed.

NOTE Confidence: 0.920415676842105

00:12:46.240 --> 00:12:48.040 Their head is held down.

NOTE Confidence: 0.920415676842105

00:12:48.040 --> 00:12:51.435 Their elbows, hips and knees are flexed.

NOTE Confidence: 0.920415676842105

00:12:51.440 --> 00:12:54.240 They have difficulty initiating ambulation.

NOTE Confidence: 0.920415676842105

00:12:54.240 --> 00:12:56.040 Their trunk will bend forward

NOTE Confidence: 0.920415676842105

00:12:56.040 --> 00:12:57.480 and their lower extremities,

NOTE Confidence: 0.920415676842105

00:12:57.480 --> 00:12:59.856 however, will remain fixed.

NOTE Confidence: 0.920415676842105

00:12:59.856 --> 00:13:01.638 Their upper extremities,

NOTE Confidence: 0.920415676842105

00:13:01.640 --> 00:13:03.560 as we've already said, don't swing.

NOTE Confidence: 0.920415676842105

00:13:03.560 --> 00:13:05.919 So if someone's not swinging their arms,

NOTE Confidence: 0.920415676842105

00:13:05.920 --> 00:13:07.690 look for Parkinson's.

NOTE Confidence: 0.920415676842105

00:13:07.690 --> 00:13:10.640 Their step leg is reduced,

NOTE Confidence: 0.920415676842105

00:13:10.640 --> 00:13:13.676 their feet barely clear the ground,

NOTE Confidence: 0.920415676842105

00:13:13.680 --> 00:13:16.851 and they have this rather unusual gait

NOTE Confidence: 0.920415676842105

00:13:16.851 --> 00:13:19.720 pattern that we call fascination.

NOTE Confidence: 0.920415676842105

00:13:19.720 --> 00:13:22.232 And there what they will do is they

NOTE Confidence: 0.920415676842105

00:13:22.232 --> 00:13:25.435 will start with short, very rapid steps.

NOTE Confidence: 0.920415676842105

00:13:25.435 --> 00:13:29.082 And the theory is they're bending forward.

NOTE Confidence: 0.920415676842105

00:13:29.082 --> 00:13:31.248 Their center of gravity is moving

NOTE Confidence: 0.920415676842105

00:13:31.248 --> 00:13:33.216 forward and they're trying to take

NOTE Confidence: 0.920415676842105

00:13:33.216 --> 00:13:35.682 their feet to catch up their base of

NOTE Confidence: 0.920415676842105

00:13:35.682 --> 00:13:37.560 support with the center of gravity.

NOTE Confidence: 0.920415676842105

00:13:37.560 --> 00:13:40.320 So they'll start taking very rapid,

NOTE Confidence: 0.920415676842105

00:13:40.320 --> 00:13:43.320 short steps as they walk further.

NOTE Confidence: 0.920415676842105

00:13:43.320 --> 00:13:46.710 And that's called a fascinating pattern

NOTE Confidence: 0.920415676842105

00:13:46.710 --> 00:13:49.720 of patients with Parkinson's disease.

NOTE Confidence: 0.920415676842105

00:13:49.720 --> 00:13:50.150 Cerebellar,

NOTE Confidence: 0.920415676842105

00:13:50.150 --> 00:13:53.590 A taxier I think of as the atrial

NOTE Confidence: 0.920415676842105

00:13:53.590 --> 00:13:55.438 fibrillation of gait disorders.

NOTE Confidence: 0.920415676842105

00:13:55.440 --> 00:13:58.278 And that is, it's irregularly irregular,

NOTE Confidence: 0.920415676842105

00:13:58.280 --> 00:14:01.440 so the feet are placed wider apart than

NOTE Confidence: 0.920415676842105

00:14:01.440 --> 00:14:04.680 normal, tend to be externally rotated.

NOTE Confidence: 0.920415676842105

00:14:04.680 --> 00:14:08.719 The patient staggers from side to side

NOTE Confidence: 0.920415676842105

00:14:08.719 --> 00:14:11.280 searching for mechanical support.

NOTE Confidence: 0.920415676842105

00:14:11.280 --> 00:14:14.010 They often have a 4 1/2 tremor

NOTE Confidence: 0.920415676842105

00:14:14.010 --> 00:14:16.159 of their head and trunk,

NOTE Confidence: 0.920415676842105

00:14:16.160 --> 00:14:19.160 something we call titubation.

NOTE Confidence: 0.920415676842105

00:14:19.160 --> 00:14:21.476 The steps are of varying length.

NOTE Confidence: 0.920415676842105

00:14:21.480 --> 00:14:23.200 The feet are placed erratically,

NOTE Confidence: 0.920415676842105

00:14:23.200 --> 00:14:24.676 again, irregularly irregular.

NOTE Confidence: 0.920415676842105

00:14:24.676 --> 00:14:25.168 OK,

NOTE Confidence: 0.920415676842105

00:14:25.168 --> 00:14:28.980 they can't do a tandem gait and they

NOTE Confidence: 0.920415676842105

00:14:28.980 --> 00:14:31.560 can't stand with their feet together.

NOTE Confidence: 0.920415676842105

00:14:31.560 --> 00:14:33.660 Patients with sensory ataxia

NOTE Confidence: 0.920415676842105

00:14:33.660 --> 00:14:35.760 have lost their proprioception,

NOTE Confidence: 0.920415676842105

00:14:35.760 --> 00:14:38.360 so they don't know where their limbs are.

NOTE Confidence: 0.920415676842105

00:14:38.360 --> 00:14:41.024 They need to stand and walk with their

NOTE Confidence: 0.920415676842105

00:14:41.024 --> 00:14:44.314 feet set widely apart and eyes on the ground,

NOTE Confidence: 0.920415676842105

00:14:44.320 --> 00:14:46.096 so they're sort of searching with

NOTE Confidence: 0.920415676842105

00:14:46.096 --> 00:14:48.238 they when they walk with their feet,

NOTE Confidence: 0.920415676842105

00:14:48.240 --> 00:14:50.452 if they have significant

NOTE Confidence: 0.920415676842105

00:14:50.452 --> 00:14:51.558 proprioceptive problems,

NOTE Confidence: 0.920415676842105

00:14:51.560 --> 00:14:54.680 they have a positive Ronberg sign.

NOTE Confidence: 0.920415676842105

00:14:54.680 --> 00:14:57.249 Their legs often are lifted high in

NOTE Confidence: 0.920415676842105

00:14:57.249 --> 00:15:00.613 the air and allowed to slap on the

NOTE Confidence: 0.920415676842105

00:15:00.613 --> 00:15:02.798 ground a so-called slapping gait.

NOTE Confidence: 0.9053105025

00:15:02.800 --> 00:15:05.425 So back when syphilis and

NOTE Confidence: 0.9053105025

00:15:05.425 --> 00:15:07.000 particularly secondary syphilis

NOTE Confidence: 0.9053105025

00:15:07.000 --> 00:15:09.440 with Tabis Dorsalis was common,

NOTE Confidence: 0.9053105025

00:15:09.440 --> 00:15:11.897 your patients would be seen with a

NOTE Confidence: 0.9053105025

00:15:11.897 --> 00:15:14.100 so-called slapping gait because they had

NOTE Confidence: 0.9053105025

00:15:14.100 --> 00:15:16.278 so such an absence of proprioception.

NOTE Confidence: 0.785463484705882

00:15:19.560 --> 00:15:22.250 Patients with a myelopathic gate

NOTE Confidence: 0.785463484705882

00:15:22.250 --> 00:15:24.940 look like the Frankenstein monsters

NOTE Confidence: 0.785463484705882

00:15:25.027 --> 00:15:27.799 and that is they walk stiff legged,

NOTE Confidence: 0.785463484705882

00:15:27.800 --> 00:15:29.432 wide based and jerky.

NOTE Confidence: 0.785463484705882

00:15:29.432 --> 00:15:31.880 And the key to a myelopathic

NOTE Confidence: 0.785463484705882

00:15:31.971 --> 00:15:34.521 gate is the action reaction that

NOTE Confidence: 0.785463484705882

00:15:34.521 --> 00:15:36.960 occurs when we bend a joint.

NOTE Confidence: 0.785463484705882

00:15:36.960 --> 00:15:39.000 So when we flex our elbow,

NOTE Confidence: 0.785463484705882

00:15:39.000 --> 00:15:41.440 we contract our biceps muscle,

NOTE Confidence: 0.785463484705882

00:15:41.440 --> 00:15:43.127 but at the same time we have

NOTE Confidence: 0.785463484705882

00:15:43.127 --> 00:15:44.800 to relax our triceps muscle.

NOTE Confidence: 0.785463484705882

00:15:44.800 --> 00:15:47.628 So it's that relaxation that's impaired in

NOTE Confidence: 0.785463484705882

00:15:47.628 --> 00:15:50.278 patients with upper motor neuron disease,

NOTE Confidence: 0.785463484705882

00:15:50.280 --> 00:15:51.585 the so-called myelopathy.

NOTE Confidence: 0.785463484705882

00:15:51.585 --> 00:15:55.743 So the movements of the hip and knee are

NOTE Confidence: 0.785463484705882

00:15:55.743 --> 00:15:58.833 slow and stiff requiring considerable effort.

NOTE Confidence: 0.785463484705882

00:15:58.840 --> 00:16:01.120 Their toe clearance is compromised

NOTE Confidence: 0.785463484705882

00:16:01.120 --> 00:16:03.930 by reduced knee flexion and spasmic

NOTE Confidence: 0.785463484705882

00:16:03.930 --> 00:16:06.195 plantar flexion of the ankle.

NOTE Confidence: 0.785463484705882

00:16:06.200 --> 00:16:08.223 So again they're having a difficult time

NOTE Confidence: 0.785463484705882

00:16:08.223 --> 00:16:10.238 getting their leg from in front of them.

NOTE Confidence: 0.785463484705882

00:16:10.240 --> 00:16:11.116 So I'm sorry.

NOTE Confidence: 0.785463484705882

00:16:11.116 --> 00:16:13.560 From behind them to in front of them.

NOTE Confidence: 0.785463484705882

00:16:13.560 --> 00:16:15.516 So what they do is circumduct,

NOTE Confidence: 0.785463484705882

00:16:15.520 --> 00:16:17.998 so they move their entire leg together.

NOTE Confidence: 0.785463484705882

00:16:18.000 --> 00:16:19.572 So they take their leg and

NOTE Confidence: 0.785463484705882

00:16:19.572 --> 00:16:21.280 they swing it out like this.

NOTE Confidence: 0.785463484705882

00:16:21.280 --> 00:16:22.723 So this movement,

NOTE Confidence: 0.785463484705882

00:16:22.723 --> 00:16:25.609 this abducting the hip is called

NOTE Confidence: 0.785463484705882

00:16:25.609 --> 00:16:27.737 circumduction and it occurs when

NOTE Confidence: 0.785463484705882

00:16:27.737 --> 00:16:29.692 the patient can't flex their

NOTE Confidence: 0.785463484705882

00:16:29.692 --> 00:16:32.119 knee and dorsiflex their ankle.

NOTE Confidence: 0.785463484705882

00:16:32.120 --> 00:16:33.936 They circumduct their leg.

NOTE Confidence: 0.785463484705882

00:16:33.936 --> 00:16:37.160 They often move from side to side,

NOTE Confidence: 0.785463484705882

00:16:37.160 --> 00:16:39.880 their walking speed is reduced,

NOTE Confidence: 0.785463484705882

00:16:39.880 --> 00:16:42.400 their step length is decreased,

NOTE Confidence: 0.785463484705882

00:16:42.400 --> 00:16:45.697 and the time of double limb support

NOTE Confidence: 0.785463484705882

00:16:45.697 --> 00:16:49.000 and step width are both increased.

NOTE Confidence: 0.785463484705882

00:16:49.000 --> 00:16:51.840 A step edge gate,

NOTE Confidence: 0.785463484705882

00:16:51.840 --> 00:16:54.017 I think of the changing of the

NOTE Confidence: 0.785463484705882

00:16:54.017 --> 00:16:55.563 guard at Buckingham Palace when

NOTE Confidence: 0.785463484705882

00:16:55.563 --> 00:16:57.195 I see a step edge gate.

NOTE Confidence: 0.785463484705882

00:16:57.200 --> 00:16:59.240 So these are people that have foot drop,

NOTE Confidence: 0.785463484705882

00:16:59.240 --> 00:17:01.862 they have weakness of their ankle

NOTE Confidence: 0.785463484705882

00:17:01.862 --> 00:17:04.375 dorsiflexers and they compensate that by

NOTE Confidence: 0.785463484705882

00:17:04.375 --> 00:17:06.797 lifting their foot as high as possible.

NOTE Confidence: 0.785463484705882

00:17:06.800 --> 00:17:08.480 So they'll walk like this.

NOTE Confidence: 0.785463484705882

00:17:08.480 --> 00:17:10.360 They'll hyperflex their hip

NOTE Confidence: 0.785463484705882

00:17:10.360 --> 00:17:12.240 and hyperflex their knee.

NOTE Confidence: 0.785463484705882

00:17:12.240 --> 00:17:13.443 As they walk,

NOTE Confidence: 0.785463484705882

00:17:13.443 --> 00:17:16.250 the toe of the affected leg hits

NOTE Confidence: 0.785463484705882

00:17:16.345 --> 00:17:18.703 the ground before the heel or

NOTE Confidence: 0.785463484705882

00:17:18.703 --> 00:17:20.800 the sole of the foot.

NOTE Confidence: 0.785463484705882

00:17:20.800 --> 00:17:23.383 An intelligent gate is what a person

NOTE Confidence: 0.785463484705882

00:17:23.383 --> 00:17:26.079 does if they have a painful limb,

NOTE Confidence: 0.785463484705882

00:17:26.080 --> 00:17:29.608 so they want to spend less time in the

NOTE Confidence: 0.785463484705882

00:17:29.608 --> 00:17:33.315 stance phase of their affected painful limb.

NOTE Confidence: 0.785463484705882

00:17:33.320 --> 00:17:35.976 So the affected limb is placed on the

NOTE Confidence: 0.785463484705882

00:17:35.976 --> 00:17:38.281 ground just long enough to quickly

NOTE Confidence: 0.785463484705882

00:17:38.281 --> 00:17:40.639 swing the unaffected limb to stand,

NOTE Confidence: 0.785463484705882

00:17:40.640 --> 00:17:44.348 so less time on the ground is what you see.

NOTE Confidence: 0.785463484705882

00:17:44.348 --> 00:17:46.240 If the patient has a painful limb,

NOTE Confidence: 0.785463484705882

00:17:46.240 --> 00:17:48.898 it allows the patient to diminish

NOTE Confidence: 0.785463484705882

00:17:48.898 --> 00:17:51.184 pain by minimizing the weight

NOTE Confidence: 0.785463484705882

00:17:51.184 --> 00:17:53.359 bearing time on that limb.

NOTE Confidence: 0.785463484705882

00:17:53.360 --> 00:17:56.492 So if you want to charge a large consultation

NOTE Confidence: 0.785463484705882

00:17:56.492 --> 00:17:59.480 fee, you'll call that an intelligent gate.

NOTE Confidence: 0.785463484705882

00:17:59.480 --> 00:18:01.760 If you want to communicate with your patient,

NOTE Confidence: 0.785463484705882

00:18:01.760 --> 00:18:02.660 you'll call it limp.

NOTE Confidence: 0.785463484705882

00:18:02.660 --> 00:18:03.560 It's the same thing.

NOTE Confidence: 0.785463484705882

00:18:03.560 --> 00:18:04.331 It's a limp.

NOTE Confidence: 0.785463484705882

00:18:04.331 --> 00:18:05.873 But you again with the limp,

NOTE Confidence: 0.785463484705882

00:18:05.880 --> 00:18:08.435 you're spending less time on the painful

NOTE Confidence: 0.785463484705882

00:18:08.435 --> 00:18:11.208 limb and you need to look carefully

NOTE Confidence: 0.785463484705882

00:18:11.208 --> 00:18:13.608 and that'll help you determine what

NOTE Confidence: 0.785463484705882

00:18:13.682 --> 00:18:15.957 the source of that limp might be.

NOTE Confidence: 0.785463484705882

00:18:15.960 --> 00:18:19.570 The inability to flex the knee affects

NOTE Confidence: 0.785463484705882

00:18:19.570 --> 00:18:22.440 the swing phase of the gate cycle.

NOTE Confidence: 0.785463484705882

00:18:22.440 --> 00:18:22.784 Again,

NOTE Confidence: 0.785463484705882

00:18:22.784 --> 00:18:24.504 because you can't fully flex

NOTE Confidence: 0.785463484705882

00:18:24.504 --> 00:18:26.800 the knee and it's an extension,

NOTE Confidence: 0.785463484705882

00:18:26.800 --> 00:18:29.224 you can't get it from behind you to

NOTE Confidence: 0.785463484705882

00:18:29.224 --> 00:18:31.760 in front of you in a normal fashion.

NOTE Confidence: 0.785463484705882

00:18:31.760 --> 00:18:33.505 So you abduct or circumduct

NOTE Confidence: 0.785463484705882

00:18:33.505 --> 00:18:35.250 the limb as we've just

NOTE Confidence: 0.890659435652174

00:18:35.326 --> 00:18:37.420 demonstrated to get your leg from

NOTE Confidence: 0.890659435652174

00:18:37.420 --> 00:18:39.800 behind you to in front of you.

NOTE Confidence: 0.890659435652174

00:18:39.800 --> 00:18:42.400 Circumduction is sometimes accompanied by

NOTE Confidence: 0.890659435652174

00:18:42.400 --> 00:18:46.120 elevating the hemi pelvis on the same side,

NOTE Confidence: 0.890659435652174

00:18:46.120 --> 00:18:48.148 so-called hip hiking and leaning of

NOTE Confidence: 0.890659435652174

00:18:48.148 --> 00:18:50.799 the trunk to the contralateral side.

NOTE Confidence: 0.890659435652174

00:18:50.800 --> 00:18:53.572 And both of those occur if somebody

NOTE Confidence: 0.890659435652174

00:18:53.572 --> 00:18:56.280 can't flex their knee and have

NOTE Confidence: 0.890659435652174

00:18:56.280 --> 00:18:58.196 a so-called circumducted gait,

NOTE Confidence: 0.890659435652174

00:18:58.200 --> 00:19:01.480 an inadequate hip extension gait,

NOTE Confidence: 0.890659435652174

00:19:01.480 --> 00:19:04.156 because the stride length is decreased.

NOTE Confidence: 0.890659435652174

00:19:04.160 --> 00:19:08.878 So again, the hip is the the

NOTE Confidence: 0.890659435652174

00:19:08.880 --> 00:19:11.796 hinge on which the legs move.

NOTE Confidence: 0.890659435652174

00:19:11.800 --> 00:19:13.918 So if that hinge is narrowed,

NOTE Confidence: 0.890659435652174

00:19:13.920 --> 00:19:16.590 the stride length is going to

NOTE Confidence: 0.890659435652174

00:19:16.590 --> 00:19:18.408 be decreased hip extension.

NOTE Confidence: 0.890659435652174

00:19:18.408 --> 00:19:19.800 If it's inadequate,

NOTE Confidence: 0.890659435652174

00:19:19.800 --> 00:19:22.360 it keeps the thigh forward.

NOTE Confidence: 0.890659435652174

00:19:22.360 --> 00:19:24.235 You have an exaggerated curvature

NOTE Confidence: 0.890659435652174

00:19:24.235 --> 00:19:25.360 of the spine,

NOTE Confidence: 0.890659435652174

00:19:25.360 --> 00:19:27.940 exaggerated lumbar lordosis to compensate

NOTE Confidence: 0.890659435652174

00:19:27.940 --> 00:19:31.440 for your lack of hip extension.

NOTE Confidence: 0.890659435652174

00:19:31.440 --> 00:19:33.712 So hip flexion, contractures,

NOTE Confidence: 0.890659435652174

00:19:33.712 --> 00:19:34.880 contractions, contractions mean

NOTE Confidence: 0.890659435652174

00:19:34.880 --> 00:19:36.680 you can't fully extend the hip,

NOTE Confidence: 0.890659435652174

00:19:36.680 --> 00:19:39.638 can be compensated by knee flexion

NOTE Confidence: 0.890659435652174

00:19:39.638 --> 00:19:42.120 resulting in a crouched gate.

NOTE Confidence: 0.890659435652174

00:19:42.120 --> 00:19:44.322 So for functional ambulation you need

NOTE Confidence: 0.890659435652174

00:19:44.322 --> 00:19:47.238 to be able to stabilize your hip,

NOTE Confidence: 0.890659435652174

00:19:47.240 --> 00:19:48.866 have anti gravity,

NOTE Confidence: 0.890659435652174

00:19:48.866 --> 00:19:51.034 hip flexion and abduction,

NOTE Confidence: 0.890659435652174

00:19:51.040 --> 00:19:53.960 and stable knees and ankles.

NOTE Confidence: 0.890659435652174

00:19:53.960 --> 00:19:56.198 You need to have adequate balance.

NOTE Confidence: 0.890659435652174

00:19:56.200 --> 00:19:58.965 You need to be able to bear

NOTE Confidence: 0.890659435652174

00:19:58.965 --> 00:19:59.755 weight sequentially.

NOTE Confidence: 0.890659435652174

00:19:59.760 --> 00:20:02.399 So after you've done a gait assessment,

NOTE Confidence: 0.890659435652174

00:20:02.400 --> 00:20:04.400 what are the next steps?

NOTE Confidence: 0.890659435652174

00:20:04.400 --> 00:20:07.640 Well, you want to assess balance,

NOTE Confidence: 0.890659435652174

00:20:07.640 --> 00:20:09.080 you want to determine the

NOTE Confidence: 0.890659435652174

00:20:09.080 --> 00:20:11.240 patient's fall risk.

NOTE Confidence: 0.890659435652174

00:20:11.240 --> 00:20:13.550 You want to do a full

NOTE Confidence: 0.890659435652174

00:20:13.550 --> 00:20:14.320 neurological examination.

NOTE Confidence: 0.890659435652174

00:20:14.320 --> 00:20:16.445 And that gait assessment should

NOTE Confidence: 0.890659435652174

00:20:16.445 --> 00:20:18.570 target that about that examination

NOTE Confidence: 0.890659435652174

00:20:18.635 --> 00:20:20.489 to parts that are most important

NOTE Confidence: 0.890659435652174

00:20:20.489 --> 00:20:22.713 to you and that should include

NOTE Confidence: 0.890659435652174

00:20:22.713 --> 00:20:24.557 a manual muscle examination.

NOTE Confidence: 0.890659435652174

00:20:24.560 --> 00:20:25.915 You should do a complete

NOTE Confidence: 0.890659435652174

00:20:25.915 --> 00:20:26.999 examination of the joints,

NOTE Confidence: 0.890659435652174

00:20:27.000 --> 00:20:30.918 again targeted by the gait assessment.

NOTE Confidence: 0.890659435652174

00:20:30.920 --> 00:20:32.720 And then what do you do in follow up.

NOTE Confidence: 0.890659435652174

00:20:32.720 --> 00:20:34.106 So an example,

NOTE Confidence: 0.890659435652174

00:20:34.106 --> 00:20:36.878 if somebody has a myelopathic gait,

NOTE Confidence: 0.890659435652174

00:20:36.880 --> 00:20:38.408 that Frankenstein type gait

NOTE Confidence: 0.890659435652174

00:20:38.408 --> 00:20:40.318 where they can't relax muscles,

NOTE Confidence: 0.890659435652174

00:20:40.320 --> 00:20:42.876 you want to assess muscle tone.

NOTE Confidence: 0.890659435652174

00:20:42.880 --> 00:20:45.230 Does the person have so-called

NOTE Confidence: 0.890659435652174

00:20:45.230 --> 00:20:46.640 class knife spasticity?

NOTE Confidence: 0.890659435652174

00:20:46.640 --> 00:20:47.891 If they do,

NOTE Confidence: 0.890659435652174

00:20:47.891 --> 00:20:50.393 you'll check for abnormal reflexes for

NOTE Confidence: 0.890659435652174

00:20:50.393 --> 00:20:53.482 upper motor neuron disease such as the

NOTE Confidence: 0.890659435652174

00:20:53.482 --> 00:20:55.960 Babinski and the Hoffmann reflexes.

NOTE Confidence: 0.890659435652174

00:20:55.960 --> 00:20:58.840 If a patient has increased muscle

NOTE Confidence: 0.890659435652174

00:20:58.840 --> 00:21:00.760 tone and positive reflexes,

NOTE Confidence: 0.890659435652174

00:21:00.760 --> 00:21:03.568 you want to clearly evaluate them

NOTE Confidence: 0.890659435652174

00:21:03.568 --> 00:21:05.440 for cervical spinal stenosis

NOTE Confidence: 0.890659435652174

00:21:05.522 --> 00:21:08.012 because this is a treatable cause

NOTE Confidence: 0.890659435652174

00:21:08.012 --> 00:21:10.360 of upper motor neuron disease.

NOTE Confidence: 0.890659435652174

00:21:10.360 --> 00:21:12.271 A patient with a stepage gait you

NOTE Confidence: 0.890659435652174

00:21:12.271 --> 00:21:14.438 know has some degree of a foot drop,

NOTE Confidence: 0.890659435652174

00:21:14.440 --> 00:21:16.295 but you want to know whether that

NOTE Confidence: 0.890659435652174

00:21:16.295 --> 00:21:18.115 foot drop or weakness of ankle

NOTE Confidence: 0.890659435652174

00:21:18.115 --> 00:21:20.047 dorsal flat dorsal extension is due

NOTE Confidence: 0.890659435652174

00:21:20.047 --> 00:21:22.279 to central nervous system problems,

NOTE Confidence: 0.890659435652174

00:21:22.280 --> 00:21:24.038 spinal cord problems,

NOTE Confidence: 0.890659435652174

00:21:24.038 --> 00:21:25.796 nerve root problems,

NOTE Confidence: 0.890659435652174

00:21:25.800 --> 00:21:27.396 or peripheral nerve problems.

NOTE Confidence: 0.890659435652174

00:21:27.396 --> 00:21:30.320 What is the cause of the weakness

NOTE Confidence: 0.890659435652174

00:21:30.320 --> 00:21:32.595 of the ankle dorsal flexors?

NOTE Confidence: 0.890659435652174

00:21:32.600 --> 00:21:35.006 So the goals of your gait

NOTE Confidence: 0.890659435652174

00:21:35.006 --> 00:21:37.679 assessment should be to maintain the

NOTE Confidence: 0.890659435652174

00:21:37.680 --> 00:21:39.900 individual's ability to navigate

NOTE Confidence: 0.890659435652174

00:21:39.900 --> 00:21:42.675 his or her environment safely,

NOTE Confidence: 0.890659435652174

00:21:42.680 --> 00:21:45.240 to provide assistance as needed,

NOTE Confidence: 0.890659435652174

00:21:45.240 --> 00:21:47.505 to enhance mobility,

NOTE Confidence: 0.890659435652174

00:21:47.505 --> 00:21:52.035 to identify limitations to normal gait,

NOTE Confidence: 0.890659435652174

00:21:52.040 --> 00:21:55.760 to intervene to overcome these limitations.

NOTE Confidence: 0.890659435652174

00:21:55.760 --> 00:21:56.560 Thank you very much.