



UNDERSTANDING EPILEPSY AND SEIZURES

WHAT ARE SEIZURES?

A SEIZURE IS A BURST OF UNCONTROLLED ELECTRICAL AND CHEMICAL ACTIVITY IN THE BRAIN THAT CAN AFFECT A PERSON'S MOVEMENT, BEHAVIOUR, SENSATION, AND LEVEL OF AWARENESS. PEOPLE WITH EPILEPSY CAN HAVE A WIDE RANGE OF SEIZURE TYPES. EVERY PERSON'S EXPERIENCE OF A SEIZURE IS DIFFERENT, AND NOT ALL SEIZURES ARE ALIKE, ALTHOUGH THE PATTERNS OF SEIZURES TEND TO BE CONSISTENT WITHIN AN INDIVIDUAL. NOT EVERYONE WHO HAS SEIZURES HAS EPILEPSY. A SPECIALIST DIAGNOSES EPILEPSY BASED ON SEVERAL MEDICAL FACTORS, INCLUDING WHETHER A PERSON HAS EXPERIENCED AT LEAST TWO SEIZURES, OR IS AT RISK FOR FURTHER SEIZURES.



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WHAT CAUSES SEIZURES?

A SEIZURE IS A SIGN THAT THERE HAS BEEN A DISRUPTION TO THE NORMAL FUNCTIONING OF THE BRAIN. SEIZURES CAN BE EITHER PROVOKED OR UNPROVOKED. A PROVOKED SEIZURE IS CAUSED BY A KNOWN EVENT SUCH AS A STROKE, BRAIN INFECTION OR LOW BLOOD GLUCOSE. EVENTS SUCH AS ILLNESS, FLASHING LIGHTS, STRESS, OR SLEEP DEPRIVATION CAN TRIGGER SEIZURES IN PEOPLE WHO HAVE EPILEPSY. UNPROVOKED SEIZURES HAPPEN WITHOUT A KNOWN CAUSE. FOR ALMOST 60 PERCENT OF PEOPLE DIAGNOSED WITH EPILEPSY, THE CAUSE OF THEIR SEIZURES IS NOT IMMEDIATELY KNOWN AND FURTHER INVESTIGATIONS ARE NEEDED TO DETERMINE THE UNDERLYING CAUSE. MODERN INVESTIGATIONS AND TECHNOLOGIES SUCH AS IMPROVED MEDICAL IMAGING AND GENETIC TESTING ARE REVEALING CAUSES IN MORE AND MORE PATIENTS.

WHAT HAPPENS DURING A SEIZURE?

SEIZURES DIFFER FROM PERSON TO PERSON, AND SOME PEOPLE EXPERIENCE MORE THAN ONE TYPE OF SEIZURE. DEPENDING ON THE TYPE OF SEIZURE, THE FOLLOWING THINGS MAY BE EXPERIENCED:

- A LOSS OF CONSCIOUSNESS
- A RANGE OF UNUSUAL MOVEMENTS



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- **ODD FEELINGS AND SENSATIONS, SUCH AS AN UNPLEASANT TASTE OR SMELL**
- **A BEHAVIOUR CHANGE**
- **LOSS OF BLADDER CONTROL**
- **A CHANGE IN MOOD.**

SOME PEOPLE WILL BE ALERT DURING A SEIZURE AND WILL BE ABLE TO REMEMBER WHAT HAPPENED. OTHERS WILL BE UNABLE TO RESPOND TO THOSE AROUND THEM AND MAY NOT REMEMBER THE SEIZURE AT ALL. SOME PEOPLE ONLY REMEMBER CERTAIN PARTS OF THEIR SEIZURE. AFTER A SEIZURE, THE PERSON MAY FEEL TIRED AND SLEEPY, CONFUSED, ANGRY, SAD OR WORRIED. CONFUSION FOLLOWING A SEIZURE CAN LAST SEVERAL HOURS, DAYS OR SOMETIMES EVEN WEEKS.

WHAT ARE THE DIFFERENT TYPES OF SEIZURES?

THERE ARE TWO MAIN GROUPS OF SEIZURES – FOCAL AND GENERALISED. THE DIFFERENCE BETWEEN FOCAL AND GENERALISED SEIZURES IS HOW THEY BEGIN.



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FOCAL SEIZURES

FOCAL SEIZURES (PREVIOUSLY CALLED PARTIAL SEIZURES) START IN ONE PART OF THE BRAIN AND AFFECT THE BODY FUNCTION CONTROLLED BY THAT PART OF THE BRAIN. FOCAL SEIZURES MAY BE ASSOCIATED WITH REDUCED AWARENESS. SUCH SEIZURES ARE CALLED 'FOCAL IMPAIRED AWARENESS SEIZURES' (PREVIOUSLY CALLED COMPLEX PARTIAL SEIZURES). SOMETIMES, HOWEVER, PEOPLE ARE AWARE THAT THEY ARE HAVING A FOCAL SEIZURE. IF THEY ARE FULLY AWARE DURING A SEIZURE, THE SEIZURE IS CALLED A 'FOCAL AWARE SEIZURE' (PREVIOUSLY CALLED SIMPLE PARTIAL SEIZURE).

WHEN A PERSON IS AWARE AT THE BEGINNING OF A FOCAL IMPAIRED AWARENESS SEIZURE, THEY MAY EXPERIENCE AURAS OR 'WARNING' SIGNS. COMMON FOCAL SEIZURE AURAS INCLUDE:

- **AN UNPLEASANT TASTE OR SMELL**
- **A SENSE OF DÉJÀ VU**
- **A FEELING OF BUTTERFLIES IN THE STOMACH OR NAUSEA.**



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AURAS ARE OFTEN VERY BRIEF BUT CAN HAPPEN IN CLUSTERS. SOME PEOPLE MAY BE AWARE THAT THEY ARE EXPERIENCING INVOLUNTARY ARM OR LEG JERKING OR ODD BEHAVIOURS SUCH AS FIDDLING WITH CLOTHING. A FOCAL SEIZURE CAN SPREAD TO THE OTHER SIDE OF THE BRAIN AND CAUSE A BILATERAL CONVULSIVE SEIZURE. THIS IS CALLED A 'FOCAL TO BILATERAL TONIC-CLONIC SEIZURE'.

FOCAL SEIZURES OFTEN WEAKEN OR CHANGE A PERSON'S LEVEL OF AWARENESS AND RESPONSIVENESS. WHEN THIS HAPPENS, THESE ARE CALLED FOCAL IMPAIRED AWARENESS SEIZURES. DURING A FOCAL IMPAIRED AWARENESS SEIZURE, THE PERSON MAY APPEAR CONFUSED AND DAZED. THEY MAY ALSO DISPLAY STRANGE AND REPETITIVE ACTIONS (AUTOMATISMS) SUCH AS FIDDLING WITH THEIR CLOTHES, MAKING CHEWING MOVEMENTS WITH THEIR MOUTH OR UTTERING UNUSUAL SOUNDS. FOCAL IMPAIRED AWARENESS SEIZURES USUALLY LAST FOR ONE TO TWO MINUTES. THE PERSON MAY BE CONFUSED OR DROWSY AFTERWARDS. THEY MAY HAVE NO MEMORY OF THE SEIZURE OR THE EVENTS JUST BEFORE OR AFTER IT. THIS TYPE OF SEIZURE CAN BE MISTAKEN FOR DRUG/ALCOHOL AFFECTED BEHAVIOUR OR PSYCHIATRIC DISTURBANCE.



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GENERALISED SEIZURES

GENERALISED SEIZURES INVOLVE THE WHOLE BRAIN AT THE ONSET. THERE ARE MANY TYPES OF GENERALISED SEIZURES. SOME ARE CONVULSIVE AND OTHERS NON-CONVULSIVE. CONVULSIVE SEIZURES INVOLVE STIFFENING AND JERKING ARMS AND LEGS. NON-CONVULSIVE SEIZURES ARE HARDER TO NOTICE AND MAY INVOLVE STARING OR UNUSUAL ACTIVITY.



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ABSENCE SEIZURES (PREVIOUSLY CALLED PETIT MAL SEIZURES)

ABSENCE SEIZURES ARE SHORT, NON-CONVULSIVE SEIZURES. THEY USUALLY OCCUR IN CHILDREN AND YOUNGER PEOPLE, WITH GIRLS AFFECTED MORE FREQUENTLY THAN BOYS. DURING ABSENCE SEIZURES, THE PERSON'S AWARENESS AND RESPONSIVENESS CHANGES. THE PERSON MAY SIMPLY STARE, THEIR EYES MIGHT ROLL BACK, OR THEIR EYELIDS MIGHT FLUTTER. IT CAN BE DIFFICULT TO DISTINGUISH BETWEEN ABSENCE SEIZURES AND DAYDREAMING; HOWEVER, ABSENCE SEIZURES START SUDDENLY AND CANNOT BE INTERRUPTED. THEY ALSO LAST A FEW SECONDS AND THEN SUDDENLY STOP. ONCE THEY STOP, THE PERSON OFTEN GOES BACK TO DOING WHATEVER THEY WERE DOING. ALTHOUGH THESE SEIZURES USUALLY LAST LESS THAN 20 SECONDS, THEY CAN OCCUR MANY TIMES DAILY AND CAN BE VERY DISRUPTIVE TO LEARNING.

MYOCLONIC SEIZURES

MYOCLONIC SEIZURES ARE BRIEF, SHOCK-LIKE JERKS INVOLVING A MUSCLE OR A GROUP OF MUSCLES. THEY USUALLY INVOLVE THE UPPER BODY, CAUSING A PERSON TO DROP THINGS FROM THEIR HANDS. SOMETIMES THEY INVOLVE THE WHOLE BODY, WHICH CAN RESULT IN A FALL. THESE SEIZURES ONLY LAST A COUPLE OF SECONDS AND CAN HAPPEN IN ISOLATION OR IN A CLUSTER.



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THEY OFTEN HAPPEN IN THE MORNING BUT CAN ALSO HAPPEN AT OTHER TIMES OF THE DAY. THEY SHOULD BE DISTINGUISHED FROM TWITCHES DURING SLEEP, PARTICULARLY WHEN SOMEONE IS FALLING ASLEEP, WHICH IS USUALLY A NORMAL PHENOMENON.

ATONIC SEIZURES

ATONIC SEIZURES CAUSE A SUDDEN LOSS OF MUSCLE STRENGTH, AND THE PERSON OFTEN FALLS TO THE GROUND. THESE SEIZURES USUALLY LAST LESS THAN 15 SECONDS. OFTEN CALLED 'DROP ATTACKS', THESE SEIZURES CAN CAUSE HEAD OR FACIAL INJURY. WEARING A HELMET MAY MINIMISE THE RISK OF INJURY.

TONIC SEIZURES

TONIC SEIZURES INCREASE NORMAL MUSCLE TONE, CAUSING THE BODY, ARMS AND LEGS TO BECOME STIFF AND RIGID. THESE SEIZURES OFTEN OCCUR IN CLUSTERS DURING SLEEP BUT CAN ALSO OCCUR WHEN THE PERSON IS AWAKE. IF THE PERSON IS STANDING WHEN A TONIC SEIZURE STARTS, THEY WILL FALL QUITE HEAVILY. WEARING A HELMET MAY MINIMISE THE RISK OF INJURY. THESE SEIZURES USUALLY LAST LESS THAN 20 SECONDS.



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TONIC-CLONIC SEIZURES (PREVIOUSLY CALLED GRAND MAL SEIZURES)

DURING A TONIC-CLONIC SEIZURE, A PERSON'S BODY STIFFENS. AIR IS FORCED PAST THE VOCAL CORDS, CAUSING A CRY OR GROAN. IF STANDING, THE PERSON FALLS TO THE GROUND (TONIC PHASE). THE PERSON'S LIMBS BEGIN TO JERK IN STRONG, SYMMETRICAL, RHYTHMIC MOVEMENTS (THE CLONIC PHASE). THE PERSON MAY DRIBBLE FROM THE MOUTH, GO BLUE IN THE FACE, OR LOSE CONTROL OF THEIR BLADDER OR BOWEL AS THE BODY RELAXES. AS CONSCIOUSNESS RETURNS, THE PERSON MAY BE CONFUSED, DROWSY, AGITATED OR DEPRESSED. THEY MAY HAVE A HEADACHE AND WANT TO SLEEP. THIS DROWSINESS CAN LAST FOR SEVERAL HOURS.

ALTHOUGH THIS TYPE OF SEIZURE CAN BE FRIGHTENING TO WATCH, THE SEIZURE ITSELF IS UNLIKELY TO SERIOUSLY HARM, UNLESS IT LASTS FOR A LONG TIME. THE PERSON EXPERIENCING THE SEIZURE MIGHT, HOWEVER, VOMIT OR BITE THEIR TONGUE. SOMETIMES THEY CAN INJURE THEMSELVES IF THEY HIT NEARBY OBJECTS. TONIC-CLONIC SEIZURES GENERALLY LAST FROM ONE TO THREE MINUTES. IF THE ACTIVE MOVEMENTS OF THE SEIZURE LAST FOR 5 MINUTES CALL AN AMBULANCE.



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LENGTHY SEIZURES, OR A SERIES OF SEIZURES WITHOUT A NORMAL BREAK IN BETWEEN, SUGGEST A DANGEROUS CONDITION CALLED CONVULSIVE STATUS EPILEPTICUS, WHICH REQUIRES EMERGENCY TREATMENT.

STATUS EPILEPTICUS

STATUS EPILEPTICUS (STATUS) IS THE TERM USED TO DESCRIBE SEIZURES THAT LAST FOR 5 MINUTES OR MORE. THE TERM IS ALSO USED TO DESCRIBE A SITUATION WHERE A PERSON EXPERIENCES MORE THAN ONE SEIZURE WITHOUT REGAINING CONSCIOUSNESS.

STATUS CAN OCCUR WITH CONVULSIVE OR NON-CONVULSIVE SEIZURES. STATUS CAN LAST FROM HOURS TO DAYS, OR, IN THE CASE OF NON-CONVULSIVE STATUS, EVEN WEEKS OR MONTHS. FACTORS THAT MAY LEAD TO STATUS INCLUDE SUDDEN WITHDRAWAL FROM MEDICATION, ILLNESS, FEVER AND INFECTIONS. CONVULSIVE STATUS MAY LEAD TO BRAIN DAMAGE OR DEATH UNLESS STOPPED QUICKLY WITH EMERGENCY MEDICATION. AN AMBULANCE MUST BE CALLED FOR ANY SEIZURE LASTING FIVE MINUTES. NON-MEDICAL CARERS AND WORKERS (SUCH AS PARENTS AND TEACHERS) CAN BE TRAINED TO ADMINISTER EMERGENCY MEDICATION.



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THIS OPTION SHOULD BE DISCUSSED WITH THE PERSON'S DOCTOR.

THE TREATING DOCTOR SHOULD COMPLETE AN EMERGENCY MEDICATION MANAGEMENT PLAN (EMMP) AND ATTACH IT TO THE PERSON'S EPILEPSY MANAGEMENT PLAN. EMMPs ARE AVAILABLE FROM THE NATIONAL EPILEPSY SUPPORT SERVICE (NESS). THEY CAN ALSO ADVISE ON TRAINING ON ADMINISTRATION OF EMERGENCY MEDICATION WHICH IS AVAILABLE THROUGH YOUR LOCAL STATE/TERRITORY EPILEPSY ORGANISATION.

EPILEPSY SYNDROMES

JUST AS THERE ARE DIFFERENT TYPES OF SEIZURES, SO TOO ARE THERE DIFFERENT TYPES OF EPILEPSY DISORDERS. EACH EPILEPSY DISORDER HAS ITS OWN PARTICULAR SET OF FEATURES. WHEN A DISORDER IS DEFINED BY A DISTINCT GROUP OF FEATURES, IT IS CALLED A SYNDROME. EPILEPSY SYNDROMES ARE DEFINED BY A CLUSTER OF FEATURES, INCLUDING:

- **SEIZURE TYPE/S AND THEIR SEVERITY AND FREQUENCY**
- **THE AGE OF ONSET**
- **THE CAUSES OF THE SEIZURES AND WHETHER THERE IS A FAMILIAL LINK**



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- **THE PART OF THE BRAIN INVOLVED**
- **ELECTROENCEPHALOGRAPH (EEG) ACTIVITY**
- **SEIZURE PROVOKING FACTORS AND THE PRESENCE OF OTHER DISORDERS IN ADDITION TO SEIZURES.**

NON-EPILEPTIC SEIZURES

AROUND ONE IN FIVE PEOPLE WHO EXPERIENCE SEIZURES ARE DIAGNOSED WITH NON-EPILEPTIC SEIZURES. THESE SEIZURES ARE NOT CAUSED BY ABNORMAL ELECTRICAL BRAIN DISCHARGES BUT BY PSYCHOLOGICAL OR PHYSIOLOGICAL FACTORS. PSYCHOLOGICAL FACTORS THAT MAY MAKE A PERSON VULNERABLE TO DEVELOPING PSYCHOGENIC NON-EPILEPTIC SEIZURES INCLUDE INHERITED FACTORS AND TRAUMATIC EXPERIENCES. PHYSIOLOGICAL FACTORS CAN INCLUDE AN IRREGULAR HEART RHYTHM OR LOW BLOOD PRESSURE.



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