Patient: Mohammed Banat
DOB: 1.27.1978
Patient ID: 00231
Report date: 8.7.19

This report is a summary of Mohammed Banat's care from 7/1/19 to 7/5/19 and 7/8/19.

Patient History

Chief compliant: Memory and cognitive challenges

- **Onset:**
  - Post surgery 2009 for grade 2 astrocytoma in left temporal lobe.
    - Discovered tumor in 2006 when investigating left leg pain in left lateral thigh
    - Left leg pain went away on its own
- **Quality:**
  - Mixes words with speech, but catches himself right after he says it
  - Thinks faster than he can write
  - Slower abilities to comprehend new content
    - Emails and short articles are fine
    - When reading a book he feels that he is 5 times slower than his previous average
    - He has to stop after 30 minutes of reading, because it becomes more difficult
  - Mixes words with speech, but catches himself right after he says it
- **Palliative:**
  - None
- **Provocative:**
  - He feels that the medication for his seizures (Trileptal) makes his memory worse
    - In the past he tried to titer himself off of the Trileptal and had a grand mal seizure
  - Lack of sleep, although this seems to be less of a factor the last 10 days since starting the RepairVite diet and supplements
- **Timing:** Constant

Secondary Complaint: Fatigue

- **Onset:**
  - Approximately 12 months ago and increased significantly six months ago
- **Palliative:**
  - High frequency PMEF seemed to increase energy
  - 10 days ago started RepairVite diet and added supplements
    - Supplements:
      - Resvero active high dose
      - EnteroVite (butyric acid) high dose
      - H-PLR
      - high dose DHA
      - Glutathione Recycler
      - RepairVite
      - Vinpocetine.
    - He was told that it would take 4 days to see change, and saw results in 7 days with reduced fatigue and no seizure or Aura activity
    - He had lost 2 kg since starting diet
    - Metabolic work helped in the past
    - Fatigue level had improved since starting diet
    - He is not feeling fatigued multiple times a day
    - Frequency of fatigue is now once every couple days, typically after eating
    - He is feeling like he could handle exercise at the gym
- **Provocative:**
  - Could not recall any specific factors
- **Timing:**
  - Sometimes during the day, sometimes at night, sometimes before food, and sometimes after food

Secondary Complaint: Seizure Activity

- **Palliative:**
  - Trileptal seems to help, but doesn't work all of the time
  - He titered himself off of Trileptal once and had a grand mal seizure.
  - 10 days ago started RepairVite diet and added supplements
    - Since then zero seizures (previously 2 a month), zero auras (previously twice a week)
    - When traveling to Atlanta he had to delay taking Trileptal for 4 hours past normal time
      - He typically gets auras when this happens, but it did not occur this time
- **Provocative:**
  - Sleep, although this has seemed to be less of a factor since starting RepairVite diet 10 days ago

    - He took NeurO2 in past and it would give a different type of aura that never led to seizure activity
- **Quality:**
    - History of 3 grand mal seizures
    - More frequently has 2-3 minute seizures when is he is “unaware of his environment” and others think he is “tired and can’t talk”
- **Timing:** two auras per week, and one seizure every 6 to 8 weeks

Occupation:

- Owns an IT company
    - He gets by through keeping organized
    - If he can see words then he can recognize their meaning
- Intermediary for patients and their doctors
- Working with about 15 patients, not for profit

Other Treatments:

- **High frequency PMEF:**
    - Mohammed found that it would increase energy
    - Sometimes it would stop episode at aura, but twice while using it he still went into seizure
    - 4 different devices and 3 were supervised
    - None helped
    - Still had seizures
    - Not currently using PMEF therapy
- **Functional Medicine / Nutrition:**
    - Leaky Gut:
        - Lab work
        - Restrictive diet
        - Supplements: RepairVite™, Strengtia™, GI-Synergy™
        - Mohammed reports positive progression, but still working to improve lab values
    - SIBO Treatment:
        - Low FODMAP diet
        - Supplements: Neem Plus, Berberine, Allimax
        - Mohammed reports full resolution of SIBO
    - Brain Autoimmunity:
        - Dietary Restrictions
        - Supplements: Trizomal Glutathione, Acetyl-CH, NeurO2, Neuroflam, Nitric Balance, Oxicell-SE
            - Mohammed reported that Oxicell-SE caused some minor auras and a few seizures.
                - He reduced the dosage until finishing recommended trial
                - He stopped taking it 8 months ago.
        - Mohammed reports positive progression of lab values showing healed blood brain barrier

    - QEEG & Neurofeedback
        - Trialed four different devices with four different doctors without improvement
- **Cognitive Therapy with BrainRX:**
    - Based on assessment from Gibson Cognitive Skills Test.
        - Mohammed reported that the assessment showed processing speed, working memory and long-term memory deficits
    - Trialed for two months without improvement
- **Neural Therapy with Local Anesthetic:**
    - Mohammed reported that he felt it did not help
- **Frequency Specific Micro current:**
    - Mohammed reported that he felt it did not help
- **CBD Oil:**
    - He has not yet trialed CBD oil
    - He spoke with a doctor who recommended a specific type and dosage for Mohammed to trial should he decide to

History of Imaging Studies:

- fMRI Report and PET Scan prior to brain tumor resection to determine temporal lobe function

Medication:

- **Trileptal 600 mg**
    - Started with two low doses of Trileptal (300mg X 2) over years
    - In the last 6 months, he increased it to (600mg X 2) to manage increased symptoms
    - Mohammed reports that he feels that the Trileptal itself can cause cognitive challenges

Other Supplements:

- Mohammed reported taking the following additional supplements based on blood tests with a Nutritionist (Michelle Gerencser, MS)
    - Vital-Zyme Complete cap
    - Curcumin Extract (Protocols for Life Cogumin Curcumin)
    - Boswellia serrata (high dose)
        - stopped recently
    - Fish oil
    - A.D.K.
    - Selenium Cruciferate
    - Molybdenum
    - Zn gluconate
    - MSM.
        - Stopped last year
    - Isoflavone-250
    - Complete E

    - Low dose Lithium 5 mg per day.
        - Stopped two months ago
    - Ashwagandha
        - Started three weeks ago
    - Taurine 500 mg
        - Stopped two months ago
    - Phosphotidyl Serine
        - Mohammed felt that this showed the best possible effect, though not great enough
    - BDNF Essential
        - Mohammed felt that this showed a questionable improvement and stopped two months ago
    - Propolis
        - Taken occasionally and stopped 5 months ago
    - Acytel-L-Carnitine
        - Mohammed stopped taking this three months ago after reading it may cause causing seizures
- Mohammed trialed the following for seizure control, but felt that they didn't help:
    - GABA
    - BACOBA
- Mohammed recently added the following the supplements and felt that they reduced the severity, but not frequency of his seizures:
    - Resvero Active
    - Phyto-brain E
    - EntroVite

Sleep:

- 8hrs a night with no trouble falling or staying asleep
- He wakes up feeling rested
- Since surgery he would dream less and couldn't remember anything about it
- Over last couple weeks he has been dreaming and remembering aspects of dreams
- He had dreams next day after using cold laser in past

Family Hx:

- Grandmother had cancer at 40 yo, but survived to 90 yo
- Sister has MS
- Another sister has schizophrenia
- Brother has schizophrenia
- Cousin with schizophrenia
- Cousin who is mentally disabled

History of Surgeries:

- Appendix removed as a child
- Hernia surgery a couple years ago
- Resection of Grade II astrocytoma 2009

History of Illnesses:

- Grade II astrocytoma stable as per last MRI report conducted week before Innova Brain Rehab examination.
    - Mohammed reports having 25 MRIs since 2008

History of Head Injury:

- 11 years old hit in under chin and felt “weird” for an hour and could not easily listen to people

History of other Injuries:

- Two car accidents while wearing seatbelt
    - The first one was before his cancer surgery in 2009 and he reported loss of consciousness for a couple seconds
- The other accident involved a grand mal seizure while driving

Double vision:

- None

Tinnitus:

- None

Fullness of the ears:

- None

Symptoms on an elevator:

- None

Symptoms on and escalator:

- None

Symptoms driving a car:

- Struggles with directions while driving

Symptoms riding as a passenger in a car:

- None

Unexplained falls:

- No falls, but Mohammed reported that three times over last year he got weakness in his legs after taking a few steps requiring him to sit down for about 10 seconds to recover

Review of Systems:

1. **Constitutional:**
    a. Unexplained Weight loss: none
    b. Night sweats: none, but legs get hot sometimes
    c. Fatigue/malaise/lethargy: every couple days after eating a meal and fatigue as described above
    d. Sleeping pattern: none
    e. Appetite: eat, because he knows he has to, but rarely eats because he feels hungry
    f. Fever: none
    g. Itch/rash: none
    h. Lumps/bumps/masses: none
2. **Vision:**
    a. Headaches: maybe 4 times a year
    b. Visual Changes: none
    c. Floaters: as a child, currently happens a few times a year; when it occurs they are clear
3. **ENT:**
    a. Nose bleeds: none
    b. Sinus pain: none; deviated septum
    c. Ear pain: none
    d. Bleeding of gums: none
    e. Tooth ache: none
    f. Trouble swallowing: none
    g. Sore throat: none
    h. Cold sores: had every other week as child; now once every six months
4. **Cardiovascular:**
    a. Chest pain: none
    b. SOB: none
    c. Palpitations: none
    d. Faintness: none
    e. LOC: during two grand mal seizures
    f. Claudication: none
5. **Respiratory:**
    a. Coughing: none
    b. Sputum: none
    c. Wheezing: none
    d. Coughing up blood: none
    e. Exercise intolerance: none

6. **Gastrointestinal:** daily bowel movement, fully formed; mild hemorrhoids that are being monitored with a physician
7. **Musculoskeletal:** 2/10 left leg pain
8. **Skin:** none
9. **Psychiatric:** none
10. **Endocrine:**
    a. Bottom of feet get warm 3 times a week
    b. Over the last 2-3 years he has had no sexual drive
11. **Hematological/lymphatic:** none
12. **Immune/allergies:** none

Goals:

1. Memory
2. Continue to not have fatigue
3. Continue to not have seizures
4. Left thigh pain

Examination

Key for acronyms:

- CN: Cranial nerve
- E/N: Essentially normal
- SWJ: Square wave jerk
- TMJ: Temporomandibular Joint

Cardiovascular:

- **Auscultation:**
    - Heart:
        - Aortic: E/N
        - Pulmonic: E/N
        - Mitral: E/N
        - Tricuspid: E/N
        - Apex: E/N
    - Subclavian Arteries: Bruits present bilaterally
    - Carotid Arteries: Bruits present bilaterally
    - Temporal Arteries: E/N

Pulmonary:

- **Lung field auscultation:** clear with no rubs, wheezes, or rales

Abdominal:

- **Bowel sounds:** E/N in all four quadrants

- **Abdominal percussion:** E/N

Cranial Nerves:

- **CN 1**
    - Smell Test:
        - Left: deferred
        - Right: deferred
- **CN 2:**
    - Visual Extinction: E/N
    - Confrontation:
        - Left: E/N
        - Right: E/N
    - Red Saturation: E/N
- **Pupils (CN 2,3):**
    - Resting:
        - Left: E/N
        - Right: subtle correctasia
    - Direct:

        - Left: immediate hippus
        - Right: 4 second hold then hippus
    - Indirect:
        - Left: E/N
        - Right: E/N
    - Swinging Light:
        - Left: E/N
        - Right: E/N
    - Accommodation:
        - Left: E/N
        - Right: E/N
- **Fundoscopic Exam:**
    - Left: unable to visualize
    - Right: 2:1 V:A
- **CN 3,4,6:**
    - Cardinal Fields of gaze:
        - Left: E/N
        - Right: E/N
        - Up: E/N
        - Down: E/N
        - Up Left: E/N
        - Down Right: E/N
        - Up Right: E/N
        - Down Left: E/N
    - Pursuits:
        - Left: E/N
        - Right: E/N
        - Up: E/N
        - Down: saccadic
        - Up Left: E/N
        - Down Right: E/N
        - Up Right: E/N
        - Down Left: E/N
    - Eye-head pursuit:
        - Left: E/N
        - Right: E/N
        - Up: head ahead of eyes
        - Down: initially eyes ahead of head
    - Saccades (reflexive):
        - Left: E/N
        - Right: E/N
        - Up: E/N
        - Down: E/N
        - Up Left: E/N
        - Down Right: E/N
        - Up Right: E/N

        - Down Left: E/N
    - Saccades (volitional):
        - Left: faster than reflexive
        - Right: faster than reflexive
        - Up: slower vertically
        - Down: slower vertically
    - Anti Saccades:
        - Left: slightly slowed speed
        - Right: slightly slowed speed
        - Up: slightly slowed speed
        - Down: slightly slowed speed
    - Convergence:
        - Left eye: E/N
        - Right eye: E/N
    - Divergence: Mohammed noted on divergence pursuit type activity that he saw slight doubling at approximately 8 inches
    - OPK:
        - Left: E/N
        - Right: E/N
        - Up: eyes positioned downward
        - Down: E/N
    - Cover Uncover:
        - Left: upon uncovering eye deviates medially
        - Right: upon uncovering eye deviates medially
    - Swinging Cover Test:
        - Left: upon uncovering eye deviates medially
        - Right: upon uncovering eye deviates medially
    - Maddox Rod:
        - Horizontal:
            - Central at 3': line to left of light approximately ½"
            - Left: slightly closer than central
            - Right: slightly closer than central and left
            - Up: same as central
            - Down: same as central
            - Up Left: same as central
            - Down Right: same as central
            - Up Right: same as central
            - Down Left: closer to light than any other position
            - Central Convergence: line 1" to left of light
            - Central Divergence: line touching light

        - Vertical:
            - Central at 3": line over light
            - Left: line over light
            - Right: line over light
            - Up: line over light

                - Down: line over light
- **CN 5:**
    - Sensation:
        - Sharp touch:
            - V1: equal level of sensation bilaterally and compared to other sensory distributions
            - V2: equal level of sensation bilaterally and compared to other sensory distributions
            - V3: equal level of sensation bilaterally and compared to other sensory distributions
        - Light touch:
            - V1: equal level of sensation bilaterally and compared to other sensory distributions
            - V2: equal level of sensation bilaterally and compared to other sensory distributions
            - V3: equal level of sensation bilaterally and compared to other sensory distributions
    - Motor:
        - Masseter Palpation:
            - Resting: E/N
            - Jaw Clenched: E/N
        - TMJ Assessment:
            - Opening:
                - Left: E/N
                - Right: initial lag
            - Closing:
                - Left: E/N
                - Right: E/N
            - Left Deviation: even
            - Right Deviation: even
- **CN 5,7 Corneal Reflex:**
    - Left: E/N
    - Right: E/N
- **CN 7:**
    - Muscles of Facial Expression:
        - At rest: even
        - Smile: slightly lower left
        - Frown: even
        - Raise eye brows: even
        - Pucker Lips: even
        - Puff Cheeks:
            - Left Strength: slightly lower tone
            - Right Strength: E/N
    - Taste:
        - Left: DNP
        - Right: DNP

- **CN 8:**
    - Finger Rub
        - Left: E/N
        - Right: E/N
    - Rinne:
        - Left: E/N
        - Right: E/N
    - Webber: E/N
    - Otoscope:
        - Left ear: E/N
        - Right ear: E/N
- **CN 9,10:**
    - Palate Elevation: slight lower right palate
    - Gag Reflex: Subtle flinch
    - Tongue Deviation: none
- **CN 11:**
    - SCM:
        - Left: 5/5
        - Right: 5/5
    - Upper Trapezius:
        - Left: 5/5
        - Right: 5/5
- **CN 12:**
    - Tongue:
        - Protrusion: even
        - Strength
            - Left cheek: 5/5
            - Right cheek: 5/5

Vestibular:

- **Ocular Tilt:** E/N

- **Head impulse test (HIT):**
    - Horizontal: head impulse to right overshoots
    - Vertical: E/N

Sensory: (bilateral unless stated otherwise)

- **Vibration:**
    - Upper Extremities:
        - Thumb:
            - Left: discrete
            - Right: discrete
        - Fifth digit:
            - Left: discrete

            - Right: discrete
        - Lateral wrist:
            - Left: discrete
            - Right: discrete
    - Lower Extremities:
        - Hallux:
            - Left: discrete
            - Right: discrete
- **Sharp touch:**
    - Upper Extremities:
        - C5: equal level of sensation bilaterally and compared to other dermatomes
        - C6: equal level of sensation bilaterally and compared to other dermatomes
        - C7: equal level of sensation bilaterally and compared to other dermatomes
        - C8: equal level of sensation bilaterally and compared to other dermatomes
        - T1: equal level of sensation bilaterally and compared to other dermatomes
        - T2: equal level of sensation bilaterally and compared to other dermatomes
    - Lower Extremities:
        - L3: equal level of sensation bilaterally and compared to other dermatomes
        - L4: Left 30% more than right
        - L5: Right 30% more than left
        - S1: Left and right 50% more sensitive than L3, 4, and 5
- **Light touch:**
    - Upper Extremities:
        - C5: equal level of sensation bilaterally and compared to other dermatomes
        - C6: equal level of sensation bilaterally and compared to other dermatomes
        - C7: equal level of sensation bilaterally and compared to other dermatomes
        - C8: equal level of sensation bilaterally and compared to other dermatomes
        - T1: equal level of sensation bilaterally and compared to other dermatomes
        - T2: equal level of sensation bilaterally and compared to other dermatomes
    - Lower Extremities:
        - L3: equal level of sensation bilaterally and compared to other dermatomes
        - L4: Left 30% more than right

        - L5: Right 30% more than left
        - S1: Left and right 50% more sensitive than L3, 4, and 5
- **Cortical Sensation:**
    - Extinction:
        - Toes
            - Left toes: accurate
            - Right toes: accurate
            - Bilateral stimulation: accurate
        - Head and Shoulder Together
            - Left side: accurate
            - Right side: accurate
    - Graphesthesia (assessed with plantar surface of foot):
        - Left foot: Accurate
        - Right foot: Accurate

Motor:

- **Inspection (Wasting, Fasciculations):**
    - UE:
        - Left: E/N
        - Right: slightly lower tone on elbow extension
    - LE:
        - Left: E/N
        - Right: E/N
- **Muscle Strength:**
    - Upper Extremities:
        - Deltoids 5/5
        - Biceps 5/5
        - Triceps 5/5
        - Wrist extensors 5/5
        - Finger extensors 5/5
        - Finger flexors 5/5
        - Finger abductors 5/5
        - Finger adductors 5/5, except 5^{th} digit adductors bilaterally 4/5
        - Thumb Extensors 5/5
    - Lower Extremities:
        - Hip flexors 4/5 left, 5/5 right
        - Hip Extensors 5/5
        - Knee flexors 5/5
        - Knee extensors 5/5
        - Foot dorsiflexion 5/5
        - Foot plantar flexion: 5/5
        - Extensor hallucis longus: 5/5
        - Extensor digitorum longus & brevis: 5/5
        - Peroneus longus & brevis: 5/5

- **Reflexes:**
    - Biceps:
        - Left: 0
        - Right: 0
    - Triceps:
        - Left: 0
        - Right: 0
    - Brachioradialis:
        - Left: +1
        - Right: +1
    - Patella:
        - Left: 0
        - Right: 0
    - Achilles:
        - Left: +2
        - Right: +2
    - Plantar:
        - Left: E/N
        - Right: E/N
    - Jaw Jerk Reflex: none
    - Gabellar Blink: E/N

Coordination, Gait, and Balance:

All numerical ratings were based on the unified Parkinson's disease rating scale (UPDRS)

- **Appendicular Coordination:**
    - Upper Extremity:
        - Rapid alternating movements (pronation-supination)
            - Without Dual Task
                - From shoulders (arms extended):
                    - Left: slowed speed
                    - Right: lower amplitude and slower than left
                - From elbows (elbows bent):
                    - Left: slowed speed
                    - Right: lower amplitude and slower than left
            - With Dual task
                - From shoulders (arms extended):
                    - Left: same as without dual task
                    - Right: same as without dual task
        - Finger to nose:
            - Eyes Open
                - Left: E/N
                - Right: E/N

        - Eyes Closed
            - Left: E/N
            - Right: E/N

    - Finger – nose – finger:
        - Stationary Target
            - Eyes Open
                - Left: E/N
                - Right: E/N
            - Eyes Closed
                - Left: E/N
                - Right: E/N
        - Moving Target
            - Eyes Open
                - Left: slightly slower than right
                - Right: E/N
    - Finger Tapping:
        - Without dual task:
            - Left: rated 1 with slowed speed
            - Right: rated 1 with 2 hesitations
        - With dual task:
            - Left: rated 1 with 2 hesitations
            - Right: rated 1 with lower amplitude
    - Alternating Finger Movement:
        - Left: slower speed and less accurate than right
        - Right: slowed speed
    - Modified Luria (Palm down, side of hand down, fist down):
        - Left: slowed speed
        - Right: slowed speed
    - Drift upon Arm Raise: E/N
    - Rebound: E/N
- Lower Extremity:
    - Heel to Shin (supine):
        - Left heel on right shin: slightly uncoordinated
        - Right heel on left shin: E/N
    - Foot tap:
        - Left: rated 2 with slower speed and 3 hesitations
        - Right: rated 1 with slowed speed, but faster than left

- **Pull test:** E/N
- **Standing Perturbation Testing:**
    - Left sided perturbation: E/N
    - Right sided perturbation: E/N
- **Tandem Stance:**
    - Left foot forward: slightly less stable compared to right
    - Right foot forward: stable
- **Tandem Gait:**

    - Eyes open: stable
    - Eyes closed: unstable, needed to be caught
- **Gait:**
    - Without dual task: reduced shoulder arm swing bilaterally with right worse than left
    - With dual task: slowed gait with freezes and lack of shoulder arm swing bilaterally

Orthopedic:

- **Straight leg raise:** negative
- **Faber testing:** negative

Vitals:

Vitals assessment was performed taking bilateral blood pressure, bilateral pulse quality, pulse rate, blood oxygen saturation (SPO_2), and perfusion index (PI) all lying, sitting, and standing. Positional changes were assessed to screen for any orthostatic abnormality or intolerance.

	Blood Pressure							
9/6/18	**Left**	**Right**	**PULSE**	**SpO_2**	**PI**	**Right Pulse Quality**	**Left Pulse Quality**	**Symptoms**
Seated	110/74	112/74	60	98	0.37	Regular Rhythm; Full Pulse	Regular Rhythm; Full Pulse	None
Supine (After 3 min.)	114/80	114/80	57	97	0.74	Regular Rhythm; Full Pulse	Regular Rhythm; Full Pulse	None
Standing (Immediately)	100/80 (2^{nd} reading 110/80)	110/80	62	98	0.22	Regular Rhythm; Full Pulse	Regular Rhythm; Full Pulse	5 seconds of very mild dizziness
Temperature (°F)	98.3							
Respiration Rate	16							
Height	5’9”							
Weight (lbs.)	149lbs							

Neurocognitive Test:

Montreal Cognitive Assessment (MOCA):

A Montreal Cognitive Assessment (MOCA) was performed on 7/2/19 assessing the following:

- Short term memory
- Visuospatial abilities
- Executive functions
- Attention, concentration and working memory
- Language
- Orientation to time and place

A score greater than or equal to 26 out of 30 is considered normal and below 26 is considered to be in the range of mild cognitive impairment. Mohammed scored 20 on 7/2/19. The MOCA was performed in English. It should be noted that Mohammed's native language is not English, but he uses the English language on a daily basis for his occupation.

Diagnostic Testing

Video-oculography (VOG):

VOG was performed on 7/1/19 to assess several areas of the brain and nervous system including but not limited to frontal lobes / cognition, parietal lobes / spatial and body awareness, cerebellum / coordination of thoughts and movements, brainstem / vestibular processing, and autonomic regulation. Please see appendix for VOG results.

Computerized Dynamic Posturography (CDP):

Computerized dynamic posturography (CDP) was conducted on 7/1/19 using a C.A.P.S. unit manufactured by Vestibular Technologies. The data was collected during non-perturbed surface with eyes opened and closed as well as during perturbed surface standing with eyes open and closed with head neutral, right rotated, left rotated, flexed, and extended positions. CDP was performed to assess several areas of the brain and nervous system including but not limited to parietal lobes / spatial and body awareness, cerebellum / coordination of thoughts and movements, brainstem / vestibular processing, and visual processing. Please see appendix for CDP results.

Impressions:

History, examination, and diagnostic findings led to the impression of subclinical frontal, temporal, and cerebellar deficits with vestibular processing challenges.

Diagnoses:

- Mild Cognitive Impairment G31.84
- Chronic Fatigue, Unspecified R53.82
- Other postprocedural complications and disorders of nervous system G97.82
- Other Seizures G40.89

Plan/Treatment:

Therapies included vestibular rehabilitation, oculomotor exercises, and manual therapy administered over the course of 3 days of intensive rehabilitation. Each day included three 1 – 1.5 hour sessions.

Exit Examination:

A focused exit examination was performed on 7/8/19

Cranial Nerves:

- **Pupils (CN 2,3):**
  - Direct:
    - Left: four second hold and release
    - Right: immediate hippus
- **CN 3,4,6:**
  - Eye-head pursuits: Eyes slightly ahead of head in horizontal plane and head slightly ahead of eyes with downward movement.
  - Antisaccades: one error out of five trials in horizontal and vertical planes; faster velocity and shorter latency than initial assessment
  - Convergence: E/N
  - Maddox Rod: Line to left of light worse on convergence and closest to light in lower left field of vision
- **CN 7:**
  - Muscles of facial expression: even tone bilaterally with cheeks puffed
- **CN 9,10:**
  - Palate elevation: even bilaterally

Vestibular:

- **Head Impulse Test:** Essentially normal

Motor:

- **Reflexes:**
  - Biceps:
    - Left: 0
    - Right: +1
  - Triceps:
    - Left: 0
    - Right: +2
  - Brachioradialis:
    - Left: +1
    - Right: +1
  - Patella:
    - Left: +1
    - Right:+2
  - Achilles:
    - Left: +1
    - Right:0
    -

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      - Without Dual Task
        - From shoulders (arms extended):
          - Left: breaks down after 5 seconds making it slower and lower amplitude than right
          - Right: slowed speed
        - From elbows (elbows bent):
          - Left: slowed and low amplitude, but slightly faster than right
          - Right: slowed and low amplitude
    - Finger – nose – finger (eyes open and closed):
      - Moving Target
        - Eyes Open
          - Left: E/N
          - Right: E/N
    - Finger Tapping:
      - Without dual task:
        - Left: slightly fatigues with slower speed after 5 seconds
        - Right: slightly lower amplitude than left
    - Alternating Finger Movement:

                - Left: slowed speed and slightly arrhythmic
                - Right: slowed speed and slightly arrhythmic; slightly worse than left
            - Modified Luria (Palm down, side of hand down, fist down):
                - Left: faster compared to intake, but still slowed compared to normal with 1 hesitation
                - Right: faster compared to intake, but still slowed compared to normal with 1 hesitation
    - Lower Extremity:
        - Heel to Shin (supine):
            - Left heel on right shin: slightly uncoordinated
            - Right heel on left shin: E/N
        - Foot tap:
            - Left: lower amplitude and arrhythmic compared to right
            - Right: E/N
- **Tandem Gait:**
    - Eyes open: efficient and stable with no sway
    - Eyes closed: efficient and stable with no sway
- **Gait:**
    - Without dual task: increased amplitude of bilateral arm swing compared to initial examination
    - With dual task: increased amplitude of bilateral arm swing compared to without dual task and compared to initial examination

Exit Neurocognitive Test:

Montreal Cognitive Assessment (MOCA):

A Montreal Cognitive Assessment (MOCA) was performed on 7/8/19 and Mohammed achieved a score of 19/30. Please see appendix for MOCA results. The MOCA was performed in English. It should be noted that Mohammed's native language is not English, but he uses the English language on a daily basis for his occupation.

Exit Diagnostics:

Video-oculography (VOG):

VOG was performed on 7/8/19 to assess several areas of the brain and nervous system including but not limited to frontal lobes / cognition, parietal lobes / spatial and body awareness, cerebellum / coordination of thoughts and movements, brainstem / vestibular processing, and autonomic regulation. Please see appendix for VOG results.

Computerized Dynamic Posturography (CDP):

Computerized dynamic posturography (CDP) was conducted on 7/5/9 using a C.A.P.S. unit manufactured by Vestibular Technologies. The data was collected during non-perturbed surface with eyes opened and closed as well as during perturbed surface standing with eyes open and closed with head neutral, right rotated, left rotated, flexed, and extended positions. CDP was performed to assess several areas of the brain and nervous system including but not limited to parietal lobes / spatial and body awareness, cerebellum / coordination of thoughts and movements, brainstem / vestibular processing, and visual processing. Please see appendix for CDP results.

Outcomes:

After 3 day of intensive neurorehabilitation Mr. Banat displayed improvements in objective findings relative to brain function in the following areas: eye movement testing and other brainstem related functions on VOG and exit examination; CDP; various coordination findings and increased arm swing during gait on exit examination. Subjective memory, fatigue and seizure challenges still persisted. On 7/8/19 Mohammed elected to continue neurorehabilitation at home so he could seek further means to address his fatigue, memory challenges, and seizure activity.

Mr. Banat was prescribed and trained on a home exercise plan. His continued neurorehabilitation is intended to create further plastic changes in his brain function in the pursuit of symptomatic benefit. It was recommended that he continue these therapies and return for more outpatient rehabilitation as his condition evolves. Please see appendix for home exercises.

Frank E. Patterson, DC, DACNB, FABBIR
NPI# 1154874089

Appendix:

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Micromedical TECHNOLOGIES INC.

VisualEyes 4 Channel

Innova Brain Rehabilitation
200 Cobb Parkway N
Suite 128
Marietta, GA 30062
770-485-6554

Name:	Mohammed Banat	ID:	00292
Age:	41	Visit Date:	07/01/2019
Occupation:		Tester:	
Medication:		Doctor:	

OT	Name	Test Comment
	Nystagmus Tests:	
	Nystagmus Without Fixation	
	Gaze-Horizontal	
	Gaze-Vertical	
	Pupillary Light Reflex	
	Repeat Nystagmus Without Fixation	
	Repeat2 Nystagmus Without Fixation	
	Repeat3 Nystagmus Without Fixation	
	Repeat4 Nystagmus Without Fixation	
	Repeat Gaze-Horizontal	
	Repeat Gaze-Vertical	
	Oculomotor Tests:	
	Saccade-Horizontal	
	Saccade-Vertical	
	Repeat Saccade-Horizontal	
	Repeat Saccade-Vertical	
	Repeat2 Saccade-Horizontal	
	Repeat2 Saccade-Vertical	
	Pursuit-Horizontal	
	Pursuit-Vertical	
	Repeat Pursuit-Vertical	
	Repeat Pursuit-Horizontal	
	Repeat2 Pursuit-Vertical	
◆	OPK-Horizontal	
◆	OPK-Vertical	
	Repeat OPK-Horizontal	
	Repeat OPK-Vertical	
	Repeat2 OPK-Horizontal	
	Repeat2 OPK-Vertical	
	Repeat3 OPK-Horizontal	
	Repeat3 OPK-Vertical	

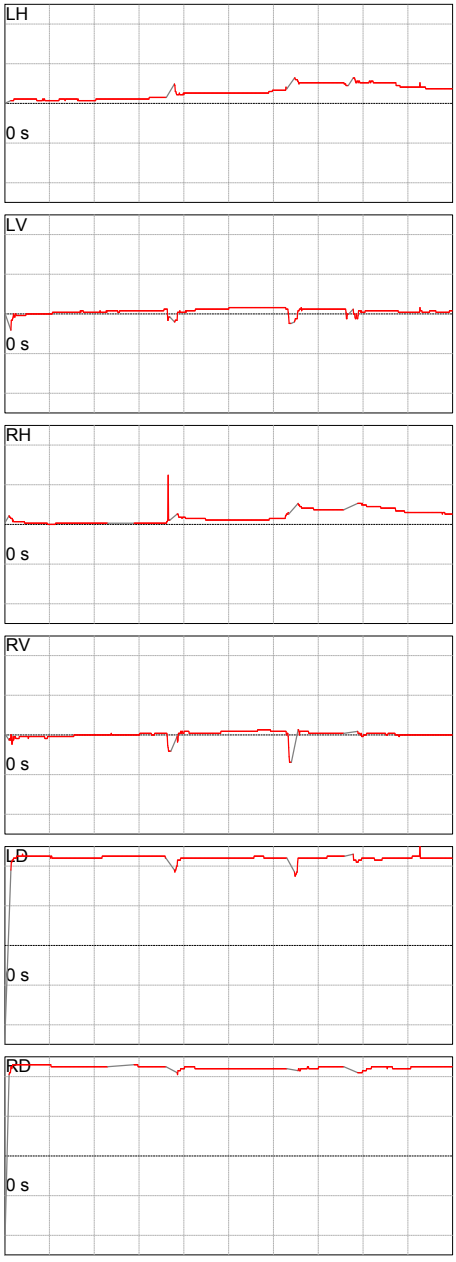
◆ *Finding(s) outside clinical threshold.*

Name:	Mohammed Banat	ID:	00292	Full Test H 10 deg. V 10 deg. 1 sec.	Close-up 10 deg. H / V
Age:	41				
Visit Date:	07/01/2019				

Nystagmus Without Fixation

Video

No Fixation 10 s



Name:	Mohammed Banat	ID:	00292	Full Test H 10 deg. V 10 deg.	Close-up 10 deg. H / V
Age:	41				
Visit Date:	07/01/2019			1 sec.	

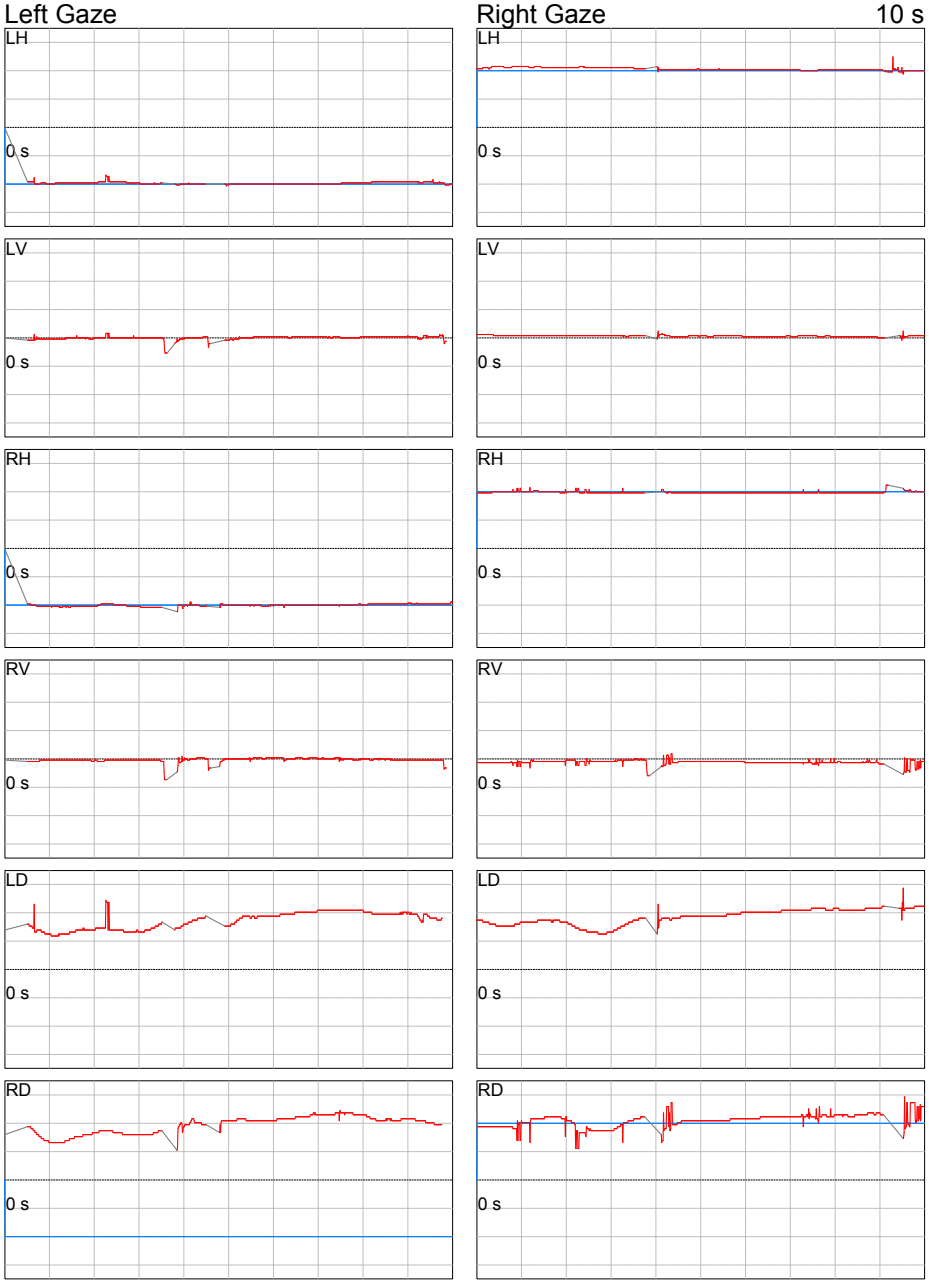
Gaze-Horizontal

Video

Left Gaze

Right Gaze

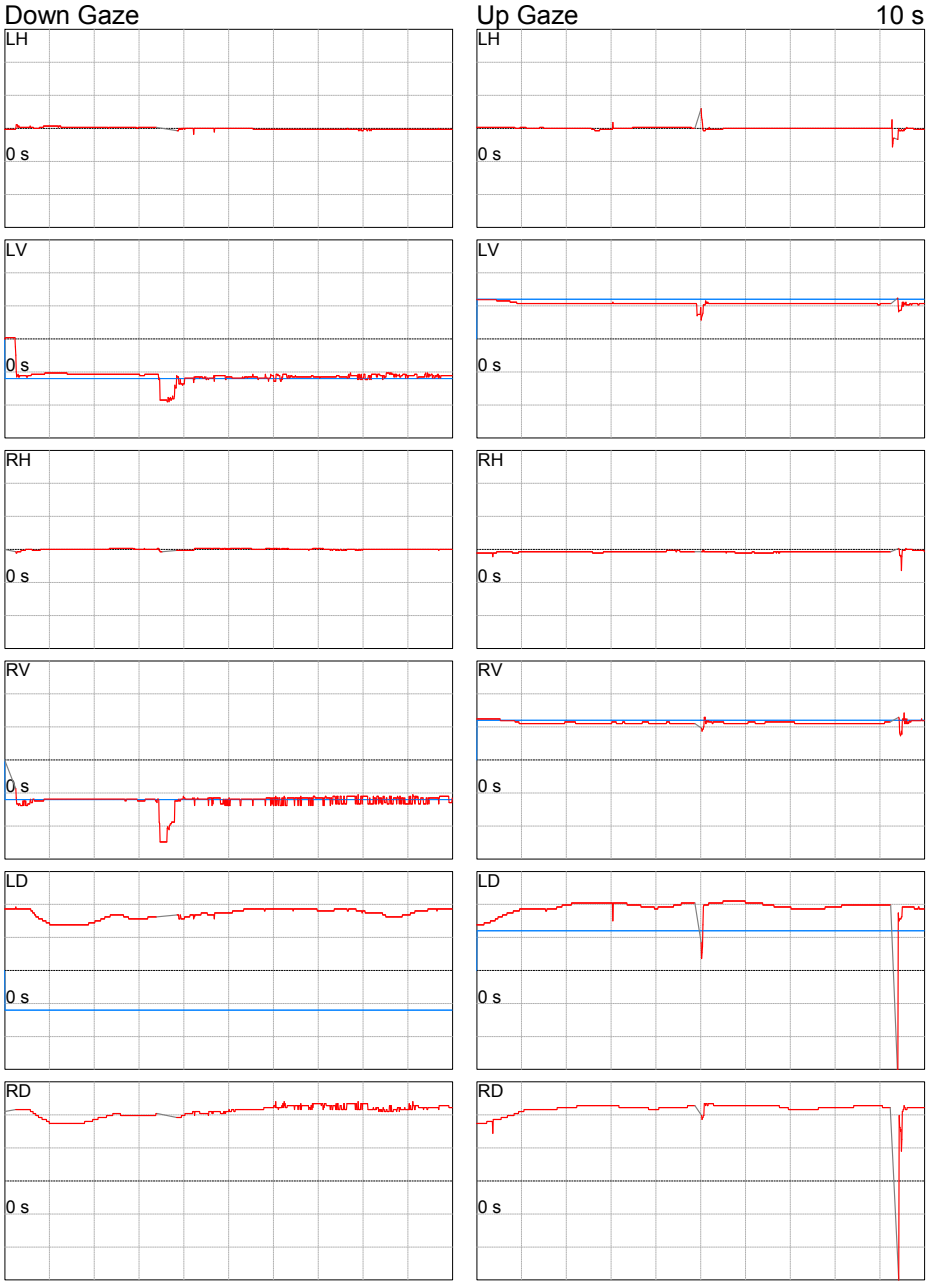
10 s



Name:	Mohammed Banat	ID:	00292	Full Test H 10 deg. V 10 deg.	Close-up 10 deg. H / V
Age:	41				
Visit Date:	07/01/2019			1 sec.	

Gaze-Vertical

Video

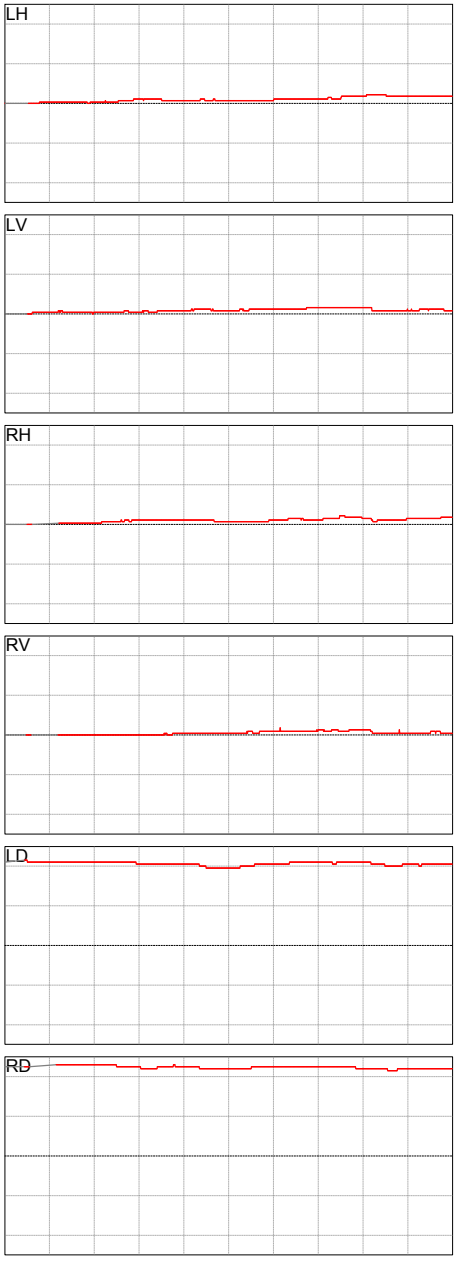


Name:	Mohammed Banat	ID:	00292	Full Test H 10 deg. V 10 deg. 1 sec.	Close-up 10 deg. H / V
Age:	41				
Visit Date:	07/01/2019				

Pupillary Light Reflex

Video

No Fixation 10 s

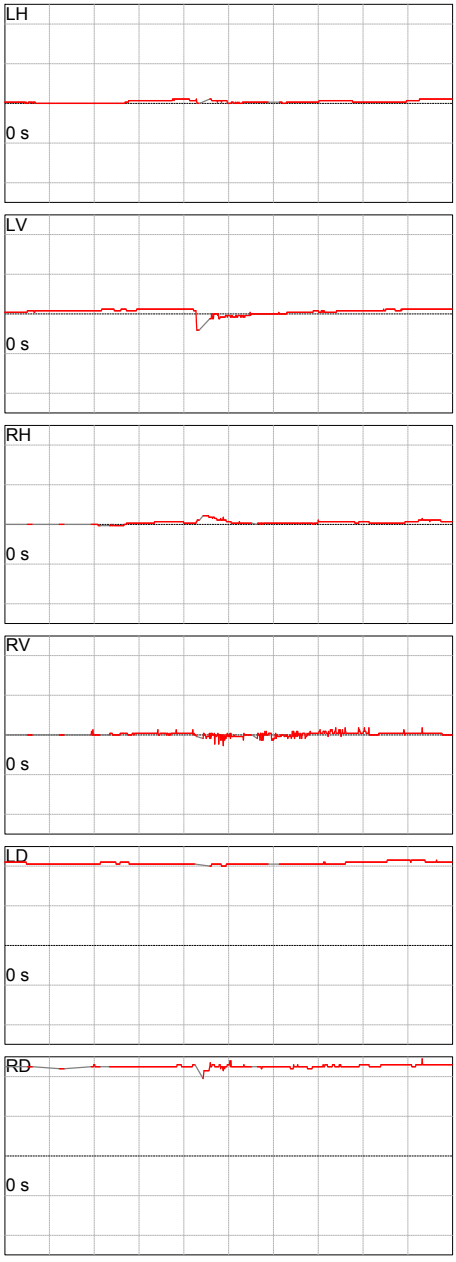


Name:	Mohammed Banat	ID:	00292	Full Test H 10 deg. V 10 deg. 1 sec.	Close-up 10 deg. H / V
Age:	41				
Visit Date:	07/01/2019				

Repeat Nystagmus Without Fixation

Video

No Fixation 10 s

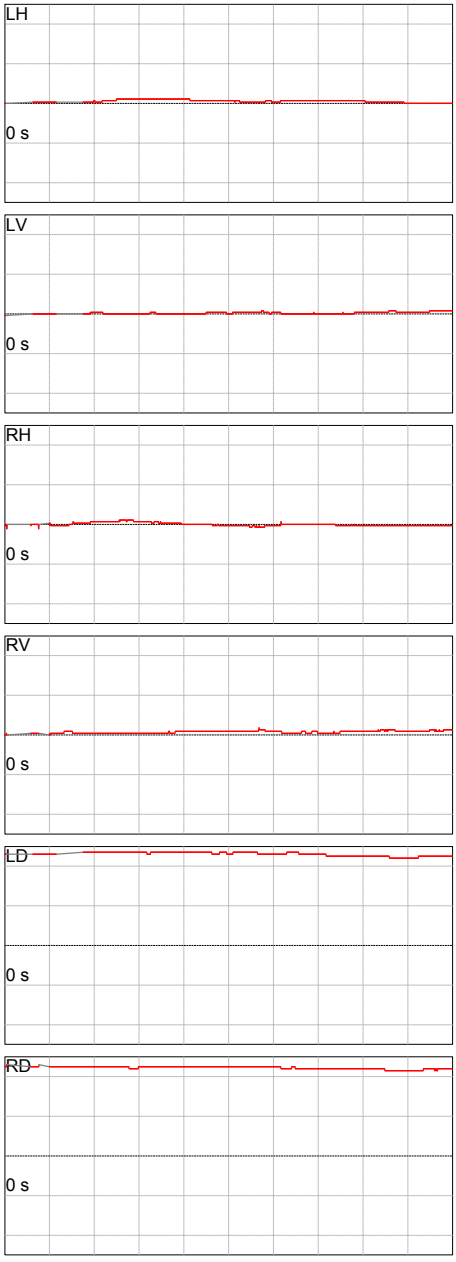


Name:	Mohammed Banat	ID:	00292	Full Test H 10 deg. V 10 deg. 1 sec.	Close-up 10 deg. H / V
Age:	41				
Visit Date:	07/01/2019				

Repeat2 Nystagmus Without Fixation

Video

No Fixation 10 s

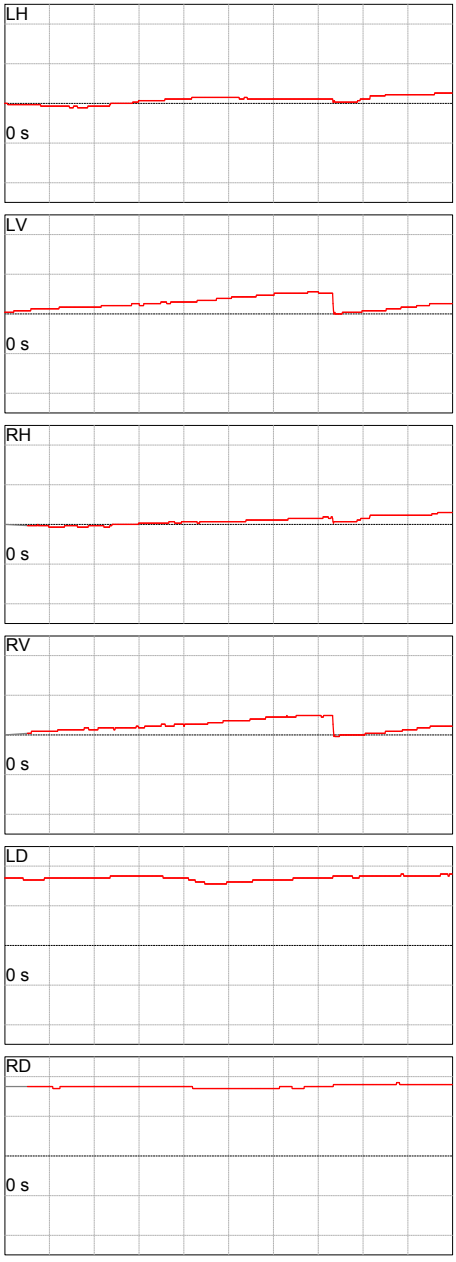


Name:	Mohammed Banat	ID:	00292	Full Test H 10 deg. V 10 deg.	Close-up 10 deg. H / V
Age:	41				
Visit Date:	07/01/2019			1 sec.	

Repeat3 Nystagmus Without Fixation

Video

No Fixation 10 s

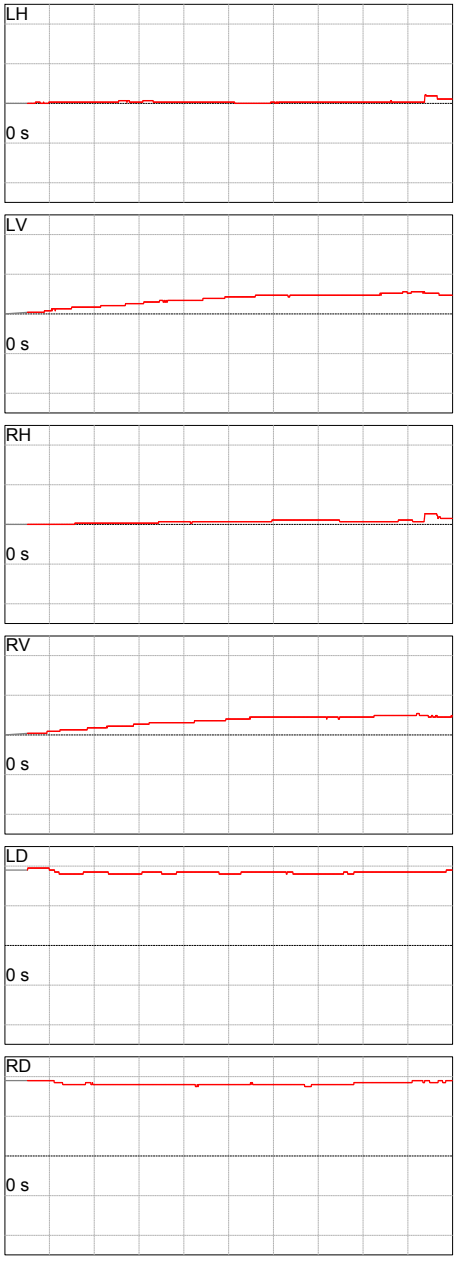


Name:	Mohammed Banat	ID:	00292	Full Test H 10 deg. V 10 deg.	Close-up 10 deg. H / V
Age:	41				
Visit Date:	07/01/2019			1 sec.	

Repeat4 Nystagmus Without Fixation

Video

No Fixation 10 s



Name:	Mohammed Banat	ID:	00292	Full Test H 10 deg. V 10 deg.	Close-up 10 deg. H / V
Age:	41				
Visit Date:	07/01/2019			1 sec.	

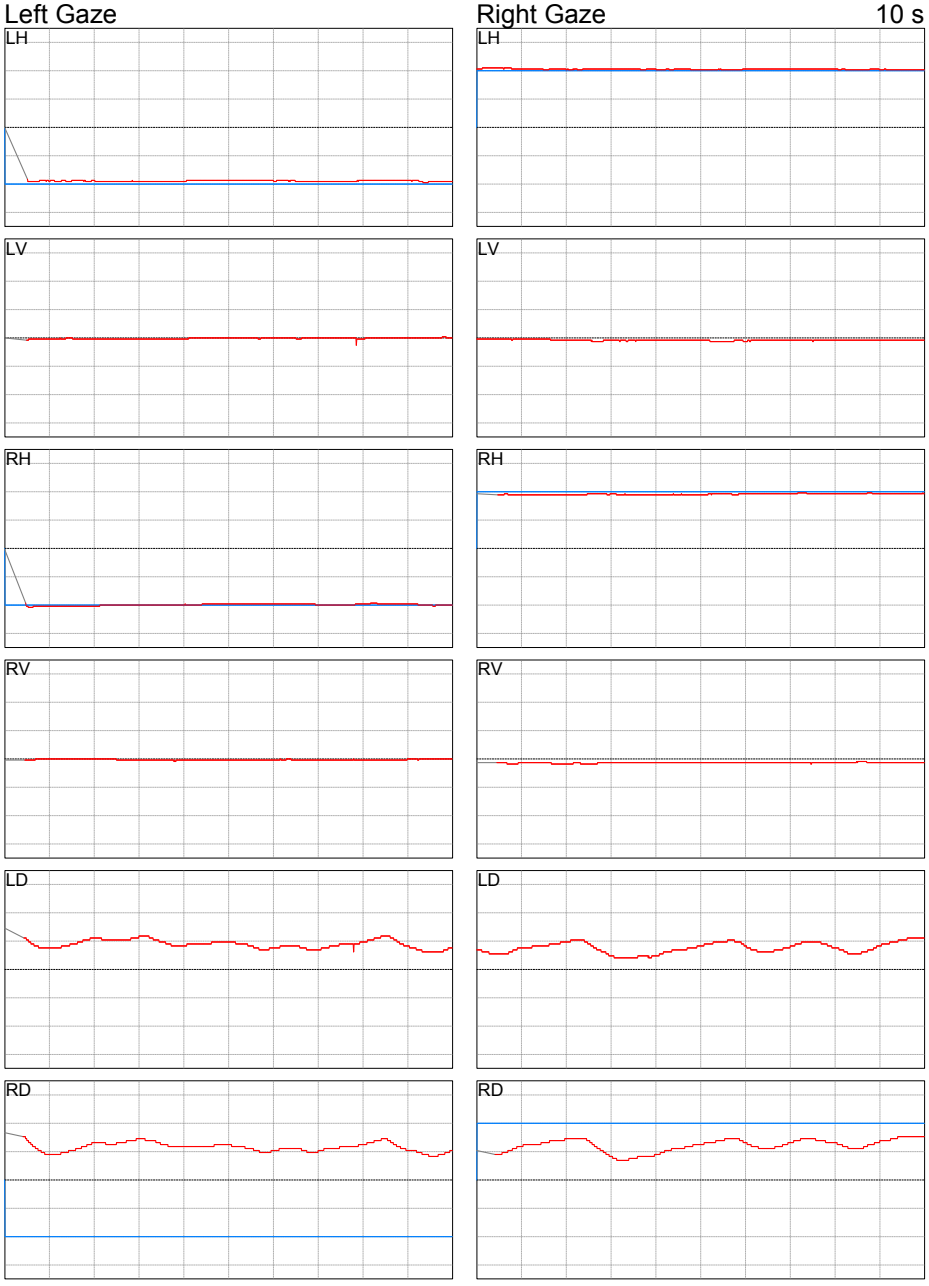
Repeat Gaze-Horizontal

Video

Left Gaze

Right Gaze

10 s



Name:	Mohammed Banat	ID:	00292	Full Test H 10 deg. V 10 deg. 1 sec.	Close-up 10 deg. H / V
Age:	41				
Visit Date:	07/01/2019				

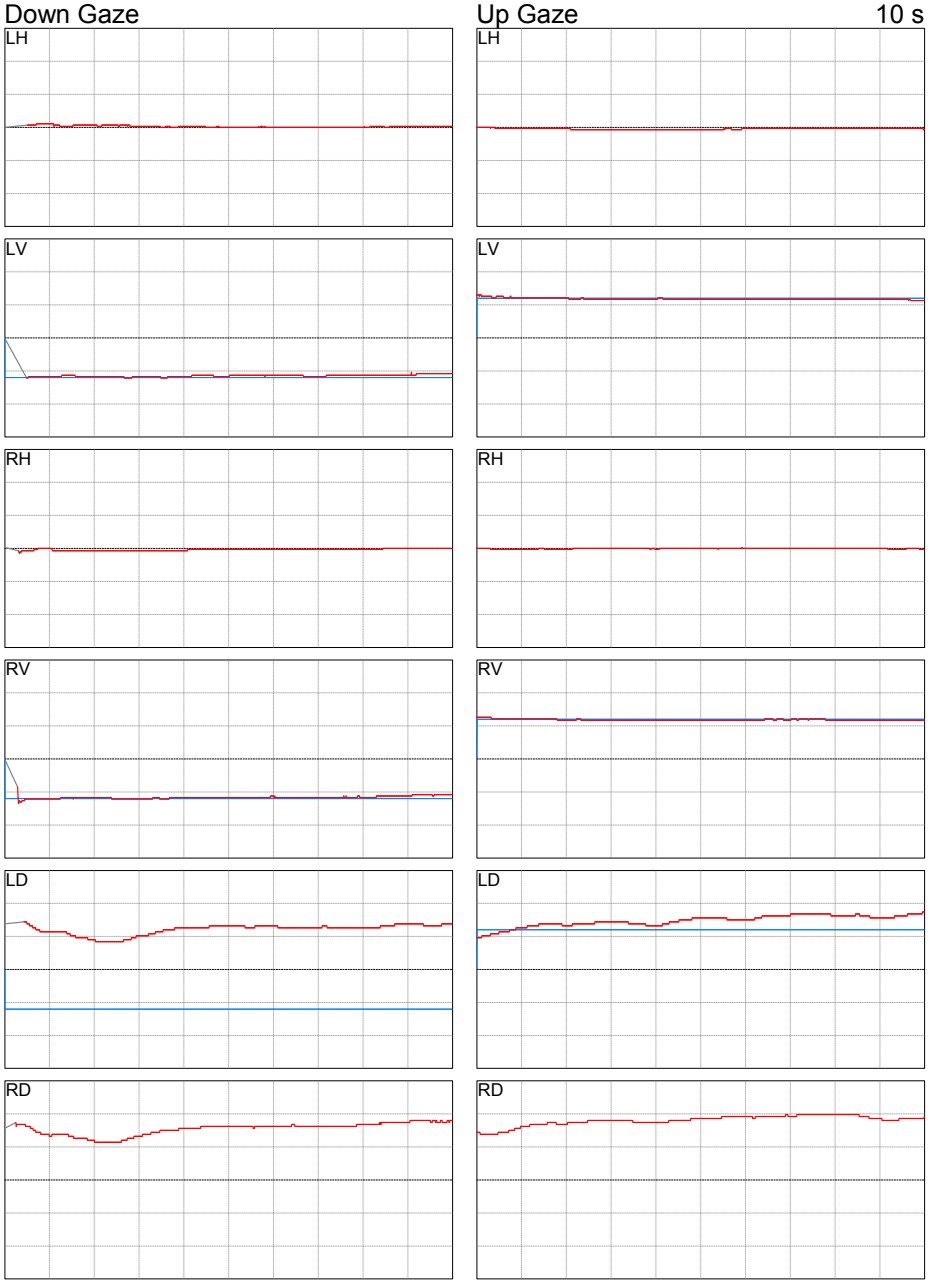
Repeat Gaze-Vertical

Video

Down Gaze

Up Gaze

10 s

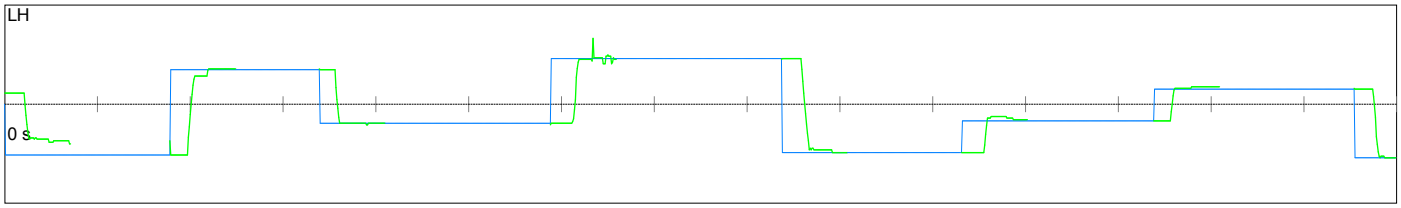


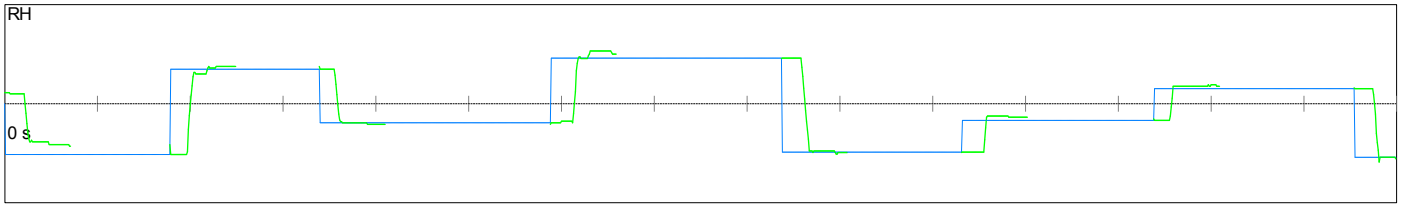
Name:	Mohammed Banat	ID:	00292
Age:	41	Visit Date:	07/01/2019

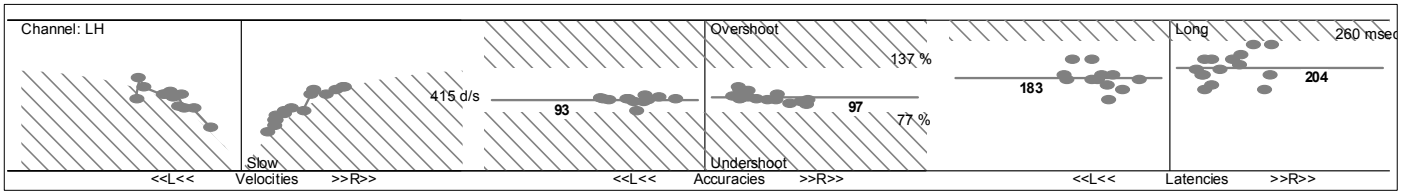
Saccade-Horizontal

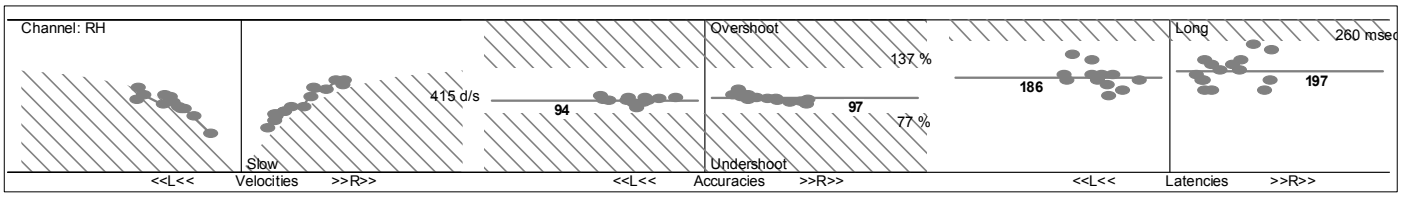
Video

Random 15 s





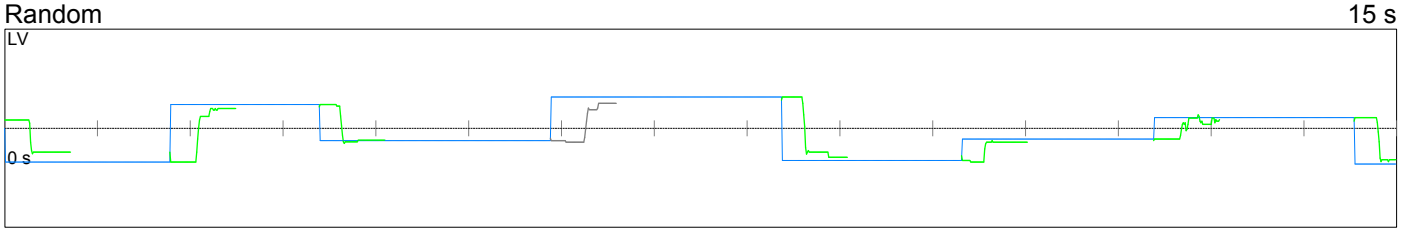


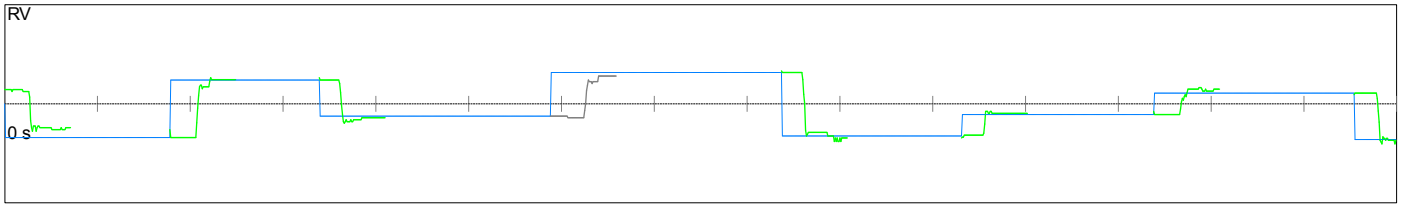


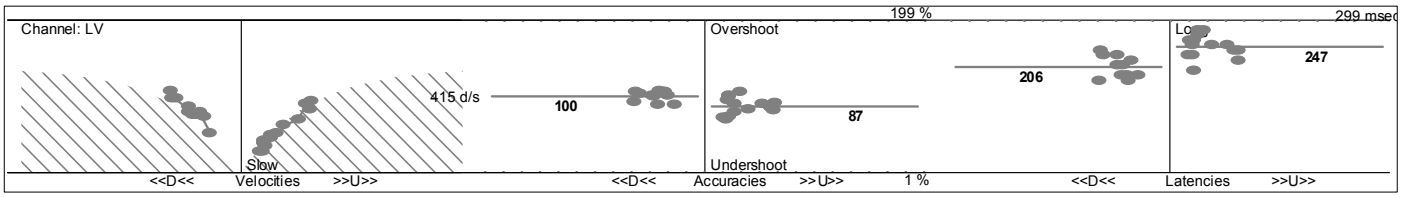
Saccade-Vertical

Video

Random 15 s





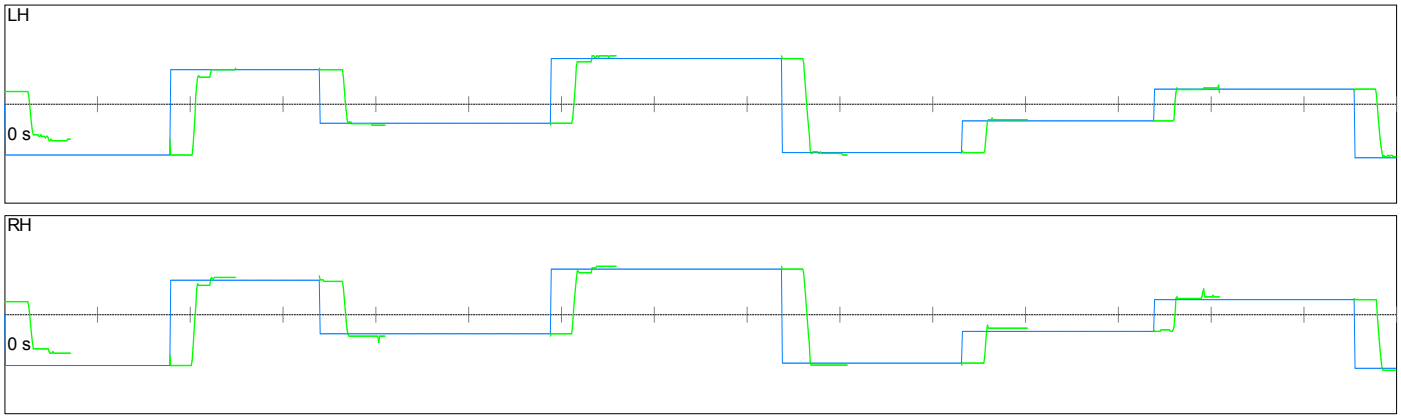


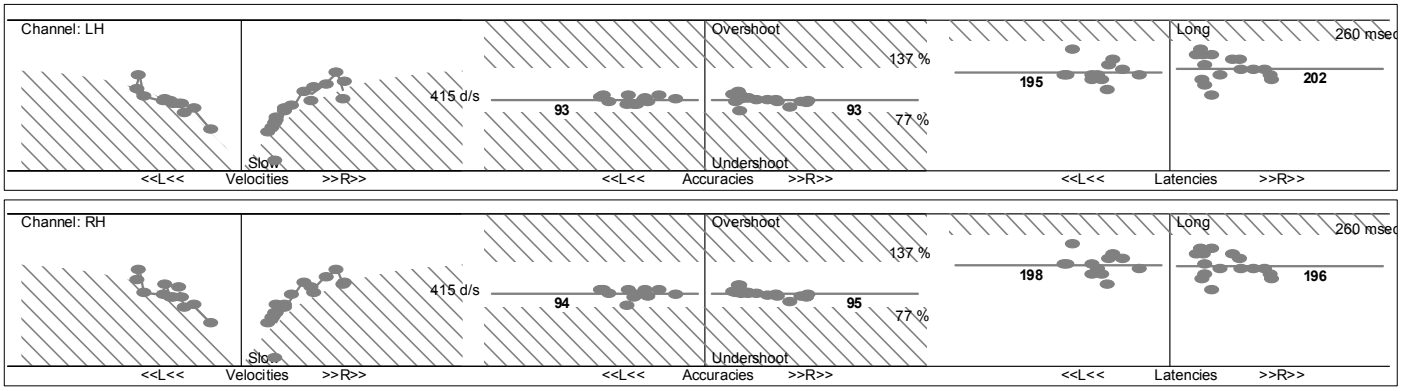
Name:	Mohammed Banat	ID:	00292
Age:	41	Visit Date:	07/01/2019

Repeat Saccade-Horizontal

Video

Random 15 s

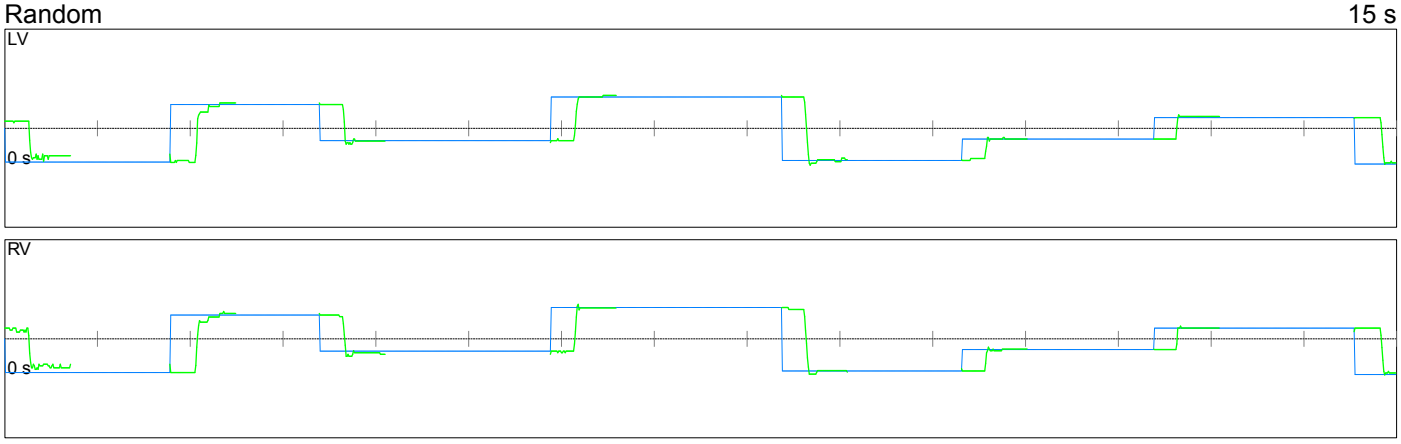


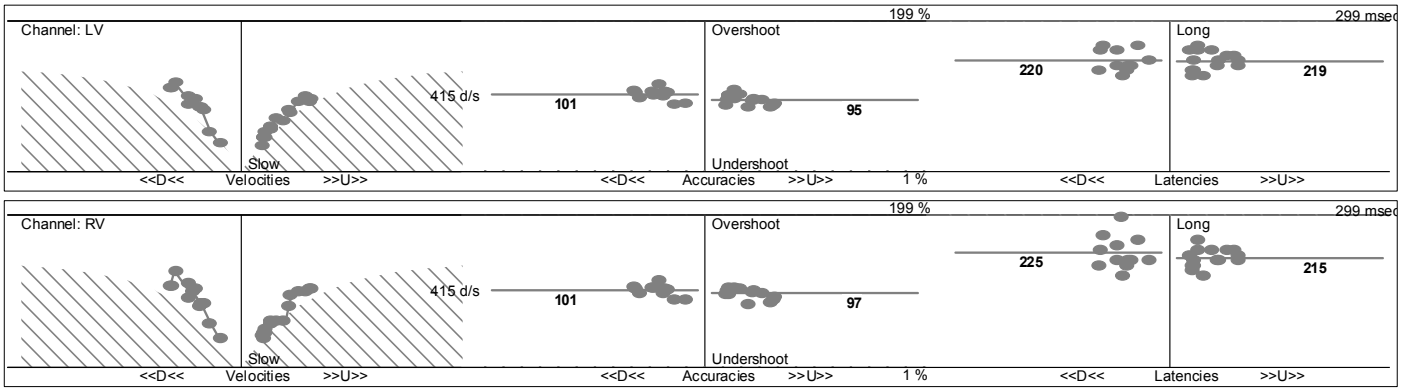


Repeat Saccade-Vertical

Video

Random 15 s



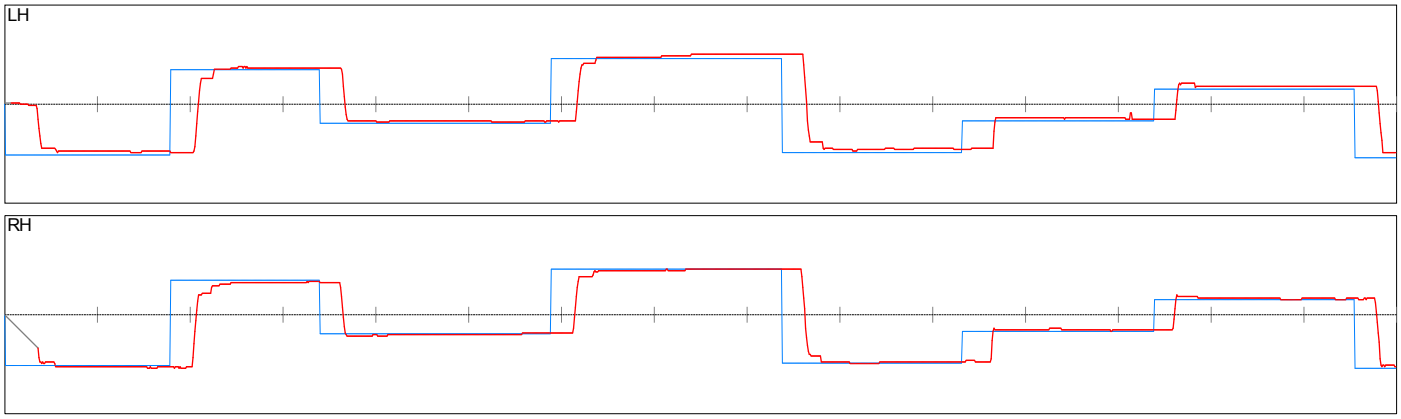


Name:	Mohammed Banat	ID:	00292
Age:	41	Visit Date:	07/01/2019

Repeat2 Saccade-Horizontal

Video

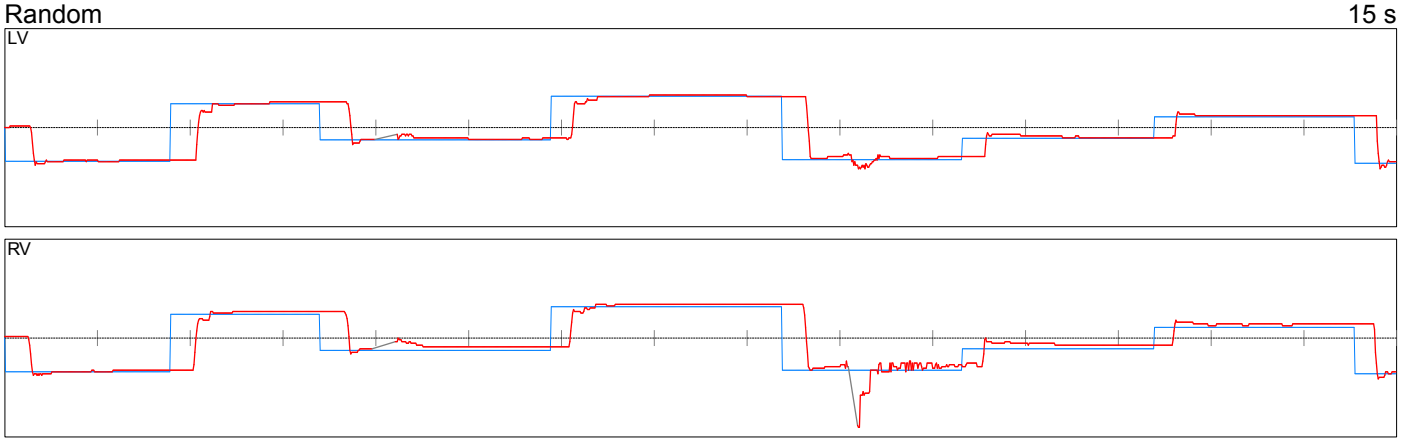
Random 15 s



Repeat2 Saccade-Vertical

Video

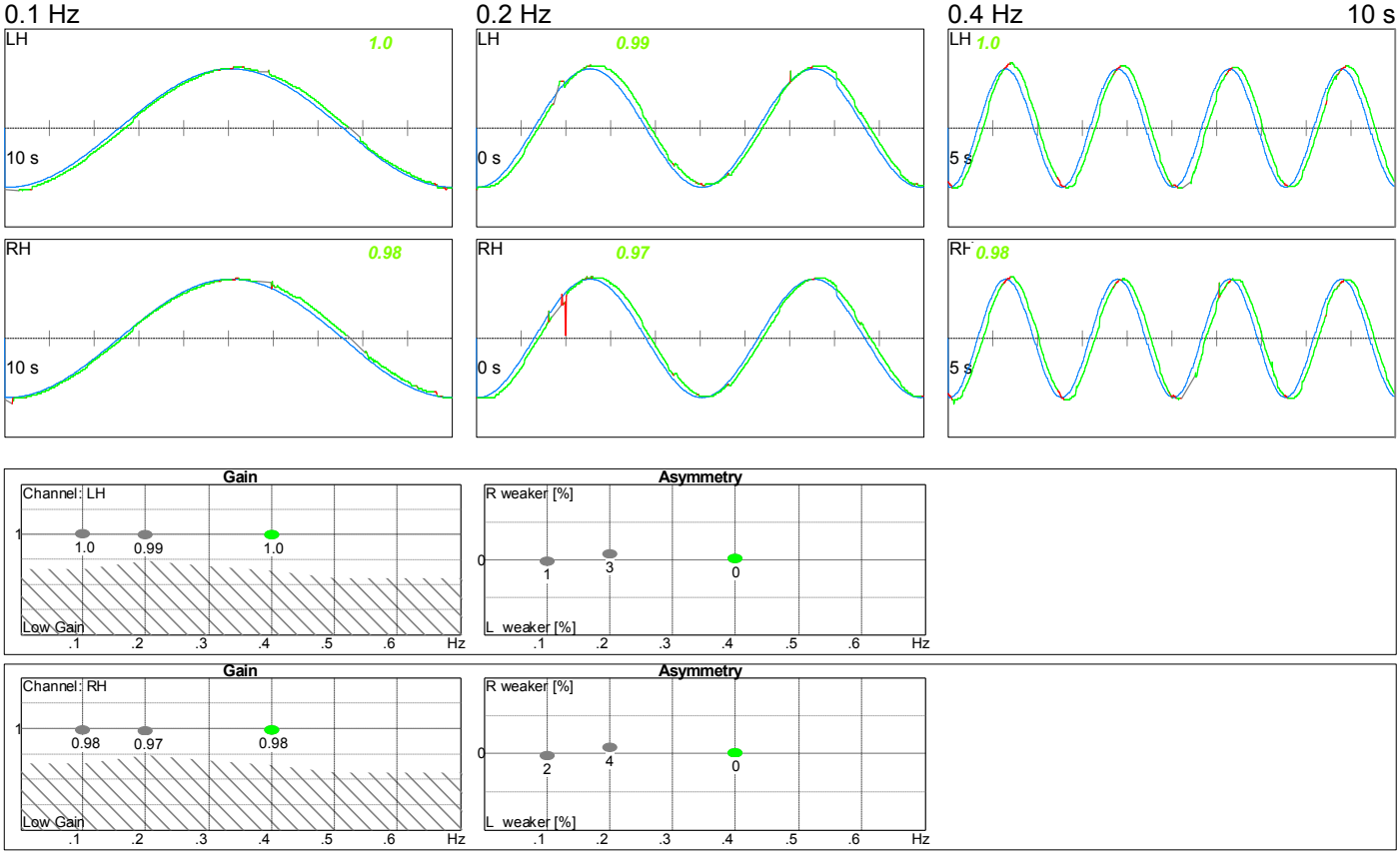
Random 15 s



Name:	Mohammed Banat	ID:	00292
Age:	41	Visit Date:	07/01/2019

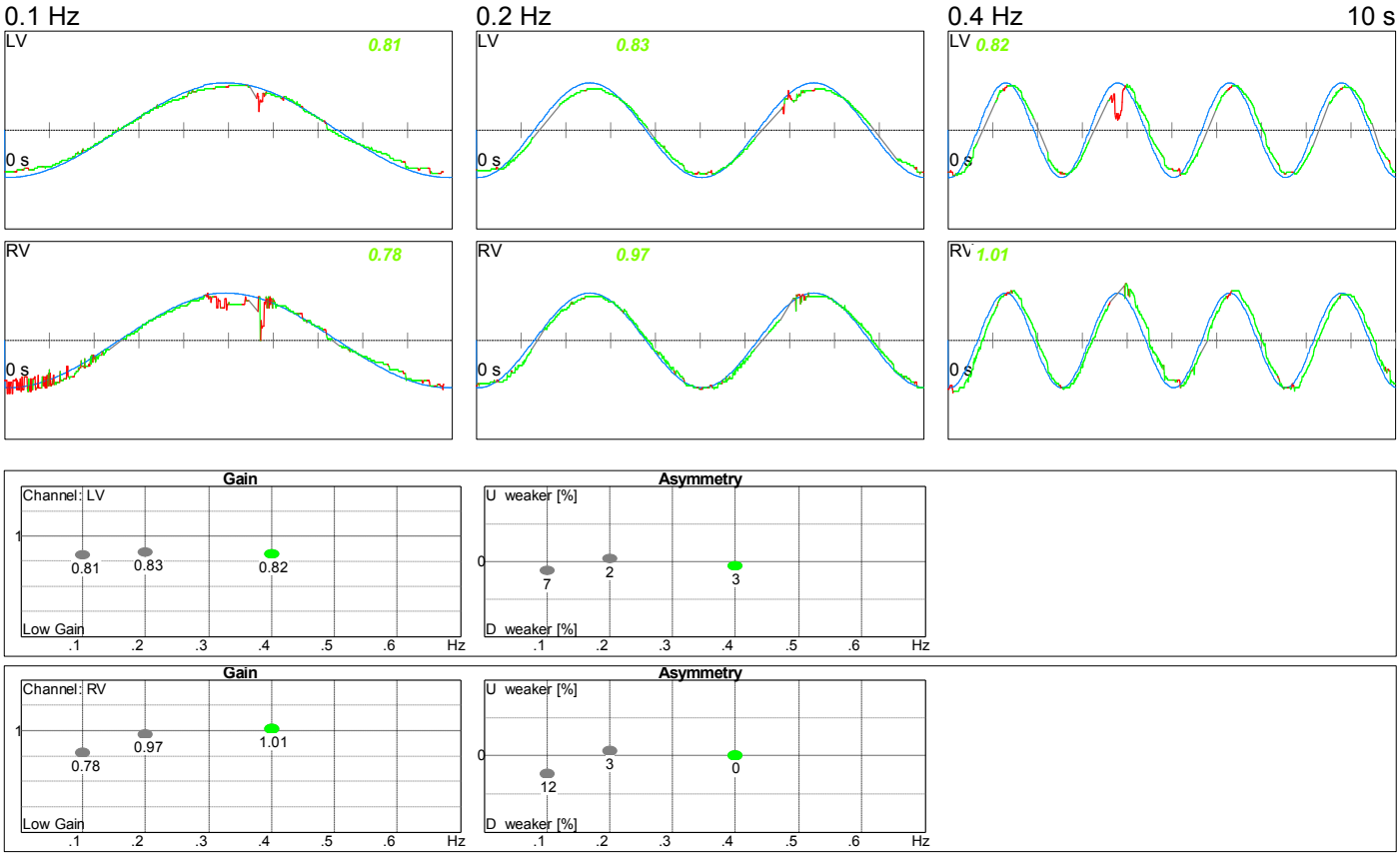
Pursuit-Horizontal

Video



Pursuit-Vertical

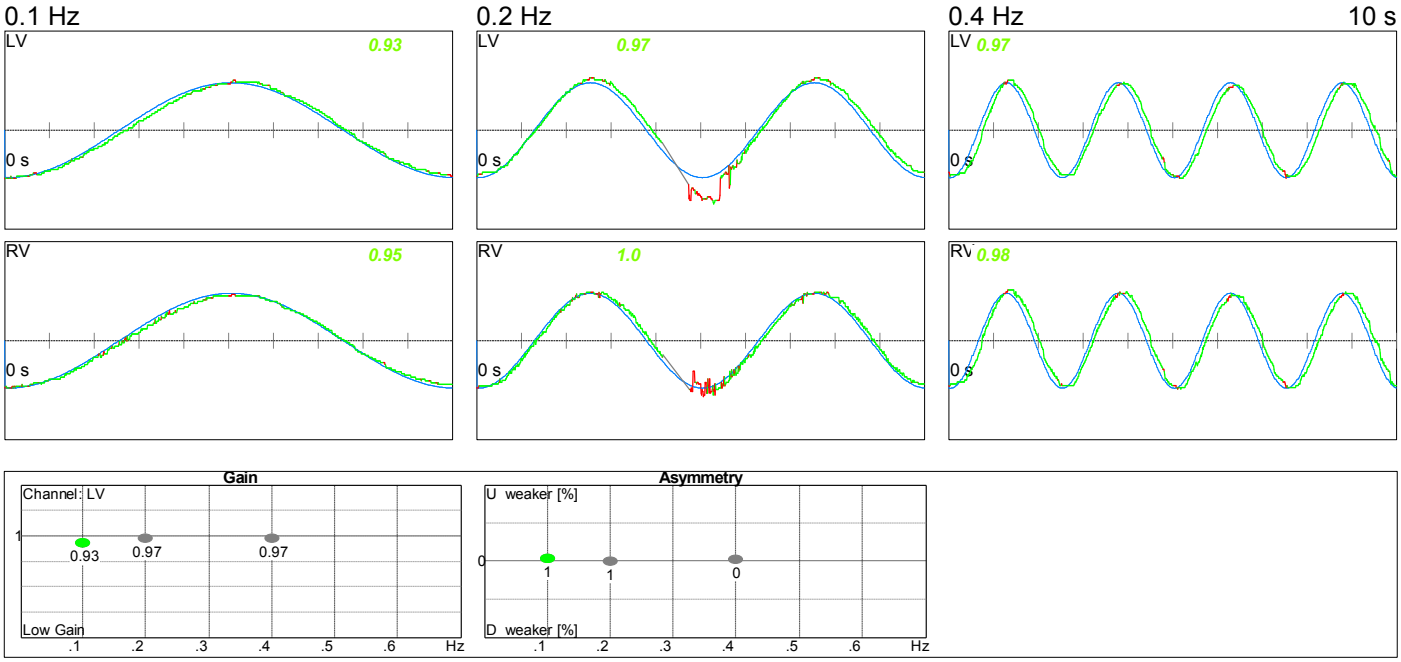
Video



Name:	Mohammed Banat	ID:	00292
Age:	41	Visit Date:	07/01/2019

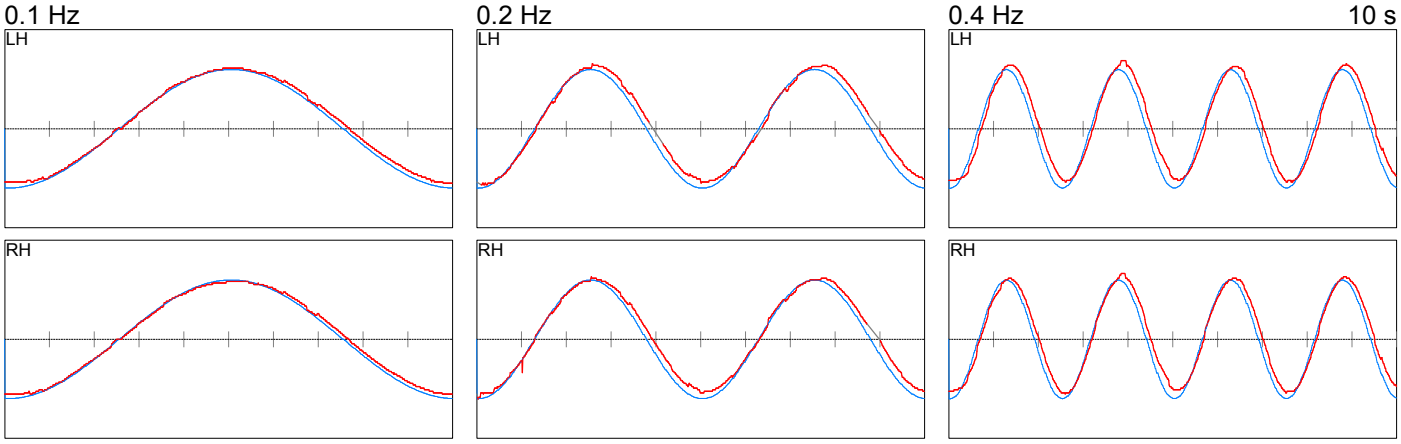
Repeat Pursuit-Vertical

Video



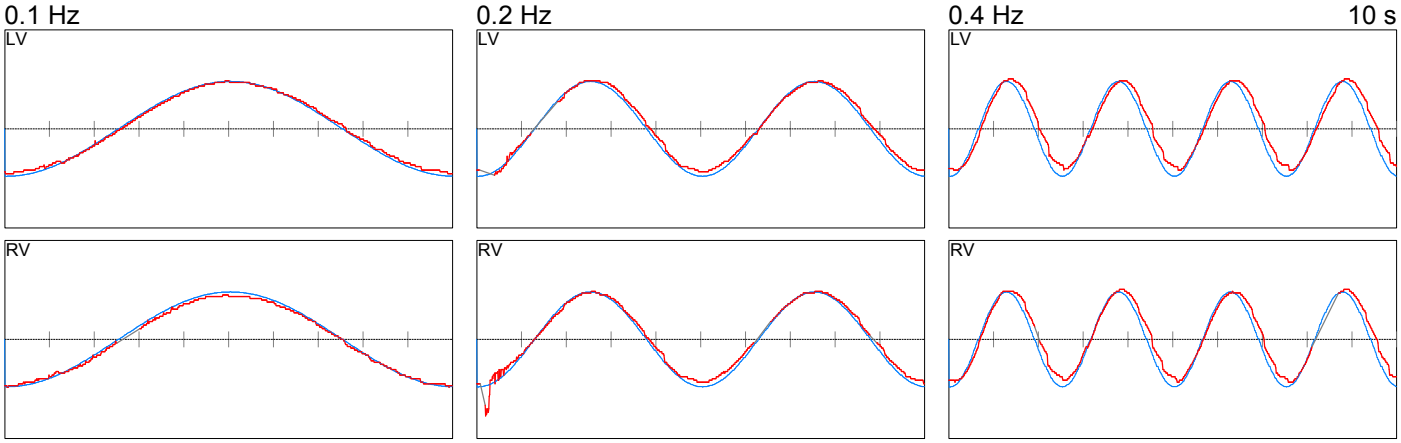
Repeat Pursuit-Horizontal

Video



Repeat2 Pursuit-Vertical

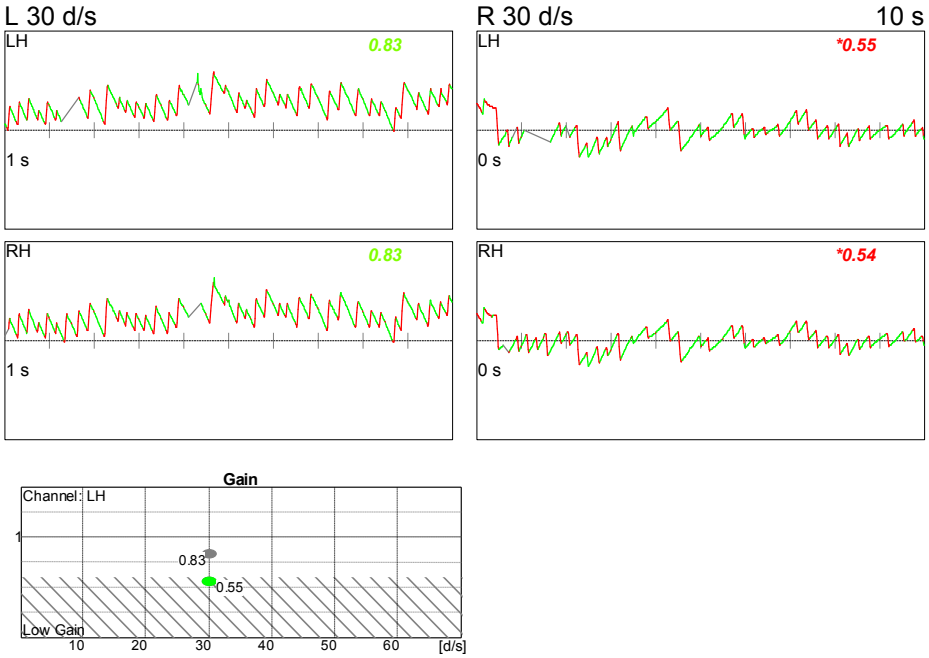
Video



Name:	Mohammed Banat	ID:	00292
Age:	41	Visit Date:	07/01/2019

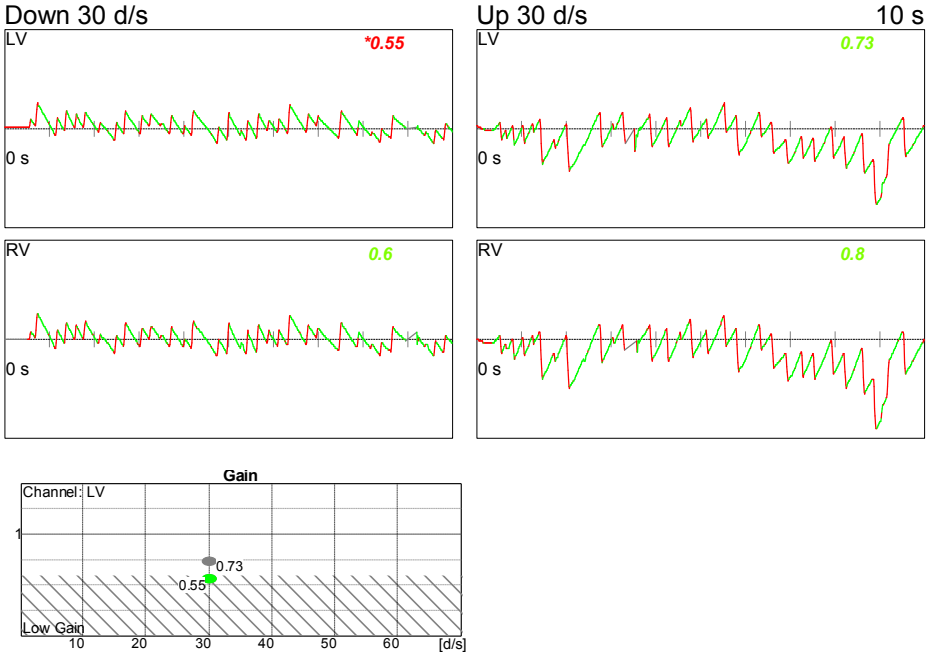
OPK-Horizontal

Video



OPK-Vertical

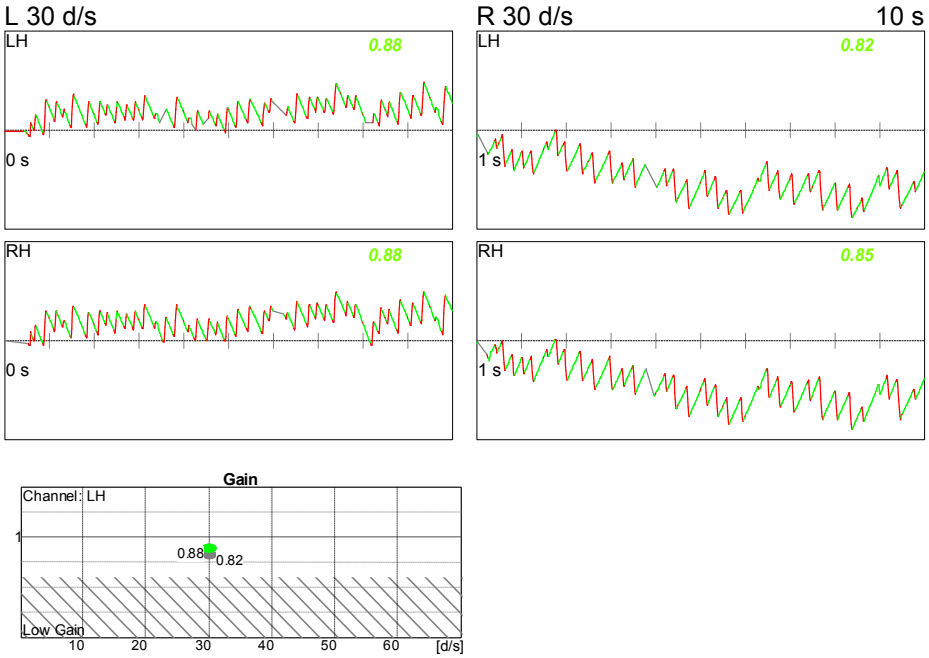
Video



Name:	Mohammed Banat	ID:	00292
Age:	41	Visit Date:	07/01/2019

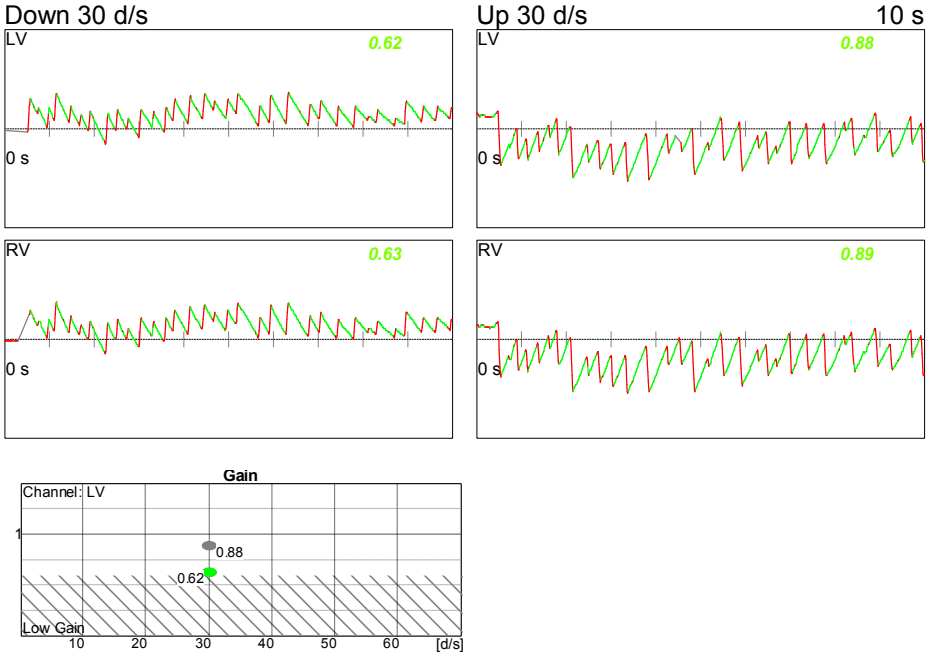
Repeat OPK-Horizontal

Video



Repeat OPK-Vertical

Video



Name:	Mohammed Banat	ID:	00292
Age:	41	Visit Date:	07/01/2019

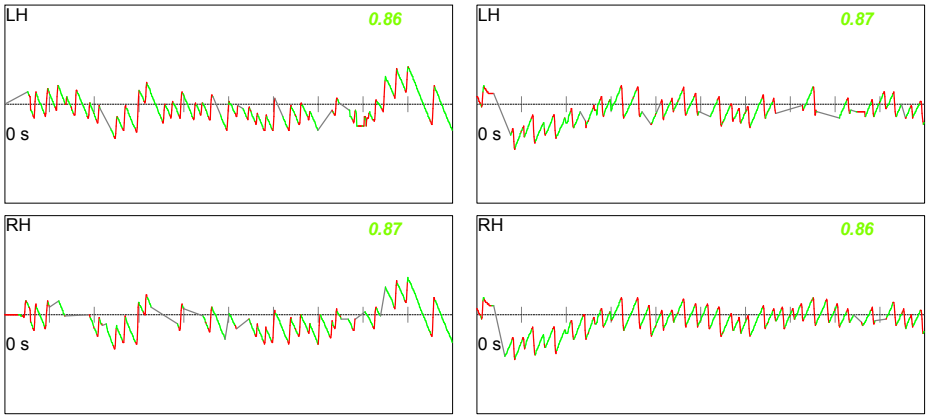
Repeat2 OPK-Horizontal

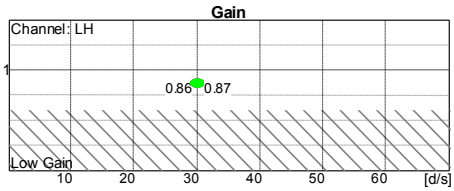
Video

L 30 d/s

R 30 d/s

10 s





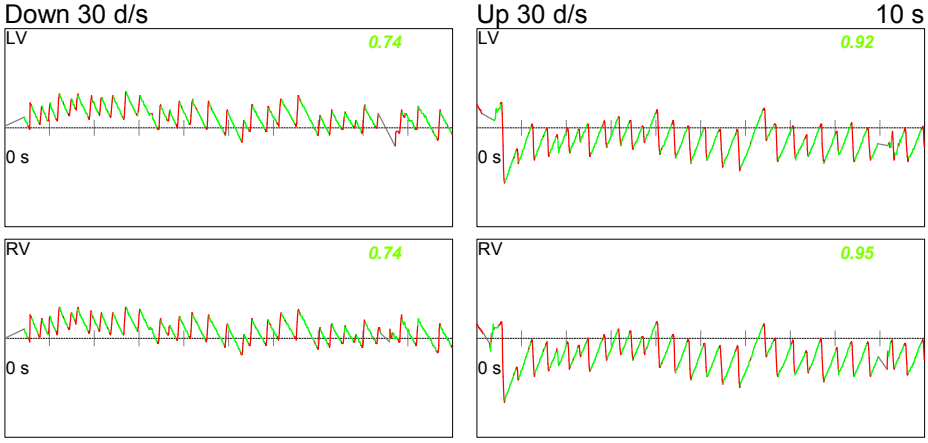
Repeat2 OPK-Vertical

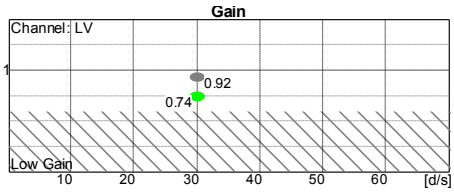
Video

Down 30 d/s

Up 30 d/s

10 s

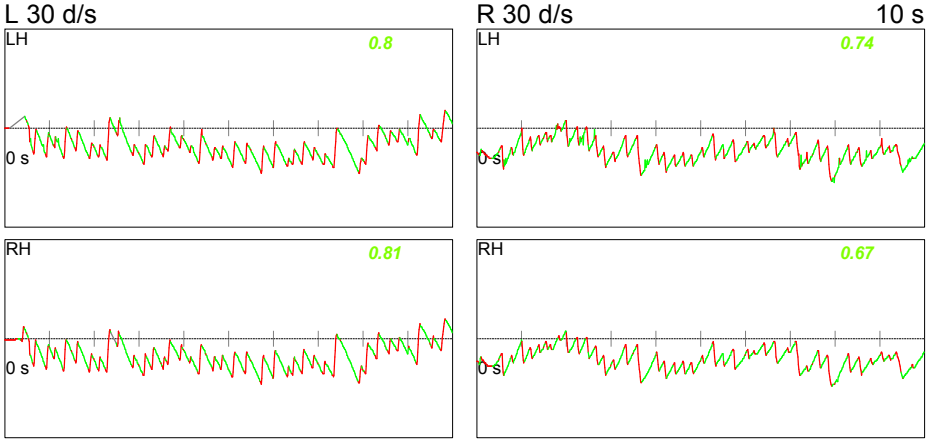


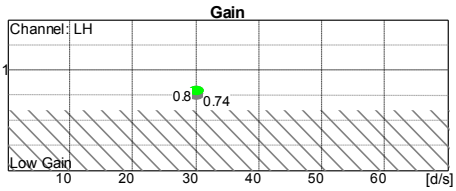


Name:	Mohammed Banat	ID:	00292
Age:	41	Visit Date:	07/01/2019

Repeat3 OPK-Horizontal

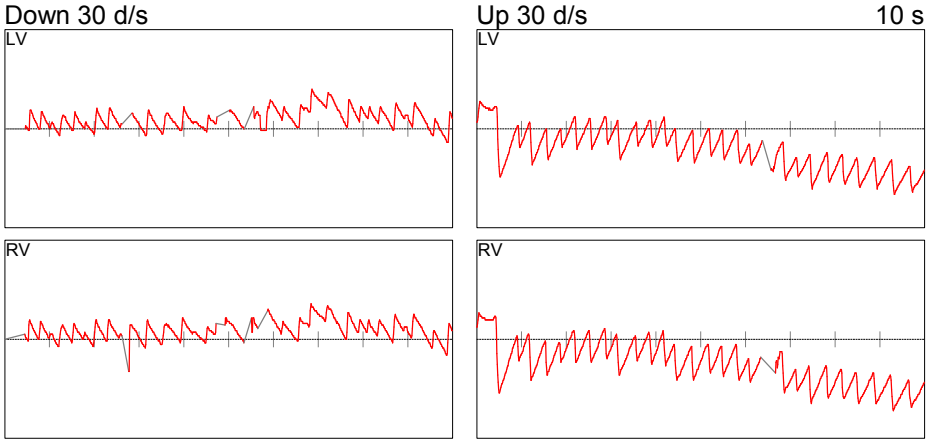
Video





Repeat3 OPK-Vertical

Video



VESTIBULAR technologies

CAPS EQ™

Wednesday, August 07, 2019

FOR THE PHYSICIAN OF:

Name: Banat, Mohammed
Gender: Male
Internal ID: 00292
Date of Birth: 1/27/1978
Notes:

Table of Contents

Description

Using highly sensitive posturography equipment that incorporates a patented process (U.S. Patent 7,163,516), age-based reference values validated by independent medical studies, and independently obtained, peer-reviewed reference studies and data, your patient was screened for evidence of a balance impairing condition and accompanying risk of falling, as recommended by the CMS, JCAHO, NSC and the Clinical Practice Guideline concerning the routine identification and assessment of falls-risk patients.
The actual test protocol employed was a computerized, extremely accurate version of the universally recognized mCTSIB test battery, a widely used process that can reveal the existence of impaired visual, vestibular or somatosensory input, or neuromuscular weakness in patients with abnormal balance. The test data can help you determine the need for further assessment, testing and treatment.
The tests can also establish definitive baselines, making it possible to more effectively monitor treatment progress and to objectively document treatment outcomes.

Comments

The accompanying pages contain the results of a CAPS™ EQ balance test/falls-risk screening that we administered to your patient. Your patient was provided with a similar report and encouraged to discuss it with you at his/her earliest opportunity.

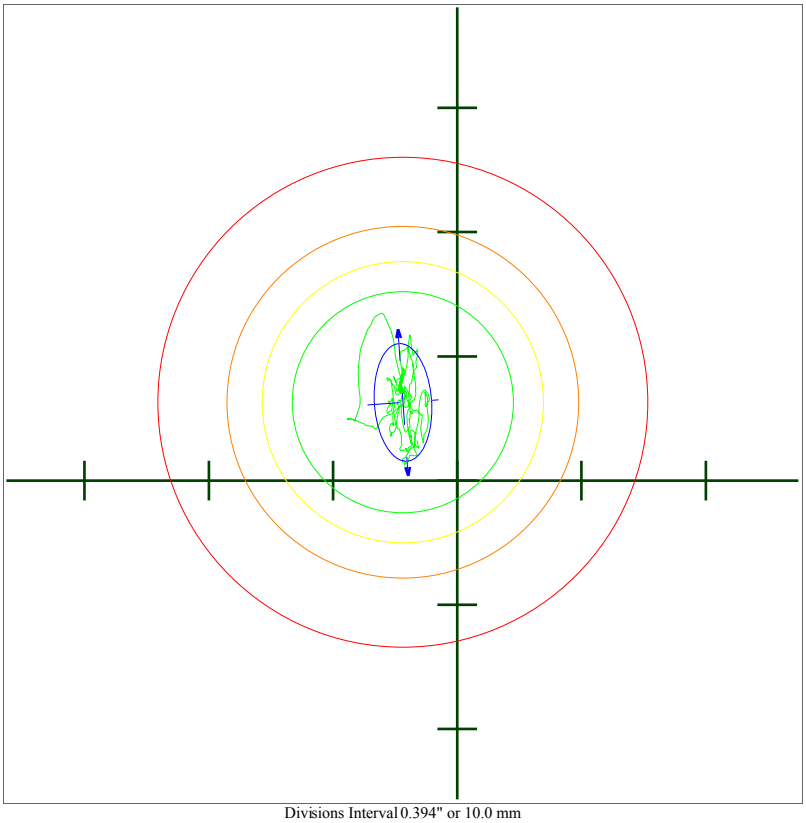
James L. Duffy, D.C.
Innova Brain Rehabilitation
200 Cobb Parkway, Suite 128
Marietta, GA 30062
Ph: (404) 485-6554 - Fax: (770) 679-2731 - Email: jduffy@innovabrain.com

VESTIBULAR technologies

Subject's Name: Banat, Mohammed - ID: 00292
41 Years Old Male
Wednesday, August 07, 2019

CAPS EQ™

Computerized Posturography Results



Divisions Interval 0.394" or 10.0 mm

Test Name	NPEOHN
Test Type	NSEO
Test Date	7/1/2019 09:35 AM
Test Parameters	19.997s @ 64.011 Hz
Samples: Total & Valid	1280 & 1280
Test Status	Completed
Sway Center [Xo, Yo]	[-0.17", 0.25"]
Max Theoretical Sway (LoS)	8.26"
ML Sway: Max & 95% Conf.	0.05" & 0.18"
AP Sway: Max & 95% Conf.	0.19" & 0.37"
95% Conf. Sway: Max & Min	0.37" & 0.18"
Actual Sway: Max & Ave	0.29" & 0.09"
Sway Velocity: Max & Ave	1.1"/s & 0.2"/s
Sway Acceler.: Max & Ave	2' 5.3"/s² & 3.8"/s²
Sway Path Length	4.28"
Area 95% Conf. Ellipse	0.053 in²
Stability Score	**95.5%**
Stability Class	**Healthy Balance**
Pred. Direction of Sway	-86.0 deg
Directionality	51%
Fatigue Ratio	0.0%
Adaptation Ratio	5.3%
Parameter p	6.9
Height	5' 9"
Weight	149 lb 2 oz
Body Mass Index	22.0
Body Mass Index Class	Normal

Stability Level:	**Healthy Balance**	Mildly Reduced	Moderately Reduced	Severely Reduced	Profoundly Reduced
Reference Values:	**>= 91.5%**	89.2-91.4%	86.5-89.1%	81.2-86.4%	<= 81.1%

Results Interpretation

According to CDC guidelines, the patient has normal weight.
According to independently obtained age-based reference values your patient has a healthy balance/stability.

Notes

According to CDC guidelines, your patient's body mass index is normal.
According to age-based reference values established by research conducted at a state university school of medicine, your patient's balance score is normal for a person of his/her age. As recommended by medical experts, we would be happy to periodically re-assess your patient's balance and risk of falling, using the CAPS™ EQ equipment with which they were tested today.

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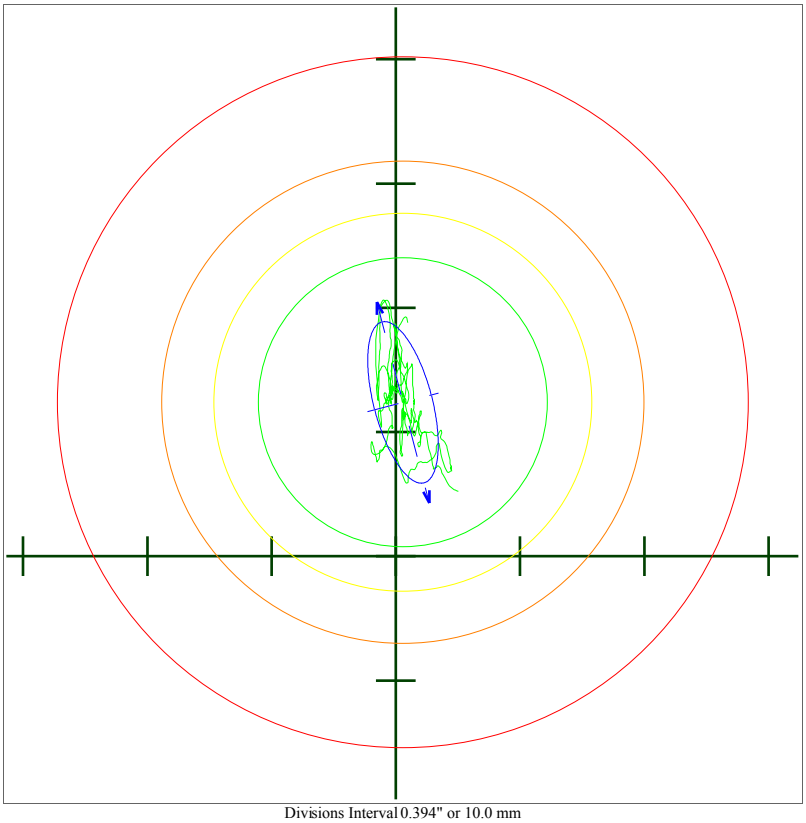
VESTIBULAR technologies

Subject's Name: Banat, Mohammed - ID: 00292
41 Years Old Male
Wednesday, August 07, 2019

CAPS EQ™

Computerized Posturography Results



Divisions Interval 0.394" or 10.0 mm

Test Name	NPECHN
Test Type	NSEC
Test Date	7/1/2019 09:35 AM
Test Parameters	19.997s @ 64.011 Hz
Samples: Total & Valid	1280 & 1280
Test Status	Completed
Sway Center [Xo, Yo]	[0.02", 0.49"]
Max Theoretical Sway (LoS)	8.26"
ML Sway: Max & 95% Conf.	0.16" & 0.22"
AP Sway: Max & 95% Conf.	0.52" & 0.51"
95% Conf. Sway: Max & Min	0.53" & 0.19"
Actual Sway: Max & Ave	0.33" & 0.12"
Sway Velocity: Max & Ave	2.2"/s & 0.3"/s
Sway Acceler.: Max & Ave	2' 1.8"/s² & 4.5"/s²
Sway Path Length	5.88"
Area 95% Conf. Ellipse	0.077 in²
Stability Score	**93.6%**
Stability Class	**Healthy Balance**
Pred. Direction of Sway	-75.4 deg
Directionality	65%
Fatigue Ratio	0.0%
Adaptation Ratio	29.8%
Parameter p	5.8
Height	5' 9"
Weight	149 lb 5 oz
Body Mass Index	22.0
Body Mass Index Class	Normal

Stability Level:	**Healthy Balance**	Mildly Reduced	Moderately Reduced	Severely Reduced	Profoundly Reduced
Reference Values:	**>= 88.9%**	85.5-88.8%	81.5-85.4%	73.5-81.4%	<= 73.4%

Results Interpretation

According to CDC guidelines, the patient has normal weight.
According to independently obtained age-based reference values your patient has a healthy balance/stability.

Notes

According to CDC guidelines, your patient's body mass index is normal.
According to age-based reference values established by research conducted at a state university school of medicine, your patient's balance score is normal for a person of his/her age. As recommended by medical experts, we would be happy to periodically re-assess your patient's balance and risk of falling, using the CAPS™ EQ equipment with which they were tested today.

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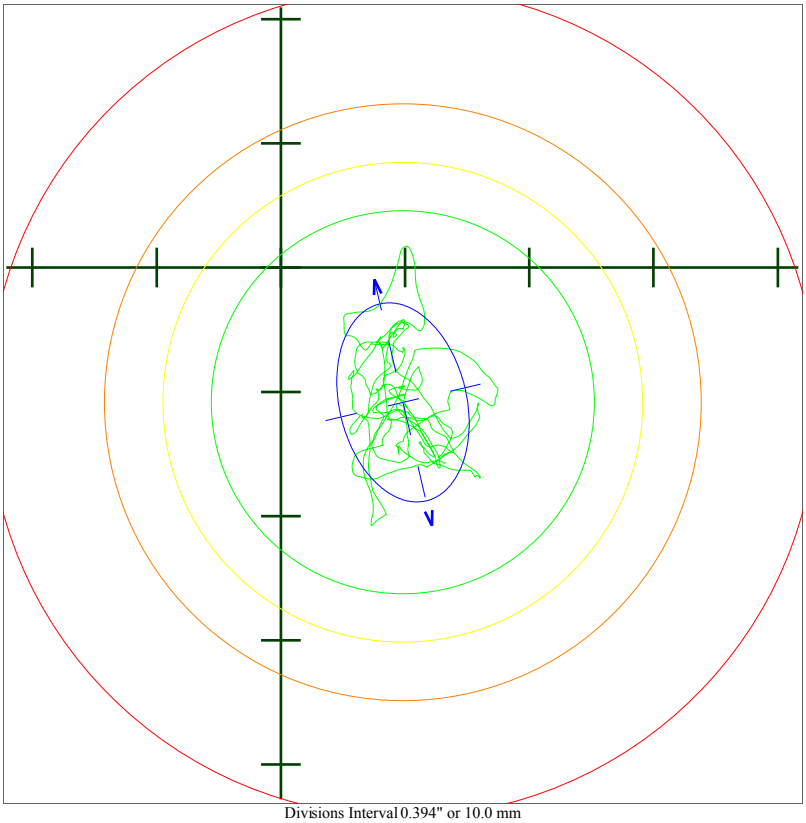
VESTIBULAR technologies

Subject's Name: Banat, Mohammed - ID: 00292
41 Years Old Male
Wednesday, August 07, 2019

CAPS EQ™

Computerized Posturography Results



Test Name	PEOHN
Test Type	PSEO
Test Date	7/1/2019 09:39 AM
Test Parameters	19.997s @ 64.011 Hz
Samples: Total & Valid	1280 & 1280
Test Status	Completed
Sway Center [Xo, Yo]	[0.39", -0.43"]
Max Theoretical Sway (LoS)	8.26"
ML Sway: Max & 95% Conf.	0.26" & 0.42"
AP Sway: Max & 95% Conf.	0.15" & 0.63"
95% Conf. Sway: Max & Min	0.64" & 0.40"
Actual Sway: Max & Ave	0.50" & 0.17"
Sway Velocity: Max & Ave	1.9"/s & 0.5"/s
Sway Acceler.: Max & Ave	2' 8.6"/s² & 6.8"/s²
Sway Path Length	9.78"
Area 95% Conf. Ellipse	0.203 in²
Stability Score	**92.2%**
Stability Class	**Healthy Balance**
Pred. Direction of Sway	-76.8 deg
Directionality	37%
Fatigue Ratio	33.6%
Adaptation Ratio	0.0%
Parameter p	4.7
Height	5' 9"
Weight	149 lb 6 oz
Body Mass Index	22.1
Body Mass Index Class	Normal

Stability Level:	**Healthy Balance**	Mildly Reduced	Moderately Reduced	Severely Reduced	Profoundly Reduced
Reference Values:	**>= 85.3%**	81.6-85.2%	77.1-81.5%	68.2-77.0%	<= 68.1%

Results Interpretation

According to CDC guidelines, the patient has normal weight.
According to independently obtained age-based reference values your patient has a healthy balance/stability.

Notes

According to CDC guidelines, your patient's body mass index is normal.
According to age-based reference values established by research conducted at a state university school of medicine, your patient's balance score is normal for a person of his/her age. As recommended by medical experts, we would be happy to periodically re-assess your patient's balance and risk of falling, using the CAPS™ EQ equipment with which they were tested today.

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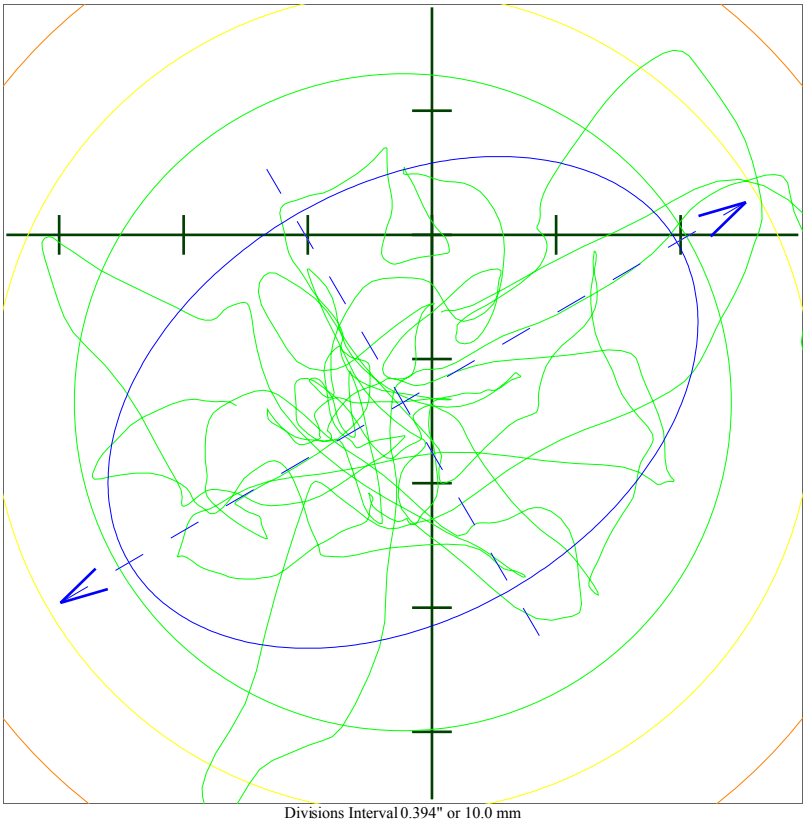
CAPS EQ™

Computerized Posturography Results



Divisions Interval 0.394" or 10.0 mm

Test Name	PECHN
Test Type	PSEC
Test Date	7/1/2019 09:40 AM
Test Parameters	19.997s @ 64.011 Hz
Samples: Total & Valid	1280 & 1280
Test Status	Completed
Sway Center [Xo, Yo]	[-0.09", -0.53"]
Max Theoretical Sway (LoS)	8.26"
ML Sway: Max & 95% Conf.	0.64" & 1.87"
AP Sway: Max & 95% Conf.	0.32" & 1.56"
95% Conf. Sway: Max & Min	2.01" & 1.37"
Actual Sway: Max & Ave	1.56" & 0.52"
Sway Velocity: Max & Ave	9.0"/s & 2.0"/s
Sway Acceler.: Max & Ave	15' 0.4"/s² & 2' 3.7"/s²
Sway Path Length	3' 4.53"
Area 95% Conf. Ellipse	2.164 in²
Stability Score	**75.7%**
Stability Class	**Healthy Balance**
Pred. Direction of Sway	30.3 deg
Directionality	32%
Fatigue Ratio	32.0%
Adaptation Ratio	0.0%
Parameter p	3.5
Height	5' 9"
Weight	149 lb 6 oz
Body Mass Index	22.1
Body Mass Index Class	Normal

Stability Level:	**Healthy Balance**	Mildly Reduced	Moderately Reduced	Severely Reduced	Profoundly Reduced
Reference Values:	**>= 74.8%**	68.5-74.7%	60.9-68.4%	45.9-60.8%	<= 45.8%

Results Interpretation

According to CDC guidelines, the patient has normal weight.
According to independently obtained age-based reference values your patient has a healthy balance/stability.

Notes

According to CDC guidelines, your patient's body mass index is normal.
According to age-based reference values established by research conducted at a state university school of medicine, your patient's balance score is normal for a person of his/her age. As recommended by medical experts, we would be happy to periodically re-assess your patient's balance and risk of falling, using the CAPS™ EQ equipment with which they were tested today.

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VESTIBULAR technologies

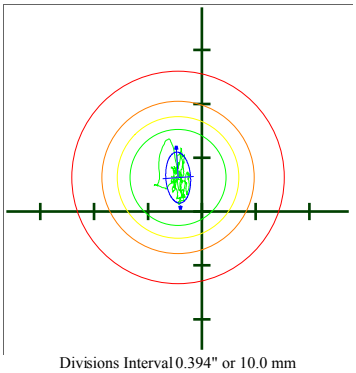
CAPS EQ™

Subject's Name: Banat, Mohammed - ID: 00292
41 Years Old Male
Wednesday, August 07, 2019

Computerized Posturography Results Comparison

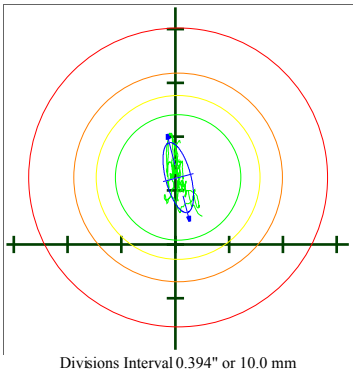
	Test 1	Test 2	Test 3	Test 4
Test Name	NPEOHN	NPECHN	PEOHN	PECHN
Test Type	NSEO	NSEC	PSEO	PSEC
Test Date	7/1/2019 09:35 AM	7/1/2019 09:35 AM	7/1/2019 09:39 AM	7/1/2019 09:40 AM
Test Parameters	19.997s @ 64.011 Hz	19.997s @ 64.011 Hz	19.997s @ 64.011 Hz	19.997s @ 64.011 Hz
Samples: Total & Valid	1280 & 1280	1280 & 1280	1280 & 1280	1280 & 1280
Test Status	Completed	Completed	Completed	Completed
Sway Center [Xo, Yo]	[-0.17", 0.25"]	[0.02", 0.49"]	[0.39", -0.43"]	[-0.09", -0.53"]
Max Theoretical Sway (LoS)	8.26"	8.26"	8.26"	8.26"
ML Sway: Max & 95% Conf.	0.05" & 0.18"	0.16" & 0.22"	0.26" & 0.42"	0.64" & 1.87"
AP Sway: Max & 95% Conf.	0.19" & 0.37"	0.52" & 0.51"	0.15" & 0.63"	0.32" & 1.56"
95% Conf. Sway: Max & Min	0.37" & 0.18"	0.53" & 0.19"	0.64" & 0.40"	2.01" & 1.37"
Actual Sway: Max & Ave	0.29" & 0.09"	0.33" & 0.12"	0.50" & 0.17"	1.56" & 0.52"
Sway Velocity: Max & Ave	1.1"/s & 0.2"/s	2.2"/s & 0.3"/s	1.9"/s & 0.5"/s	9.0"/s & 2.0"/s
Sway Acceler.: Max & Ave	2' 5.3"/s² & 3.8"/s²	2' 1.8"/s² & 4.5"/s²	2' 8.6"/s² & 6.8"/s²	15' 0.4"/s² & 2' 3.7"/s²
Sway Path Length	4.28"	5.88"	9.78"	3' 4.53"
Area 95% Conf. Ellipse	0.053 in²	0.077 in²	0.203 in²	2.164 in²
Stability Score	**95.5%**	**93.6%**	**92.2%**	**75.7%**
Stability Class	**Healthy Balance**	**Healthy Balance**	**Healthy Balance**	**Healthy Balance**
Pred. Direction of Sway	-86.0 deg	-75.4 deg	-76.8 deg	30.3 deg
Directionality	51%	65%	37%	32%
Fatigue Ratio	0.0%	0.0%	33.6%	32.0%
Adaptation Ratio	5.3%	29.8%	0.0%	0.0%
Parameter p	6.9	5.8	4.7	3.5
Height	5' 9"	5' 9"	5' 9"	5' 9"
Weight	149 lb 2 oz	149 lb 5 oz	149 lb 6 oz	149 lb 6 oz
Body Mass Index	22.0	22.0	22.1	22.1
Body Mass Index Class	Normal	Normal	Normal	Normal

Test 1



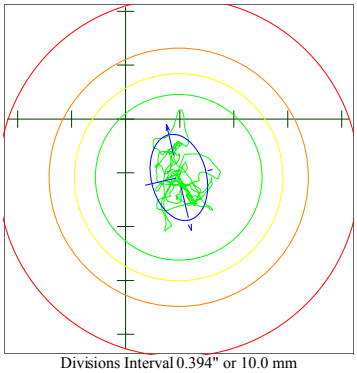
Divisions Interval 0.394" or 10.0 mm

Test 2



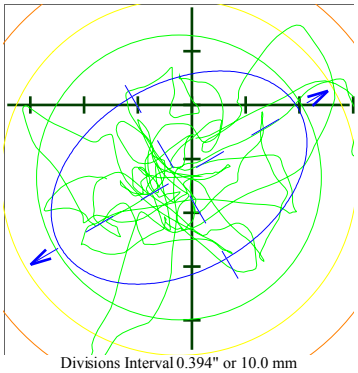
Divisions Interval 0.394" or 10.0 mm

Test 3



Divisions Interval 0.394" or 10.0 mm

Test 4



Divisions Interval 0.394" or 10.0 mm

Visual Dep. (0% = no dependency): Romberg Ratio: 2.275 Stability Ratio: 1.120

Perturb. Dep. (0% = no dependency): Romberg Ratio: 2.767 Stability Ratio: 1.136

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VESTIBULAR technologies

CAPS EQ™

Monday, August 05, 2019

FOR THE PHYSICIAN OF:

Name: Banat, Mohammed
Gender: Male
Internal ID: 00292
Date of Birth: 1/27/1978
Notes:

Table of Contents

Description

Using highly sensitive posturography equipment that incorporates a patented process (U.S. Patent 7,163,516), age-based reference values validated by independent medical studies, and independently obtained, peer-reviewed reference studies and data, your patient was screened for evidence of a balance impairing condition and accompanying risk of falling, as recommended by the CMS, JCAHO, NSC and the Clinical Practice Guideline concerning the routine identification and assessment of falls-risk patients.
The actual test protocol employed was a computerized, extremely accurate version of the universally recognized mCTSIB test battery, a widely used process that can reveal the existence of impaired visual, vestibular or somatosensory input, or neuromuscular weakness in patients with abnormal balance. The test data can help you determine the need for further assessment, testing and treatment.
The tests can also establish definitive baselines, making it possible to more effectively monitor treatment progress and to objectively document treatment outcomes.

Comments

The accompanying pages contain the results of a CAPS™ EQ balance test/falls-risk screening that we administered to your patient. Your patient was provided with a similar report and encouraged to discuss it with you at his/her earliest opportunity.

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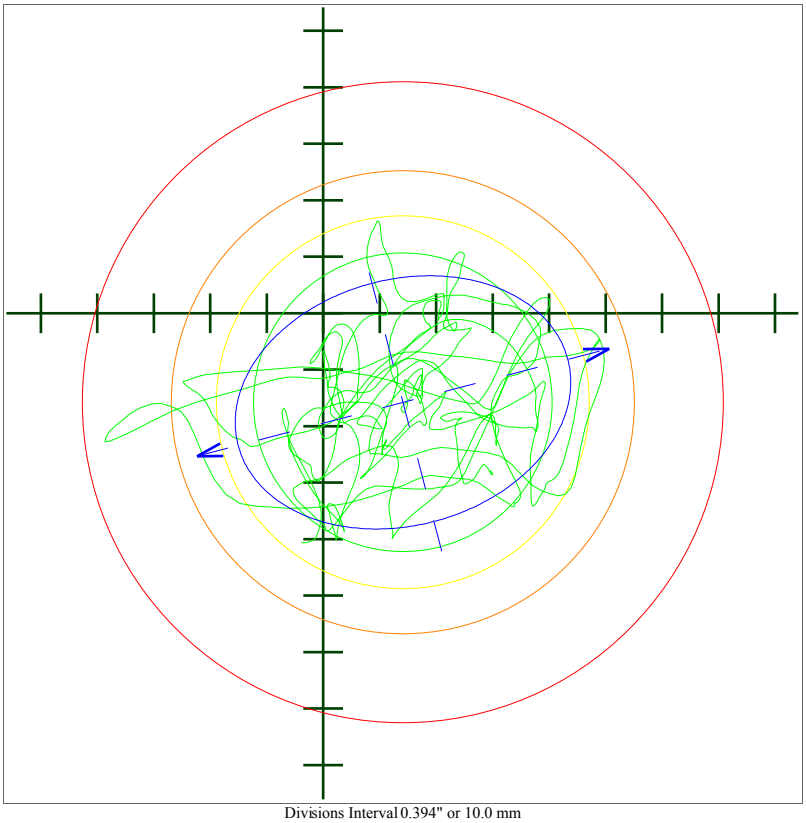
VESTIBULAR technologies

Subject's Name: Banat, Mohammed - ID: 00292
41 Years Old Male
Monday, August 05, 2019

CAPS EQ™

Computerized Posturography Results



Divisions Interval 0.394" or 10.0 mm

Test Name	PECHR
Test Type	PSEC
Test Date	7/1/2019 09:41 AM
Test Parameters	19.997s @ 64.011 Hz
Samples: Total & Valid	1280 & 1280
Test Status	Completed
Sway Center [Xo, Yo]	[0.56", -0.62"]
Max Theoretical Sway (LoS)	8.26"
ML Sway: Max & 95% Conf.	1.38" & 2.34"
AP Sway: Max & 95% Conf.	0.54" & 1.76"
95% Conf. Sway: Max & Min	2.37" & 1.72"
Actual Sway: Max & Ave	2.09" & 0.66"
Sway Velocity: Max & Ave	11.7"/s & 2.7"/s
Sway Acceler.: Max & Ave	14' 9.9"/s² & 3' 2.0"/s²
Sway Path Length	4' 6.50"
Area 95% Conf. Ellipse	3.200 in²
Stability Score	**71.3%**
Stability Class	**Mildly Reduced**
Pred. Direction of Sway	14.6 deg
Directionality	28%
Fatigue Ratio	41.7%
Adaptation Ratio	0.0%
Parameter p	3.4
Height	5' 9"
Weight	149 lb 7 oz
Body Mass Index	22.1
Body Mass Index Class	Normal

Stability Level:	Healthy Balance	**Mildly Reduced**	Moderately Reduced	Severely Reduced	Profoundly Reduced
Reference Values:	>= 74.8%	**68.5-74.7%**	60.9-68.4%	45.9-60.8%	<= 45.8%

Results Interpretation

According to CDC guidelines, the patient has normal weight.
According to independently obtained age-based reference values your patient's balance/stability is mildly impaired. Further evaluations may be warranted.

Notes

According to CDC guidelines, your patient's body mass index is normal.
According to age-based reference values established by research conducted at a state university school of medicine and incorporated into the CAPS™ EQ balance disorder/falls-risk screening product, your patient has mildly impaired balance/stability. Since mildly impaired balance problems can be caused by the flu, colds, lack of sleep, the effects of medications, etc., you may feel that the problem is temporary and will likely resolve itself so that no intervention is necessary.
But if you decide that further investigation is needed in order to help you determine the undelying cause of the problem, we would like you to know that our personnel are fully qualified to assist you in the assessment and testing of your patient.

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VESTIBULAR technologies

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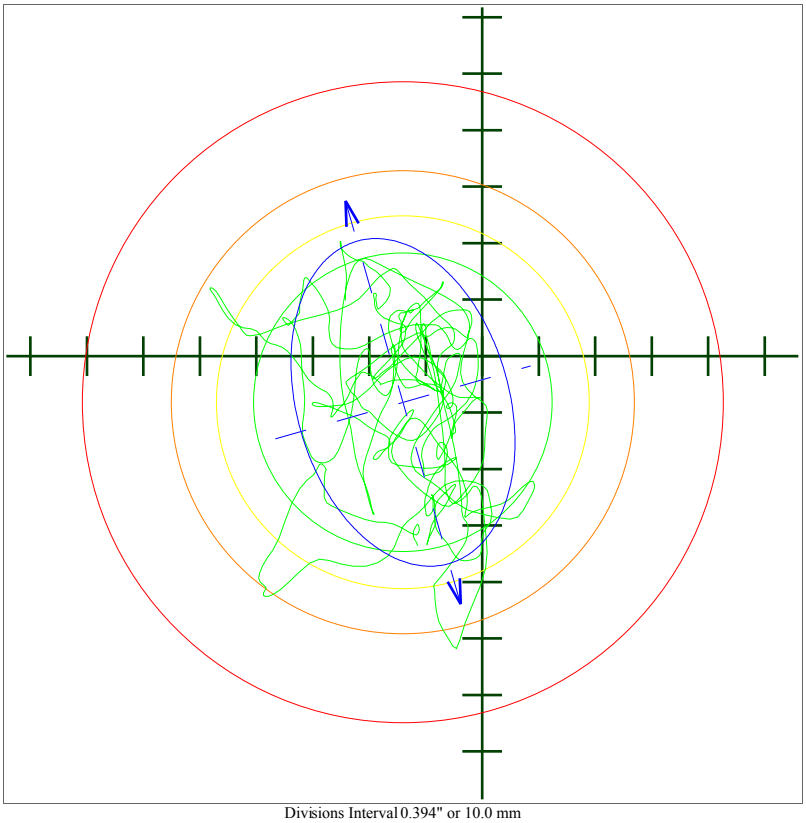
Monday, August 05, 2019

CAPS EQ™

Computerized Posturography Results



Divisions Interval 0.394" or 10.0 mm

Test Name	PECHL
Test Type	PSEC
Test Date	7/1/2019 09:41 AM
Test Parameters	19.997s @ 64.011 Hz
Samples: Total & Valid	1280 & 1280
Test Status	Completed
Sway Center [Xo, Yo]	[-0.55", -0.32"]
Max Theoretical Sway (LoS)	8.26"
ML Sway: Max & 95% Conf.	0.53" & 1.56"
AP Sway: Max & 95% Conf.	1.76" & 2.28"
95% Conf. Sway: Max & Min	2.34" & 1.48"
Actual Sway: Max & Ave	1.76" & 0.63"
Sway Velocity: Max & Ave	10.1"/s & 2.4"/s
Sway Acceler.: Max & Ave	21' 1.8"/s² & 3' 0.0"/s²
Sway Path Length	4' 0.86"
Area 95% Conf. Ellipse	2.717 in²
Stability Score	**71.7%**
Stability Class	**Mildly Reduced**
Pred. Direction of Sway	-74.1 deg
Directionality	37%
Fatigue Ratio	0.4%
Adaptation Ratio	0.0%
Parameter p	3.8
Height	5' 9"
Weight	149 lb 8 oz
Body Mass Index	22.1
Body Mass Index Class	Normal

Stability Level:	Healthy Balance	Mildly Reduced	Moderately Reduced	Severely Reduced	Profoundly Reduced
Reference Values:	>= 74.8%	68.5-74.7%	60.9-68.4%	45.9-60.8%	<= 45.8%

Results Interpretation

According to CDC guidelines, the patient has normal weight.
According to independently obtained age-based reference values your patient's balance/stability is mildly impaired. Further evaluations may be warranted.

Notes

According to CDC guidelines, your patient's body mass index is normal.
According to age-based reference values established by research conducted at a state university school of medicine and incorporated into the CAPS™ EQ balance disorder/falls-risk screening product, your patient has mildly impaired balance/stability. Since mildly impaired balance problems can be caused by the flu, colds, lack of sleep, the effects of medications, etc., you may feel that the problem is temporary and will likely resolve itself so that no intervention is necessary.
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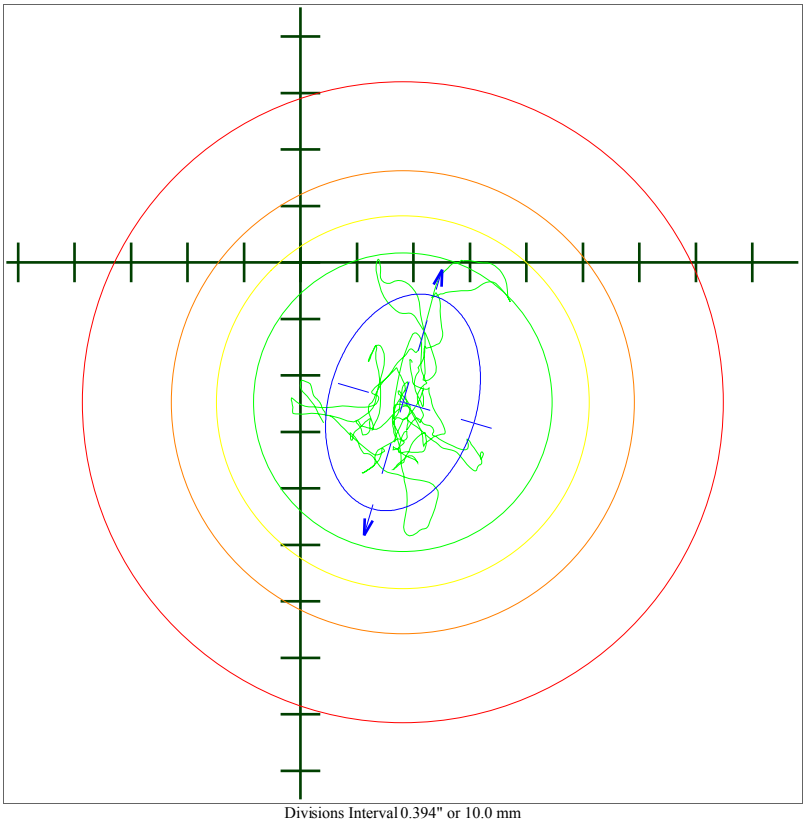
VESTIBULAR technologies

CAPS EQ™

Subject's Name: Banat, Mohammed - ID: 00292
41 Years Old Male
Monday, August 05, 2019

Computerized Posturography Results



Divisions Interval 0.394" or 10.0 mm

Test Name	PECHF
Test Type	PSEC
Test Date	7/1/2019 09:42 AM
Test Parameters	19.997s @ 64.011 Hz
Samples: Total & Valid	1280 & 1280
Test Status	Completed
Sway Center [Xo, Yo]	[0.72", -0.98"]
Max Theoretical Sway (LoS)	8.26"
ML Sway: Max & 95% Conf.	0.60" & 1.08"
AP Sway: Max & 95% Conf.	0.45" & 1.51"
95% Conf. Sway: Max & Min	1.54" & 1.03"
Actual Sway: Max & Ave	1.15" & 0.40"
Sway Velocity: Max & Ave	4.4"/s & 1.1"/s
Sway Acceler.: Max & Ave	6' 2.6"/s² & 1' 3.4"/s²
Sway Path Length	1' 9.63"
Area 95% Conf. Ellipse	1.249 in²
Stability Score	**81.3%**
Stability Class	**Healthy Balance**
Pred. Direction of Sway	73.7 deg
Directionality	33%
Fatigue Ratio	63.5%
Adaptation Ratio	0.0%
Parameter p	5.2
Height	5' 9"
Weight	149 lb 8 oz
Body Mass Index	22.1
Body Mass Index Class	Normal

Stability Level:	**Healthy Balance**	Mildly Reduced	Moderately Reduced	Severely Reduced	Profoundly Reduced
Reference Values:	**>= 74.8%**	68.5-74.7%	60.9-68.4%	45.9-60.8%	<= 45.8%

Results Interpretation

According to CDC guidelines, the patient has normal weight.
According to independently obtained age-based reference values your patient has a healthy balance/stability.

Notes

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According to age-based reference values established by research conducted at a state university school of medicine, your patient's balance score is normal for a person of his/her age. As recommended by medical experts, we would be happy to periodically re-assess your patient's balance and risk of falling, using the CAPS™ EQ equipment with which they were tested today.

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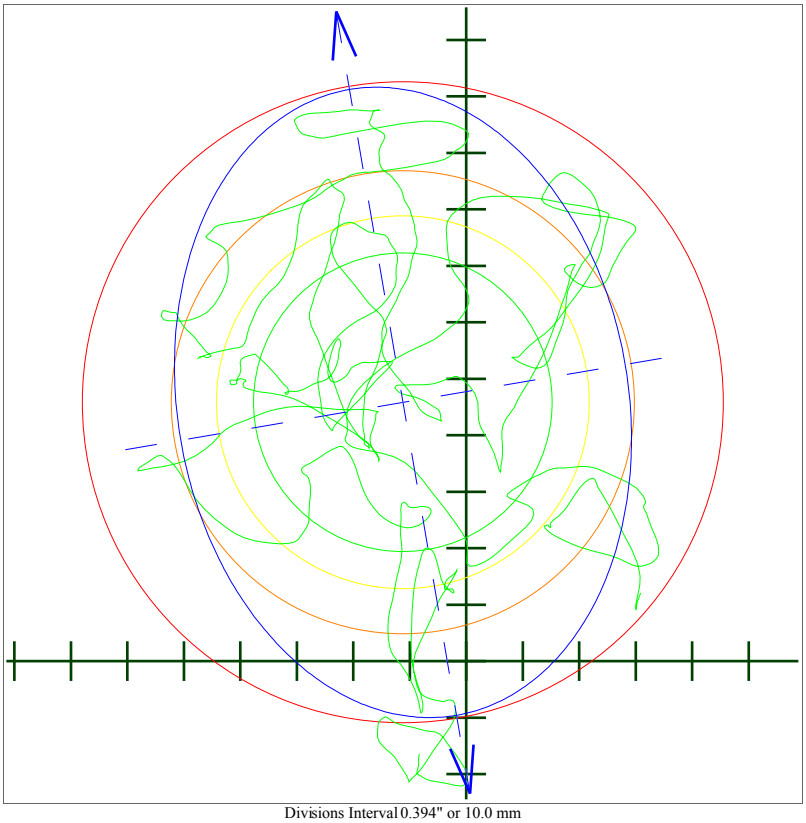
CAPS EQ™

Computerized Posturography Results



Divisions Interval 0.394" or 10.0 mm

Test Name	PECHE
Test Type	PSEC
Test Date	7/1/2019 09:43 AM
Test Parameters	18.966s @ 64.011 Hz
Samples: Total & Valid	1214 & 1214
Test Status	Interrupted
Sway Center [Xo, Yo]	[-0.44", 1.80"]
Max Theoretical Sway (LoS)	8.26"
ML Sway: Max & 95% Conf.	1.56" & 3.19"
AP Sway: Max & 95% Conf.	1.13" & 4.39"
95% Conf. Sway: Max & Min	4.43" & 3.14"
Actual Sway: Max & Ave	2.71" & 1.23"
Sway Velocity: Max & Ave	9.0"/s & 2.6"/s
Sway Acceler.: Max & Ave	12' 2.3"/s² & 2' 10.3"/s²
Sway Path Length	4' 1.71"
Area 95% Conf. Ellipse	10.922 in²
Stability Score	**46.4%**
Stability Class	**Severely Reduced**
Pred. Direction of Sway	-80.3 deg
Directionality	29%
Fatigue Ratio	0.0%
Adaptation Ratio	0.6%
Parameter p	6.2
Height	5' 9"
Weight	149 lb 12 oz
Body Mass Index	22.1
Body Mass Index Class	Normal

Stability Level:	Healthy Balance	Mildly Reduced	Moderately Reduced	**Severely Reduced**	Profoundly Reduced
Reference Values:	>= 74.8%	68.5-74.7%	60.9-68.4%	**45.9-60.8%**	<= 45.8%

Results Interpretation

According to CDC guidelines, the patient has normal weight.
According to independently obtained age-based reference values the results are abnormal for the patient's age and indicate the presence of a serious balance-impairing condition (chance of a false positive is 1 in 50,000). Patients with severely impaired balance/stability are likely to fall repeatedly. Further assessments, including a focused history, a physical evaluation, an audiometric evaluation and a visual acuity test are recommended to help determine the underlying cause of the patient's abnormal balance and to decide on the proper clinical pathway.

Notes

According to CDC guidelines, your patient's body mass index is normal.
According to age-based reference values established by research conducted at a state university school of medicine and incorporated into the CAPS™ EQ balance disorder/falls-risk screening product, your patient has severely impaired balance/stability and is likely to fall repeatedly. If you decide that further assessment is necessary to help you determine the underlying cause of the impairment and decide on the proper clinical pathway for your patient, we would like you to know that our personnel are fully qualified to assist you in such assessment and testing and are also qualified to provide the vestibular rehabilitation therapy that can help reduce your patient's risk of falls.

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VESTIBULAR technologies

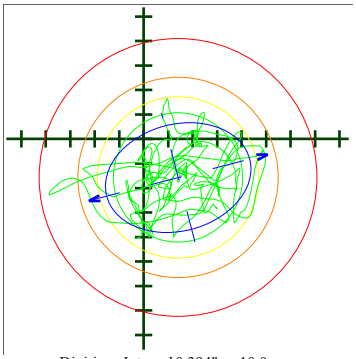
CAPS EQ™

Subject's Name: Banat, Mohammed - ID: 00292
41 Years Old Male
Monday, August 05, 2019

Computerized Posturography Results Comparison

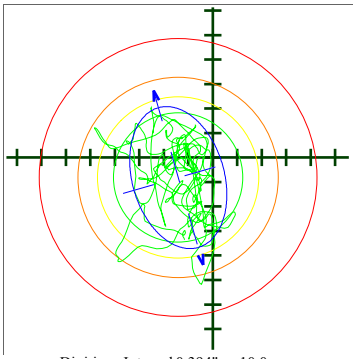
	Test 1	Test 2	Test 3	Test 4
Test Name	PECHR	PECHL	PECHF	PECHE
Test Type	PSEC	PSEC	PSEC	PSEC
Test Date	7/1/2019 09:41 AM	7/1/2019 09:41 AM	7/1/2019 09:42 AM	7/1/2019 09:43 AM
Test Parameters	19.997s @ 64.011 Hz	19.997s @ 64.011 Hz	19.997s @ 64.011 Hz	18.966s @ 64.011 Hz
Samples: Total & Valid	1280 & 1280	1280 & 1280	1280 & 1280	1214 & 1214
Test Status	Completed	Completed	Completed	Interrupted
Sway Center [Xo, Yo]	[0.56", -0.62"]	[-0.55", -0.32"]	[0.72", -0.98"]	[-0.44", 1.80"]
Max Theoretical Sway (LoS)	8.26"	8.26"	8.26"	8.26"
ML Sway: Max & 95% Conf.	1.38" & 2.34"	0.53" & 1.56"	0.60" & 1.08"	1.56" & 3.19"
AP Sway: Max & 95% Conf.	0.54" & 1.76"	1.76" & 2.28"	0.45" & 1.51"	1.13" & 4.39"
95% Conf. Sway: Max & Min	2.37" & 1.72"	2.34" & 1.48"	1.54" & 1.03"	4.43" & 3.14"
Actual Sway: Max & Ave	2.09" & 0.66"	1.76" & 0.63"	1.15" & 0.40"	2.71" & 1.23"
Sway Velocity: Max & Ave	11.7"/s & 2.7"/s	10.1"/s & 2.4"/s	4.4"/s & 1.1"/s	9.0"/s & 2.6"/s
Sway Acceler.: Max & Ave	14' 9.9"/s² & 3' 2.0"/s²	21' 1.8"/s² & 3' 0.0"/s²	6' 2.6"/s² & 1' 3.4"/s²	12' 2.3"/s² & 2' 10.3"/s²
Sway Path Length	4' 6.50"	4' 0.86"	1' 9.63"	4' 1.71"
Area 95% Conf. Ellipse	3.200 in²	2.717 in²	1.249 in²	10.922 in²
Stability Score	71.3%	71.7%	81.3%	46.4%
Stability Class	Mildly Reduced	Mildly Reduced	Healthy Balance	Severely Reduced
Pred. Direction of Sway	14.6 deg	-74.1 deg	73.7 deg	-80.3 deg
Directionality	28%	37%	33%	29%
Fatigue Ratio	41.7%	0.4%	63.5%	0.0%
Adaptation Ratio	0.0%	0.0%	0.0%	0.6%
Parameter p	3.4	3.8	5.2	6.2
Height	5' 9"	5' 9"	5' 9"	5' 9"
Weight	149 lb 7 oz	149 lb 8 oz	149 lb 8 oz	149 lb 12 oz
Body Mass Index	22.1	22.1	22.1	22.1
Body Mass Index Class	Normal	Normal	Normal	Normal

Test 1



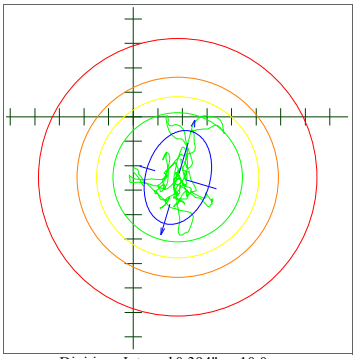
Divisions Interval 0.394" or 10.0 mm

Test 2



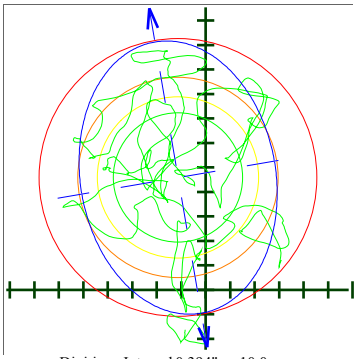
Divisions Interval 0.394" or 10.0 mm

Test 3



Divisions Interval 0.394" or 10.0 mm

Test 4



Divisions Interval 0.394" or 10.0 mm

Visual Dep. (0% = no dependency): Romberg Ratio: N/A Stability Ratio: N/A

Perturb. Dep. (0% = no dependency): Romberg Ratio: N/A Stability Ratio: N/A

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VESTIBULAR technologies

CAPS EQ™

Monday, August 05, 2019

FOR THE PHYSICIAN OF:

Name: Banat, Mohammed
Gender: Male
Internal ID: 00292
Date of Birth: 1/27/1978
Notes:

Table of Contents

Description

Using highly sensitive posturography equipment that incorporates a patented process (U.S. Patent 7,163,516), age-based reference values validated by independent medical studies, and independently obtained, peer-reviewed reference studies and data, your patient was screened for evidence of a balance impairing condition and accompanying risk of falling, as recommended by the CMS, JCAHO, NSC and the Clinical Practice Guideline concerning the routine identification and assessment of falls-risk patients.
The actual test protocol employed was a computerized, extremely accurate version of the universally recognized mCTSIB test battery, a widely used process that can reveal the existence of impaired visual, vestibular or somatosensory input, or neuromuscular weakness in patients with abnormal balance. The test data can help you determine the need for further assessment, testing and treatment.
The tests can also establish definitive baselines, making it possible to more effectively monitor treatment progress and to objectively document treatment outcomes.

Comments

The accompanying pages contain the results of a CAPS™ EQ balance test/falls-risk screening that we administered to your patient. Your patient was provided with a similar report and encouraged to discuss it with you at his/her earliest opportunity.

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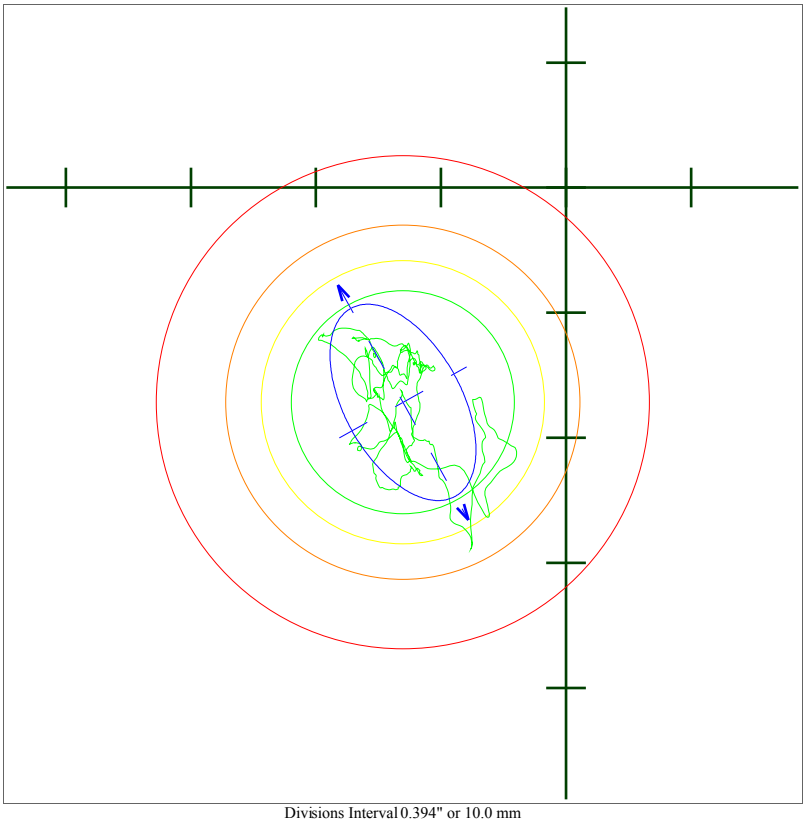
VESTIBULAR technologies

Subject's Name: Banat, Mohammed - ID: 00292
41 Years Old Male
Monday, August 05, 2019

CAPS EQ™

Computerized Posturography Results



Divisions Interval 0.394" or 10.0 mm

Test Name	NPEOHN
Test Type	NSEO
Test Date	7/5/2019 02:41 PM
Test Parameters	19.997s @ 64.011 Hz
Samples: Total & Valid	1280 & 1280
Test Status	Completed
Sway Center [Xo, Yo]	[-0.51", -0.68"]
Max Theoretical Sway (LoS)	8.26"
ML Sway: Max & 95% Conf.	0.14" & 0.46"
AP Sway: Max & 95% Conf.	0.09" & 0.62"
95% Conf. Sway: Max & Min	0.68" & 0.37"
Actual Sway: Max & Ave	0.51" & 0.17"
Sway Velocity: Max & Ave	1.8"/s & 0.3"/s
Sway Acceler.: Max & Ave	2' 8.7"/s² & 5.6"/s²
Sway Path Length	6.59"
Area 95% Conf. Ellipse	0.195 in²
Stability Score	**91.8%**
Stability Class	**Healthy Balance**
Pred. Direction of Sway	-61.0 deg
Directionality	46%
Fatigue Ratio	0.0%
Adaptation Ratio	38.1%
Parameter p	8.5
Height	5' 9"
Weight	149 lb 9 oz
Body Mass Index	22.1
Body Mass Index Class	Normal

Stability Level:	**Healthy Balance**	Mildly Reduced	Moderately Reduced	Severely Reduced	Profoundly Reduced
Reference Values:	**>= 91.5%**	89.2-91.4%	86.5-89.1%	81.2-86.4%	<= 81.1%

Results Interpretation

According to CDC guidelines, the patient has normal weight.
According to independently obtained age-based reference values your patient has a healthy balance/stability.

Notes

According to CDC guidelines, your patient's body mass index is normal.
According to age-based reference values established by research conducted at a state university school of medicine, your patient's balance score is normal for a person of his/her age. As recommended by medical experts, we would be happy to periodically re-assess your patient's balance and risk of falling, using the CAPS™ EQ equipment with which they were tested today.

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Subject's Name: Banat, Mohammed - ID: 00292
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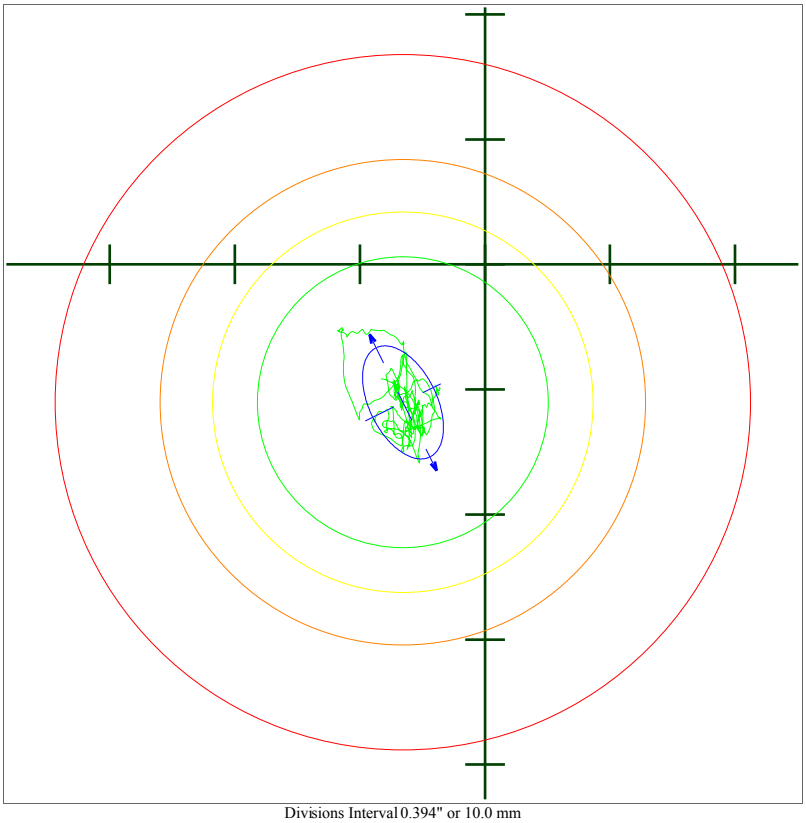
CAPS EQ™

Computerized Posturography Results



Divisions Interval 0.394" or 10.0 mm

Test Name	NPECHN
Test Type	NSEC
Test Date	7/5/2019 02:42 PM
Test Parameters	19.997s @ 64.011 Hz
Samples: Total & Valid	1280 & 1280
Test Status	Completed
Sway Center [Xo, Yo]	[-0.26", -0.43"]
Max Theoretical Sway (LoS)	8.26"
ML Sway: Max & 95% Conf.	0.19" & 0.25"
AP Sway: Max & 95% Conf.	0.03" & 0.36"
95% Conf. Sway: Max & Min	0.38" & 0.21"
Actual Sway: Max & Ave	0.31" & 0.09"
Sway Velocity: Max & Ave	1.6"/s & 0.3"/s
Sway Acceler.: Max & Ave	2' 1.7"/s² & 5.3"/s²
Sway Path Length	6.01"
Area 95% Conf. Ellipse	0.064 in²
Stability Score	**95.4%**
Stability Class	**Healthy Balance**
Pred. Direction of Sway	-63.7 deg
Directionality	45%
Fatigue Ratio	0.0%
Adaptation Ratio	47.3%
Parameter p	5.2
Height	5' 9"
Weight	149 lb 12 oz
Body Mass Index	22.1
Body Mass Index Class	Normal

Stability Level:	**Healthy Balance**	Mildly Reduced	Moderately Reduced	Severely Reduced	Profoundly Reduced
Reference Values:	**>= 88.9%**	85.5-88.8%	81.5-85.4%	73.5-81.4%	<= 73.4%

Results Interpretation

According to CDC guidelines, the patient has normal weight.
According to independently obtained age-based reference values your patient has a healthy balance/stability.

Notes

According to CDC guidelines, your patient's body mass index is normal.
According to age-based reference values established by research conducted at a state university school of medicine, your patient's balance score is normal for a person of his/her age. As recommended by medical experts, we would be happy to periodically re-assess your patient's balance and risk of falling, using the CAPS™ EQ equipment with which they were tested today.

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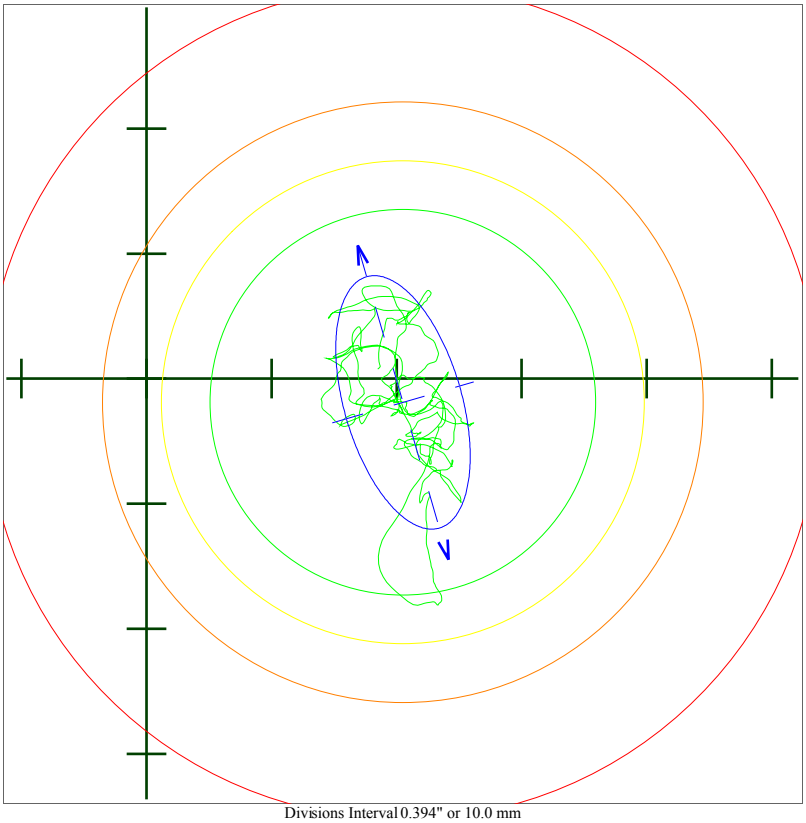
VESTIBULAR technologies

CAPS EQ™

Subject's Name: Banat, Mohammed - ID: 00292
41 Years Old Male
Monday, August 05, 2019

Computerized Posturography Results



Divisions Interval 0.394" or 10.0 mm

Test Name	PEOHN
Test Type	PSEO
Test Date	7/5/2019 02:45 PM
Test Parameters	19.997s @ 64.011 Hz
Samples: Total & Valid	1280 & 1280
Test Status	Completed
Sway Center [Xo, Yo]	[0.81", -0.08"]
Max Theoretical Sway (LoS)	8.26"
ML Sway: Max & 95% Conf.	0.11" & 0.42"
AP Sway: Max & 95% Conf.	0.22" & 0.80"
95% Conf. Sway: Max & Min	0.82" & 0.37"
Actual Sway: Max & Ave	0.65" & 0.20"
Sway Velocity: Max & Ave	2.0"/s & 0.5"/s
Sway Acceler.: Max & Ave	2' 11.4"/s² & 7.1"/s²
Sway Path Length	9.64"
Area 95% Conf. Ellipse	0.240 in²
Stability Score	**90.0%**
Stability Class	**Healthy Balance**
Pred. Direction of Sway	-73.9 deg
Directionality	55%
Fatigue Ratio	79.3%
Adaptation Ratio	0.0%
Parameter p	5.8
Height	5' 9"
Weight	149 lb 12 oz
Body Mass Index	22.1
Body Mass Index Class	Normal

Stability Level:	**Healthy Balance**	Mildly Reduced	Moderately Reduced	Severely Reduced	Profoundly Reduced
Reference Values:	**>= 85.3%**	81.6-85.2%	77.1-81.5%	68.2-77.0%	<= 68.1%

Results Interpretation

According to CDC guidelines, the patient has normal weight.
According to independently obtained age-based reference values your patient has a healthy balance/stability.

Notes

According to CDC guidelines, your patient's body mass index is normal.
According to age-based reference values established by research conducted at a state university school of medicine, your patient's balance score is normal for a person of his/her age. As recommended by medical experts, we would be happy to periodically re-assess your patient's balance and risk of falling, using the CAPS™ EQ equipment with which they were tested today.

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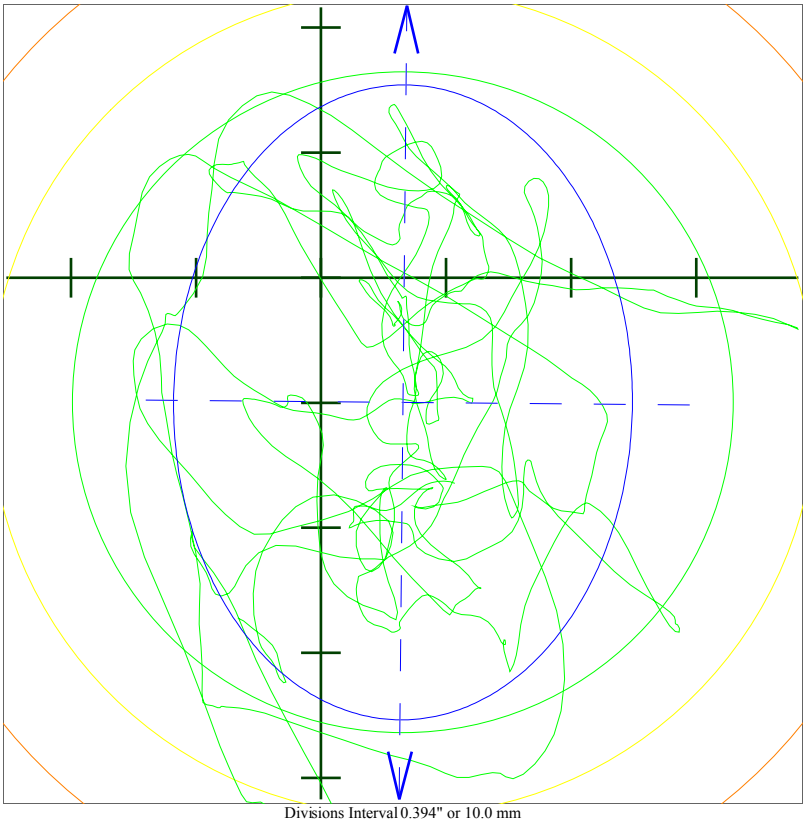

Divisions Interval 0.394" or 10.0 mm

Test Name	PECHN
Test Type	PSEC
Test Date	7/5/2019 02:46 PM
Test Parameters	19.997s @ 64.011 Hz
Samples: Total & Valid	1280 & 1280
Test Status	Completed
Sway Center [Xo, Yo]	[0.26", -0.39"]
Max Theoretical Sway (LoS)	8.26"
ML Sway: Max & 95% Conf.	0.69" & 1.44"
AP Sway: Max & 95% Conf.	0.45" & 2.00"
95% Conf. Sway: Max & Min	2.00" & 1.44"
Actual Sway: Max & Ave	1.40" & 0.56"
Sway Velocity: Max & Ave	10.0"/s & 2.1"/s
Sway Acceler.: Max & Ave	14' 0.1"/s² & 2' 5.7"/s²
Sway Path Length	3' 5.55"
Area 95% Conf. Ellipse	2.268 in²
Stability Score	**75.8%**
Stability Class	**Healthy Balance**
Pred. Direction of Sway	89.5 deg
Directionality	28%
Fatigue Ratio	2.8%
Adaptation Ratio	0.0%
Parameter p	3.8
Height	5' 9"
Weight	149 lb 13 oz
Body Mass Index	22.1
Body Mass Index Class	Normal

Stability Level:	**Healthy Balance**	Mildly Reduced	Moderately Reduced	Severely Reduced	Profoundly Reduced
Reference Values:	**>= 74.8%**	68.5-74.7%	60.9-68.4%	45.9-60.8%	<= 45.8%

Results Interpretation

According to CDC guidelines, the patient has normal weight.
According to independently obtained age-based reference values your patient has a healthy balance/stability.

Notes

According to CDC guidelines, your patient's body mass index is normal.
According to age-based reference values established by research conducted at a state university school of medicine, your patient's balance score is normal for a person of his/her age. As recommended by medical experts, we would be happy to periodically re-assess your patient's balance and risk of falling, using the CAPS™ EQ equipment with which they were tested today.

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VESTIBULAR technologies

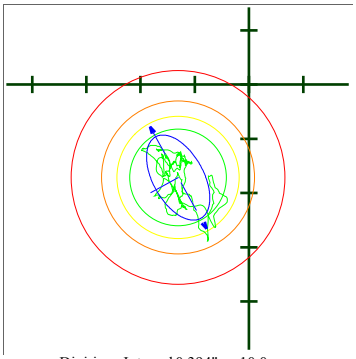
Subject's Name: Banat, Mohammed - ID: 00292
41 Years Old Male
Monday, August 05, 2019

CAPS EQ™

Computerized Posturography Results Comparison

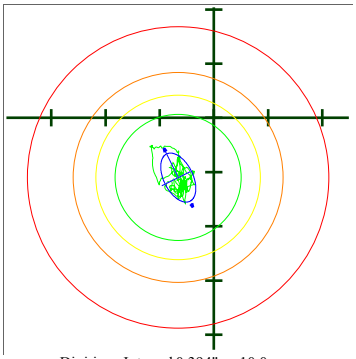
	Test 1	Test 2	Test 3	Test 4
Test Name	NPEOHN	NPECHN	PEOHN	PECHN
Test Type	NSEO	NSEC	PSEO	PSEC
Test Date	7/5/2019 02:41 PM	7/5/2019 02:42 PM	7/5/2019 02:45 PM	7/5/2019 02:46 PM
Test Parameters	19.997s @ 64.011 Hz	19.997s @ 64.011 Hz	19.997s @ 64.011 Hz	19.997s @ 64.011 Hz
Samples: Total & Valid	1280 & 1280	1280 & 1280	1280 & 1280	1280 & 1280
Test Status	Completed	Completed	Completed	Completed
Sway Center [Xo, Yo]	[-0.51", -0.68"]	[-0.26", -0.43"]	[0.81", -0.08"]	[0.26", -0.39"]
Max Theoretical Sway (LoS)	8.26"	8.26"	8.26"	8.26"
ML Sway: Max & 95% Conf.	0.14" & 0.46"	0.19" & 0.25"	0.11" & 0.42"	0.69" & 1.44"
AP Sway: Max & 95% Conf.	0.09" & 0.62"	0.03" & 0.36"	0.22" & 0.80"	0.45" & 2.00"
95% Conf. Sway: Max & Min	0.68" & 0.37"	0.38" & 0.21"	0.82" & 0.37"	2.00" & 1.44"
Actual Sway: Max & Ave	0.51" & 0.17"	0.31" & 0.09"	0.65" & 0.20"	1.40" & 0.56"
Sway Velocity: Max & Ave	1.8"/s & 0.3"/s	1.6"/s & 0.3"/s	2.0"/s & 0.5"/s	10.0"/s & 2.1"/s
Sway Acceler.: Max & Ave	2' 8.7"/s² & 5.6"/s²	2' 1.7"/s² & 5.3"/s²	2' 11.4"/s² & 7.1"/s²	14' 0.1"/s² & 2' 5.7"/s²
Sway Path Length	6.59"	6.01"	9.64"	3' 5.55"
Area 95% Conf. Ellipse	0.195 in²	0.064 in²	0.240 in²	2.268 in²
Stability Score	**91.8%**	**95.4%**	**90.0%**	**75.8%**
Stability Class	**Healthy Balance**	**Healthy Balance**	**Healthy Balance**	**Healthy Balance**
Pred. Direction of Sway	-61.0 deg	-63.7 deg	-73.9 deg	89.5 deg
Directionality	46%	45%	55%	28%
Fatigue Ratio	0.0%	0.0%	79.3%	2.8%
Adaptation Ratio	38.1%	47.3%	0.0%	0.0%
Parameter p	8.5	5.2	5.8	3.8
Height	5' 9"	5' 9"	5' 9"	5' 9"
Weight	149 lb 9 oz	149 lb 12 oz	149 lb 12 oz	149 lb 13 oz
Body Mass Index	22.1	22.1	22.1	22.1
Body Mass Index Class	Normal	Normal	Normal	Normal

Test 1



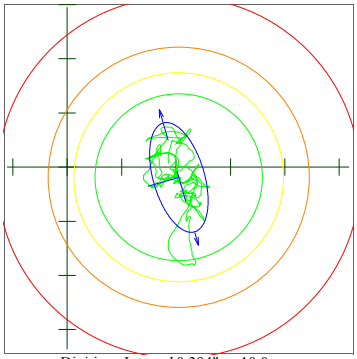
Divisions Interval 0.394" or 10.0 mm

Test 2



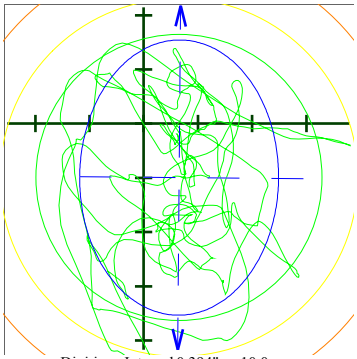
Divisions Interval 0.394" or 10.0 mm

Test 3



Divisions Interval 0.394" or 10.0 mm

Test 4



Divisions Interval 0.394" or 10.0 mm

Visual Dep. (0% = no dependency): Romberg Ratio: 1.496 Stability Ratio: 1.075

Perturb. Dep. (0% = no dependency): Romberg Ratio: 3.219 Stability Ratio: 1.139

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VESTIBULAR technologies

CAPS EQ™

Monday, August 05, 2019

FOR THE PHYSICIAN OF:

Name: Banat, Mohammed
Internal ID: 00292
Notes:

Gender: Male
Date of Birth: 1/27/1978

Table of Contents

Description

Using highly sensitive posturography equipment that incorporates a patented process (U.S. Patent 7,163,516), age-based reference values validated by independent medical studies, and independently obtained, peer-reviewed reference studies and data, your patient was screened for evidence of a balance impairing condition and accompanying risk of falling, as recommended by the CMS, JCAHO, NSC and the Clinical Practice Guideline concerning the routine identification and assessment of falls-risk patients.
The actual test protocol employed was a computerized, extremely accurate version of the universally recognized mCTSIB test battery, a widely used process that can reveal the existence of impaired visual, vestibular or somatosensory input, or neuromuscular weakness in patients with abnormal balance. The test data can help you determine the need for further assessment, testing and treatment.
The tests can also establish definitive baselines, making it possible to more effectively monitor treatment progress and to objectively document treatment outcomes.

Comments

The accompanying pages contain the results of a CAPS™ EQ balance test/falls-risk screening that we administered to your patient. Your patient was provided with a similar report and encouraged to discuss it with you at his/her earliest opportunity.

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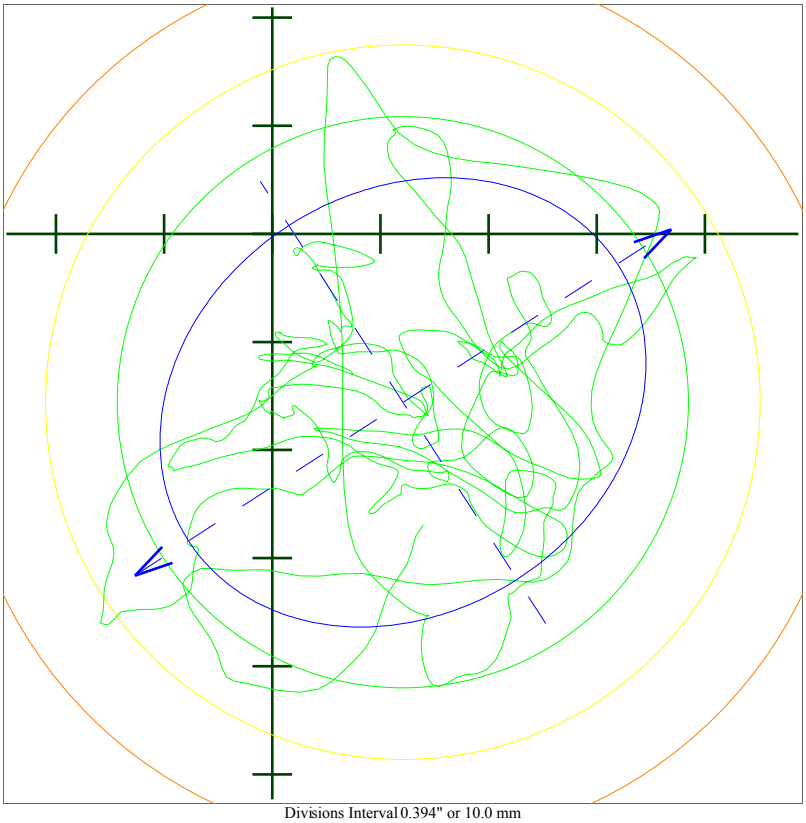
VESTIBULAR technologies

Subject's Name: Banat, Mohammed - ID: 00292
41 Years Old Male
Monday, August 05, 2019

CAPS EQ™

Computerized Posturography Results



Divisions Interval 0.394" or 10.0 mm

Test Name	PECHR
Test Type	PSEC
Test Date	7/5/2019 02:47 PM
Test Parameters	19.997s @ 64.011 Hz
Samples: Total & Valid	1280 & 1280
Test Status	Completed
Sway Center [Xo, Yo]	[0.48", -0.61"]
Max Theoretical Sway (LoS)	8.26"
ML Sway: Max & 95% Conf.	0.34" & 1.77"
AP Sway: Max & 95% Conf.	0.52" & 1.64"
95% Conf. Sway: Max & Min	1.86" & 1.53"
Actual Sway: Max & Ave	1.36" & 0.54"
Sway Velocity: Max & Ave	10.4"/s & 1.7"/s
Sway Acceler.: Max & Ave	13' 3.3"/s² & 2' 0.4"/s²
Sway Path Length	2' 10.90"
Area 95% Conf. Ellipse	2.239 in²
Stability Score	**77.5%**
Stability Class	**Healthy Balance**
Pred. Direction of Sway	32.8 deg
Directionality	18%
Fatigue Ratio	0.0%
Adaptation Ratio	30.8%
Parameter p	4.3
Height	5' 9"
Weight	149 lb 14 oz
Body Mass Index	22.1
Body Mass Index Class	Normal

Stability Level:	**Healthy Balance**	Mildly Reduced	Moderately Reduced	Severely Reduced	Profoundly Reduced
Reference Values:	**>= 74.8%**	68.5-74.7%	60.9-68.4%	45.9-60.8%	<= 45.8%

Results Interpretation

According to CDC guidelines, the patient has normal weight.
According to independently obtained age-based reference values your patient has a healthy balance/stability.

Notes

According to CDC guidelines, your patient's body mass index is normal.
According to age-based reference values established by research conducted at a state university school of medicine, your patient's balance score is normal for a person of his/her age. As recommended by medical experts, we would be happy to periodically re-assess your patient's balance and risk of falling, using the CAPS™ EQ equipment with which they were tested today.

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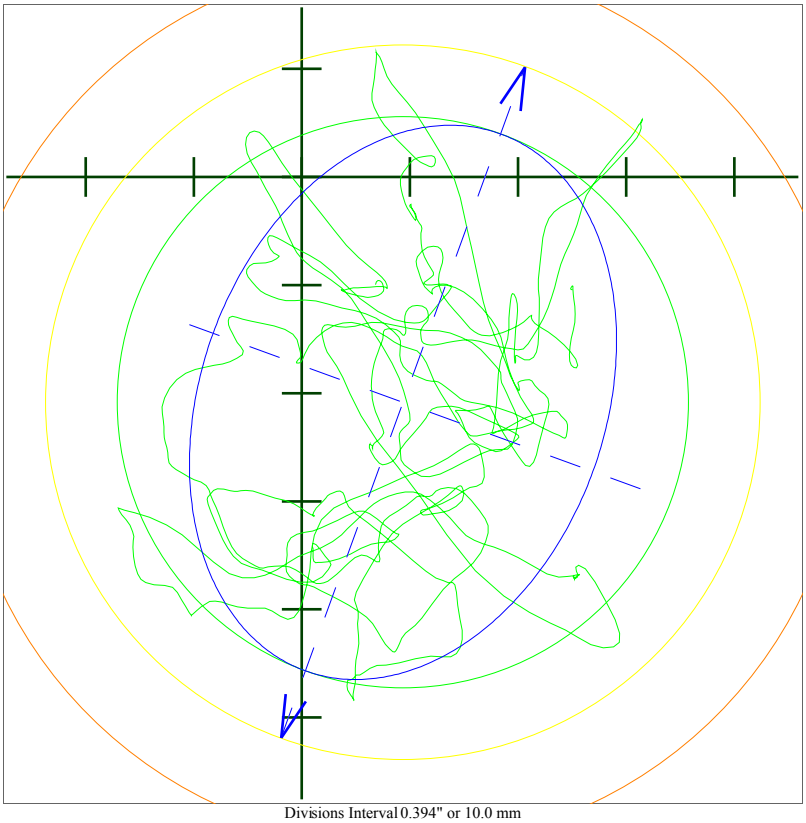

Divisions Interval 0.394" or 10.0 mm

Test Name	PECHL
Test Type	PSEC
Test Date	7/5/2019 02:47 PM
Test Parameters	19.997s @ 64.011 Hz
Samples: Total & Valid	1280 & 1280
Test Status	Completed
Sway Center [Xo, Yo]	[0.37", -0.82"]
Max Theoretical Sway (LoS)	8.26"
ML Sway: Max & 95% Conf.	0.74" & 1.56"
AP Sway: Max & 95% Conf.	0.01" & 2.02"
95% Conf. Sway: Max & Min	2.08" & 1.47"
Actual Sway: Max & Ave	1.35" & 0.59"
Sway Velocity: Max & Ave	10.6"/s & 1.7"/s
Sway Acceler.: Max & Ave	11' 3.7"/s² & 2' 1.2"/s²
Sway Path Length	2' 9.63"
Area 95% Conf. Ellipse	2.404 in²
Stability Score	**74.8%**
Stability Class	**Healthy Balance**
Pred. Direction of Sway	70.0 deg
Directionality	29%
Fatigue Ratio	0.0%
Adaptation Ratio	22.8%
Parameter p	5.2
Height	5' 9"
Weight	149 lb 14 oz
Body Mass Index	22.1
Body Mass Index Class	Normal

Stability Level:	**Healthy Balance**	Mildly Reduced	Moderately Reduced	Severely Reduced	Profoundly Reduced
Reference Values:	**>= 74.8%**	68.5-74.7%	60.9-68.4%	45.9-60.8%	<= 45.8%

Results Interpretation

According to CDC guidelines, the patient has normal weight.
According to independently obtained age-based reference values your patient has a healthy balance/stability.

Notes

According to CDC guidelines, your patient's body mass index is normal.
According to age-based reference values established by research conducted at a state university school of medicine, your patient's balance score is normal for a person of his/her age. As recommended by medical experts, we would be happy to periodically re-assess your patient's balance and risk of falling, using the CAPS™ EQ equipment with which they were tested today.

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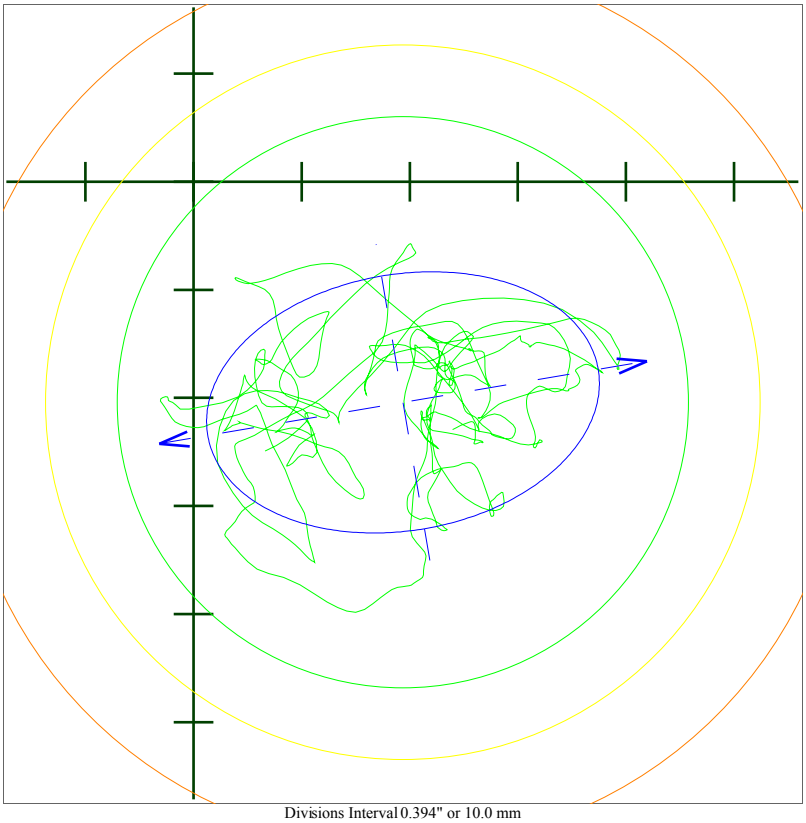

Divisions Interval 0.394" or 10.0 mm

Test Name	PECHF
Test Type	PSEC
Test Date	7/5/2019 02:48 PM
Test Parameters	19.997s @ 64.011 Hz
Samples: Total & Valid	1280 & 1280
Test Status	Completed
Sway Center [Xo, Yo]	[0.76", -0.80"]
Max Theoretical Sway (LoS)	8.26"
ML Sway: Max & 95% Conf.	0.73" & 1.43"
AP Sway: Max & 95% Conf.	0.10" & 0.95"
95% Conf. Sway: Max & Min	1.44" & 0.93"
Actual Sway: Max & Ave	0.88" & 0.39"
Sway Velocity: Max & Ave	5.0"/s & 1.2"/s
Sway Acceler.: Max & Ave	8' 2.9"/s² & 1' 7.0"/s²
Sway Path Length	2' 0.89"
Area 95% Conf. Ellipse	1.057 in²
Stability Score	**82.6%**
Stability Class	**Healthy Balance**
Pred. Direction of Sway	9.6 deg
Directionality	35%
Fatigue Ratio	0.0%
Adaptation Ratio	47.6%
Parameter p	4.8
Height	5' 9"
Weight	149 lb 15 oz
Body Mass Index	22.1
Body Mass Index Class	Normal

Stability Level:	**Healthy Balance**	Mildly Reduced	Moderately Reduced	Severely Reduced	Profoundly Reduced
Reference Values:	**>= 74.8%**	68.5-74.7%	60.9-68.4%	45.9-60.8%	<= 45.8%

Results Interpretation

According to CDC guidelines, the patient has normal weight.
According to independently obtained age-based reference values your patient has a healthy balance/stability.

Notes

According to CDC guidelines, your patient's body mass index is normal.
According to age-based reference values established by research conducted at a state university school of medicine, your patient's balance score is normal for a person of his/her age. As recommended by medical experts, we would be happy to periodically re-assess your patient's balance and risk of falling, using the CAPS™ EQ equipment with which they were tested today.

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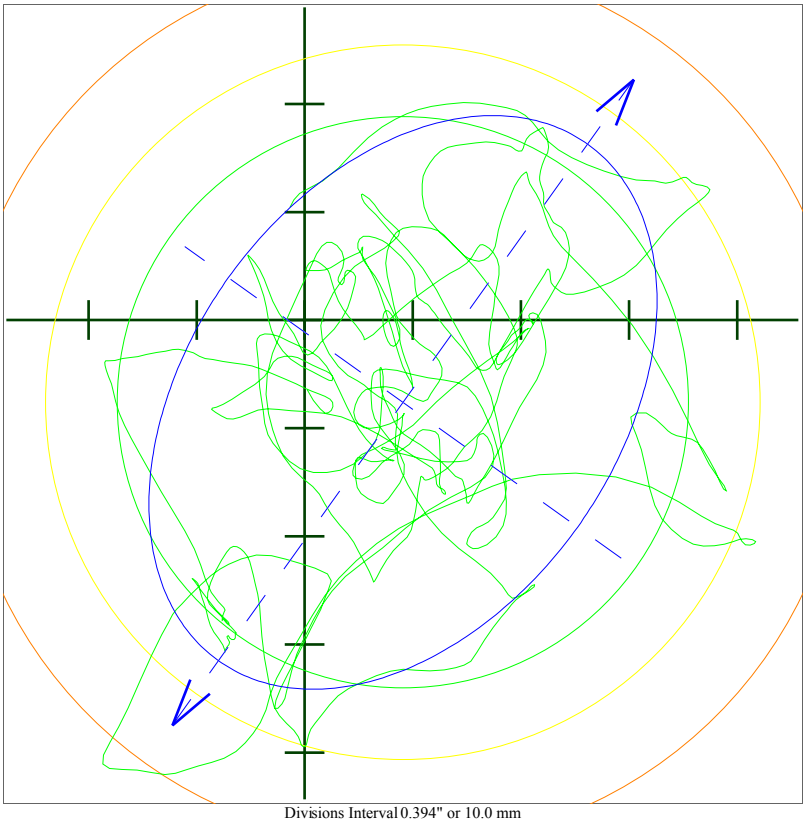
Computerized Posturography Results



Divisions Interval 0.394" or 10.0 mm

Test Name	PECHE
Test Type	PSEC
Test Date	7/5/2019 02:49 PM
Test Parameters	19.997s @ 64.011 Hz
Samples: Total & Valid	1280 & 1280
Test Status	Completed
Sway Center [Xo, Yo]	[0.36", -0.30"]
Max Theoretical Sway (LoS)	8.26"
ML Sway: Max & 95% Conf.	0.07" & 1.85"
AP Sway: Max & 95% Conf.	0.64" & 2.09"
95% Conf. Sway: Max & Min	2.31" & 1.56"
Actual Sway: Max & Ave	1.71" & 0.62"
Sway Velocity: Max & Ave	8.9"/s & 2.1"/s
Sway Acceler.: Max & Ave	10' 3.7"/s² & 2' 5.6"/s²
Sway Path Length	3' 5.71"
Area 95% Conf. Ellipse	2.837 in²
Stability Score	**72.0%**
Stability Class	**Mildly Reduced**
Pred. Direction of Sway	54.5 deg
Directionality	32%
Fatigue Ratio	0.0%
Adaptation Ratio	29.0%
Parameter p	4.2
Height	5' 9"
Weight	149 lb 15 oz
Body Mass Index	22.1
Body Mass Index Class	Normal

Stability Level:	Healthy Balance	**Mildly Reduced**	Moderately Reduced	Severely Reduced	Profoundly Reduced
Reference Values:	>= 74.8%	**68.5-74.7%**	60.9-68.4%	45.9-60.8%	<= 45.8%

Results Interpretation

According to CDC guidelines, the patient has normal weight.
According to independently obtained age-based reference values your patient's balance/stability is mildly impaired. Further evaluations may be warranted.

Notes

According to CDC guidelines, your patient's body mass index is normal.
According to age-based reference values established by research conducted at a state university school of medicine and incorporated into the CAPS™ EQ balance disorder/falls-risk screening product, your patient has mildly impaired balance/stability. Since mildly impaired balance problems can be caused by the flu, colds, lack of sleep, the effects of medications, etc., you may feel that the problem is temporary and will likely resolve itself so that no intervention is necessary.
But if you decide that further investigation is needed in order to help you determine the undelying cause of the problem, we would like you to know that our personnel are fully qualified to assist you in the assessment and testing of your patient.

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VESTIBULAR technologies

Subject's Name: Banat, Mohammed - ID: 00292
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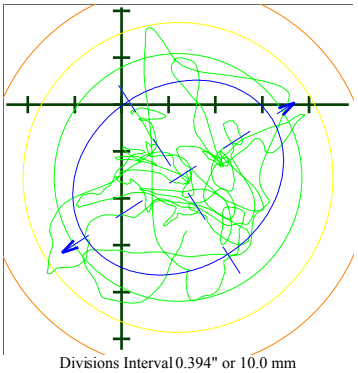
CAPS EQ™

Computerized Posturography Results Comparison

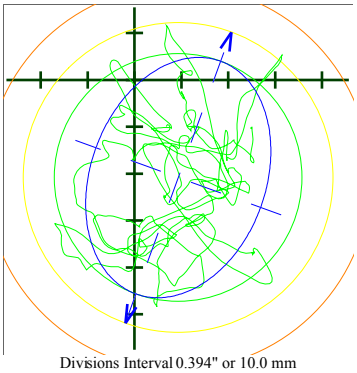
	Test 1	Test 2	Test 3	Test 4
Test Name	PECHR	PECHL	PECHF	PECHE
Test Type	PSEC	PSEC	PSEC	PSEC
Test Date	7/5/2019 02:47 PM	7/5/2019 02:47 PM	7/5/2019 02:48 PM	7/5/2019 02:49 PM
Test Parameters	19.997s @ 64.011 Hz	19.997s @ 64.011 Hz	19.997s @ 64.011 Hz	19.997s @ 64.011 Hz
Samples: Total & Valid	1280 & 1280	1280 & 1280	1280 & 1280	1280 & 1280
Test Status	Completed	Completed	Completed	Completed
Sway Center [Xo, Yo]	[0.48", -0.61"]	[0.37", -0.82"]	[0.76", -0.80"]	[0.36", -0.30"]
Max Theoretical Sway (LoS)	8.26"	8.26"	8.26"	8.26"
ML Sway: Max & 95% Conf.	0.34" & 1.77"	0.74" & 1.56"	0.73" & 1.43"	0.07" & 1.85"
AP Sway: Max & 95% Conf.	0.52" & 1.64"	0.01" & 2.02"	0.10" & 0.95"	0.64" & 2.09"
95% Conf. Sway: Max & Min	1.86" & 1.53"	2.08" & 1.47"	1.44" & 0.93"	2.31" & 1.56"
Actual Sway: Max & Ave	1.36" & 0.54"	1.35" & 0.59"	0.88" & 0.39"	1.71" & 0.62"
Sway Velocity: Max & Ave	10.4"/s & 1.7"/s	10.6"/s & 1.7"/s	5.0"/s & 1.2"/s	8.9"/s & 2.1"/s
Sway Acceler.: Max & Ave	13' 3.3"/s² & 2' 0.4"/s²	11' 3.7"/s² & 2' 1.2"/s²	8' 2.9"/s² & 1' 7.0"/s²	10' 3.7"/s² & 2' 5.6"/s²
Sway Path Length	2' 10.90"	2' 9.63"	2' 0.89"	3' 5.71"
Area 95% Conf. Ellipse	2.239 in²	2.404 in²	1.057 in²	2.837 in²
Stability Score	**77.5%**	**74.8%**	**82.6%**	**72.0%**
Stability Class	**Healthy Balance**	**Healthy Balance**	**Healthy Balance**	**Mildly Reduced**
Pred. Direction of Sway	32.8 deg	70.0 deg	9.6 deg	54.5 deg
Directionality	18%	29%	35%	32%
Fatigue Ratio	0.0%	0.0%	0.0%	0.0%
Adaptation Ratio	30.8%	22.8%	47.6%	29.0%
Parameter p	4.3	5.2	4.8	4.2
Height	5' 9"	5' 9"	5' 9"	5' 9"
Weight	149 lb 14 oz	149 lb 14 oz	149 lb 15 oz	149 lb 15 oz
Body Mass Index	22.1	22.1	22.1	22.1
Body Mass Index Class	Normal	Normal	Normal	Normal

Test 1



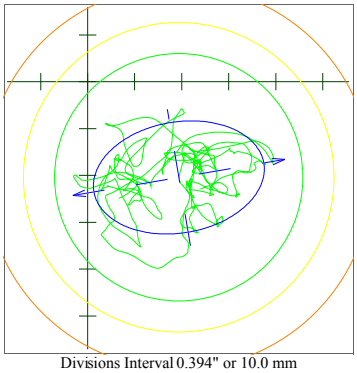
Divisions Interval 0.394" or 10.0 mm

Test 2



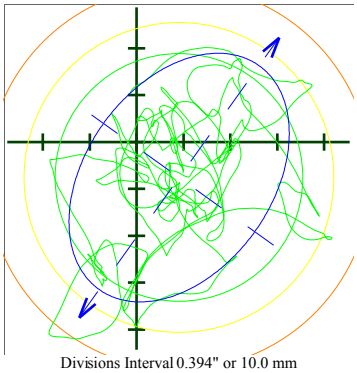
Divisions Interval 0.394" or 10.0 mm

Test 3



Divisions Interval 0.394" or 10.0 mm

Test 4



Divisions Interval 0.394" or 10.0 mm

Visual Dep. (0% = no dependency): Romberg Ratio: N/A Stability Ratio: N/A

Perturb. Dep. (0% = no dependency): Romberg Ratio: N/A Stability Ratio: N/A

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Home Exercises
Mohammed Banat
8/5/19

Mohammed,

Thank you for all of your hard work during your time at Innova Brain. We made some good changes in your brain function, and I really enjoyed our time together. Please keep up the great work!

Please send me a video of your exercises within 7-10 days and keep me updated with your progress at least once every two weeks. If you have any questions or concerns please contact me at (770) 485-6554 and/or info@innovabrain.com.

Please see your exercises listed and described below. Please do not deviate from or modify the exercises until you first check with me.

1. **Left sided complex proximal joint movements**: While you are lying comfortably on your back perform an infinity pattern (figure-eight) with your left arm for 10 repetitions. This constitutes one set of this exercise with your arm. Take a 15-20 second break. Now perform an infinity pattern (figure-eight) with your left leg for 10 repetitions. Take a 15-20 second break. Perform three sets of arm movements and three sets of leg movements, alternating between the arm and the leg. For example: left arm, 15-20 second break, left leg, 15-20 second break, left arm, 15-20 second break, left leg, 15-20 second break, left arm, 15-20 second break, left leg, and done. Be sure to keep your other body parts still while using your arm or leg. Perform two sessions of this exercise per day.

2. **Sinusoidal rotations in an office chair with upper right field hemistim**: Sit upright and comfortable in a chair that rotates left and right. Place a small sticker or 1/4" dot on a Post-it note on the wall at eye level, in the center of your vision. You should be far enough from the wall that your extended and elevated feet are just a couple inches away.

   For this exercise you will be using the Focus Builder Application on your iPad. Be sure to set up the iPad with the "Hemistim" settings described at the end of this document. Orient the iPad so it is longer horizontally (landscape format). Now

hold the iPad in your upper right visual field so that you can still look at your target straight ahead.

While keeping your eyes on the center dot and your head still, have your wife or another trained assistant rotate you for three cycles and then take a 20 second break (left, right, left, right, left, right, and back to center). This constitutes one set of this exercise. Put the iPad down between sets. In total you will perform 3 sets. During your 20 seconds of rest between sets, give your eyes a rest by not looking at the dot. Be sure that your wife or a trained assistant is rotating you at a slow, even speed back and forth and not so far that it is difficult to keep your eyes on the dot. Perform two sessions of this exercise per day.

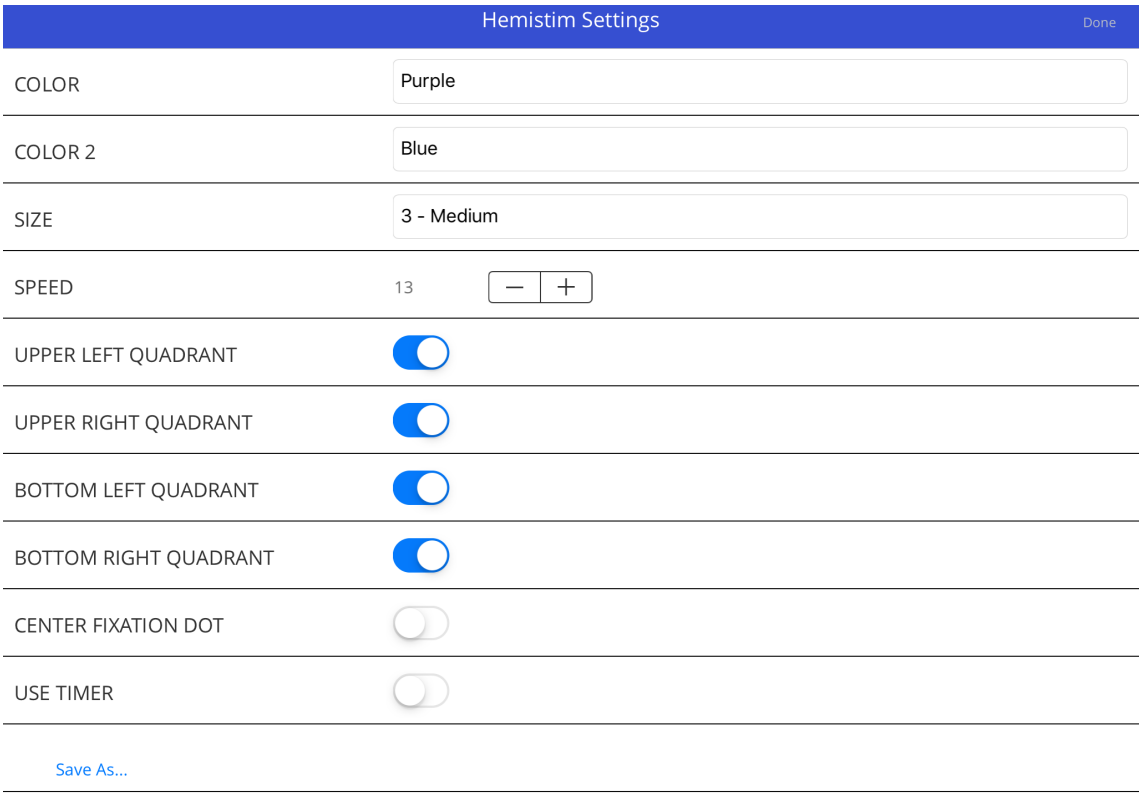
3. **Gaze Stability Exercises:** Remember to sit erect with your feet flat on the floor and remove any tilt or rotation of your head. Place the cross pattern of targets (provided) at approximately 36 inches (one arm, plus an extra hand length away) to carry out the exercise. Be sure the center target is at eye level. Keep your eyes on the center target and perform one set of this exercise consisting of 3 cycles (left, right, left, right, left, right, back to center) of horizontal gaze activity (no-no's). After each horizontal exercise, you will take a 20 second break and then perform a vertical head movement (yes-yes) for 3 cycles (head back, forward, back, forward, back, forward, back to center). Take another 20 second break after your vertical head movement. This constitutes one set of this exercise. Remember to perform the exercise at a rate so that the target remains sharply focused and you have no or very little jumping of your eyes off the target. Be sure that you are moving your head evenly from side to side and up and down. Also, keep your head straight (no tilting your head). Perform 1 set of 3 cycles of horizontal gaze activity (no-no's) followed by 1 set of 3 cycles of vertical head movement (yes-yes) on the following targets in this order: center, top, bottom, left, right, center. Take at least a 20 second break between each target. Perform 2 times per day.

4. **Memorized Saccades:** For this exercise you will utilize the video that was provided to you by South Florida Integrative Health. Place your laptop at eye level approximately 30 inches away. Be sure that the center of your vision is on the center of the screen. Keep your eyes on the center dot. You will see a dot appear in your peripheral vision, do not move your eyes to this dot but take note of where it is. This dot will then disappear. When the central dot disappears, move your eyes to where you believe that peripheral dot was located. The peripheral dot will reappear. If you are not in the correct location, move your eyes to the dot. The peripheral dot will disappear again and the central dot will reappear. Move your eyes to the central dot and start the sequence again. Pause and take a 20 second break every 60 seconds until the video ends. Perform this exercise 3-5 times a day with at least an hour between sessions.

5. **Retro-walking:** During this exercise safety is the number one priority. Watch out for your kids. Remember that your arm is to be raised in front of you on the same side that you are stepping back with. In addition, your arm on the opposite side

should be moving down and back at the same time. You will perform large, exaggerated arm movements as you walk backwards. With each step you should stay very balanced and controlled. Walk backward with exaggerated arm swing until you reach the end of your hallway, then turn around and walk backward to your starting point. This constitutes one set of this exercise. Perform three sets with a 20-30 second break between sets. Perform two sessions of this exercise per day.

Hemistim Settings:
Open the Focus Builder app to the home screen with all of the different types of exercises. Select “Hemistim”. On the next screen select “Settings” in the upper right. Enter the settings as pictured below. You can then select “Save As…” at the bottom of the screen to save the settings for later. To get back to your preset hemistim exercise later, select “Saved Exercises” at the main screen and then select the “Home” folder.



Please send a video of these exercises within the next week. Let me know if you have any questions or concerns regarding these therapies.

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(770) 485-6554