

De la recherche à l'innovation : parcours professionnels inspirants après les études graduées
From research to innovation: Inspiring career paths after graduate studies

Le mardi 19 février 2019 | Tuesday, February 19, 2019

Institut universitaire sur la réadaptation en déficience physique de Montréal (IURDPM)
CIUSSS du Centre-Sud-de-l'Île-de-Montréal
Pavillon Gingras : 6300, avenue Darlington, Montréal QC H3S 2J4
Amphithéâtre Saputo (rez-de-chaussée) & Auditorium Charles. U. Létourneau (sous-sol)

PROGRAMME | PROGRAM

- 8h15** Arrivée des participants, installation des affiches |
Check in, poster presentation set up – Amphithéâtre Saputo
- 9h00** Mot de bienvenue des représentants étudiants et des directrices scientifiques du CRIR |
Welcome and opening remarks of CRIR student representatives and scientific directors
Café-viennoiseries | *Coffee-pastries – Auditorium Charles U. Létourneau*
- 9h15** Conférencière invitée | *Keynote speaker – Auditorium Charles. U. Létourneau*
- **Pourquoi et comment intégrer des outils multimédias dans la recherche? Leçons tirées de l'étude « Dessine-moi un futur ! »** | *Why and how to include multimedia tools into research? Lessons learned from the "Draw a Future!" study*
Pascale Lehoux, Ph.D., Département de gestion, d'évaluation et de politique de santé, Institut de recherche en santé publique de l'Université de Montréal (IRSPUM)
- 10h00** Pause
- 10h10** Présentations orales par les étudiants | *Students oral presentations*
– **Auditorium Charles U. Létourneau**
- 11h40** Session d'affichage | *Poster session – Amphithéâtre Saputo*
- 12h40** Diner | *Lunch – Amphithéâtre Saputo*
- 13h30** Table ronde – Perspectives d'avenir après les études graduées |
Round table – Perspectives for the future after graduate studies – Auditorium Charles. U. Létourneau
Conférenciers | *Panelists*
- **Noémi Dahan-Oliel, Ph.D., Séléna Lauzière, Ph.D., Frédéric Messier, M.A., Hoang Nam Nguyen, M.Sc. et Marc Roig Pull, Ph.D.**
- 15h00** Pause
- 15h15** Conférencières invitées | *Keynote speakers – Auditorium Charles. U. Létourneau*
- **La relève en recherche et les carrières hors des murs de l'université : état des lieux et pistes de solutions** | *Future researchers and careers outside university walls: Current situation and solutions*
Dorothée Charest Belzile et Stéphanie Luna, candidates au doctorat,
Comité intersectoriel étudiant des Fonds de recherche du Québec (FRQ)
- 16h15** Clôture et remise des prix FRQS, CRIR et prix « coup de cœur » suivies d'une activité de réseautage | *Closing remarks and FRQS, CRIR and your "personal favourite" prizes followed by a meet & mingle session – Auditorium Charles. U. Létourneau*

CONFÉRENCIÈRE INVITÉE | KEYNOTE SPEAKER

➤ Pascale LEHOUX, Ph.D.

Pascale Lehoux détient un baccalauréat en design industriel (1989), un Ph.D. en santé publique (1996) et a effectué sa formation postdoctorale en *Science & Technology Dynamics* à l'Université d'Amsterdam (1997). Elle est professeur titulaire au Département de gestion, d'évaluation et de politique de santé de l'École de santé publique de l'Université de Montréal. Son équipe de recherche oeuvre au sein de l'Institut de recherche en santé publique de l'Université de Montréal (IRSPUM). Elle est membre du Conseil d'administration de l'Institut national d'excellence en santé et services sociaux (INESSS).

Elle a publié 130 articles scientifiques portant sur des innovations médicales et sur les politiques de soutien à l'innovation. Ses travaux de recherche ont clarifié l'impact des modèles d'affaires et du capital de risque sur le développement des innovations au sein d'entreprises dérivées (*spin-offs*) et consolidé les méthodologies de délibération publique prospective. Son plus récent programme de recherche, *In Fieri*, porte sur la conception, le financement et la commercialisation de l'innovation responsable en santé (IRS). Ce programme de recherche de 7 ans a obtenu un financement en 2015 par l'intermédiaire du fort concurrentiel volet Fondation des Instituts de recherche en santé du Canada (IRSC). L'équipe inclut des universitaires du Canada, des États-Unis, du Royaume-Uni et du Brésil et catalyse des expertises à l'interface de la recherche sur les services et politiques de santé, la médecine, l'ingénierie, le design, l'éthique, la sociologie, l'économie et les politiques publiques.

Au cours des vingt dernières années, elle a développé de nombreuses initiatives en mobilisation des connaissances dont le blogue *Hinnovic* et le magazine grand public *Palindrome*.

Pascale Lehoux obtained a Bachelors in Industrial Design (1989), a Ph.D. in Public Health (1996) and completed her post-doctoral training in Science and Technology Dynamics at Amsterdam University (1997). She is Full professor in the Department of Health Management, Evaluation and Policy within the School of Public Health at *Université de Montréal*. Her research team is located within the Institut de recherche en santé publique de l'Université de Montréal (IRSPUM). She is a member of the board of directors for the *Institut national d'excellence en santé et services sociaux* (INESSS).

Pascale Lehoux has published 130 scientific articles focusing on medical innovations and innovation policies. Her research has clarified the impact of business models and venture capital on the development of innovations for academic spin-offs and public prospective deliberation methodologies. Her most recent research program, *In Fieri*, focuses on the design, financing and commercialization of responsible innovation in health. This 7-year research program received funding in 2015 from the Canadian Institute of Health Research (CIHR). The team includes experts from Canada, the United States, United Kingdom and Brazil and brings together research expertise at the interface of health services and policy research, medicine, engineering, design, ethics, sociology, economics and public policies.

Over the past 20 years, Pascale Lehoux has developed multiple initiatives in knowledge translation, including the *Hinnovic* blog and the general public *Palindrome* magazine.



CONFÉRENCIÈRES INVITÉES | KEYNOTES SPEAKERS

➤ **Dorothée Charest Belzile**, candidate au doctorat

Dorothée Charest Belzile est candidate au doctorat en psychologie à l'Université Laval. Formée à la fois en recherche et en clinique, elle a un intérêt marqué pour le bien-être des enfants, adolescents et familles en situation de vulnérabilité. Elle a réalisé des stages cliniques en milieu scolaire et dans une équipe de pédopsychiatrie et est actuellement interne en psychologie à l'Hôpital en santé mentale Rivière-des-Prairies. Ses recherches, menées au Centre de recherche sur l'adaptation des jeunes et des familles à risque et au Centre de recherche universitaire sur les jeunes et les familles du CIUSSS de la Capitale-Nationale, portent sur les familles suivies par la protection de la jeunesse et les services qui leur sont offerts. Elle est membre du Comité intersectoriel étudiant, qui conseille le scientifique en chef du Québec et les conseils d'administration des Fonds de recherche sur les enjeux relatifs à la relève, depuis 2016.

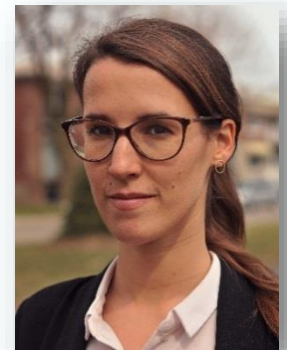


Dorothée Charest Belzile is a Ph.D. candidate in psychology at Université Laval. With a background in both research and clinical practice, she has an interest in the wellbeing of children, adolescents and families in vulnerable situations. She has completed clinical internships in school settings and within a pediatric psychiatry team. She is currently an intern in psychology at the Hôpital en santé mentale

Rivière-des-Prairies. Her research, done at the *Centre de recherche sur l'adaptation des jeunes et des familles à risque* and the *Centre de recherche universitaire sur les jeunes et les familles du CIUSSS de la Capitale-Nationale*, focuses on families followed by the Direction of youth protection, and the services offered to them. Since 2016, she is a member of the Intersectoral student committee, which advises the Chief Scientist of Québec and the board of directors of the Fonds de recherche on issues related to new researchers.

➤ **Stéphanie Luna**, candidate au doctorat

Stéphanie Luna est candidate au doctorat en sciences biomédicales avec une spécialisation en sciences du vieillissement à l'Université de Montréal. Elle effectue ses recherches au Centre de recherche de l'Institut universitaire de gériatrie de Montréal sur les changements cognitifs reliés au vieillissement, plus particulièrement, sur les différences cognitives entre les personnes qui utilisent une langue des signes (sourds et entendants) et celles qui utilisent une langue orale. Elle est également formée en interprétation visuelle et travaille comme interprète langue des signes québécoise-français en milieu sociocommunautaire pour le Service d'interprétation visuelle et tactile de Montréal. Elle est membre du Comité intersectoriel étudiant, qui conseille le scientifique en chef du Québec et les conseils d'administration des Fonds de recherche sur les enjeux relatifs à la relève, depuis 2017.



Stéphanie Luna is a Ph.D. candidate in Biomedical Sciences with a specialization in aging sciences at *Université de Montréal*. She is completing her research at the Centre de recherche de l'Institut universitaire de gériatrie de Montréal focusing on cognitive changes due to aging, and more specifically, on the cognitive differences between individuals who use sign language (Deaf and hearing) and those who use spoken language. She is also trained as a sign language interpreter and works as an interpreter of Quebec Sign Language for the Service d'interprétation visuelle et tactile de Montréal. Since 2017, she is a member of the Intersectoral student committee, which advises the Chief Scientist of Québec and the board of directors of the Fonds de recherche on issues related to new researchers.

CONFÉRENCIERS INVITÉS –TABLE RONDE | KEYNOTES SPEAKERS –ROUND TABLE

➤ Noémi Dahan-Oliel, Ph.D.

Noémi Dahan-Oliel est professeure adjointe à l'École de physiothérapie et d'ergothérapie de l'Université McGill et une chercheuse clinicienne aux Hôpitaux Shriners pour enfants. Elle a un B.Sc. en ergothérapie, une M.Sc. et un Ph.D. and Sciences de la réadaptation de l'Université McGill. Elle a plusieurs années d'expérience en tant qu'ergothérapeute. Ses intérêts de recherche portent sur l'amélioration du fonctionnement et de la qualité de vie tout au long de la vie des enfants présentant des déficiences musculosquelettiques et neurodéveloppementales, en utilisant l'engagement des parties prenantes et des méthodes de traitement innovantes.



Noémi Dahan-Oliel is an associate professor at the School of Physical and Occupational Therapy of McGill University and a Clinician scientist at the Shriners Hospitals for Children. She has a B.Sc. in Occupational Therapy, a M.Sc. and a Ph.D. in Rehabilitation Sciences from McGill University. She has many years of experience working as an occupational therapist. Her research interests focus on improving the functional and quality of life outcomes of children with musculoskeletal and neurodevelopmental disabilities across the lifespan, using stakeholder engagement and innovative treatment methods.

➤ Séléna Lauzière, Ph.D.

Physiothérapeute de formation, **Séléna Lauzière** a obtenu son baccalauréat en physiothérapie en 2008 à l'Université de Montréal. Elle a complété une maîtrise en sciences biomédicales (option réadaptation) en 2010 et un doctorat en sciences de la réadaptation en 2014 à l'Université de Montréal. Ses intérêts de recherche portaient principalement sur la biomécanique et la psychophysique, particulièrement avec la clientèle post-AVC. Elle est actuellement coordonnatrice académique du programme de qualification en physiothérapie et chargée de cours à l'Université de Montréal ainsi que chargée de projet au Réseau provincial de recherche en adaptation-réadaptation (REPAR).



Trained as a physiotherapist, **Séléna Lauzière** obtained her Bachelors in Physiotherapy in 2008 from *Université de Montréal*. She completed a Masters in Biomedical Sciences (Rehabilitation option) in 2010 and a Ph.D. in Rehabilitation Sciences in 2014 from *Université de Montréal*. Her research interests focus primarily on biomechanics and psychophysics, particularly on individuals who have had a stroke. She is currently the Academic Coordinator for the physiotherapy qualification program and a faculty lecturer at *Université de Montréal*, as well as a project manager for the Quebec Rehabilitation Research Network (REPAR).

➤ Frédéric Messier, M.A.



Après un parcours académique atypique (philosophie, création littéraire, dramaturgie) et des séjours de travail à l'étranger, **Frédéric Messier** a complété une maîtrise en travail social (profil avec mémoire) à l'Université du Québec à Chicoutimi en 2006. Depuis, il a œuvré en tant que travailleur social à la Cour du Québec et la Direction de la protection de la jeunesse, puis à titre de professionnel de recherche avec une demi-douzaine de chercheurs du CRIR et du CIRRISS. Il a développé une pratique autonome de courtage de connaissances et a développé différents ateliers de formation. Il a été recruté par le CIUSSS Centre-Sud-de-l'Île-de-Montréal en 2017 et travaille présentement comme

coordonnateur de recherche clinique au CRIR-IURDPM et comme professionnel scientifique à l'Unité d'évaluation des technologies et des modes d'interventions (UETMI) du CIUSSS. Son parcours l'a amené à contribuer à plusieurs projets associés au transfert de connaissances.

Depuis 15 ans, différents accidents de parcours et un intérêt soutenu pour la conciliation travail-famille, l'entrepreneuriat et le life hacking ont nourri sa réflexion professionnelle. Il aime beaucoup sortir des sentiers battus. - Lecture suggérée : <http://100startup.com/>

After an atypical academic path (philosophy, creative writing, playwriting) and experience working abroad, **Frédéric Messier** completed a Masters of Social Work (with full thesis) at *Université du Québec à Chicoutimi* in 2006. Since then, he worked as a social worker for the Cour du Québec and Child protective services, and as a research professional alongside a half-dozen researchers within the CRIR (Montreal) and CIRRI (Québec). He developed an independent practice in knowledge brokerage and has developed multiple training workshops. He was recruited by the CIUSSS Centre-Sud-de-l'Île-de-Montréal in 2017 and currently works as a clinical research coordinator at CRIR-IURDPM and as a scientific professional within the *Unité d'évaluation des technologies et des modes d'interventions* (UETMI) (Health technology assessment unit) of the CIUSSS. He has contributed to multiple projects related to knowledge translation. For the past 15 years, various career accidents and a sustained interest in work-life balance, entrepreneurship and life hacking have fueled his professional thinking. He likes to think outside the box. - Suggested reading: <http://100startup.com/>

➡ **Hoang Nam Nguyen, M.Sc.**

Hoang Nam Nguyen est un consultant en gestion des affaires spécialisé en cliniques de santé chez *N Conseils* où il aide des professionnels et entrepreneurs dans le domaine de la santé à optimiser le fonctionnement de leur clinique ou à concrétiser leur projet d'ouverture de clinique. Durant ses études doctorales, il a été directeur scientifique au sein d'une startup québécoise dans le domaine de l'éducation pour enfants où il a dirigé le département scientifique et les projets de recherche appliqués.

Côté études, il détient un baccalauréat en psychologie et une maîtrise en sciences de la vision de l'Université de Montréal. Il a fait de la recherche sur l'attention visuelle et autres sujets connexes depuis plus de 7 ans. Pour compléter sa formation en recherche, il a entrepris une maîtrise en administration des affaires de l'École des sciences de la gestion de l'Université du Québec à Montréal qu'il termine ce printemps.

Finalement, il est très impliqué auprès des jeunes comme coach et comme mentor depuis près de 10 ans. Aujourd'hui, il donne des conférences sur l'entrepreneuriat et les affaires dans le milieu académique et professionnel.

Hoang Nam Nguyen is a business consultant specializing in medical clinics at *N Conseils* where he assists healthcare professionals and entrepreneurs optimize their clinic management or shape their new health centre project. During his doctoral studies, he functioned as the scientific director for a Quebec start-up in childhood education where he directed their scientific department and applied research projects.

He obtained a Bachelors in Psychology and a Masters in Vision Science from *Université de Montréal*. He conducted research focusing on visual attention and other related topics for over seven years. To complement his research training, he pursued a Master's in Business Administration from the School of Management at *Université du Québec à Montréal*, which he will complete this spring.

Finally, over the past 10 years, he has been significantly involved in work with young people, both as a coach and mentor. Today, he conducts workshops on business and entrepreneurship in both the academic and professional contexts.



➔ **Marc Roig Pull, Ph.D.**

Marc Roig Pull est professeur adjoint à l'École de physiothérapie et d'ergothérapie de l'Université McGill et chercheur régulier au CRIR-Hôpital juif de réadaptation du CISSS de Laval. Il a complété un baccalauréat en sciences du sport et en physiothérapie, ainsi que des études supérieures en médecine du sport, en sciences de l'exercice et en sciences de la réadaptation. Il a également suivi une formation postdoctorale en neurophysiologie. Son programme de recherche vise à mieux comprendre les mécanismes de la plasticité cérébrale qui sous-tendent la formation de la mémoire afin de mettre au point des stratégies innovantes et plus efficaces pour optimiser la consolidation de la mémoire motrice et l'apprentissage de compétences auprès de différentes populations.



Marc Roig Pull is an Assistant Professor at the School of Physical Occupational Therapy at McGill University and a regular researcher at CRIR-Jewish Rehabilitation Hospital of the *CISSS de Laval*. He completed a Bachelor degree in Sports Science and Physical Therapy and graduate studies in Sports Medicine and Exercise Science and Rehabilitation Sciences. He also has postdoctoral training in neurophysiology. His research program aims to gain insight into the mechanisms of brain plasticity that underlie the formation of memory for the development of novel and more effective strategies to optimize motor memory consolidation and skill learning in different populations.

PRÉSENTATIONS ORALES | ORAL PRESENTATIONS

PRÉSENTATEUR PRESENTER	TITRE TITLE
1 AKREMI, Haifa	Coordination bilatérale et récupération fonctionnelle des membres supérieurs à la suite d'un protocole d'augmentation de l'erreur chez les personnes hémiplegiques : protocole de recherche.
2 AUGER, Louis-Pierre	Implantation de la téléadaptation dans un programme de congé précoce assisté post-AVC.
3 BÜHLER, Marco A.	Virtual reality interfaces modulate obstacle circumvention strategies.
4 DE LAS HERAS, Bernat	Exercise improves video game performance: A win-win situation.
5 ESMAIL, Alida	Clothing influences participation of persons with a physical disability: Results from a scoping review.
6 GAGNON-ROY, Mireille	Adaptation de l'orthèse cognitive COOK pour soutenir la préparation de repas : évaluation des besoins des personnes vivant avec un traumatisme crânien.
7 JOSHI, Hayati	Navigating in the mall as a community environment in healthy individuals: A visuomotor perspective.
8 LORENZINI, Marie-Céline	Factors related to the use of a head-mounted display for individuals with low vision.
9 MARTINIELLO, Natalie	Exploring the experiences of working-age and older adults with acquired vision loss who pursue braille training.
10 PARÉ, Catherine	Recovery expectancies, pain, and PTSD symptom severity.
11 SHAHIN, Saeideh	How do parents facilitate their youth's participation?
12 TAPIN, Alexandre	Perception d'un mouvement de marche à l'aide de vibrations multiples chez les personnes ayant une blessure médullaire incomplète.
13 YAN, Hui (Harriet) KHOWAJA, Rabail	Measurement of upper body movement during propulsion on a manual wheelchair simulator.

SESSION D’AFFICHAGE | *POSTER SESSION*

	PRÉSENTATEUR <i>PRESENTER</i>	TITRE <i>TITLE</i>
1	ATRI, Alisha	Differences in resting state functional connectivity between older master athletes and healthy elderly.
2	AZEVEDO, Nancy	Developing and validation a Canadian French N400 event-related potential paradigm.
3	BAILEY, Christopher A.	Effect of old age and fatigue on variability and connectivity of neck/shoulder muscles during a drinking-like arm task.
4	BEHTANI, Lydia	The effect of aged-related vestibular loss on postural control.
5	CHAAR, Fadi	What is the validity of a virtual reality simulator, and its perceived effects on manual wheelchair skills training, according to clinicians and expert wheelchair users?
6	CHEN, Karen	Changes in motor connectivity in the healthy brain induced by exercise using fMRI data.
7	GÜVEN, Selçuk	Examining task related effects on the manifestation of morphological and lexical errors in French speaking children with developmental language disorders.
8	HE, LingXin	TMS interferes with tDCS modulation of motor skill learning.
9	LAM, Jacqueline Tu Anh Thu	Co-création d’un programme de physiothérapie pour le syndrome d’apnée obstructive du sommeil chez les femmes post-ménopausées : initiation d’un protocole de recherche.
10	LIU, Le Yu	Real-time avatar-based feedback to enhance gait symmetry after stroke: Instantaneous effects of different avatar views.
11	MIKHAIL, Youstina	Détermination d’un seuil objectif pour la stimulation galvanique vestibulaire.
12	MIREAULT, Maxime	Intégration du patient dans le processus d’évaluation continue en réadaptation de la main : données préliminaires.
13	NOORISTANI, Mujda	Effet de la densité du courant de la stimulation galvanique sur le contrôle postural.
14	PALIMERIS, Stephania	An individualized approach for upper extremity training post-stroke based on neurophysiological markers: Procedures and preliminary observations.

15	PINSONNAULT-SKVARENINA, Alexis	Le bruit généré par les travaux de construction de l'échangeur Turcot : de quelle façon les riverains sont-ils affectés ?
16	PION, Charlotte H.	Réactions posturales et modulation de l'excitabilité spinale lors d'une perturbation de l'équilibre à la suite d'une lésion incomplète de la moelle épinière.
17	ROBERGE-DAO, Jacqueline	The development of a novel methodological approach to measuring evidence-based practice in rehabilitation.
18	RODRIGUES, Lynden	Synergistic effects of exercise and dopamine improve motor memory in Parkinson's disease.
19	SHARP, Andréanne	Improve tactile frequency discrimination in musicians.
20	TEOLI, Anthony	Relationships between vastus medialis fat infiltration with body mass index, disease severity and anterior cruciate ligament status in patients with knee osteoarthritis.

RÉSUMÉS | ABSTRACTS PRÉSENTATIONS ORALES | ORAL PRESENTATIONS

Coordination bilatérale et récupération fonctionnelle des membres supérieurs à la suite d'un protocole d'augmentation de l'erreur chez les personnes hémiplegiques : protocole de recherche.

Akreml, H.* Nadeau, S. & Higgins, J.

École de réadaptation, Université de Montréal;

CRIR-Institut universitaire sur la réadaptation en déficience physique de Montréal (IURDPM) du CIUSSS du Centre-Sud-de-l'Île-de-Montréal.

INTRODUCTION ET OBJECTIF : Après un accident vasculaire cérébral (AVC), des déficits de coordination bilatérale et de la fonction des membres supérieurs (MS) sont persistants et peu étudiés. Récemment, l'entraînement basé sur le concept d'augmentation de l'erreur (AE) s'est démontré efficace pour améliorer la performance des MS. L'objectif de ce protocole est de déterminer l'effet d'un entraînement bilatéral basé sur l'AE sur la coordination bilatérale et la récupération des MS chez les personnes post-AVC. **MÉTHODOLOGIE :** Un devis avant après avec mesures répétées sera effectué. Trente participants post-AVC seront assignés à l'un de 3 types d'entraînement basés sur le concept d'AE selon leur niveau de déficit (deux groupes visant à améliorer la force et un groupe visant à améliorer la coordination). L'entraînement, basé sur le concept d'AE, consiste en poussées et tirées bilatérales (symétrique et asymétriques), similaires à un mouvement d'atteintes effectués à l'aide d'un exerciceur double. Il est composé de 3 phases : phase de référence (mouvements bilatéraux symétriques, phase d'adaptation asymétrique et phase de désadaptation pendant laquelle les effets de l'AE sont observés (post-effets). Des évaluations cliniques de la performance (Échelle de CAHAI) et de la coordination bilatérale (ABILHAND), biomécaniques et neurophysiologiques seront effectuées avant et après six séances d'entraînement et après un mois de suivi. **RÉSULTATS OU RÉSULTATS ATTENDUS :** Une amélioration de la performance (score du CAHAI), de la coordination bilatérale, des paramètres biomécaniques (comme la vitesse) après les séances d'entraînement est attendue. **CONCLUSION :** Ces résultats pourraient confirmer la pertinence d'utiliser l'entraînement basé sur l'AE afin d'améliorer la performance des MS chez les personnes post-AVC.

Implantation de la téléadaptation dans un programme de congé précoce assisté post-AVC.

Auger, L.P.*^{1,2}, Rochette, A.^{1,2}, Bojanowski, C.³, Côté, O.³, Guerrera, R.³, Bleau, M.³, Fillion, B.², Chadia Kombo, C.⁴ & Kairy, D.^{1,2}

1. École de réadaptation, Université de Montréal;

2. CRIR-IURDPM du CIUSSS du Centre-Sud-de-l'Île-de-Montréal;

3. IURDPM du CIUSSS du Centre-Sud-de-l'Île-de-Montréal;

4. Centre de coordination de la télésanté, RUIS de l'Université de Montréal.

INTRODUCTION ET OBJECTIFS : Le programme de congé précoce assisté (CPA) permet aux personnes post-AVC de réaliser leur réadaptation à domicile. La téléadaptation pourrait s'intégrer aux services du CPA afin de répondre aux meilleures pratiques canadiennes. Le but de l'étude est donc d'évaluer la faisabilité d'implanter la téléadaptation au CPA et documenter son impact sur les patients, leurs proches, les intervenants, les gestionnaires et l'utilisation des ressources du système de la santé. **MÉTHODOLOGIE :** Une étude de cas uniques avec un devis mixte est proposée. La période d'implantation sera de 12 mois. Les intervenants (n=8) du CPA seront formés à utiliser la téléadaptation dans leur pratique afin de recruter au moins 10 patients et leurs proches. Des données administratives, des questionnaires standardisés (pré-post), des entrevues individuelles (patients, proches) et des entrevues de groupe focalisé (intervenants; post) seront utilisés afin de répondre aux objectifs. Les données administratives feront l'objet d'analyses descriptives, les scores aux questionnaires seront comparés par des tests non-paramétriques et les données qualitatives seront analysées par thématiques. **RÉSULTATS ATTENDUS :** La téléadaptation sera implantée dans le programme de CPA. La combinaison du CPA et de la téléadaptation permettra au patient de recevoir ses traitements au moment opportun, les bienfaits de la réadaptation seront semblables à un suivi CPA régulier et les coûts liés à la réadaptation du patient seront réduits. **CONCLUSION :** Les résultats de cette étude contribueront à informer la mise en place d'autres programmes de CPA et l'implantation de la téléadaptation dans d'autres programmes de réadaptation.

Virtual reality interfaces modulate obstacle circumvention strategies.

Bühler, M.* & Lamontagne, A.

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INTRODUCTION AND OBJECTIVES: Independent community walking is a major concern for stroke survivors and in many cases, it is quite challenging to achieve. Virtual environments (VEs) can be used to replicate real-life demands of community environments in which people with disabilities can be assessed and trained in a safe manner. However, before VEs are implemented into clinical practice, it is necessary to better understand whether the walking behavior in VEs reassembles that observed in the physical environment (PE). Our main objective was to compare the extent to which obstacle circumvention strategies in a VE differ from the PE. **METHODOLOGY:** Twelve healthy young participants were exposed to a pedestrian avoidance task randomly performed in the PE and the VE. Pedestrians were either static (on the midline) or approaching from different directions (left, middle or right). Body kinematics was tracked with a Vicon system and the VE was viewed through a gamers (HTC VIVE, n=12) helmet mounted display (HMD) and a research HMD (NVISOR SX60, n=2). **RESULTS OR EXPECTED RESULTS:** Compared to the PE, circumventing pedestrians in the VE was characterized by slower walking speeds, larger obstacle clearances but similar distances from the obstacle at onset of avoidance strategy. Changes in clearance and walking speed were larger when using the research vs. gamers HMD. **CONCLUSION:** Findings suggest the used of “safer” locomotor adaptations in the VE compared to the PE. Furthermore, results obtained with both HMDs suggest that the characteristics of VR equipment can influence the user’s responses. These factors should be taken into consideration when using VEs in clinical rehabilitation.

Exercise improves video game performance: A win-win situation.

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INTRODUCTION AND OBJECTIVES: To investigate the effects of a single bout of cardiovascular exercise on the performance of “League of Legends” (LoL), a video game played daily by more than 30 million players. **METHODOLOGY:** 16 healthy young (18-28 yo) LoL gamers played a customized LoL task of 20 min preceded by either 15 min of a high-intensity interval exercise or rest. The two conditions were administered on two separate days in a counterbalanced fashion. Video game performance was assessed as the number of targets destroyed, as well as accuracy, defined as the ability to destroy a target with only one attack. Attacks that required more than one attempt to destroy a target were counted as accuracy errors. **RESULTS OR EXPECTED RESULTS:** Exercise improved the capacity of participants to successfully destroy targets, but differences between exercise (119.43 [4.23]) and rest (111.50 [3.98]) did not reach statistical significance (paired t-test; t=1.81; p=0.051). Exercise enhanced accuracy, with fewer errors after exercise than after rest (paired t-test; t=-2.38; p=0.033). Self-reported sitting time was negatively associated with total score after the rest condition (r=-0.55; p=0.040). Neither other variable (cardio-respiratory fitness, BMI, cognitive level) was associated with game performance. **CONCLUSION:** Exercise performed before playing LoL improves video game performance increasing accuracy. The fact that players with less sitting time showed better performance reinforces the importance of reducing sedentary behaviors in this group. The implementation of exercise routines in video gamers may improve their general health and their gaming performance.

Clothing influences participation of persons with a physical disability: Results from a scoping review.

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BACKGROUND: Clothing can help or hinder the ability to fulfill daily needs and social roles; clothing-related activities (e.g. dressing) are often challenging for persons with a physical disability (PWD). Clothing design and wearable technologies are growing industries, however, industry uptake of adapted or inclusive designs seems slow. **OBJECTIVE:** Map the state of the knowledge about the role of clothing on participation of PWD. **METHODOLOGY:** Six research databases (MEDLINE, Embase, CINAHL, ERIC, PsycINFO, Sociological Abstracts) and grey literature were searched. English or French articles between 1990 and 2018 concerning PWD aged 14+ years and contributing to how clothing affects function, activities, participation, and quality of life were included and extracted based on the International Classification of Functioning, Disability and Health (ICF). **RESULTS:** Fifty-seven articles and 88 URLs were included (47.4% articles published after 2009). Articles highlighted the multifactorial influence of clothing on participation through the majority of ICF chapters. Frequently reported chapters include: Products & Technology, Self Care, Mobility, Attitudes, and Services, Systems & Policies. Personal Factors were also frequently reported and equally valued. Perspectives from a variety of stakeholders and PWD with diverse diagnoses were represented. Numerous companies presenting adapted products online were found, including specialized tailors and designers. **DISCUSSION:** A surprising breadth of knowledge was retrieved, leaving the authors with more questions than answers. Indeed, clothing is important to facilitate the participation of PWD and a call to action for implication from numerous sectors is needed. Future research should consider the knowledge uptake among the fashion industry.

Adaptation de l'orthèse cognitive COOK pour soutenir la préparation de repas : évaluation des besoins des personnes vivant avec un traumatisme crânien.

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INTRODUCTION ET OBJECTIFS : La préparation de repas peut devenir un défi après un traumatisme crânien (TCC). L'orthèse cognitive COOK est une intervention prometteuse pour soutenir l'indépendance et assurer la sécurité de ces personnes pendant la préparation de repas. Toutefois, il est nécessaire de mieux comprendre leurs besoins afin de faciliter le développement et l'intégration éventuelle de COOK. Cette étude vise donc à explorer ces besoins selon des personnes vivant avec un TCC, des proche-aidant et des intervenants afin de les considérer dans l'adaptation de COOK. **MÉTHODOLOGIE :** Des entrevues individuelles et de groupe ont été réalisées auprès de 14 participants vivant avec un TCC, de 8 proches-aidants, de 10 intervenants et 2 gestionnaires cliniques afin d'identifier les besoins et difficultés des personnes vivant avec un TCC concernant la préparation de repas. Les entrevues ont été analysées selon l'approche de Miles, Huberman et Saldana (2013). **RÉSULTATS :** Au total, 42 besoins ont été identifiés par les participants, puis regroupés en quatre catégories de besoins : 1) Adapter la complexité de la tâche afin de faciliter leur engagement, 2) Adapter les recettes selon leurs besoins, préférences et capacités, 3) Réduire les comportements à risque pour assurer la sécurité pendant la tâche, et 4) Adapter la tâche afin d'optimiser leur satisfaction. **CONCLUSION :** Ces résultats soulignent l'importance d'adapter et de simplifier les recettes proposées par COOK afin de correspondre aux besoins et capacités des personnes vivant avec un TCC, ainsi qu'optimiser leur engagement et satisfaction par rapport à la préparation de repas.

Navigating in the mall as a community environment in healthy individuals: A visuomotor perspective.

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INTRODUCTION: Independent community walking relies heavily on the sense of vision and involves locomotor adaptations (i.e. changes in speed and direction) that are essential to avoid hazards in the environments (e.g. obstacles). In this project, we are examining gaze behaviour and body kinematics as healthy individuals ambulate and avoid other pedestrians in a living lab representing a community environment. **OBJECTIVES:** (1) To characterize gaze behaviour and kinematic strategies during obstacle circumvention while walking in a community environment and; (2) To assess the test-retest reliability of gaze and kinematic parameters at one-week interval. **METHODOLOGY:** Fifteen healthy young individuals (18-29 yrs) will be assessed while walking towards a target with different exposures to static and moving obstacles in Alexis Nihon Mall in Montreal. Two evaluation sessions will be held at a 1-week interval. Kinematics and temporal-distance factors will be assessed with wearable sensors (APDM) while gaze behavior will be recorded with an eye-tracker (Tobii Pro 2). **RESULTS OR EXPECTED RESULTS:** Despite of the complexity of a community environment, healthy young adults will exhibit stereotyped gaze behaviour and kinematic strategies which are modulated as a function of contextual demands (direction of obstacle approach, goal location). Key outcomes will demonstrate good test-retest reliability. **CONCLUSION :** Results will help better understand how visual information is used to implement efficient navigation and obstacle circumvention strategies in a dynamic community environment such as a shopping mall. Results will later be used as a basis for comparison to understand challenges in community walking experienced by older adults and individuals with physical disability.

Factors related to the use of a head-mounted display for individuals with low vision.

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INTRODUCTION AND OBJECTIVES: In the context of visual impairment, little is known about why some device users experience head-mounted devices, such as eSight Eyewear, as a success while others decide not to use them in the long-term. The goal was to identify which factors predict a change in device use among current eSight owners, in order to tailor rehabilitation interventions that can reduce device abandonment. **METHODOLOGY:** Using a cross-sectional design, participants were recruited from 567 eSight Eyewear owners to complete a 45-min survey online. Using current device use/non-use as a binary outcome, logistic regression analyses were performed to identify the variables that most comprehensively predicted the highest percentage of variance in eSight use. **RESULTS OR EXPECTED RESULTS:** The 109 (19.2%) respondents with complete data had a mean age of 47.7 years (SD=25.4, range: 9-96), 51% self-reported a central, 6% a peripheral and 45% a general visual impairment. The final four regression model alternatives accounted for 84.7%, 68.7%, 83.7% and 64.7% (Nagelkerke's pseudo R²) of the variance in eSight use, respectively. The most consistently predictive variables of increased use across models were higher scores on the Psychological Impact of Assistive Devices Scale and the Quebec User Evaluation of Satisfaction with assistive Technology scale. **CONCLUSION:** None of the traditionally available clinical variables, such as patient demographics, or ocular and general health information were predictive of abandoning eSight Eyewear. The administration of standardized device impact questionnaires appears to provide relevant information. Such measures may be able to identify device users that could benefit from individualized attention during low vision rehabilitation provision.

Exploring the experiences of working-age and older adults with acquired vision loss who pursue braille training.

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INTRODUCTION AND OBJECTIVE: Though braille is considered as an option for clients with acquired vision loss who experience reading-related difficulties, little is known about the impact of aging on braille learning. This study explored the experiences of older adults with acquired vision loss who have pursued braille training, including facilitators and barriers encountered. **METHODOLOGY:** Semi-structured interviews were conducted by telephone with 14 participants throughout Canada (age 40-72, Mdn=55.5, 7 female). Participants learned braille in adulthood (age-range 33-60, Mdn=46.5). Recorded interviews were transcribed verbatim and later analyzed by two researchers based on the phenomenological method of analysis. **RESULTS OR EXPECTED RESULTS:** Among the personal, environmental and social factors highlighted, prior learning experiences (whether positive or negative) were shown to impact the decision to learn braille and the training experience. Reactions towards braille from the public posed a barrier to those still adjusting to vision loss. Participants also highlighted the value of knowing others who learned braille later in life. A reoccurring environmental barrier that emerged was the lack of available resources for adult braille learners, and the perceived response from rehabilitation practitioners who believed that clients should not or could not learn braille due to their age or misconceptions about braille. **CONCLUSION:** Results highlight the need to explore the influence of stereotypes associated with aging and braille, and the degree to which this may impact opportunities for clients who may benefit from braille. Our findings will contribute to future research and the development of assessments to better meet the needs of older adults who pursue braille training.

Recovery expectancies, pain, and PTSD symptom severity.

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INTRODUCTION AND OBJECTIVE: Research suggests that post-traumatic stress symptoms are prevalent in individuals who have sustained whiplash injuries following motor vehicle accidents. “Mutual maintenance” models have been used to explain high rates of comorbidity between pain and Post-Traumatic Stress Disorder (PTSD). Although several studies have provided support for mutual maintenance models of PTSD and pain, the processes by which post-traumatic stress symptoms and pain are mutually maintained has not been systematically investigated. The purpose of the present study was to examine the role of expectancies as a mediator of the relationship between PTSD symptoms and pain. **METHODOLOGY:** A sample of 123 individuals with whiplash injuries completed measures of pain, PTSD, and recovery expectancies at the beginning and end of their participation in a 7-week multidisciplinary pain rehabilitation program. **RESULTS:** Correlational analyses revealed that recovery expectancies were significantly associated with pre-treatment PTSD symptoms and post-treatment pain severity. Cross-sectional linear regressions revealed that pre-treatment symptoms of PTSD, but not recovery expectancies, emerged as a significant predictor of pre-treatment pain severity. However, pre-treatment PTSD symptoms and recovery expectancies both contributed unique variance to the prediction of pain severity at treatment termination. **CONCLUSION:** The results of this study showed that recovery expectancies have a prospective, but not concurrent, relation to pain severity. Recovery expectancies predicted end-of-treatment pain severity but did not mediate the relation between PTSD symptoms and pain severity. The results suggest that intervention techniques designed to modify recovery expectancies could enhance treatment outcomes for individuals with whiplash injuries who are also experiencing symptoms of PTSD.

How do parents facilitate their youth's participation?

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INTRODUCTION AND OBJECTIVES: Youths with physical disabilities face greater restrictions to participation in various activities in comparison to their peers without disabilities. Family involvement can facilitate their participation in desired meaningful occupations; however, little is known about strategies used by parents to explicitly promote the participation of youths - a critical transitional age group. This study examined the type and scope of parents' strategies to facilitate the participation of youths with physical disability at home, school and the community. **METHODOLOGY:** Twenty-two parents of youths with mobility restriction, aged 12-18 (mean=14.2, SD=1.9), completed the Participation and Environment measure for Children and Youth (PEM-CY) to gather data about strategies for promoting their child's participation. Content analysis was conducted in which strategies were extracted, coded and then organized into the domains of the Canadian Model of Occupational Performance-Engagement (CMOP-E): Person, Occupation, and Environment. **RESULTS OU EXPECTED RESULTS:** Overall, parents reported 241 strategies, of which 130 were distinct, and covered all domains of the CMOP-E; environment (53%), occupation (24%), person (23%), and spirituality (10%). The majority of strategies focused on modifying the physical environment and on facilitating participation in the school setting through advocacy, collaboration and parental involvement. Findings however, revealed a lack of strategies aimed at institutional policies at the macro level. **CONCLUSION:** This study provides insight on the range of actions parents take to promote youth's participation, highlighting the utility of the PEM-CY in the clinical setting. Occupational therapists can build on this knowledge and, through collaborative strength-based interventions, enhance youth's participation in different settings.

Perception d'un mouvement de marche à l'aide de vibrations multiples chez les personnes ayant une blessure médullaire incomplète.

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INTRODUCTION ET OBJECTIFS : L'entraînement orienté à la tâche est un outil efficace dans la rééducation à la marche chez la personne ayant subi une blessure médullaire incomplète. L'utilisation de 12 vibrateurs placés sur les fléchisseurs et extenseurs des hanches genoux et chevilles activé selon un patron reproduisant un cycle de marche provoque des réponses motrices et parfois des perceptions de mouvement de marche. Ces stimulations proprioceptives pourraient servir à l'amélioration des paramètres de marche lors de la rééducation. **MÉTHODOLOGIE :** 10 participants ayant une lésion incomplète de la moelle épinière (score ASIA C ou D, capable de marcher 10m entre 0.15 et 0.8 m.s-1) entre 18 et 65 ans ont reçu 15 entraînements de vibrations multiples. L'entraînement consistait à simuler 2200 pas à un rythme de 1 ou 2 pas/secondes. Une session d'entraînement évaluative était également effectuée en laboratoire avant et après les 15 entraînements. La perception du mouvement de marche était quantifiée à l'aide d'une échelle visuelle analogique soumise lors des sessions de laboratoire ainsi qu'à la 5, 10 et 15ème session d'entraînement. **RÉSULTATS OU RÉSULTATS ATTENDUS :** Tous les participants (n=10) ont donné un score de perception supérieur ou égal à 7/10 à au moins une des évaluations. Ces scores augmentent en moyenne de 2 points entre le début et la fin de l'entraînement. **CONCLUSION :** Il est possible de produire des perceptions de mouvement de marche chez les personnes ayant une blessure de la moelle épinière. De plus, ces perceptions semblent se renforcer au fur et à mesure des entraînements. L'impact de ces stimulations dans un programme de rééducation reste à déterminer.

Measurement of upper body movement during propulsion on a manual wheelchair simulator.

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INTRODUCTION AND OBJECTIVES: Manual wheelchair (MWC) propulsion is a practical form of both mobility and exercise. However, according to expert MWC users and clinicians, maintaining balance while negotiating slopes

and obstacles is a challenge. Additionally, mastering appropriate propulsion technique is critical as incorrect technique enhances risk for upper extremity injury. As such, it is necessary to evaluate upper body movements during MWC training. The objective of the current study is to improve the existing McGill Wheelchair (miWe) simulator by determining which low-cost sensor is best for measuring upper body movements during simulator use. **METHODOLOGY:** Participants aged 18 to 65 with more than 2 years of experience driving MWCs and SCI lesion C6 or lower will be recruited. Participants will practice the “infinite sidewalk” scenario in the miWe simulator for 20 minutes while upper body movement is simultaneously recorded by inertial measurement units, a 3D depth camera (Orbec), and a gold-standard motion capture system. Precision of kinetic data collected by the low-cost inertial sensors and 3D depth camera will be compared to data collected by the motion capture system to evaluate validity. **RESULTS OR EXPECTED RESULTS:** We expect that one of the low-cost systems, either the 3D depth camera or inertial sensors will be more precise for measuring upper body propulsion motion by providing kinematic data most similar to that from the motion capture system. **CONCLUSION:** The low-cost system that is most valid for measuring upper body motion will be used to monitor posture and propulsion technique in order to simulate these upper body dynamics in the miWe simulator.

RÉSUMÉS/ABSTRACTS SESSION D’AFFICHAGE / POSTER SESSION

1. Differences in resting state functional connectivity between older master athletes and healthy elderly.

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INTRODUCTION AND OBJECTIVES: The functional connectivity (FC) of a brain region called the medial prefrontal cortex (mPFC), which is involved in working memory and executive function, has been found to change in resting state-FC studies involving athletes and older adults, separately (Raichlen et al., 2016; Ferreira & Busatto, 2013). The purpose of this study was to investigate the changes in resting state-functional connectivity of the mPFC in master athletes (MA) compared to healthy elderly (HE) controls. **METHODOLOGY:** The study included 27 participants, 15 MA (8 women) and 12 HE (6 women). The mean age at the time of scan was 80 years old (SD = 5) for MA and 81 years old (SD = 5) for HE. The region of interest, the mPFC, was made up of 12 masks obtained from the Brainnetome Atlas (Fan et al., 2016). Between-group analyses were performed using a mixed-effect model in FSL. **RESULTS OR EXPECTED RESULTS:** First, there was decreased connectivity in the MA group between the right BA 24 caudodorsal seed and BA 9. Second, there was increased FC in the MA group between the right BA 24 caudodorsal seed and sub-gyral white matter (WM). Third, there was decreased FC in the MA group between the left BA 24 rostroventral seed and the right precentral gyrus, inferior frontal gyrus. Finally, there was decreased FC in the MA group between the left BA 32 subgenual seed and the right superior parietal lobule. **CONCLUSION:** The results obtained from this study provide further evidence that prolonged exercise can cause changes in FC during resting state.

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2. Developing and validation a Canadian French N400 event-related potential paradigm.

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INTRODUCTION AND OBJECTIVES: A typical N400 event-related potential (ERP) component occurs when the brain detects a contradiction and can be elicited by the canonical experiment where the end word of a sentence contradicts what a listener is expecting to hear. An adequate version of Canadian French sentences designed to elicit N400 responses does not exist. While English sets exist, they cannot be directly translated into French; rather, sentences must be created and validated. The overall goal of this study was the development and validation of a Canadian French N400 ERP component elicitation paradigm. **METHODOLOGY:** N400 stimulus development occurred in two phases. In Phase 1, we created 100 sentences (50 with congruent and 50 with incongruent word endings). All 100 sentences were tested in two (2) surveys thus allowing us to calculate a semantic probability score and a cloze probability for each. A total of 183 healthy dominant French-speaking adults aged 18-87 completed a questionnaire. The 40 best congruent and incongruent sentences were tested in Phase 2 with 27 healthy dominant French-speaking adults aged 18-85 to determine whether they could elicit a N400 component. High-density EEG was recorded as the 80 sentences were presented aurally in random order.

RESULTS OR EXPECTED RESULTS: The differences in the waveforms revealed a significant N400 in parietal areas generated by the incongruent sentences, demonstrating the ability of this paradigm to elicit the desired brain response. **CONCLUSION:** We propose that this newly-created ERP paradigm can be used to successfully elicit the N400 in dominant French-speaking Canadian healthy adults thus permitting the use of the N400 paradigm with this population and complementing data that has been collected in other languages.

3. Effect of old age and fatigue on variability and connectivity of neck/shoulder muscles during a drinking-like arm task.

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INTRODUCTION AND OBJECTIVES: Aging is associated with alterations in the neuromuscular system, affects fatigability, and is a risk factor for incurring a fatigue-related injury in the neck/shoulder (N/S) region. As the incidence of injury is higher in older adults, aging effects on electromyographical (EMG) features may be partly responsible, with changes in muscle pattern variability and functional connectivity being recently identified as features worth further exploring. Thus, the purpose of this study was to determine the effect of age and N/S fatigue on muscle pattern variability and functional connectivity. **METHODOLOGY:** Young (N=17; 9 females) and older (N=13; 10 females) adults completed five trials of a drinking-like task (DLT) at their self-selected speed, before and after a fatiguing task targeting the N/S. EMG signals were recorded from several N/S muscles, including the subdivisions of the trapezius and deltoid. Activation amplitude (RMS), amplitude variability (RMS CV), functional connectivity (NMI), and functional connectivity variability (NMI CV) were extracted from the EMGs and analyzed with Age (young, older) x Condition (pre-fatigue, post-fatigue) x Muscle general estimating equations. **RESULTS OR EXPECTED RESULTS:** RMS CV and deltoid NMI CV increased from pre- to post-fatigue for all adults ($p < .05$), and upper trapezius-deltoid NMI decreased for young but increased for older adults while the opposite response was found for lower trapezius-deltoid NMI ($p < .05$). **CONCLUSION:** Generally, fatigue-related changes in individual muscle variability were age-independent while changes in functional connectivity were age-dependent. Older adults seem to adapt to fatigue during drinking-like movements with a cranial shift in control of the scapula.

4. The effect of aged-related vestibular loss on postural control.

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INTRODUCTION AND OBJECTIVES: The vestibular system consists of three semicircular-canal and two otolith organs within the inner ear. It is an absolute reference to other sensory systems involved in postural control, but becomes less reliable with age, leading to higher risks of falls. Current evidence suggest that reduced vestibular semicircular-canal function is the major driver of increased postural sway among the elderly, particularly under limited sensory conditions. Unfortunately, it is still unclear how the vestibular otolith function contribute to increasing falls among the elderly. Our aim was to investigate the isolated age-related loss of otoliths function on static postural control in older adults when compared to younger adults. **METHODOLOGY:** A total of 30 healthy old and young adults were tested in four postural conditions using a force platform. We used wavelet analysis for the postural measures to identify the relative weight of vestibular cues. We assessed the otoliths function by using Vestibular Electrophysiological Myogenic Potentials (VEMP), and then correlated them with force platform measures. **RESULTS:** Elder group have a significantly lower postural control under challenging postural conditions when compared to the younger group. Wavelet analysis reveals a significant weight shift to vestibular cues among the elderly, suggesting vestibular contribution to poorer postural control among elderly. Moreover, VEMP significantly correlated with postural measures and could be useful for predicting postural control. **CONCLUSION:** Our findings demonstrate how age-related otolith vestibular loss contribute to the elderly poorer postural control and suggest a vestibular-postural measure for fall prevention programs.

5. What is the validity of a virtual reality simulator, and its perceived effects on manual wheelchair skills training, according to clinicians and expert wheelchair users?

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INTRODUCTION AND OBJECTIVE: Conventional training for MWC users, approximately 1% of Canadians young and old, is not practical nor standardized to meet the needs of people who rely heavily on wheelchairs in their everyday life. Independence or social participation are not guaranteed for manual wheelchair users due to a multitude of factors, leading to a need of ability such as self-propulsion. Proper skill training is of great importance. **METHODOLOGY:** We will use an observational cross-sectional study, as well as a qualitative interview, therefore a mixed method design. The participant will be placed on the platform to experience the infinite sidewalk. The obstacle order will be presented at random and each participant will experience every obstacle 5 times. The experiment will last a total of approximately 35 minutes. All participants will need to provide an informed consent, as approved by the ethics committee of the Centre for Interdisciplinary Research in Rehabilitation of Greater Montreal. At the end of the thirty-five-minute experience, participants will be given the three following questionnaires: the perceived Ease of Use Questionnaire (EUQ), the Short Feedback Questionnaire (SFQ), and the Igroup Presence Questionnaire (IPQ). **EXPECTED RESULTS:** We hypothesize that among clinicians and MWC users, we will have a positive view on sense of presence, perceived usefulness, as well as feedback on the MiWe simulator experience. **EXPECTED CONTRIBUTION:** The aim of this project is to see the usability of this simulator focusing on “wheelchair skills”. The MiWe simulator will be designed to assist MWC users to help improve their wheelchair skills, set goals, and identify activities to improve mobility. The results from this project will provide insight, from the perspective of experience wheelchair users on important functionalities the MiWe simulator must include to potentially improve wheelchair skills. The information will inform future development of the simulator.

6. Changes in motor connectivity in the healthy brain induced by exercise using fMRI data.

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INTRODUCTION AND OBJECTIVE: Exercise is known to induce positive outcomes in the body and especially in the brain. The purpose of the study is to determine if there are changes in brain activity levels in subjects that underwent an acute bout of exercise after learning a motor task compared to subjects who rested for the same period, and to identify where these changes are located. **METHODOLOGY:** MRI techniques were used to visualize brain areas. Data was collected from 18 subjects while subjects underwent 50 isometric handgrips in the scanner. Half of the subjects, underwent an acute bout of cardio exercise on a stationary bike while the other half rested for the same amount of time. A second MR scan was done 90 mins later and further retention tests were done at 8 hours and 24 hours. Finally, SPM was used to analyze fMRI data. **RESULTS OR EXPECTED RESULTS:** The main of activation of pre-control, post-control, pre-exercise and post-exercise was observed at the left primary motor cortex. Activation between baseline and MR2 scans for control group was in the outside defined BA atlas. The between-group analysis for baseline scans had activations in the visual cortices. The within-group analysis for exercise group yield activation in the left BA40, the between-group subjects of MR2scan had activation in the left BA44, and ANOVA analysis yield activation in the right BA24. **CONCLUSION:** Group-level analysis revealed significant differences in premotor areas including BA40, BA44 and BA24, suggesting that exercised subjects have a higher ability to plan motor movements, allowing for a more precise motor execution.

7. Examining task related effects on the manifestation of morphological and lexical errors in French speaking children with developmental language disorders.

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INTRODUCTION AND OBJECTIVE: There is growing concern about the effects of task-related factors on the production of grammatical errors in children with developmental language disorders(DLD). In a previous study,

Thordardottir (2008) showed that manifestation of grammatical morphology is differently affected by the different contexts in English than the Icelandic. French is rich morphologically, and we hypothesized that due to the increased processing load, in a more demanding context (e.g., story retell) some vulnerabilities in the aspect of grammatical morphology may be seen. The purpose of this study is whether or how two different language sampling contexts influence the production of morphological and lexical errors in French-speaking bilingual children with DLD. **METHODOLOGY:** Participants of this study were 29 preschool French-English speaking bilingual children with DLD. Their age ranged from 4;3 to 5;9 ($M=5;1$). All children were recruited and tested in Montreal. Language samples were collected in two different contexts: story retell task and conversation based language sample. In the study, the primary interest was on the overall accuracy rate of grammatical morphology and lexical errors within each of the contexts. We did match the total number of utterances and the length for each context and coded the errors accordingly. Moreover, lexical errors and errors in noun, adjective, and pronouns were analyzed. **RESULTS OR EXPECTED RESULTS:** We found a significant difference in the production of tense and person morpheme errors in more demanding context (story-retell) than the spontaneous language sample in all matching conditions. However, the difference in lexical errors across context was not significant.

8. TMS Interferes with tDCS modulation of motor skill learning.

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INTRODUCTION AND OBJECTIVE: Transcranial direct current stimulation (tDCS) is a non-invasive technique that has been shown to improve motor learning, as well as to increase corticospinal excitability (CSE) when measured by transcranial magnetic stimulation (TMS). However, the effects of tDCS are not consistent across different motor tasks, and there is limited evidence of the correlation between increased CSE induced by tDCS and motor skill retention. Our first goal was to assess the effect of a single anodal tDCS session applied on M1 on motor retention and its association with increased CSE using a Time-On-Target (TOT) visuomotor handgrip tracking task. Another goal was to investigate whether the concurrent application of TMS with tDCS interfered with motor learning processes. **METHODOLOGY:** Participants reported to the laboratory on 3 separate occasions. Anodal tDCS or SHAM stimulation was delivered during blocks of acquisition of the TOT on the first visit. In Study 1, participants had their CSE measured before and after the acquisition of the motor task. The same protocol was used for Study 2, without the use of TMS. Visit 2 and 3 were held at respectively 8h and 24h after the end of the last block of acquisition, during which participants performed one block of the TOT again. We compared the results between the 2 studies in order to assess the possible interference effect of TMS on tDCS during motor learning. **RESULTS OR EXPECTED RESULTS:** In Study 1: there was a trend for anodal tDCS to increase CSE when measured at 75 minutes post-tDCS ($p = .06$) when compared to the sham tDCS group, but no improvement in retention of the TOT measured at either 8h or 24h post-acquisition was found (tDCS*Retention interaction effect $p = .740$). Additionally, there was no correlation between retention scores and global change in CSE. In Study 2: the use of anodal tDCS only improved retention of the handgrip task at 8h ($p = .03$) but not 24h ($p = .09$). Comparison between the two studies showed that TMS might have affected the acquisition phase of the motor task ($p < .001$). **CONCLUSION:** We did not find a positive association between the increase in CSE induced by tDCS after motor learning and skill retention. Although tDCS alone can improve retention of a handgrip task, the use of TMS seem to disrupt the add-on effect of tDCS on learning processes.

9. Co-création d'un programme de physiothérapie pour le syndrome d'apnée obstructive du sommeil chez les femmes post-ménopausées : initiation d'un protocole de recherche.

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INTRODUCTION ET OBJECTIF : Le syndrome d'apnée obstructive du sommeil (SAOS) est un problème de santé publique caractérisé par des épisodes répétés d'occlusion des voies respiratoires supérieures pendant le sommeil. Sa prévalence est de 47-67% chez les femmes post ménopausées. Le traitement conventionnel pour un SAOS modéré à sévère est l'utilisation d'un appareil de ventilation en pression positive continue (CPAP). Cependant, la majorité des utilisateurs d'un CPAP rejette ou cesse ce traitement au cours des premières semaines. Dans ce contexte, les physiothérapeutes peuvent contribuer à l'élaboration d'une intervention alternative. L'objectif général est de développer et de tester un programme de physiothérapie novateur visant principalement à réduire

les signes et les symptômes liés aux SAOS, à améliorer le sommeil et à influencer positivement la qualité de vie liée à la santé des personnes atteintes du SAOS. **MÉTHODOLOGIE** : Trois phases de recherche sont prévues: 1) compléter une revue de la portée de la littérature, 2) co-construire un programme innovateur de physiothérapie et la sélection de ses mesures de résultats, 3) réaliser une étude clinique préliminaire menée pour tester la faisabilité, la sécurité, l'efficacité et la satisfaction du programme de réadaptation créé pour les personnes souffrant du SAOS modéré à sévère. **RÉSULTATS OU RÉSULTATS ATTENDUS** : Il est attendu que le nouveau programme de physiothérapie aura des effets positifs sur le sommeil, la santé, la qualité et la satisfaction de vie des personnes atteintes du SAOS. **CONCLUSION** : Ce projet informera l'élargissement de la portée de la pratique de la physiothérapie et le développement d'un futur essai clinique de grande envergure.

10. Real-time avatar-based feedback to enhance gait symmetry after stroke: Instantaneous effects of different avatar views.

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INTRODUCTION AND OBJECTIVE: Gait asymmetry often persists after stroke despite rehabilitation, negatively affecting functional mobility. Providing appropriate feedback to correct the gait pattern can be challenging for clinicians. Interventions aiming at improving gait symmetry have so far provided mitigated outcomes. The objectives of this ongoing study are to: (1) determine the feasibility of using virtual avatars to provide real-time visual feedback on the symmetry of gait in people with stroke and (2) examine any difference between frontal, side and back views in changing symmetry outcomes. **METHODOLOGY**: Participants with post-stroke gait asymmetry were assessed during self-paced treadmill walking which included trials of 30s of walking without the avatar, followed by 1 min of walking while visualizing the avatar replicating the walking pattern of the participant in real time, and finally 1 min of walking without the avatar. Three avatar views were randomly presented, which included viewing from (1) the back, (2) the paretic side; and (3) the front. In each trial, the following outcomes were examined: ratio of step length, ratio of swing time, paretic hip circumduction, walking speed, paretic joint angles (max hip flexion, knee flexion, ankle dorsiflexion and plantarflexion) and trunk displacement (pitch, yaw and roll). **RESULTS OR EXPECTED RESULTS**: Data of eight participants were collected. Back view reduces trunk yaw displacement. Front view reduces paretic hip circumduction and increases maximum plantarflexion at push-off. It also reduces trunk roll displacement. Paretic side view improves step time symmetry, increases walking speed and maximum paretic hip flexion angle during swing and reduces trunk roll displacement. **CONCLUSION**: Changes observed in the adaptation phase did not carry over to the post-adaptation phase. Longer exposure may be needed. Results support the feasibility of avatar-based feedback to improve the gait pattern of stroke survivors.

11. Détermination d'un seuil objectif pour la stimulation galvanique vestibulaire.

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INTRODUCTION ET OBJECTIF : La contribution du système vestibulaire au maintien de l'équilibre n'est pas suffisamment comprise. La stimulation vestibulaire galvanique (SVG) permet d'évaluer le système vestibulaire mais induit des réponses d'une grande variabilité interindividuelle. L'OBJECTIF de cette étude est de développer un protocole identifiant un seuil (T) objectif pour la SVG. **MÉTHODOLOGIE** : L'activité électromyographique (ÉMG) du soléaire (SOL), ainsi que l'accélération de la tête lors de la SVG ont été enregistrés chez 18 sujets sains droitiers. 1)Des courbes de recrutement ont été générées en position debout sur une plate-forme de force, les yeux fermés, la tête vers l'avant avec SVG bipolaire (1-4,5 mA, 200 ms, cathode à droite). 2)Les participants ont été stimulés à différentes intensités relatives au seuil. Mesure: 1)Aire de l'ellipse de confiance (AE) à 95%; 2)Vitesse de déplacement du centre de pression (CoP); 3)Amplitude des réponses ÉMG. **RÉSULTATS OU RÉSULTATS ATTENDUS** : 1) Un seuil a pu être déterminé pour chaque sujet basé sur l'accélération de la tête. 2)L'AE était plus grande à 1,5 T comparé à 0,5 T (p=0,007) et à 1 T comparé à 0,5 T (p=0,038). 3) L'amplitude de la première phase de la courbe de vitesse du CoP dans l'axe médiolatéral était plus grande à 1,5 T (p=0,002),

1 T ($p=0,008$) et 0,75 T ($p=0,03$) comparé à 0,5 T. 4) La corrélation entre l'intensité de la stimulation et l'amplitude des réponses ÉMG du SOL est non-significative. **CONCLUSION** : Un seuil objectif peut être identifié à l'aide d'un accéléromètre. L'intensité de stimulation est proportionnelle aux réponses vestibulaires basées sur le CoP, mais pas sur l'ÉMG.

12. Intégration du patient dans le processus d'évaluation continue en réadaptation de la main : données préliminaires.

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INTRODUCTION : L'ostéo-arthrite (OA) à la base touche 15% des adultes de plus de 30 ans. L'impact sur la participation, la perception du handicap, les limitations des rôles et la qualité de vie (QdV) n'est pas évalué de façon systématique par les professionnels de la santé œuvrant avec cette clientèle. **OBJECTIF** : L'objectif est de présenter le développement et données préliminaires d'un projet visant la co-création d'une banque d'items (questions) en partenariat avec patients et cliniciens permettant de quantifier tous les aspects importants de l'atteinte et de son impact. **MÉTHODOLOGIE** : Les items présents dans les évaluations auto-rapportées utilisées au centre de la main du CHUM ont été codifiés. Des entrevues auprès de 5 patients en attente de chirurgie et 5 cliniciens ont été effectuées et les verbatims soumis à une codification. Une banque d'items représentant tous les aspects identifiés dans les phases précédentes sera créée et un processus Delphi utilisé pour le choix final des items à retenir pour la banque. **RÉSULTATS OU RÉSULTATS ATTENDUS** : Les mesures couramment utilisées présentent des lacunes. Chez les patients, la douleur, l'importance de participer dans les loisirs ainsi que la capacité d'effectuer des gestes en apparence anodins (ex. poignés de mains), mais importants, sont abordées. Les mesures utilisées sont axées vers les déficits et la fonction tandis que l'impact réel de l'OA sur la participation, la perception du handicap, les limitations des rôles et la QdV n'est pas évalué de façon systématique. **CONCLUSION** : Une banque d'item sera créée, testée et validée auprès de cette clientèle.

13. Effet de la densité du courant de la stimulation galvanique sur le contrôle postural.

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INTRODUCTION ET OBJECTIF : La stimulation galvanique est une approche visant à stimuler le système vestibulaire en appliquant une stimulation électrique imperceptible au niveau des mastoïdes. Récemment, plusieurs études ont démontré qu'une telle stimulation pouvait induire une amélioration du contrôle postural chez différentes populations. Ainsi, cette amélioration peut être influencée par plusieurs paramètres de stimulation, dont la densité du courant envoyé qui est déterminée par l'intensité de la stimulation et la taille des électrodes utilisés. Toutefois, l'influence de ce paramètre n'a pas encore été examinée et les effets de l'intensité et de la taille des électrodes sont encore méconnus à ce jour. L'objectif de la présente étude est d'examiner l'effet de la densité du courant de la stimulation galvanique sur le contrôle postural. **MÉTHODOLOGIE** : 29 jeunes adultes ont pris part à cette étude. Les participants recevaient soit i) une stimulation galvanique avec des électrodes de 35 cm², ii) une stimulation avec des électrodes de 3 cm² ou iii) une stimulation placebo. La durée de la stimulation était de 30 minutes et des mesures posturales étaient faites à plusieurs moments. Les paramètres de la posture analysés étaient l'aire de l'ellipse, la vitesse de déplacement et le déplacement total. **RÉSULTATS OU RÉSULTATS ATTENDUS** : Les données révèlent une différence significative entre la stimulation effectuée avec les électrodes de 35 cm² et celle effectuée avec les électrodes de 3 cm² au niveau de la vitesse de déplacement. **CONCLUSION** : Cette étude démontre que la densité du courant est un paramètre important à prendre en considération, car cela a un effet sur l'amélioration posturale observée.

14. An individualized approach for upper extremity training post-stroke based on neurophysiological markers: Procedures and preliminary observations.

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INTRODUCTION AND OBJECTIVE: Training interventions to restore upper extremity (UE) function after a stroke often produce variable outcomes because of their generic nature. In this study, we aimed at determining whether an individualized strengthening program based on integrity of the corticospinal tract, as reflected in the amplitude of motor evoked potentials (MEPs) elicited by transcranial magnetic stimulation, could lead to more optimal outcomes in terms of UE function in chronic stroke patients. **METHODOLOGY:** At baseline, a clinical (Fugl-Meyer Assessment—FMA) and a neurophysiological (MEPs (μ V) of affected wrist/hand muscles) evaluations were performed. Based on their MEPs amplitude, participants were stratified into three groups of training intensity levels: 1) low: MEPs $<25\mu$ V; 2) moderate: MEP 50-120 μ V; and 3) high: MEP $>120\mu$ V. Training intensity was based on the one-repetition maximum (1RM). Low, moderate and high intensity groups trained at 35-50%, 50-65% and 70-80% 1RM, respectively. Participants trained for 4 weeks, 3X/week. Post-training, subjects rated their UE's perceived change and measures taken at baseline were repeated. **RESULTS OR EXPECTED RESULTS:** Preliminary observations from three participants (1 subject per training group) who completed the training indicate that all experienced gains at the FMA (mean 5 ± 5 points). Also, all reported subjective improvement in the function of their UE ("much improved" (group #2) to "very much improved" (groups #1/#3)). **CONCLUSION:** Although still preliminary, these results suggest that adjusting intensity of training based on neurophysiological markers of corticospinal tract integrity could lead to more optimal outcomes in terms of gains in arm function post-stroke.

15. Le bruit généré par les travaux de construction de l'échangeur Turcot : de quelle façon les riverains sont-ils affectés?

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INTRODUCTION ET OBJECTIF : Turcot est un échangeur routier entouré de plusieurs quartiers résidentiels. En 2016, des travaux de démolition et de reconstruction ont débuté. Le bruit environnemental peut affecter la santé. Il peut être associé avec de la gêne, des problèmes de sommeil et des problèmes cardiovasculaires. Peu d'études ont porté sur le dérangement associé au bruit de construction de grandes infrastructures. Cette affiche présente les résultats préliminaires portant sur le dérangement associé au bruit de construction de Turcot. **MÉTHODOLOGIE :** 1409 résidents ont participé à l'étude : 539 ont été inclus dans le groupe exposé (moins de 300 mètres des infrastructures de Turcot) et 870 ont été inclus dans le groupe contrôle (entre 300 et 1000 mètres des infrastructures de Turcot). Les participants ont répondu à un questionnaire socio-acoustique, administré par téléphone. **RÉSULTATS OU RÉSULTATS ATTENDUS :** Le groupe exposé était significativement plus dérangé ($p<0.001$), avec 27% de participants fortement dérangés comparés à seulement 11% dans le groupe contrôle. Il montrait également plus de dérangement au bruit de construction sur toutes les activités du quotidien et sur les habitudes de sommeil. Il présentait également un plus grand niveau de dérangement par rapport aux autres aspects de la construction de Turcot, tels que les odeurs, la poussière et les vibrations. **CONCLUSION :** Notre étude démontre que les riverains du chantier de construction sont davantage dérangés par le bruit de construction de Turcot. Les résultats suggèrent également que le bruit de la construction et celui de la circulation pourraient être difficiles à distinguer, car ils gênent une proportion similaire de répondants.

16. Réactions posturales et modulation de l'excitabilité spinale lors d'une perturbation de l'équilibre à la suite d'une lésion incomplète de la moelle épinière.

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INTRODUCTION ET OBJECTIF : Les personnes ayant une lésion de la moelle épinière incomplète (LMÉi) présentent des réactions posturales altérées. Pour comprendre l'altération des mécanismes neuronaux sous-jacents, une analyse de la modulation de l'excitabilité spinale lors de perturbations a été réalisée. **MÉTHODOLOGIE :** Dix hommes ayant une LMÉi [chronique; <L1; ASIA D] et 4 contrôles (CTRL) ont été déséquilibrés par des perturbations avant (P-Av) et arrière (P-Ar) randomisées. L'excursion du centre de pression (Ex-CdP), l'aire de l'ellipse et l'activité électromyographique (EMG) des muscles Soléaire (SOL) et Tibial Antérieur (TA) ont été analysées. L'amplitude du réflexe H (R-H) du SOL était évaluée par stimulation du nerf tibial postérieur à différents délais du début des perturbations (Pré, 100, 150, 200 ms). **RÉSULTATS OU RÉSULTATS ATTENDUS :** L'aire de l'ellipse était supérieure ($p < 0,05$) dans le groupe LMÉi quelle que soit la perturbation. Aucune différence n'était observée concernant l'Ex-CdP, l'activité EMG du SOL durant toutes les perturbations et celle du TA durant les P-Av. Seule la latence de la facilitation du TA était plus longue dans le groupe LMÉi durant les P-Ar ($p = 0,004$). Une diminution de l'amplitude du R-H était observée dans les groupes durant les P-Ar mais était supérieure (pour les trois délais; $p < 0,05$) et plus précoce (100ms vs. 150ms) chez les CTRL comparativement aux individus LMÉi. Lors des P-Av, une augmentation similaire de l'amplitude du R-H était observée dans les deux groupes. **CONCLUSION :** La modulation de l'excitabilité du R-H après une P-Ar est diminuée et retardée chez les individus LMÉi ce qui pourrait contribuer l'altération des réactions posturales observée après une LMÉi.

17. A novel methodological approach to measuring evidence-based practice in rehabilitation.

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INTRODUCTION AND OBJECTIVE: Evidence-based practice (EBP) in rehabilitation is a complex process comprised of individual and contextual dimensions, that influence a clinician's capacity to enact the process. No single measure exists spanning this multidimensional construct. The study objective is to describe the development of an index that will evaluate a clinician's capacity to enact EBP by measuring individual and contextual factors. The specific objectives are to 1) identify items best reflecting the EBP dimensions and 2) provide evidence of the discriminative ability of response options. **METHODOLOGY:** The data come from a 4-year study examining EBP in a sample of 128 newly graduated OTs and PTs from 28 Canadian rehabilitation programs. Rasch Measurement Theory was applied to 181 items from five existing measures of EBP. The best performing item for each EBP dimension was selected using threshold maps. As the selected items have near interval response options, a simple score can be created for testing known-groups validity (profession, gender, language and practice areas), correlation against initial scales and change over time. **RESULTS OR EXPECTED RESULTS:** The five best performing items corresponding to the five key EBP domains (self-reported use of EBP, EBP activities, attitudes towards EBP, self-efficacy and resources) were identified and then validated by a group of experts. The discriminative ability of response options is currently being examined. **CONCLUSION:** This project, which is the first of a series, fills the gap in measures required to assess the state of professional practice and advance the use of best practices. Researchers and professional organizations can use the index to inform areas for change and improve quality of care.

18. Synergistic effects of exercise and dopamine improve motor memory in Parkinson's disease.

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INTRODUCTION AND OBJECTIVE: Parkinson's Disease (PD) may lead to a progressive loss of dopamine (DA), impairing the ability to form long-term motor memories after motor skill learning. One bout of cardiovascular exercise (CE) performed immediately after motor skill practice improves consolidation and increases peripheral DA in healthy young subjects. Central DA availability during consolidation modulates memory formation processes, but whether DA is needed to improve motor skill learning with CE in people with PD is unknown. The objectives of this study are to determine, in people with PD, if (1) acute CE improves motor memory consolidation; (2) central DA availability modulates the effects of CE on the capacity to retain motor skills. **METHODOLOGY:** 20 individuals (52-75 y.o.) with moderate PD were divided into four groups: D+E, D+C, N+E, N+C. Immediately before practicing a motor task (MT), the 'D' group received their normal dose of Levodopa, while the 'N' group received a placebo. Immediately after practicing the MT, the 'E' group performed 15 mins of intense cycling exercise while the 'C' group underwent 15 mins of rest. Forty-eight hours after, participants performed an MT retention test. **RESULTS:** There were no significant differences among groups in baseline skill level ($F[3,15]=0.12;p=0.95$) or capacity to improve performance ($F[3,15]=0.26;p=0.85$). However, the D+E group showed the best retention 48 hours after motor skill practice ($F[3,14]=3.98;p=0.03$). **CONCLUSION:** One bout of intense CE performed immediately after motor practice improves motor skill retention in people with PD but only when central DA is available. Exercise appears to have a synergistic relationship with DA during consolidation.

19. Improve tactile frequency discrimination in musicians.

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INTRODUCTION AND OBJECTIVE: Music practice is a multisensory training that is of great interest to neuroscientists because of its implications for neural plasticity. Music-related modulation of sensory systems has been observed in neuroimaging data, and have been supported by results in behavioral tasks. Some studies have shown that musicians react faster than non-musicians to visual, tactile and auditory stimuli. Behavioral enhancement in more complex tasks has received considerably less attention in musicians. This study aims to investigate unisensory and multisensory discrimination capabilities in musicians. More specifically, the goal of this study is to examine auditory, tactile and auditory-tactile discrimination in musicians. The literature suggesting better auditory and auditory-tactile discrimination in musicians is scarce, and no study to date has examined pure tactile discrimination capabilities in musicians. **METHODOLOGY:** A two-alternative forced-choice frequency discrimination task was used in this experiment. The task was inspired by musical production, and participants were asked to identify whether a frequency was the same as or different than a standard stimulus of 120Hz in three conditions: auditory only, auditory-tactile only and tactile only. Three waveforms were used to replicate the variability of pitch that can be found in music. Stimuli were presented through headphones for auditory stimulation and a glove with haptic audio exciters for tactile stimulation. **RESULTS OR EXPECTED RESULTS:** Results suggest that musicians have lower discrimination thresholds than non-musicians for auditory-only and auditory-tactile conditions for all waveforms. The results also revealed that musicians have lower discrimination thresholds than non-musicians in the tactile condition for sine and square waveforms. **CONCLUSION:** Taken together, these results support the hypothesis that musical training can lead to better unisensory tactile discrimination as well as multisensory discrimination.

20. Relationships between vastus medialis fat infiltration with body mass index, disease severity and anterior cruciate ligament status in patients with knee osteoarthritis.

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INTRODUCTION AND OBJECTIVE: Vastus medialis (VM) fat infiltration has been proposed to be a modifiable determinant of knee cartilage loss. It is unclear how VM fat content may impact cartilage health and whether this relationship differs between non-traumatic and post-traumatic knee osteoarthritis (OA). Therefore, the objective was to determine if levels of VM fat infiltration, and their relationship to measures of OA severity, differ between knee OA subgroups and healthy adults. **METHODOLOGY:** For this cross-sectional study, participants with non-traumatic (n=22) and post-traumatic knee OA (n=19, history of anterior cruciate ligament rupture), and healthy controls (n=22) were included. VM intramuscular fat infiltration (%fat) and tibiofemoral cartilage thickness was measured with a 3T MRI. Standing antero-posterior radiographs were taken to measure disease severity (Kellgren-Lawrence scores). One-way ANOVA with modified Bonferroni corrections compared uncontrolled VM %fat and body mass index (BMI) between groups. Multiple linear regression analyses examined relationships between VM %fat and OA group, after controlling for BMI and disease severity. **RESULTS OR EXPECTED RESULTS:** VM %fat was significantly greater ($F=3.401$, $p=0.04$) in the non-traumatic OA group compared to the two other groups. In controlled analyses comparing OA groups, there was a significant association between BMI and VM %fat ($\beta=0.327$ to 0.358 , $p<0.001$). VM %fat was not related to measures of OA severity or knee OA group. **CONCLUSION:** VM %fat was associated with BMI, but not different measures of OA severity. After controlling for BMI, OA group was no longer associated with VM %fat. VM fat content is likely dependent on BMI and does not significantly differ between knee OA subgroups.

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