

BIBLIOGRAPHIE

ÉPILEPSIE ET ACTIVITÉ PHYSIQUE

*Vous trouverez ci-après une liste de références sélective et non exhaustive.
Celles-ci sont classées par type puis par année décroissante.*

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INTRODUCTION : QUELQUES DÉFINITIONS

Sport : toute forme d'activités physiques qui, à travers une participation organisée ou non, ont pour objectif l'expression ou l'amélioration de la condition physique et psychique, le développement des relations sociales ou l'obtention de résultats en compétition de tout niveau. ¹

Parcours sport-santé : C'est un dispositif individuel de développement des ressources de santé physique, mentale et sociale qui vise, par un accompagnement éducatif et motivationnel préventif et/ou thérapeutique, à permettre à tout public pouvant tirer bénéfice pour sa santé de ce parcours (personnes atteintes de maladies chroniques, de maladies rares, en situation de handicap physique, mental ou social, sportifs en situation de pratique intensive ou relevant de blessure) d'accéder à un projet sportif personnalisé. ²

Il est reconnu et accepté qu'une vie physiquement et socialement active est bénéfique pour la santé. C'est tout aussi vrai pour les personnes atteintes d'épilepsie. Et, de fait, l'activité physique peut contribuer à réduire la survenance des crises chez un grand nombre de personnes.

La planification des activités physiques sportives et récréatives et la participation à celles-ci doivent être personnalisées. ³

¹ Charte européenne du sport révisée en 2001. Conseil de l'Europe, Comité des Ministres.

<https://www.coe.int/fr/web/sport/european-sports-charter>

² Société française Sport Santé : <https://www.sfsportsante.com/>

³ Les sports, les activités récréatives et l'épilepsie. BC Epilepsy Society, 2012, 3 p.

<http://www.bcepilepsy.com/files/information-sheets/French/French-Sports and Recreation for People with Epilepsy.pdf>



ARTICLES & REVUES

CARRIZOSA-MOOG Jaime, LADINO Lady Diana, BENJUMEA-CUARTAS Vanessa, OROZCO-HERNANDEZ Juan Pablo, CASTRILLON-VELILLA Diana Marcela, RIZVI Syed, TELLEZ-ZENTENO José Francisco. **Epilepsy, physical activity and sports : a narrative review.** Canadian journal of neurological sciences 2018 ; 45 (6) : 624-632.

People with epilepsy (PWE) are less physically active compared with the general population. Explanations include prejudice, overprotection, unawareness, stigma, fear of seizure induction and lack of knowledge of health professionals. At present, there is no consensus on the role of exercise in epilepsy. This paper reviews the current evidence surrounding the risks and benefits associated with physical activity (PA) in this group of patients. In the last decade, several publications indicate significant benefits in physiological and psychological health parameters, including mood and cognition, physical conditioning, social interaction, quality of life, as well as potential prevention of seizure presentation. Moreover, experimental studies suggest that PA provides mechanisms of neuronal protection, related to biochemical and structural changes including release of β -endorphins and steroids, which may exert an inhibitory effect on the occurrence of abnormal electrical activity.

Epileptic discharges can decrease or disappear during exercise, which may translate into reduced seizure recurrence. In some patients, exercise may precipitate seizures. Available evidence suggests that PA should be encouraged in PWE in order to promote wellbeing and quality of life. There is a need for prospective randomized controlled studies that provide stronger clinical evidence before definitive recommendations can be made.

HAUT Sheryl R, LIPTON Richard B, CORNES Susannah, DWIVEDI Alok K, WASSON Rachel, COTTON Sian, STRAWN Jeffrey R, PRIVITERA Michael. **Behavioral interventions as a treatment for epilepsy.** Neurology 2018 ; February 14
To evaluate the effect of a stress-reduction intervention in participants with medication-resistant epilepsy.

CAPOVILLA G, KAUFMAN KR, PERUCCA E, MOSCHE SL, ARIDA RM. **Epilepsy, seizures, physical exercise, and sports : A report from the ILAE Task Force on Sports and Epilepsy.** Epilepsia 2016 ; 57 (1) : 6-12.

People with epilepsy (PWEs) are often advised against participating in sports and exercise, mostly because of fear, overprotection, and ignorance about the specific benefits and risks associated with such activities. Available evidence suggests that physical exercise and active participation in sports may favorably affect seizure control, in addition to producing broader health and psychosocial benefits. This consensus paper prepared by the International League Against Epilepsy (ILAE) Task Force on Sports and Epilepsy offers general guidance concerning participation of PWEs in sport activities, and provides suggestions on the issuance of medical fitness certificates related to involvement in different sports. Sports are divided into three categories based on potential risk of injury or death should a seizure occur: group 1, sports with no significant additional risk; group 2, sports with moderate risk to PWEs, but no risk to bystanders; and group 3, sports with major risk. Factors to be considered when advising whether a PWE can participate in specific activities include the type of sport, the probability of a seizure occurring, the type and severity of the seizures, seizure precipitating factors, the usual timing of seizure occurrence, and the person's attitude in accepting some level of risk. The Task Force on Sports and Epilepsy considers this document as a work in progress to be updated as additional data become available.

PIMENTEL J, TOJAL R, MORGADO J. **Epilepsy and physical exercise.** Seizure 2015 ; (25) : 87-94.

Epilepsy is one of the commonest neurologic diseases and has always been associated with stigma. In the interest of safety, the activities of persons with epilepsy (PWE) are often restricted. In keeping with this, physical exercise has often been discouraged. The precise nature of a person's seizures (or whether seizures were provoked or unprovoked) may not have been considered. Although there has been a change in attitude over the last few decades, the exact role of exercise in inducing seizures or aggravating epilepsy still remains a matter of discussion among experts in the field. Based mainly on retrospective, but also on prospective, population and animal-based research, the hypothesis that physical exercise is prejudicial has been slowly replaced by the realization that physical exercise might actually be beneficial for PWE. The benefits are related to improvement of physical and mental health parameters and social integration and reduction in markers of stress, epileptiform activity and the number of seizures. Nowadays, the general consensus is that there should be no restrictions to the practice of physical exercise in people with controlled epilepsy, except for scuba diving, skydiving and other sports at heights. Whilst broader restrictions apply for patients with uncontrolled epilepsy, individual risk assessments taking into account the seizure types, frequency, patterns or triggers may allow PWE to enjoy a wide range of physical activities.

STANUSZEK A, WNĘKOWICZ E, KUŹNIAR E, KRAKOWSKA K, GERGONT A, KACIŃSKI M. **Seizure-Precipitating Factors in Relation to medical Recommendations : Especially Those Limiting Physical Activity.** Journal of child neurology 2015 ; 30 (12) : 1569-73.

CARRE François. **La mort subite liée à la pratique sportive.** La presse médicale 2014 ; 43 (7-8) : 831-839.
La mort subite non traumatique lors de la pratique sportive est un événement rare, mais toujours dramatique. Les causes sont principalement cardiovasculaires. Sa prévention repose sur une visite médicale efficace associant un interrogatoire, un examen physique et un ECG de repos, une éducation des sportifs qui doivent respecter les règles de bonne pratique du sport, et enfin une formation aux gestes d'urgence de la population.

Accessible en ligne : <http://www.em-consulte.com/en/article/907308>

CRUTCHFIELD KE. **Managing patients with neurologic disorders who participate in sports activities.** Continuum (Minneapolis) 2014 ; 20 (6 Sports Neurology) : 1657-1666.

Purpose of review : Patients with neurologic conditions have been discouraged from participating in organized sports because of theoretical detrimental effects of these activities to their underlying conditions. The purpose of this article is to review known risks associated with three specific clinical conditions most commonly encountered in a sports neurology clinic (epilepsy, migraines, and multiple sclerosis) and to add to the neurologist's toolkit suggested interventions regarding management of athletes with these disorders. Recent findings : Increased participation in sports and athletics has positive benefits for patients with neurologic conditions and can be safely integrated into the lives of these patients with proper supervision from their treating neurologists. Summary : Patients with neurologic conditions can and should be encouraged to participate in organized sports as a method of maintaining their overall fitness, improving their overall level of function, and reaping the physical and psychological benefits that athletic competition has to offer.

EOM S, LEE MK, PARK JH, JEON JY, KANG HC, LEE JS, KIM HD. **The impact of an exercise therapy on psychosocial health of children with benign epilepsy : a pilot study.** Epilepsy & Behavior 2014 (37) : 151-156.

OBJECTIVES : The purposes of the current study were to test the feasibility of exercise therapy for children with benign epilepsy with centrotemporal spikes (BECTS) and to collect pilot data about the impact of exercise therapy on neurocognitive, emotional, and behavioral outcomes. METHODS: Ten children with BECTS (9.7±1.42 years) participated in a therapeutic exercise program consisting of ten supervised exercise sessions and home-based exercises for five weeks. Electroencephalography (EEG), seizure frequency, and neurocognitive and psychological factors, including attention, executive function, depression, anxiety, behavioral problems, and quality of life, were assessed before and after the exercise program. RESULTS : No clinical symptoms were observed to worsen during the study, demonstrating that the exercise therapy was safe and also feasible. After five weeks of exercise therapy, significant improvements in neurocognitive domains such as simple visual and auditory attention, sustained attention, divided attention, psychomotor speed, and inhibition-disinhibition were observed. Furthermore, parent ratings of internalizing behavioral problems and social problems and mood-related well-being from quality of life improved after exercise therapy. Although not statistically significant, trends were noted toward improvement in children's self-reports of negative mood/somatization, parent reports of somatic complaints, and general health on a quality-of-life measure. CONCLUSIONS : A five-week structured exercise program was successfully implemented, with preliminary data suggesting beneficial impact on neurocognitive and psychobehavioral function. Exercise therapy should be further evaluated as a part of a comprehensive treatment program for children with benign epilepsy.

HRNCIC D, RASIC-MARKOVIC A, LEKOVIC J, KRSTIC D, COLOVIC M, MACUT D, SUSIC V, DJURIC D, STANOJLOVIC O. **Exercise decreases susceptibility to homocysteine seizures : the role of oxidative stress.** International journal of sports medicine 2014 ; 35 (7) : 544-50.

The aim of the study was to examine the effects of chronic exercise training on seizures induced by homocysteine thiolactone (HCT) in adult rats. Rats were assigned to: sedentary control; exercise control; sedentary+HCT; exercise+HCT group. Animals in the exercise groups ran 30 min daily on a treadmill for 30 consecutive days (belt speed 20 m/min), while sedentary rats spent the same time on the treadmill (speed 0 m/min). On the 31st day, the HCT groups received HCT (8.0 mmol/kg), while the control groups received vehicle. Afterwards, convulsive behavior and EEG activity were registered. Lipid peroxidation, superoxide dismutase (SOD) and catalase (CAT) activity were ascertained in the rat hippocampus. No signs of seizures were registered in sedentary and exercise control rats. Seizure latency was increased, while number of seizure episodes and spike-and-wave discharges (SWD) in EEG were decreased in the exercise+HCT compared to the sedentary+HCT group. Seizure incidence, the severity thereof and duration of SWDs were not significantly different between these groups. Exercise partly prevented increase of lipid peroxidation and decrease of the SOD and CAT activity after HCT administration. These results indicate beneficial effects of exercise in model of HCT-induced seizures in rats, what could be, at least in part, a consequence of improved antioxidant enzymes activity.

KIM HJ, SONG W, KIM JS, JIN EH, KWON MS, PARK S. **Synergic effect of exercise and lipoic acid on protection against kainic acid induced seizure activity and oxidative stress in mice.** *Neurochemical Research* 2014 ; 39 (8) : 1579-1584.

Anti-convulsant effects of physical exercise and lipoic acid (LA), also referred to as thioctic acid with antioxidant activity, were investigated using chemical induced seizure model. We investigated the synergic effect of physical exercise and LA on kainic acid-induced seizure activity caused by oxidative stress. After 8 weeks of swimming training, body weight decreased and endurance capacity increased significantly compared to sedentary mice. Kainic acid (30 mg/kg, i.p.) evoked seizure activity 5 min after injection, and seizure activity peaked approximately 80 min after kainic acid treatment. Median seizure activity score in KA only treated group was 4.55 (range 0.5-5), 3.45 for "LA + KA" group (range 0.5-4.3), 3.12 for "EX + KA" group (range 0.05-3.4, $p < 0.05$ vs. "KA only" group), 2.13 for "EX + LA + KA" group (range 0.5-3.0, $p < 0.05$ vs. "EX + KA" group). Also, there was a synergic cooperation of exercise and LA in lowering the mortality in kainic acid treated mice ($\chi^2 = 5.45$, $p = 0.031$; "EX + KA" group vs. "LA + EX + KA" group). In addition, the synergic effect of exercise and LA was found in PGx activity compared to separated treatment ("LA + EX + KA": 37.3 ± 1.36 ; $p < 0.05$ vs. "LA + KA" and "EX + KA" group). These results indicate that physical exercise along with LA could be a more efficient method for modulating seizure activity and oxidative stress.

NASHEF L, CAPOVILLA G, CAMFIELD C, CAMFIELD P, NABBOU R. **Transition : driving and exercise.** *Epilepsia* 2014 ; (55 Suppl 3) : 41-45.

There are many social aspects to consider at the time of transition of adolescents with epilepsy. The role of both pediatric and adult health care providers includes education and guidance within the larger framework of family, society, and country. This section focuses on driving and exercise considerations for those undergoing transition.

Accessible en ligne : <http://onlinelibrary.wiley.com/doi/10.1111/epi.12717/epdf>

PAUMARD C. **Les bénéfices de l'activité sportive dans les pathologies chroniques.** *NPG Neurologie Psychiatrie Gériatrie* 2014 ; (82) : 201-208.

Les systèmes de santé des pays industrialisés doivent faire face à l'émergence des pathologies chroniques, maladies de civilisation. Leur prise en charge doit être globale et au long cours, elle consiste en un accompagnement qui comprend, outre les traitements pharmacologiques, des mesures non médicamenteuses. Nous étudions les bénéfices et l'intérêt de l'activité physique dans les pathologies chroniques les plus courantes. Son rôle sur les effets du vieillissement est également évoqué et les mécanismes physiopathologiques sont analysés. Des expériences locales sont déjà en cours et l'on peut penser qu'elles feront école dans les prochaines années, augurant d'une nouvelle approche du traitement et aussi de la prévention de ces maladies.

ARIDA RM, SCORZA FA, CAVALHEIRO EA. **Role of physical exercise as complementary treatment for epilepsy and other brain disorders.** *Current pharmaceutical design* 2013 ; 19 (38) : 6720-6725.

The impact of exercise on mental health, on cognition, brain function and brain structure as well as the possible underlying molecular systems important for maintaining neural function and plasticity has been extensively examined. Moreover, numerous studies have reinforced the important and beneficial role of exercise for those with neurological disorders. This article reviews general aspects of physical exercise against neurodegenerative diseases and the relevant contributions of physical exercise programs as complementary therapy for epilepsy. We first give an overview of the plasticity induced by exercise in the damaged brain, the impact of exercise in reducing brain injury as well as in delaying onset of and decline in several neurodegenerative diseases. We address the relationship between epilepsy and exercise and report the neuroprotective and antiepileptogenic effects of exercise on epilepsy based on experimental and clinical studies. Overall, we conclude that physical or sport activities represent an exciting intervention that should be integrated with conventional therapy for the improvement of brain function and resistance to neurodegenerative diseases as well as a complementary non-pharmacological treatment of epilepsy.

EPPS S, Alisha, KAHN Alexa B., HOLMES Philip V., BOSS-WILLIAMS Katherine A., WEISS Jay M., WEINSHENKER David. **Antidepressant and anticonvulsant effects of exercise in a rat model of epilepsy and depression comorbidity.** *Epilepsy & behavior* 2013 ; 29 (1) : 47-52.

The bidirectional comorbidity between epilepsy and depression is associated with severe challenges for treatment efficacy and safety, often resulting in poor prognosis and outcome for the patient. We showed previously that rats selectively bred for depression-like behaviors (SwLo rats) also have increased limbic seizure susceptibility compared with their depression-resistant counterparts (SwHi rats). In this study, we examined the therapeutic efficacy of voluntary exercise in our animal model of epilepsy and depression comorbidity. We found that chronic wheel running significantly increased both struggling duration in the forced swim test and latency to pilocarpine-induced limbic motor seizure in SwLo rats but not in SwHi rats. The antidepressant and anticonvulsant effects of exercise were associated with an increase

in galanin mRNA specifically in the locus coeruleus of SwLo rats. These results demonstrate the beneficial effects of exercise in a rodent model of epilepsy and depression comorbidity and suggest a potential role for galanin.

Accessible en ligne : <http://www.ncbi.nlm.nih.gov/pmc/articles/PMC3783960/>

de LIMA C, de LIRA CA, ARIDA RM, ANDERSEN ML, MATOS G, DE FIGUEIREDO FERREIRA GUILHOTO LM, YACUBIAN EM, DE ALBUQUERQUE M, TUFIK S, DOS SANTOS ANDRADE M, VANCINI RL. **Association between leisure time, physical activity, and mood disorder levels in individuals with epilepsy.** *Epilepsy & behavior* 2013 ; 28 (1) : 47-51.

The aim of this study was to investigate the association between physical activity levels (occupational, sports, and leisure time activities), depression, anxiety, and epilepsy. The behavioral outcomes of individuals with epilepsy (E) were also compared with healthy control subjects (C). The sample included 31 individuals with epilepsy (12 with idiopathic generalized epilepsy and 19 with partial epilepsy) and 31 control subjects. Self-rating questionnaires were used to assess mood (State-Trait Anxiety Inventory and Beck Depression Inventory), anxiety, and depression as well as habitual physical activity. Patients with epilepsy were more severely impaired compared to control subjects in both mood questionnaires and presented higher levels of depression (35%), state anxiety (18%), and trait anxiety (12.6%) when compared to the C group. Although physical activity level did not differ significantly between groups, linear regression analyses showed that the physical activity leisure level predicted 31% of depression levels and 26% of anxiety levels in the E group. These data suggest that low levels of physical activity may be considered a risk factor for the development of depression and anxiety and can play an important role in the quality of life of individuals with epilepsy.

WHITNEY R, BHAN H, PERSADIE N, STREINER D, BRAY S, TIMMONS B, RONEN GM. **Feasibility of pedometer use to assess physical activity and its relationship with quality of life in children with epilepsy : a pilot study.** *Pediatric neurology*, 2013 Nov ; 49 (5) : 370-373.

BACKGROUND: Children and youth with epilepsy have lower rates of self-reported and parent-reported physical activity as well as quality of life when compared with their peers. Increased physical activity may be associated with improved health and quality of life in children and youth with epilepsy through biopsychosocial mechanisms; however, supportive evidence is lacking. **METHODS:** This pilot study aims to determine the feasibility of pedometer use—an objective method—to assess daily steps and ability to complete quality of life-related questionnaires in children and youth with epilepsy. Feasibility was determined by percentage of study completion and participant enjoyment of physical activity in the form of walking as determined by the Childhood Self Adequacy and Predilection in Physical Activity. Secondary measures included the KidScreen 27 Quality of Life questionnaire, Childhood Depression Index, Body Mass Index, Harter's Self Perception Scale, and Parental Stress Index. **CONCLUSIONS:** Eight of 12 eligible participants completed the study. Step counts ranged from 266 to 17,220 steps per day. Seven participants found physical activity enjoyable regardless of step count, suggesting they would be amenable to participate in a future physical activity program.

ARIDA RM, SCORZA FA, CAVALHEIRO EA, PERUCCA E, MOSHÉ SL. **Can people with epilepsy enjoy sports?** *Epilepsy Research*, 2012 Jan ; 98 (1) : 94-95.

STREETER CC, GERBARG PL, SAPER RB, CIRAULO DA, BROWN RP. **Effects of yoga on the autonomic nervous system, gamma-aminobutyric-acid, and allostasis in epilepsy, depression, and post-traumatic stress disorder.** *Medical Hypotheses*, 2012 May ; 78 (5) : 571-579.

A theory is proposed to explain the benefits of yoga practices in diverse, frequently comorbid medical conditions based on the concept that yoga practices reduce allostatic load in stress response systems such that optimal homeostasis is restored. It is hypothesized that stress induces (1) imbalance of the autonomic nervous system (ANS) with decreased parasympathetic nervous system (PNS) and increased sympathetic nervous system (SNS) activity, (2) underactivity of the gamma amino-butyric acid (GABA) system, the primary inhibitory neurotransmitter system, and (3) increased allostatic load. It is further hypothesized that yoga-based practices (4) correct underactivity of the PNS and GABA systems in part through stimulation of the vagus nerves, the main peripheral pathway of the PNS, and (5) reduce allostatic load. Depression, epilepsy, post traumatic stress disorder (PTSD), and chronic pain exemplify medical conditions that are exacerbated by stress, have low heart rate variability (HRV) and low GABAergic activity, respond to pharmacologic agents that increase activity of the GABA system, and show symptom improvement in response to yoga-based interventions. The observation that treatment resistant cases of epilepsy and depression respond to vagal nerve stimulation corroborates the need to correct PNS underactivity as part of a successful treatment plan in some cases. According to the proposed theory, the decreased PNS and GABAergic activity that underlies stress-related disorders can be corrected by yoga practices resulting in amelioration of disease symptoms. This has far-reaching implications for the integration of yoga-based practices in the treatment of a broad array of disorders exacerbated by stress.

ARIDA RM, VIEIRA DE, CAVALHEIRO EA, SCORZA FA. **Judo: Ippon scored against epilepsy.** *Epilepsy & Behavior*, 2010 Jan ; 17 (1) : 136.

People with epilepsy most often cite emotional difficulty, such as depression from underemployment, undereducation, and social isolation, as being the greatest problem they come across. Consequently, people with epilepsy experience emotional problems as a result of their disease, which decreases their quality of life. Persons with epilepsy suffer a considerable lack of physical fitness that is likely to impact their general health and quality of life. It has been hypothesized that some of the psychological benefits of exercise may be due to the realization that people with epilepsy can gain from sports, which may improve their sense of control over their disease.

TUTKUN E, AYYILDIZ M, AGAR E. **Short-duration swimming exercise decreases penicillin-induced epileptiform ECoG activity in rats.** *Acta Neurobiologiae experimentalis (Wars)*, 2010 ; 70 (4) : 382-389.

The aim of the present study is to understand the basic relationship between swimming exercise and natural course of epilepsy in animals by performing an electrophysiological study. For this purpose, male Wistar rats were submitted to daily swimming exercise program of three different durations. Animals were swim-exercised for 90 days with either 15 minutes, 30 minutes or 60 minutes/day. Thereafter, the epileptiform activity was induced by a single microinjection of penicillin (500 units) into the left somatomotor cortex. Short-duration swimming exercise (15 min per day for 90 days) decreased the mean frequency and amplitude of penicillin-induced epileptiform activity in the 70 and 90 minutes after penicillin injection compared to penicillin administered group, respectively. Moderate-duration (30 min per day for 90 days) and long-duration (60 min per day for 90 days) swimming exercise did not alter either the frequency or amplitude of epileptiform activity. The results of the present study provide electrophysiologic evidence that short-duration swimming exercise partially inhibits penicillin-induced epileptiform activity. These data also suggest that moderate and long-duration swimming exercise do not increase either the frequency or severity of seizure in the model of penicillin-induced epilepsy.

Accessible en ligne : <http://www.ane.pl/linkout.php?pii=7043>

GORDON KE, DOOLEY JM, BRNA PM. **Epilepsy and activity--a population-based study.** *Epilepsia*, 2010 Nov ; 51 (11) : 2254-9.

PURPOSE: To compare the activity profiles of a nationally representative sample of individuals with epilepsy compared to the general population. **METHODS:** The Canadian Community Health Survey is a cross-sectional survey that uses a stratified cluster sample design to obtain information on Canadians 12 years of age or older. Data on activity and energy expenditure, among those aged 12-39 years, were compared for those who reported having epilepsy and the remainder of the population. **RESULTS:** Of the 53,552 respondents, 341 reported having epilepsy. There was no difference in the monthly frequency of leisure physical activity of >15 min duration between those who did and did not have epilepsy. The daily energy expenditure related to leisure physical activity was also similar between the two groups. The choice of leisure activity was similar, but those with epilepsy were more likely to use walking as a leisure physical activity and were less likely to be involved in ice hockey, weight training, and home exercise. **DISCUSSION:** These results suggest that the negative attitudes toward restricting access to physical activity do not appear to be adversely affecting the leisure activity of Canadian youth and young adults with epilepsy.

Accessible en ligne : <http://onlinelibrary.wiley.com/doi/10.1111/j.1528-1167.2010.02709.x/epdf>

ABLAH E, HAUG A, KONDA K, TINIUS AM, RAM S, SADLER T, LIOW K. **Exercise and epilepsy: a survey of Midwest epilepsy patients.** *Epilepsy & Behavior*, 2009 Jan ; 14 (1) : 162-166.

Obesity and lack of physical activity are an increasing problem. In addition to common barriers to physical activity, people with epilepsy also face fear of exercise-induced seizures, medication side effects, and, often, confusing advice regarding the safety of exercise. To explore barriers faced by people with epilepsy, we mailed a survey to 412 adult patients with epilepsy from an epilepsy center in Kansas. Survey items assessed patients' exercise habits, attitudes regarding exercise, and barriers to exercise. Forty-seven percent completed the survey. Most respondents reported that they did exercise, though most did so 3 or fewer days per week and at light intensity. Respondents who reported seizures as a barrier to exercise did not exercise with less frequency or intensity than those who did not report seizures as a barrier, but these respondents reported greater fear of seizures. Patient-specific education about the benefits of exercise needs to be initiated by physicians.

ARIDA RM, SCORZA FA, TERRA VC, SCORZA CA, DE ALMEIDA AC, CAVALHEIRO EA. **Physical exercise in epilepsy: what kind of stressor is it?** *Epilepsy & Behavior*, 2009 Nov ; 16 (3) : 381-387.

Stress has been considered the most frequently self-reported precipitant of seizures in people with epilepsy. The literature documents that physical stress, that is, physical exercise, can have beneficial effects in people with epilepsy. In view of evidence indicating that sensitivity to stress is reduced after a physical exercise program, physical activity could

be a potential candidate for stress reduction in people with epilepsy. This review considers how physical exercise could contribute to reduce seizure susceptibility and, hence, seizure frequency. Possible mechanisms by which exercise can be beneficial for people with epilepsy are highlighted. Hypothalamic-pituitary-adrenal axis adaptation, neurotransmitter system modulation, and metabolic and neuroendocrine changes may interfere with seizure susceptibility. The psychological stress of different sports activities is an important concern that must also be taken into account. Overall, among stress reduction therapies for the treatment of seizures, exercise might be a potential candidate.

ARIDA RM, CAVALHEIRO EA, DA SILVA AC, SCORZA FA. **Physical activity and epilepsy: proven and predicted benefits.** Sports Medicine, 2008 ; 38 (7) : 607-615.

Epilepsy is a common disease found in 2% of the population, affecting people from all ages. Unfortunately, persons with epilepsy have previously been discouraged from participation in physical activity and sports for fear of inducing seizures or increasing seizure frequency. Despite a shift in medical recommendations toward encouraging rather than restricting participation, the stigma remains and persons with epilepsy continue to be less active than the general population. For this purpose, clinical and experimental studies have analysed the effect of physical exercise on epilepsy. Although there are rare cases of exercise-induced seizures, studies have shown that physical activity can decrease seizure frequency, as well as lead to improved cardiovascular and psychological health in people with epilepsy. The majority of physical activities or sports are safe for people with epilepsy to participate in with special attention to adequate seizure control, close monitoring of medications, and preparation of family or trainers. The evidence shows that patients with good seizure control can participate in both contact and non-contact sports without harmfully affecting seizure frequency. This article reviews the risks and benefits of physical activity in people with epilepsy, discusses sports in which persons with epilepsy may participate, and describes the positive effect of physical exercise in experimental models of epilepsy.

ARIDA RM, SCORZA CA, SCHMIDT B, DE ALBUQUERQUE M, CAVALHEIRO EA, SCORZA FA. **Physical activity in sudden unexpected death in epilepsy: much more than a simple sport.** Neuroscience Bulletin, 2008 Dec ; 24 (6) : 374-380.

Sudden unexpected death in epilepsy (SUDEP) is the most important direct epilepsy-related cause of death. Additionally, potential pathomechanisms for SUDEP is unknown, but it is very probable that cardiac arrhythmia during and between seizures, electrolyte disturbances, arrhythmogenic drugs or transmission of epileptic activity via the autonomic nervous system to the heart may play a potential role. Quite interestingly, clinical and experimental data have shown that physical activity can decrease seizure frequency, as well as lead to improved cardiovascular health in patients with epilepsy. Based on these facts, the purpose of this article is to review the body of literature of the possible contribution of physical exercise to the SUDEP prevention in a comprehensive manner.

HARRISON BK, ASPLUND C. **Sudden unexplained death in epilepsy during physical activity.** Currents Sports Medicine Reports, 2007 Jan ; 6 (1) : 13-15.

SETKOWICZ Z, MAZUR A. **Physical training decreases susceptibility to subsequent pilocarpine-induced seizures in the rat.** Epilepsy Research, 2006 Oct ; 71 (2-3) : 142-148.

Regular motor activity has many benefits for mental and physical condition but its implications for epilepsy are still controversial. In order to elucidate this problem, we have studied the effect of long-term physical activity on susceptibility to subsequent seizures. Male Wistar rats were subjected to repeated training sessions in a treadmill and swimming pool. Thereafter, seizures were induced by pilocarpine injections in trained and non-trained control groups. During the acute period of status epilepticus, we measured: (1) the latency of the first motor sign, (2) the intensity of seizures, (3) the time when it occurred within the 6-h observation period, and (4) the time when the acute period ended. All these behavioral parameters showed statistically significant changes suggesting that regular physical exercises decrease susceptibility to subsequently induced seizures and ameliorate the course of experimentally induced status epilepticus.

WONG J, WIRRELL E. **Physical activity in children/teens with epilepsy compared with that in their siblings without epilepsy.** Epilepsia, 2006 Mar ; 47 (3) : 631-639.

PURPOSE: To determine (a) whether children and teens with epilepsy participate in less physical activity and have higher body mass index (BMI) percentiles for age than do their siblings without epilepsy; and (b) what epilepsy-specific factors limit their participation.

METHODS: Patients 5-17 years, with a ≥ 3 month history of epilepsy, a development quotient ≥ 80 , no major motor or sensory impairments, and at least one sibling without epilepsy in a similar age range, were identified from the Neurology Clinic database or at the time of clinic visit. Parents completed a questionnaire regarding sedentary activities and group, individual, and total sports activities. Children aged 11-15 years also completed the physical activity portion

of the Health Behavior in School Aged Children questionnaire. Clinic charts were reviewed for seizure type, etiology, frequency, duration of epilepsy, and number of antiepileptic drugs (AEDs) ever taken.

RESULTS: Teens with epilepsy participated in fewer group and total sports activities than did controls and were more likely to be potentially overweight or overweight. Receiving three or more AEDs in the past showed a significant negative correlation with sports participation. Although a trend was noted for those with higher seizure frequency to be less active, no other epilepsy-specific factors or prior seizures or seizure-related injury during a sports event correlated with participation in physical activity.

CONCLUSIONS: Programs that promote exercise in adolescents with epilepsy should be encouraged to improve their physical, psychological, and social well-being.

Accessible en ligne : <http://onlinelibrary.wiley.com/doi/10.1111/j.1528-1167.2006.00478.x/epdf>

HOWARD GM, RADLOFF M, SEVIER TL. **Epilepsy and sports participation.** Current Sports Medicine Reports, 2004 Feb ; 3 (1) : 15-19.

Epilepsy is a common disease found in 2% of the population, affecting both young and old. Unfortunately, epileptics have previously been discouraged from participation in physical activity and sports for fear of inducing seizures or increasing seizure frequency. Despite a shift in medical recommendations toward encouraging rather than restricting participation, the stigma remains and epileptics continue to be less active than the general population. This results in increased body mass index, decreased aerobic endurance, poorer self-esteem, and higher levels of anxiety and depression. Although there are rare cases of exercise-induced seizures, studies have shown that physical activity can decrease seizure frequency, as well as lead to improved cardiovascular and psychologic health. The majority of sports are safe for epileptics to participate in with special attention to adequate seizure control, close monitoring of medications, and preparation of family, coaches, or trainers. Contact sports including football, hockey, and soccer have not been shown to induce seizures, and epileptics should not be precluded from participation. Water sports and swimming are felt to be safe if seizures are well controlled and direct supervision is present. Additional care must be taken in sports involving heights such as gymnastics, harnessed rock climbing, or horseback riding. Sports such as hang-gliding, scuba diving, or free climbing are not recommended, given the risk of severe injury or death, if a seizure were to occur during the activity. This article reviews the risks and benefits of physical activity in epileptics, discusses sports in which epileptics may participate, and addresses how to decrease possible risks for injury.

NEBOJSA J. Jovic. **La pratique sportive des enfants et des adolescents avec épilepsie stabilisée.** Epilepsies, 2004 ; 16 (2) : 87-94.

La pratique sportive est possible pour la majorité des épileptiques. Avec quelques restrictions et certaines précautions, la majorité des sports n'aggrave pas les crises. Un groupe de 182 malades, enfants et adolescents, âgés de 8 à 18 ans, n'ayant plus de crise ou ayant des crises rares sous traitement, sans déficit neurologique ou mental, a été analysé pour sa participation à la pratique sportive. Trois questionnaires ont été complétés : l'un par les patients, le deuxième par les parents et le troisième par les enseignants. D'après le questionnaire complété par les patients, dans 25,3 % des cas, les activités sportives et les exercices physiques étaient déconseillés par les parents et/ou les enseignants. Près de la moitié des épileptiques (47,2 %) pratiquait un sport (football, athlétisme et basket le plus souvent). La participation à une compétition sportive n'était autorisée que pour 28 adolescents. Cinquante-six (30,8 %) des épileptiques ne savaient pas nager. Les résultats du questionnaire donné aux épileptiques montraient que la prise des antiépileptiques, le risque de crises liées à l'effort sportif, le manque de motivation pour les activités physiques et la notion que les épileptiques ne sont pas capables de faire du sport étaient désignés comme les raisons principales de l'abstention. Presque la moitié (41,7 %) des parents trouvait que l'activité sportive peut aggraver les crises épileptiques de leurs enfants. Parmi les 86 sujets faisant du sport, des crises ne sont survenues pendant l'exercice sportif que chez quatre d'entre eux. Il n'a pas été observé d'accident grave ou de trauma crânio-cérébral. Une épilepsie stabilisée, un traitement bien adapté et bien toléré ne suffisent pas pour rassurer le nombre considérable de parents et d'enseignants dont les préjugés et la surprotection entraînent la restriction ou l'interdiction de l'activité sportive pour les enfants et adolescents épileptiques. Une meilleure éducation des patients, de leurs parents et de la société sur l'épilepsie est nécessaire pour favoriser la confiance en eux des enfants et adolescents épileptiques et améliorer leur qualité de vie. [résumé d'éditeur]

DUBOW JS, KELLY JP. **Epilepsy in sports and recreation.** Sports Medicine, 2003 ; 33 (7) : 499-516.

In the US, millions of people participate in physical activity on a regular basis. However, among the many people with epilepsy, few incorporate exercise into their daily routine. Whether it is because of parental or physician restriction, the fact remains that people with epilepsy are less fit and are not getting the exercise they need. For many years, patients with seizure disorders have been discouraged from participating in physical fitness and team sports due to the fear that it will exacerbate their seizure disorder. However, this overprotective attitude has been slowly changing in light of more recent data on this subject. The evidence shows that patients with good seizure control can participate in both contact

and non-contact sports without adversely affecting seizure frequency. This article reviews the effects of exercise on seizure control among patients with epilepsy. It examines the morbidity and mortality associated with exercise, as well as its psychological and physiological effects. Various topics concerning antiepileptic drugs and exercise are also discussed.

ARZIMANOGLU Alexis. **Epilepsies et sports**. *Epileptic disorders* 2002 ; 4 (NS1) : S163-S167.

La grande majorité des patients ayant une épilepsie sont capables d'évaluer les risques encourus par la pratique d'une activité sportive. Les conseils des médecins doivent systématiquement tenir compte du type de crise, du type d'épilepsie, de la fréquence des crises, de la sensibilité au traitement en cours, du type de sport et les souhaits du patient. Les conséquences d'un isolement social, résultat d'une attitude protectionniste et restrictive, sont considérables. Nous réfugier derrière une simple interdiction, pour ne pas nous obliger à prendre les mesures de protection nécessaires, aura des conséquences directes et indirectes sur l'intégration sociale des patients. Les risques sont réels mais peuvent être expliqués aux patients. Il est important de garder en mémoire qu'un patient faisant des crises d'épilepsie pouvant entraîner la chute risque de se blesser et cela indépendamment du type d'activité en cours. Donc, à lui seul, ce risque ne justifie pas l'exclusion des activités sportives. Dans la grande majorité des cas, l'activité physique ne favorise pas le déclenchement des crises. [résumé d'éditeur]

DERAMBURE Philippe. **Pratique du sport chez un épileptique : quelles recommandations ?** *Act. Med. Int. Neurologie*. 2001 ; 2 (5) : 86-88.

Les médecins, les parents, les professeurs expriment souvent beaucoup de prudence, voire d'inquiétude quand il faut conseiller un épileptique qui souhaite pratiquer un sport. Pourtant, tout doit être fait pour que l'épileptique puisse bénéficier d'une intégration naturelle dans son milieu social, scolaire ou professionnel

Accessible en ligne : <http://www.edimark.fr/Front/frontpost/getfiles/2043.pdf>

NAKKEN KO. **Physical exercise in outpatients with epilepsy**. *Epilepsia*, 1999 May ; 40 (5) : 643-51.

PURPOSE: To compare the exercise habits in a sample of adult outpatients with epilepsy with those of a general population of the same age and sex and furthermore to study physical exercise as a seizure precipitant and the risk of sustaining seizure-related injuries while exercising. **METHODS:** Two hundred four adult outpatients with active epilepsy responded to two questionnaires. The first one, addressing exercise habits, was a selected part of a broad self-assessing screening used every second year by a marketing and media research institute to reveal changes in the average Norwegian's lifestyle. The exercise habits of the epilepsy population were compared with those of the average population. The other questionnaire, addressing seizures and injuries related to physical exercise, consisted of eight sections and was developed at the National Center for Epilepsy in Norway. **RESULTS:** The portion of those never exercising was significantly higher among the patient group compared with the average population. Otherwise, the exercise patterns were very similar in the two populations. However, the patients exercised more often in fitness centers and together with friends, whereas individual activities like skiing and swimming were more often preferred by the average Norwegian. Of the 204 patients, 53 and 63% had never experienced seizures during or immediately after exercise, respectively. About 10% of the patients claimed that they had seizures quite often in connection with exercise. However, only 2% had genuine exercise-induced seizures, here arbitrarily defined as having seizures in >50% of the training sessions. Among those prone to have exercise-related seizures, there was a predominance of patients with symptomatic localization-related epilepsy (i.e., with an underlying structural brain lesion). Most exercise-related seizures occurred during strenuous activity. About 38% of the patients claimed to have personal experience regarding whether regular physical exercise influenced their seizure disorder; of these, 53% claimed there was no influence, 36% claimed there was a positive influence, and 10% reported a negative influence. Thirty-six percent of the patients had experienced injuries in connection with physical exercise, but in only 10% were these injuries associated with seizures. The injuries were mostly mild. **CONCLUSIONS:** The surveyed sample of epilepsy outpatients was more active than expected, and their exercise pattern closely resembled that of the average Norwegian population. In the majority of the patients, physical exercise had no adverse effects, and a considerable proportion (36%) claimed that regular exercise contributed to better seizure control. However, in approximately 10% of the patients, exercise appeared to be a seizure precipitant, and this applied particularly to those with symptomatic partial epilepsy. The risk of sustaining serious seizure-related injuries exercising seemed modest.

Accessible en ligne : <http://onlinelibrary.wiley.com/doi/10.1111/j.1528-1157.1999.tb05568.x/epdf>

SIRVEN JI, VARRATO J. **Physical activity and epilepsy: what are the rules?** *The physician and sports medicine*, 1999 Mar ; 27 (3) : 63-70.

Exercise has important benefits for patients who have epilepsy, but several factors must be considered when making activity recommendations. Seizures during sports activity are rare, and exercise may have anti-epileptic effects acutely, but physicians, coaches, and parents should know what to do if a seizure occurs. Many sports activities are permissible as long as patients avoid overexertion, dehydration, and hypoglycemia. Some antiepileptic drugs may adversely affect sports performance, and exercise in turn may reduce serum drug levels by increasing circulating liver enzymes.

JALAVA M, SILLANPÄÄ M. **Physical activity, health-related fitness, and health experience in adults with childhood-onset epilepsy: a controlled study.** *Epilepsia*, 1997 Apr ; 38 (4) : 424-429.

PURPOSE: To show any possible associations between childhood-onset epilepsy and physical activity, health-related fitness, and health experience.

METHODS: A population-based cohort of 176 patients with epilepsy since childhood was monitored for a mean of 35 years. Patients with recurrent, unprovoked epileptic seizures with no associated initial neurologic impairment or disability, termed those with "epilepsy only" (n = 100), were compared with matched controls for self-reported physical activity, health experience, laboratory tests, body mass index, and muscle power tests.

RESULTS: On the basis of muscle tests, physical fitness proved to be significantly poorer in patients with "epilepsy only" than in matched controls. During the preceding year, 22% of patients and 24% of controls had reduced their physical activities because of some illness; only 2% reduced their physical activities because of epilepsy. No significant difference was found in blood status, except for a lower serum creatinine level in the patients. Current antiepileptic drug (AED) therapy appeared significantly associated with lower hemoglobin and creatinine levels and higher high-density lipoprotein values. The patients perceived their health status to be comparable with that of controls, irrespective of physical inactivity, continued seizures, or AED monotherapy. However, patients receiving AED polytherapy perceived their health as rather poor or very poor significantly more often than did controls.

CONCLUSIONS: Based on objective muscle tests, adults with childhood-onset "epilepsy only" have poorer physical fitness than do matched controls, but they have a feeling of good personal health.

Accessible en ligne : <http://onlinelibrary.wiley.com/doi/10.1111/j.1528-1157.1997.tb01731.x/epdf>

STEINHOFF BJ, NEUSÜSS K, THEGEDER H, REIMERS CD. **Leisure time activity and physical fitness in patients with epilepsy.** *Epilepsia*, 1996 Dec ; 37 (12) : 1221-7.

PURPOSE: To assess social and physical activity by means of a controlled study based on a questionnaire and standardized clinical tests of physical fitness. **METHODS:** In this controlled study, we assessed several issues of social and physical activity in 136 patients with epilepsy and 145 controls by using a questionnaire. In addition, we investigated physical fitness based on physical parameters such as body mass index and body composition and standardized tests of aerobic and muscle strength endurance and physical flexibility in 35 adult patients and 36 healthy controls. **RESULTS:** Leisure time habits both at home and outside the home were mainly similar except for visits of friends, which were significantly reduced in patients. Although the general attitude toward sports and physical activity was positive in both groups, and although controls judged sports to be dangerous significantly more often ($p = 0.007$), controls participated in regular sports significantly more frequently ($p = 0.005$). The clinical study demonstrated a lack of physical fitness, as suggested by the questionnaire data. Statistical analysis demonstrated significant differences of aerobic endurance ($p < 0.001$), muscle strength endurance ($p < 0.001$), and physical flexibility ($p < 0.001$) in favor of the control subjects. The body mass index was significantly higher in patients ($p = 0.03$), whereas the body composition revealed a higher body fat ratio only in female patients ($p = 0.04$). **CONCLUSIONS:** We conclude that patients with epilepsy suffer from a considerable lack of physical fitness that might have an important impact on their general health and quality of life. In addition to overprotection and reduced mobility, the questionnaire revealed insufficient knowledge among health professionals and sport instructors as a major factor contributing to these results.

ERIKSEN HR, ELLERTSEN B, GRØNNINGSÆTER H, NAKKEN KO, LØYNING Y, URSIN H. **Physical exercise in women with intractable epilepsy.** *Epilepsia*, 1994 Nov-Dec ; 35 (6) : 1256-64.

Fifteen women with pharmacologically intractable epilepsy were given physical exercise (aerobic dancing with strength training and stretching) for 60 min, twice weekly, for 15 weeks. Seizure frequency was recorded by the patients for 3-7 months before the intervention, during the intervention period, and for 3 months after the intervention. Medication and other known seizure-influencing factors were kept as constant as possible. Self-reported seizure frequency was significantly reduced during the intervention period. The exercise also led to reduced level of subjective health complaints, such as muscle pains, sleep problems, and fatigue. The exercise reduced plasma cholesterol ratio and increased maximum O₂ uptake. Because most of the patients were unable to continue the exercise on their own after the intervention period, the exercise effects were not maintained during the follow-up period. The patients were not

unwilling to continue the exercise, but it was not sufficient to offer them the possibility of continuing similar types of exercise. We believe that 15 weeks is too short a time to establish a life-style change and that continued physical exercise for these patients requires a well-organized and supportive program, requiring experienced and dedicated instructors.



OUVRAGES & CHAPITRES D'OUVRAGES

DEPIESSE Frédéric, COSTE Olivier, CAYRAC Claude et. al. **Prescription des activités physiques en prévention et en thérapeutique**. Elsevier Masson, 2016.

L'objectif de cet ouvrage sur l'activité physique est d'apporter les connaissances nécessaires dans un but de prescription au quotidien par les médecins et de conseils par les autres professionnels de santé. Les auteurs abordent successivement : les données physiologiques, les risques et les outils d'évaluation de la pratique de l'activité physique ; les recommandations pour la pratique de l'activité physique en cas de pathologie : obésité, diabète, maladies cardiovasculaires, arthrose, ostéoporose, asthme, pathologies neurologique et psychiatrique, etc. ; les particularités dues à la grossesse et les spécificités selon l'âge.



MÉMOIRES, RECHERCHES, THÈSES

KELLER Jérémy, OUSS-RYNGAERT Elisabeth. **Trouble du spectre autistique dans le syndrome de Dravet : description phénotypique et comparaison à une population autiste prototypique**. Médecine. Paris : Université Paris-Sud - Faculté de Médecine, 2017, 40p.

MATHIEU Nicole, HOUY-DURAND Emmanuelle, RABATE Philippe. **Autisme, épilepsie et troubles du comportement : une pratique d'accompagnement d'adultes porteurs d'autisme, et une question : comment prendre en compte leur épilepsie associée ?** Médecine. Tours : Université François Rabelais - UFR de Médecine, 2013, 52 p.

Ce mémoire met en avant l'hypothèse de crises épileptiques partielles pour expliquer certains troubles de comportement chez des adultes porteurs d'autisme associé à une déficience mentale. Le cadre est celui d'un accueil de jour médicalisé dont l'accompagnement s'appuie sur l'éducation structurée et dans lequel les hypothèses somatiques et épileptiques ont été peu prises en compte lors de l'ouverture. On s'appuiera pour cela sur l'anatomophysiologie cérébrale, sur les recherches concernant le fonctionnement cérébral chez les personnes atteintes d'autisme, sur la symptomatologie épileptique et sur les résultats publiés quant aux liens entre épilepsie, autisme et déficience mentale. On étudiera également la prise en compte des troubles de comportement et de l'épilepsie par les familles, les professionnels et les partenaires du centre. Celle-ci est facilitée par la transdisciplinarité, par les formations et le lien avec les familles, et par une ébauche de collaboration avec les partenaires du soin extérieurs. Certains troubles de comportement que l'hypothèse épileptique ou somatique pourrait expliquer, est illustrée par un cas concret. La conclusion porte sur la nécessité d'affiner les supports d'observation, d'apprendre à reconnaître les manifestations d'épilepsie partielle et de favoriser l'accès aux soins préventifs et curatifs.

AMIET Claire, COHEN David Dir. **Autisme et épilepsie : association fortuite ou physiopathologie commune ?** Paris : Université Pierre et Marie Curie - Paris 6, 2011, 52 p.

Décrite depuis longtemps, l'association entre autisme et épilepsie est maintenant clairement établie. Nous avons souhaité mieux décrire cette association. Une méta-analyse nous a permis d'identifier deux facteurs de risque au développement d'une épilepsie dans l'autisme : le retard mental et le sexe féminin. Par ailleurs, une étude clinique rétrospective portant sur des adolescents autistes hospitalisés dans une unité de soins intensifs pédopsychiatrique a montré qu'une décompensation comportementale aiguë avait fréquemment pour cause des convulsions non contrôlées. Les bases physiopathologiques de l'association entre autisme et épilepsie sont complexes et encore mal comprises. Compte tenu de la fréquence élevée de l'épilepsie dans la population générale, une association fortuite est probable chez certains individus. Dans certaines situations, lorsqu'elle débute à un stade précoce du développement cérébral, une

épilepsie semble pouvoir intervenir dans le développement de symptômes autistiques. Chez d'autres, la coexistence fréquente d'un retard mental lorsqu'un autisme et une épilepsie sont associés permet de suggérer l'implication de mécanismes neuro-développementaux communs. Ainsi, nombre de gènes impliqués dans des réseaux ayant un rôle dans le développement et le fonctionnement cérébral ont été associés dans l'épilepsie, l'autisme et/ou le retard mental. L'identification de l'autisme avec épilepsie comme un sous-groupe de l'autisme pourrait permettre d'avancer vers une meilleure connaissance et compréhension des mécanismes physiopathologiques impliqués dans l'autisme.

JULLIEN Anne. **Maladie de Bourneville, épilepsie et autisme**. Psychiatrie. Paris : Université Paris Diderot Paris 7 – UFR de Médecine, site Xavier Bichat. 2001, 84p.

Accessible en ligne : <http://aura.u-pec.fr/scd/theses/th0149353.pdf>



ACTES DE COLLOQUE / CONGRÈS

Corps et esprit : que peuvent-ils faire pour améliorer la prise en charge de nos patients ? Conférence du Dr Agnès TREBUCHON lors des 20èmes Journées françaises de l'épilepsie, Marseille, 2017.

Le Dr Agnès Trébuchon aborde l'impact de la pratique sportive, de la méditation et du yoga sur les personnes épileptiques.

Accès à la webconférence :

http://association-lfce.fr/video/2_31_A%20Trebuch/index.html

Accès au pdf seul :

http://association-lfce.fr/video/pdf/auditorium_12102017/A_Trebuchon_Marseille_0945_61.pdf



RAPPORTS, ÉTUDES, EXPERTISES, RECOMMANDATIONS

Activité physique : prévention et traitement des maladies chroniques. Inserm, Expertise collective, 2019.

https://www.inserm.fr/sites/default/files/2019-09/Inserm_EC_2019_Activit%C3%A9PhysiqueMaladiesChroniques_Complet.pdf

Enquête sur la pratique des activités physiques et sportives dans les établissements et services medico-sociaux accueillant des personnes handicapées. Synthèse des résultats. Paris : Secrétariat d'Etat chargé des personnes handicapées, ministère des sports, 2018, 81 p.

Cette enquête a pour objectif d'établir un premier état des lieux de la pratique des activités physiques et sportives (APS) dans les ESMS accompagnant des personnes en situation de handicap. Conduite au second semestre 2017, les résultats serviront de base pour construire des orientations visant à "render accessible la pratique d'activité physique et sportive" pour les personnes accompagnées par les ESMS.

<https://solidarites-sante.gouv.fr/IMG/pdf/sport-en-esms-rapport-2.pdf>

DUPAYS Stéphanie, BOURDAIS Fabienne, KIOUR Abdelkrim, DE VINCENZI Jean-Pierre. **Evaluation des actions menées en matière d'activité physique et sportive à des fins de santé**. Inspection générale des affaires sociales, Inspection générale de la jeunesse et des sports, 2018.

<http://www.sports.gouv.fr/autres/RapportIGASIGJSAPSMars2018.pdf>

Guide « Bouger avec le sport adapté ». Fédération française du sport adapté, 2014.

- **Recommandations pour les crises d'épilepsie**, pp. 40-43.

<http://www.ffsa.asso.fr/Pages/InCadres/GestClient/Communication/SportSante/Guide.pdf>

COLLECTIF. **Pratiques sportives dans les structures médico-sociales accueillant des personnes en situation de handicap. Enquête ARS/DRJSCS 2013 dans le cadre de la plateforme « Sport et handicap pour une pratique partagée ».** Bordeaux, Paris : ARS Aquitaine, Ministère de la ville, de la jeunesse et des sports, 2015, 8 p.

https://ent2d.ac-bordeaux.fr/disciplines/eps/wp-content/uploads/sites/33/2017/08/plaquette_enquete_sport_handicap.pdf

ARGIOLAS Cécile, BENOIT Françoise, CABANEL Didier, CANTON Nadine, COUDERC Elodie, DECHARME Eric, DEJEAN Alain, FERNANDEZ Luis, GORINAT Patrick, JOUCLAS Laurence, LABOUIZE Azzedine, MANSUY Elodie, POUDEIROUX Claire, ROBERT Carole, STOECKLIN. **Sport, activités physiques & handicap.** Préfet de la région Midi-Pyrénées, 2010.

<http://www.drjscs-mp.fr/telechargement.php?ID=1052>

DEJEAN Alain, MANGONI Fabienne. **Epilepsie et activités aquatiques et natation en piscine. Recommandations.** Fédération française du sport adapté, 2005.

<http://www.ffsa.asso.fr/Pages/InCadres/GestClient/PDF/Medical/RecEpilepsie.pdf>

AUTRES RESSOURCES EN LIGNE



Enfant, épilepsie et activités sportives. Bruxelles : Ligue francophone Belge contre l'épilepsie, 2018, 8 p.

https://ligueepilepsie.be/IMG/pdf/web_epilepsie_et_activites_sportives_livret.pdf

KRAMER Günter. **Sport et épilepsie.** Rotkreuz : Sandoz, 2017, 8 p.

<https://www.sandoz-pharmaceuticals.ch/de/content/sport-et-epilepsie-f10>

GENIN Olivier. **Le « Handi-Karaté ».** Cahiers de l'innovation n°6, FEHAP, novembre 2016, p. 108.

La Maison d'accueil spécialisée (MAS), située à Dommartin-lès-Toul (Meurthe-et-Moselle ; Grand-Est), accueille des personnes en situation de handicap lié à une épilepsie pharmaco-résistante. L'accueil se fait 365 jours par an et 24h/24. Le handi-karaté trouve sa place dans le projet de vie des résidents afin de donner du sens à leur présence à long terme.

http://www.fehap.fr/upload/docs/application/pdf/2016-12/cahier_de_innovation_n6_2016-12-15_17-11-37_89.pdf

BACQUAERT Patrick. **Epilepsie et sport.** Villeneuve d'Ascq : IRBMS, Institut de recherche du bien-être, de la médecine et du sport adapté, 2016.

<https://www.irbms.com/epilepsie-et-sport/>

VASSIEUX Laëticia, BRES Bérénice, HEUZE Caroline, GENIAUX Benjamin, JEUDY Gaëtan. **Activités physiques et sportives pour la santé : des recommandations à la pratique.** Dossier technique n°6. IREPS Bourgogne, 2015, 43 p.

https://ireps-bfc.org/sites/ireps-bfc.org/files/dt-vf-mephd_0.pdf

COLLECTIF. **Epilepsie et Activité Physique Adaptée.** Villeneuve d'Ascq : IRBMS, Institut de recherche du bien-être, de la médecine et du sport adapté, 2015.

<http://www.irbms.com/epilepsie-et-activite-physique>

Activité physique et épilepsie. Concord (Canada) : Ontario épilepsie, 2015, 3 p.

http://epilepsyontario.org/wp-content/uploads/2018/05/SparkPhysicalActivityandEpilepsy_FR.pdf

PERRIER MC (MECS Castelnouvel Leguevin). **Activités physiques et sportives : adaptation et intérêt pour les personnes souffrant d'épilepsie.** Assises Handicap, Sport, Santé, 14 octobre 2014, 11p.

http://www.ffsa.asso.fr/Pages/InCadres/GestClient/Communication/SportSante/articles/Assises_2014_APS_et_Epilepsie_MC_Perrier.pdf

Les sports, les activités récréatives et l'épilepsie. BC Epilepsy Society, 2012, 3 p.

<http://www.bcepilepsy.com/files/information-sheets/French/French-Sports and Recreation for People with Epilepsy.pdf>

BOUABID K, SOLER C, ANDRE J, BAUDENA P, VERSTICHEL P, VILLAFANE G, COUILLANDRE A. **L'effet des activités physiques adaptées sur les crises d'épilepsie, la condition physique et le bien être chez des patients épileptiques en institution.** Paris : Association l'Aide à l'épileptique, Hôpital Lionel Vidart, 2011, 12p.

Objectif : démontrer l'effet positif des Activités Physiques Adaptées (APA) sur la fréquence des crises d'épilepsie chez des patients épileptiques avec troubles associés (neuro-somatique et/ou psychiatrique) en institution.

Sujets : Des adultes épileptiques (N=14) sous polythérapie stable ; 5 femmes et 9 hommes, âge moyen 39 ans (21 à 49 ans) ; poids 80,6 kgs (64 à 107 kgs) vivant 5 jours sur 7 en institution avec une fréquence de crises supérieure à 2 par mois (en moyenne 8 crises par mois). Lieu : Hôpital de Jour de l'Association l'Aide à l'Épileptique à Créteil. Méthode : L'étude est composée de 3 périodes d'observations d'une durée de 3 mois chacune : période de pré-entraînement, période d'entraînement comportant un programme d'activités physiques de type aérobie, 2 à 3 fois par semaine, de 30 à 120 minutes par séance et période de post-entraînement. Eléments de Mesure : Les sujets sont soumis à différents tests tels que des Electro-encéphalogrammes (EEG, Vidéos-EEG) standards effectués à la fin de chaque période, des tests physiques (test de marche 3 min, souplesse, équilibre, force-tonicité tronc et membres inférieurs) effectués avant et après la période d'entraînement, le calcul de l'Indice de Masse Corporel (IMC) et la passation d'un questionnaire de « qualité de vie » créé au sein de l'institution avant et après la période d'entraînement (questionnaire passé en auto-et hétéro-évaluation). Résultats : Diminution du nombre total des crises de 55% durant la période d'entraînement et de 5% de leur Indice Masse Corporel. Pas de modification des EEG pendant les trois périodes. Amélioration de l'équilibre (+4%), force-tonicité du tronc (+58%) et des membres inférieurs (+54%) et un score plus élevé du questionnaire de « qualité de vie » en auto-évaluation (+5%) et hétéro-évaluation (+8%). Conclusion : Cette étude sur ce programme en activité physique adaptée de type aérobie montre une diminution de la fréquence des crises d'épilepsie, de leur IMC, une amélioration de l'équilibre, de la force-tonicité du tronc et des membres inférieurs, un meilleur score du questionnaire de « qualité de vie » en auto et hétéro-évaluation, et une diminution de 38% du nombre total de crises entre la période de pré-entraînement et la période post-entraînement.

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