

Device Name	How to Use	Research Results	Study Name	Cost
EmFit	<p>Two components:</p> <ul style="list-style-type: none"> • Bed sensor • Bed-side monitor <p>Detects when a person has continuous faster movements over a pre-set amount of time.</p> <p>Also notices light movements making it suitable for smaller children.</p> <p>Can also notify when individuals leave the bed</p>	<ul style="list-style-type: none"> • Of the 45 patients 26 experienced a combined total of 78 seizures. • 28 seizures whilst the subject was asleep. Emfit monitor captured 23 (30%) of these. 15 of which detected during sleep (53.6%). • The Emfit monitor detected 84.6% (11 of the 13) generalised tonic clonic seizures during sleep and 12 of the 16 when the subject was awake. • Emfit is designed to detect generalised tonic clonic seizures when the person is asleep and authors felt it met its objective. 	<p>Poppel, K. V., Fulton, S. P., McGregor, A., Ellis, M., Patters, A., & Wheless, J. (2013). Prospective study of the Emfit movement monitor. <i>Journal of child neurology</i>, 28(11), 1434-1436.</p>	<p>\$594 USD</p> <p>Shipping: \$45 USD</p>
SmartWatch Inspyre	<p>App to be used on a smart watch (compatible with specific android or apple watches)</p> <p>https://smart-monitor.com/</p> <p>Detects patterns or abnormal or repetitive shaking, can also record audio (all data is available for review afterward)</p> <p>Texts alert to family members</p>	<ul style="list-style-type: none"> • 191 seizures in 41 patients • 51 seizures were GTC, 47 had a rhythmic arm movement component • Smartwatch detected 30 seizures (16%) of the total, 16 (31%) of the generalized tonic-clonic seizures, and 16 (34%) 	<p>Patterson, A. L., Mudigoudar, B., Fulton, S., McGregor, A., Van Poppel, K., Wheless, M. C., ... & Wheless, J. W. (2015). SmartWatch by SmartMonitor: assessment of seizure detection efficacy for various seizure types in children, a large prospective single-center study. <i>Pediatric neurology</i>, 53(4), 309-311.</p>	<p>Activation cost of \$20</p> <p>Plans:</p> <p>Bronze (1 contact): \$9.95/month</p> <p>Silver (5 contacts): \$19.95/month</p>

		seizures associated with rhythmic arm movements		Gold (unlimited contacts): \$39.95/month
Embrace 2 https://www.empatica.com/en-int/embrace2/	Wearable device for Tonic Clonic Seizures In order to use, requires: <ul style="list-style-type: none"> • Smartphone/tablet • Alert App • Mate App • Subscription plan • Internet connection Uses Bluetooth to store information on phone/tablet; requires internet to alert caregivers FDA Approved medical device	<ul style="list-style-type: none"> • study completed by Empatica (potential bias) • 3 patients wore bracelet for 1 year (small sample) • For P1 and P2, all GTCs were detected (201 and 64, respectively) • For P3, 63 out of 65 GTCs were detected • Nocturnal seizures represented 87%, 92% and 43% of all GTCs, respectively, and were all detected except for one GTCs experienced by P3 • No false alarms happened during resttime 	Onorati, F. & Caborni, C & Cardona, M. & Regalia, Giulia & Picard, Rosalind. (2018). Performance of a wrist-worn multimodal seizure detection system for more than a year in real-life settings.	Watch: \$249 USD Charging Dock: \$29.90 USD Shipping: \$39 USD Subscription Plan: Lite (1 contact): \$99/yearly Standard (3 contacts): \$199/yearly Plus (unlimited contacts & seizure reports): \$449/yearly
Sami https://www.samialert.com	Sleep activity monitor Audio-video information from a remote infrared video camera is sent to an app on a smart device. App records and analyzes video – alarm is sounded if unusual event is detected			Standard Sami-3 Kit: \$949 USD (includes camera, wifi router, and ipod touch)
Seizure Link https://seizurelink.com	Sticks to top of bicep muscle to alert caregivers about sustained tonic muscle activity Connects to alerting app on a smart device	<ul style="list-style-type: none"> • study NOT specific to Seizure Link (however it used the same mechanism) • 199 patients 	Halford, J. J., Sperling, M. R., Nair, D. R., Dlugos, D. J., Tatum, W. O., Harvey, J., ... & Henry, T. R. (2017). Detection of generalized tonic-clonic seizures using	\$499 USD -need to replace electrodes monthly

		<ul style="list-style-type: none"> • when placed on the bicep, the system detected 29 of 29 GTCS • mild to moderate adverse events were reported in 28% mostly due to skin irritation 	surface electromyographic monitoring. <i>Epilepsia</i> , 58(11), 1861-1869.	(1 box – 2 month supply - \$89.99 USD)
SeizAlarm	<p>App compatible with iPhone or Apple Watch</p> <p>Automatically monitors abnormal repetitive motion and/or elevated heart rate, observed during seizures</p> <p>Notifies your emergency contacts</p>			\$149.99 USD /year
Companion Solution	<p>Mattress sensor</p> <p>Ideal for Tonic Clonic seizures and any situation that manifests sounds, vomiting, and/or incontinence</p> <p>Can warn if user gets out of bed or stays out too long</p> <p>https://alert-it.co.uk</p>			<p>Device that detects spasm/sound: 236 pounds **requires your own microphone</p> <p>Device that detects spasm/moisture: 262 pounds **requires cotton sensing sheets</p>
Epilepsy Bed Movement Seizure Detection Alarm	<p>Mattress sensor</p> <p>Bed sensor for movement, sound sensor detects vocalisations preceding or during seizure</p>	<ul style="list-style-type: none"> • Five of eight tonic-clonic seizures were detected. • There were 269 false positive alarms. • The negative predictive 	Carlson, C., Arnedo, V., Cahill, M., & Devinsky, O. (2009). Detecting nocturnal convulsions: efficacy of the MP5 monitor. <i>Seizure</i> , 18(3), 225-227.	170 pounds



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https://medpage-ltd.com/Epilepsy-Bed-Movement-Seizure-Detection-Alarm	Suitable for babies to adults	value of 99.8% illustrates the potential for this device to provide additional security for patients with tonic-clonic seizures, however individual calibration would likely be necessary		
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