

Canalith Repositioning from Beginner to Expert by John Epley, MD and John Li, MD

Definition: BENIGN PAROXYSMAL POSITIONAL VERTIGO is defined as an abnormal sensation of motion that is elicited by certain critical provocative positions. The provocative positions usually trigger specific eye movements (nystagmus). The character and direction of the nystagmus is specific to the part of the inner ear affected and the pathophysiology.

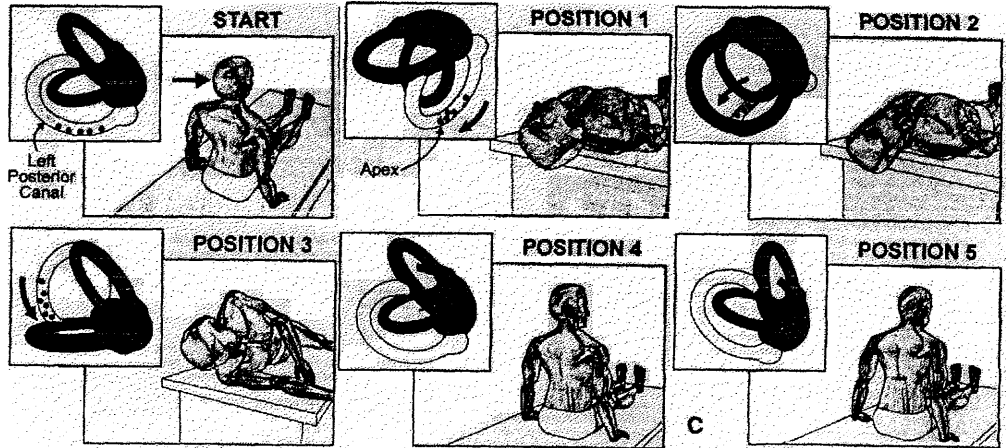
Classical BPPV is the most common variety of BPPV. It involves the posterior semicircular canal and is characterized by the following Geotropic torsional nystagmus with the problem ear down, predominantly rotatory, fast phase toward undermost ear, latency (a few seconds), limited duration (<20 sec), reversal upon return to upright, and response decline upon repetitive provocation.

The Dix-Hallpike maneuver is the standard clinical test for BPPV. The finding of **classical rotatory nystagmus** with latency and limited duration is considered pathognomonic. This test is done by rapidly moving the patient from a sitting position to the supine with the head turned 45 degrees to the right. After waiting about 20-30 seconds, the patient is returned to the sitting position. The maneuver is then repeated on the left side.

Treatment The treatment options include:

- Watchful Waiting, i.e. Do Nothing
- Vestibulosuppressant Medication
- Vestibular Rehabilitation
- Canalith Repositioning

The Canalith Repositioning Procedure (CRP) is a simple, noninvasive, office treatment which is designed to actually cure benign paroxysmal positional vertigo within one or two sessions. This therapy has enjoyed a greater than 97% success rate for patients with benign paroxysmal positional vertigo. It is described as follows:



Starting Position (Start) -- (Sitting, head turned 45 degrees towards ipsilateral side.) The patient begins the procedure in a sitting position. The head is turned toward the affected side. A mastoid bone oscillator is applied and held in position behind the affected ear by the head band to help agitate the particles so they will move more easily. (in this example we will treat a case of left-sided BPPV)

Position 1 -- (Supine, 20 degrees trendelenberg, head turned 45 degrees towards target ear.) Particles gravitate dependently.

Position 2 -- (Still in 20 degrees trendelenberg, head turned 45 degrees to contralateral side.) Particles approach apex.

Position 3 -- (Roll on to shoulder, face downward 135 degrees.) Particles to crus

Position 4 -- (The patient is then raised back to the sitting position with the head turned away from the affected side.) Particles start through crus **Position 5** -- (Straight ahead, tilt head forward 20 degrees.) Particles drop into utricle

Ready to start another cycle, if necessary.

A Dix-Hallpike test is done immediately following the procedure. If nystagmus is seen, the procedure is repeated until the nystagmus is gone. After the procedure the patient is instructed to avoid agitation of the head for about 48 hours while the particles settle, and to return in one week for follow-up.

Advanced Issues: Complications - Complications to CRP are rare, and can all be managed effectively :

Complications	Solution
Nausea / Vomiting	Premedicated: Valium, Scopace. Use Li modification strategy
Residual BPPV	Repeat with head further extended. Use timing based strategy. Use 360 positioning.
Worse Vertigo: Canal Jam	Repeat maneuver in reverse with oscillator in place.
Conversion to HSC	Changed to horizontal canal canalith repositioning strategy.

Horizontal SCC - Canalithiasis And Cupulolithiasis (Heavy Cupula) Summary Table.

Horizontal SCC	Nystagmus direction	Nystagmus intensity	Max Head Position	Duration:	Treatment
CANALITHIASIS	Same as head turn	Stronger, sudden onset	Any	Short, with short latency	Roll away 360° from affected side
CUPULOLITHIASIS	Ageotropic	Weaker, slow onset	45° to affected side	Persistent	Roll away 180° and return

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