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Abstracts 2022

Masterarbeiten und Projekte aus Fachentwicklung und Forschung

Master of Science in Physiotherapie

MSc

Sehr geehrte Leserin, sehr geehrter Leser

Sie halten heute den 10. Abstractband des Studiengangs Master of Science in Physiotherapie (MScPT) in den Händen. Der Band des MScPT2019 enthält nicht nur die Abstracts der Masterarbeiten, sondern auch die Abstracts der Transfermodule mit Forschungs- und Fachentwicklungsprojekten.

Das ist der erste Jahrgang an der ZHAW, in dem die Studierenden der MSc Physiotherapie, Pflege und Hebammen teilweise gemeinsam studierten. Forschungsprojekte sind immer Teamarbeit und meistens per se interprofessionell angelegt, wenn auch nicht zwingend mit der Pflege oder den Hebammen. So fanden die MSc Masterarbeiten in vielfältigen Settings statt: Beispielsweise in Schlaflabors mit Schlafmedizinern, in Bewegungslabors mit Bewegungswissenschafterinnen oder mit verschiedenen modernen Trainingstechnologien mit Partnern in Rehabilitationskliniken oder Fachhochschulen. Nach wie vor sahen sich viele Studierende während der Durchführung ihrer Projekte pandemiebedingt mit grösseren Herausforderungen konfrontiert. Diese und andere Hürden haben sie jedoch mit Bravour gemeistert und wir freuen uns nun über ihre methodisch vielfältigen, spannenden und sorgfältig verfassten Masterarbeiten. Unsere Freude verbinden wir mit einem grossen Dank an unsere Dozierenden und Betreuenden, die all das ermöglicht haben.

Die erwähnten Transfermodule fanden in verschiedensten Kliniken und Forschungsinstitutionen in der Schweiz, wie auch an Universitäten im Ausland statt. Auch hier gibt es einen Einblick in die aktuelle Physiotherapie aus verschiedenen Perspektiven.

Den MScPT2019 Absolvierenden gratulieren wir herzlich zu ihren gelungenen Masterarbeiten, den Transfermodulen und zu ihrem Abschluss!

Ihnen wünschen wir viel Lesevergnügen!

Lea Hegglin, MSc
Verantwortliche Transfermodule
MSc in Physiotherapie (ZHAW)

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Abstracts von Masterarbeiten

Abstracts von Projekten aus Fachentwicklung und Forschung

Abstracts von Masterarbeiten

Master of Science in Physiotherapie: Studiengang 2019

Knee kinematic patterns during an ExerCube training – Differences in knee abduction and internal rotation angles over time and between the exercises jump and burpee

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Background: After an anterior cruciate ligament (ACL) injury only 55% returning to competitive sports. 14–27% suffer another ACL injury after returning to sports or competition. Some underlaying reasons could be an insufficient or inadequate rehabilitation. Due to their cognitive and physical challenge, digital tools and virtual reality devices could show their great potential to optimize the outcome of rehabilitation process.

Methods: An experimental cross-sectional study with a two-way-within-subject design was used to compare knee kinematic patterns of landing a jump during a 25 minutes ExerCube training. 16 healthy participants, who practiced a jumping, pivoting or cutting sport participated and were measured at two timepoints while training in the ExerCube. Peak knee abduction angle and peak knee internal rotation angle were investigated while landing in 10–30° of knee flexion.

Results: The time effect for both outcomes, maximal knee abduction angle ($p<0.001$) and maximal knee internal rotation angle ($p=0.002$) was significant. Also, the exercise effect for maximal knee abduction angle ($p=0.006$) and maximal knee internal rotation angle ($p<0.001$) was significant. No statistical significance was present for the interaction effect between time and exercise.

Conclusion: Knee kinematics change over prolonged training time in the ExerCube suggesting fatigue and decreased performance. Due to the increased risk of (re)injury associated with this decrease in performance due to the physical and cognitive challenge imposed by the exergame, we recommend the ExerCube rather in advanced than early stages of ACL rehabilitation.

Evaluation of the relationship between the applied therapy dose and changes of mobility – a cohort study within neurological rehabilitation

Purpose: To evaluate the relationship between the applied therapy dose and changes of mobility in patients with neurological diseases during inpatient rehabilitation, considering relevant covariates (age, length of stay, chronicity of disease, comorbidity, functional status, and hand strength).

Methods: A retrospective cohort study in 481 participants with neurological diseases that are admitted to a specialised rehabilitation clinic in Valens Switzerland between 1st February 2019 and 1st February 2020. Mobility was assessed at admission and discharge to rehabilitation with the Timed Up and Go test. A Cumulative Link Model was used to test the relationship between therapy dose and changes of mobility.

Results: Average length of inpatient stay was 32.76 days (median = 28, interquartile range = 17) and the total therapy dose was 2805 minutes (median = 2350, interquartile range = 1595). Mean time of the Timed Up and Go test was 26.7 (median = 19, range = 11 – 212) at admission and 18.9 seconds (median = 13, range = 5 – 143) at discharge. In the multivariate model, total therapy dose, length of stay, chronicity, functional status, and time itself all contributed significantly ($p < 0.05$) to changes in mobility.

Conclusions: In neurological rehabilitation, changes in mobility depend on several factors (therapy dose, time between measurement points 1 and 2, length of stay, chronicity acute and functional status). However, increased therapy dose is directly associated with improved mobility outcomes.

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Reliability of a clinical sensory test battery in patients with spine-related leg and arm pain

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Background: The current standard to evaluate the presence of somatosensory dysfunction is quantitative sensory testing (QST). The use of QST outside research settings has been limited by several factors. Consequently, low-cost and time-efficient clinical sensory testing (CST) batteries have been developed to facilitate broader usage. Recent studies show good to high reliability in populations with neuropathic pain. This study evaluates the inter-tester and intra-tester reliability in a spine-related leg and arm pain population, representing mixed pain mechanism.

Methods: Fifty-three patients with spine-related leg (n = 41) and arm (n = 12) were included. The CST battery consisted of eleven tests, determining loss and gain of a broad spectrum of sensory nerve function. Fleiss' (inter-tester) and Cohen's (intra-tester) reliability were calculated for ordinal outcomes, while intraclass correlation coefficient (ICC) was utilized for continuous outcomes.

Results: We found moderate to substantial inter-tester and intra-tester reliability for most sensory modalities. However, inter-tester reliability of mechanical detection threshold, pinprick, as well as mechanical, heat, and pressure pain thresholds achieved fair agreement. We found wind-up ratio to be poor for inter-tester and intra-tester reliability.

Conclusion: Inter-tester reliability varied substantially between sensory modalities questioning the value of CST as a screening tool in this patient population. The CST battery shows satisfactory intra-tester reliability supporting its use in clinical practice and research to measure the stability of sensory modalities in this cohort.

Measurement properties of the German Patient-Rated Tennis Elbow Evaluation Questionnaire

Background: The Patient-Rated Tennis Elbow Evaluation (PRTEE) Questionnaire is designed to evaluate pain and disability in patients with lateral elbow epicondylopathy (LE).
The aim of the study was to investigate the reliability, validity, and responsiveness of the German version of the PRTEE.
The research project is a remaining clinical trial in a prospective study design.

Methods: Patients with LE, who were scheduled for autologous conditioned plasma (ACP) treatment, completed the PRTEE three times. First before ACP treatment, second six weeks after the first treatment, and third another 2–11 days later.
The test–retest reliability was determined by calculating the intraclass correlation coefficient (ICC). Construct validity was estimated based on Spearman correlation (rs) with the Patient-Rated Elbow Evaluation Questionnaire (PREE), the Quick Disabilities of Arm Shoulder and Hand (QuickDASH) Questionnaire, and the EuroQol Health Questionnaire (EQ-5D-5L). For responsiveness, effect size (ES) was determined. For interpretability, the minimal important change (MIC), minimal important difference (MID), and patient acceptable symptom state (PASS) were calculated.

Results: Four patients were included (three men and one woman) with a mean age of 51. ICC was 0.84, rs with the PREE as well as with the QuickDASH was 0.95 and EQ-5D-5L -0.83. The ES of the PRTEE was 0.62. Scores associated with interpretability were as follows: MIC from 7, MID 3 and PASS 44 and lower.

Conclusion: Owing to the small number of participants, the results cannot yet be interpreted conclusively. Further research with a larger number of patients is needed to be able to draw a well-founded conclusion about the reliability, validity, and responsiveness of the German version of the PRTEE.

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Convergent construct validity and test-retest reliability of the German NPQ-R

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Background: Persistent Postural-Perceptual Dizziness (PPPD) is considered the second most common form of vertigo, after benign paroxysmal positional vertigo, in our society today. It has been gaining importance as a cause of vertigo in recent years. Therefore, the revised patient-reported outcome measure Niigata PPPD Questionnaire (NPQ-R) was developed for the first time as an evaluative instrument for the German use of language. The aim of the present study was to examine reliability and validity of the NPQ-R.

Methods: 68 study participants with a diagnosis of PPPD were filling in patient-reported outcome measures on dizziness and potentially related constructs. A cross-sectional design was used to assess internal consistency (Cronbach's α) and convergent validity (Spearman's rank correlation coefficient r), whereas a longitudinal design was used to examine test-retest reliability (Intraclass Correlation Coefficent, ICC).

Results: Descriptive-statistical item analysis revealed the retention of all newly added items of the NPQ-R. Acceptable internal consistency was found for the total scale (α=0.92). Satisfactory test-retest reliability was reached, the smallest detectable change for an individual should be ≥ 21 points to outreach measurement error. Correlations between the NPQ-R and disease-specific measurement instruments was high (r = 0.66–0.77), between the NPQ-R and anxiety-specific conditions moderate to high (r = 0.48–0.55). A correlation from r = 0.22 to 0.65 was shown between the NPQ-R and self-report measures of general quality of life.

Conclusion: The NPQ-R demonstrated preliminary satisfactory measurement properties. This is the first study that examined the psychometric properties of the NPQ-R. Test-theoretical verification of the questionnaire's dimensionality must necessarily be conducted in further studies.

Traumatic and overuse injury occurrence among female soccer athletes in association with preseason hip strength

Background: Although soccer is the most popular women's sport, little is known about its musculoskeletal injury profile. Moreover, there are only few studies of normative strength values in adult female soccer players, and literature on strength values as a predictor of injuries is contradictory.
This thesis aimed to investigate the musculoskeletal injury profile, normative peak strength and the relation of strength and injury occurrence as a first step of prevention research.
The study design is a descriptive Epidemiology Study.

Methods: Forty-Six female soccer athletes were prospectively monitored for health problems over a six-month time period using the Oslo Sports Trauma Research Centre (OSTRC) questionnaire. The occurrence of health problems was expressed as the average biweekly prevalence, the epidemiological incidence proportions and the absolute injury rates. The peak torques of the concentric (60°/sec, 120°/sec) and eccentric strength (30°/sec, 60°/sec) of the hip's internal (IR) and external rotators (ER) were measured with an isokinetic dynamometer. To assess the correlation a binary logistic regression was performed.

Results: The average biweekly prevalence was 42.28% and 27.64% for substantial problems. Overall, the epidemiological incidence proportion was 73.9% for all injuries, and 60.9% for substantial injuries. The absolute injury rates amounted to 215.2 and 122.7 substantial injuries per 100 athletes per half of the season. Highest injury rates were found in the knee, the Achilles/tibia, the ankle, and the foot. Peaktorques were as following: concentric 60°/sec (dominant IR: 25.40 ER: 22.56, nondominant IR: 24.70 ER:24.32) concentric 120°/sec (dominant IR: 24.30 ER: 21.80, nondominant IR: 22.40 ER:22.86) eccentric 30°/sec (dominant IR: 32.80 ER: 30.13, nondominant IR: 30.36, ER: 29.61) and 60°/sec (dominant IR: 32.09 ER: 31.10, nondominant IR: 31.09 ER: 29.97). No statistically significant strength difference or relation to injury was found.

Conclusion: This thesis provides normative strength data and a musculoskeletal injury profile for semi-elite female soccer athletes. Further research is needed for normative data in the female soccer cohort and for the correlation of injury occurrence and strength. Female soccer athletes should use existing prevention programs, with a focus on the knees and ankles.

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Wie valide ist ein selbstständig durchgeführter 10 Meter Walk Test bei Patient:innen mit einer neurologischen Erkrankung?

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Hintergrund/Ziele: Die Verbesserung des Ganges ist für viele Patient:innen mit einer neurologischen Erkrankung ein Ziel ihrer Rehabilitation. Damit die Verbesserung objektiviert werden kann, werden supervisierte Gangassessments durchgeführt. Die Studienlage zeigt auf, dass Patient:innen bei Assessments in der Klinik nicht die gleiche Leistung zeigen wie zu Hause. Jedoch ändern sich bei diesen Assessments zwei Aspekte: die Supervision und das Setting. Zurzeit ist nicht bekannt, welche Aspekte die Leistung beeinflussen. Ziel dieser Studie ist, darzustellen, wie valide ein unsupervisierter 10 Meter Walk Test (UST) im Vergleich zu einem supervisierten Test (ST) in einem vorgebebenen Setting bei Patient:innen mit einer neurologischen Erkrankung ist.

Methode: Während eines Rehabilitationsaufenthalt absolvierten 13 Patient:innen im Verlauf von vier Tagen zwei ST und zwei UST. Es wurden die Ganggeschwindigkeit, Schrittkadenz und die Schrittgrösse gemessen. Für die Übereinstimmung der beiden Messmethoden wurde ein Bland-Altman-Plot erstellt. Als kritischer Wert wurde die «Minimal Clinical Important Difference» (MCID) von 0.16m/s bestimmt. Zusätzlich wurden die Motivation und die Persönlichkeitstypen der Patient:innen erhoben.

Resultate: Beim Erstellen des Bland-Altman Plots der 13 gemessenen Patient:innen ergab sich, dass der Standartmessfehler bei -0.004m/s und die Limits of Agreement (LOA) bei 0.17m/s und -0.18m/s liegen. Die Patient:innen haben angegeben, beim Ausführen des ST einen höheren Druck verspürt zu haben als beim UST.

Diskussion/Schlussfolgerung: Der UST hat nicht die gleiche Validität wie der ST, da die LOA grösser sind als der MCID.
Eine mögliche Erklärung dafür konnte anhand der Motivation und den Persönlichkeitstypen dargestellten werde. Der Einfluss der Supervision und der verschiedenen Gegebenheiten sollte in weiteren Studien untersucht werden.

Übersetzung, kulturelle Adaptation und Test-Retest-Reliabilität der deutschen Version des «Headache disability questionnaire»

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Einleitung: Kopfschmerzen sind ursächlich für eine hohe Behinderungsrate bei Personen mittleren Alters. Im deutschsprachigen Raum besteht zurzeit kein ideales Messinstrument, welches die Schwere der Beeinträchtigungen durch Kopfschmerzen innerhalb einer akzeptablen Recall-Zeit erfasst und zuverlässig misst. Der Headache Disability Questionnaire (HDQ) ist ein englischsprachiges Messinstrument, welches die Anforderungen eines zuverlässigen Kopfschmerzfragebogens zu erfüllen scheint. Allerdings wurde dieser bisher nicht ins Deutsche übersetzt. Das Ziel dieser Studie war es, den HDQ ins Deutsche zu übersetzen und kulturübergreifend an die deutschsprachige Population in der Schweiz zu adaptieren sowie seine Test-Retest-Reliabilität zu untersuchen.

Methodik: In einem zwei-Phasen Querschnittstudiendesign wurde der HDQ zuerst nach neuesten internationalen Richtlinien ins Deutsche übersetzt und adaptiert (HDQ-G). Zwölf deutsche Muttersprachler:innen nahmen an kognitiven Interviews zur Verständlichkeit der präfinalen deutschen Version des HDQ teil. Anschliessend wurden Anpassungen in Absprache mit dem Erstautor und im Expertenkomitee vorgenommen und dokumentiert. In einem zweiten Schritt wurde die Test-Retest-Reliabilität des HDQ-G mittels Intraklassenkorrelationskoeffizienten (ICC) aus 29 Datensätzen bewertet. Dabei nahmen Proband:innen in einem Zeitraum von zwei bis vierzehn Tagen je zweimal an einer Online-Umfrage teil.

Ergebnisse: Alle Schritte des Übersetzungsprozesses wurden eingehalten und die finale deutsche Version des HDQ wurde mit einer kleinen Ergänzung bei der zweiten Frage fertiggestellt. Der HDQ-G zeigte eine sehr gute Test-Retest-Reliabilität mit einem ICC=0.89 und 95% Konfidenzintervall (KI) von 0.77 bis 0.95. Die Grenzen der Übereinstimmung (LoA) lagen bei 10.77 und -7.33 Punkten, wobei die Mittelwertdifferenz bei +1.72 Punkten lag.

Schlussfolgerung: Die originale englische Version des HDQ wurde erfolgreich übersetzt und für die Verwendung bei der erwachsenen deutschsprachigen Population im ambulanten physiotherapeutischen Setting adaptiert. Der HDQ-G zeigte eine sehr gute Reproduzierbarkeit und akzeptable Übereinstimmung bei allgemeinen Kopfschmerzpatient:innen im physiotherapeutischen Setting. Weitere Studien sind notwendig, um seine Eignung bei anderen Populationen und im Vergleich zu anderen Kopfschmerzfragebögen zu untersuchen.

Introduction of Myosuit: an explorative mixed methods study exploring barriers and facilitators using the Myosuit in elderly individuals with gait impairments

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Background: Gait disorders can hinder older individuals carrying out their activities of daily life. Alternatively to assistive devices such as Rollator, there is a promising development within exosuits. The Myosuit is a lower-extremity exosuit that may enable people carrying on with their physical activity and exercise. To date, this device is mainly used with neurological patients such as spinal cord injuries, multiple sclerosis or stroke.

Objective: Therefore, the aim of this study is to explore the barriers and facilitators of the Myosuit within elderly with non-neurological gait disorders. The secondary aim is to examine the impact on quality of life of a two weeks testing phase at home with the Myosuit.

Methods: An exploratory mixed methods design was used, involving semi structured interviews after introducing the Myosuit (part one) and a two weeks trial phase using the Myosuit at home (part two). Qualitative data were analyzed using a five-step analysis approach (research question and material selection, construction of a category system, extraction, preparation of data, analysis). Quantitative data of part two included the scores of the timed up and go test, SF-12 questionnaire and 10m walking test. An individual analysis regarding the minimal detectable change and minimal important clinical difference was performed.

Results: Six participants with non neurological gait disorders completed part one from which two attended the second part. The main barriers of using the Myosuit were its sound, the donning/doffing process and reduced motivation for being more physically active. The main facilitators were a perceived improvement of mobility and stability, a fast habituation time and receiving social support. Both participants increased their walking speed over the two weeks using the Myosuit.

Conclusion: The Myosuit appears to have a positive impact on mobility and stability within elderly with non-neurological gait disorders. Nevertheless, some hardware adjustments that affect the donning/doffing process or the sound are needed to increase acceptance in this population. Further research is needed to investigate the effect of the Myosuit as an assistive device within elderly with non-neurological gait disorders.

Die Erhebung von objektiven Schlafparametern bei Personen mit inverser Schultertotalprothese im Vergleich zu einer gesunden Kontrollgruppe – Eine explorative Querschnittsstudie

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Hintergrund: Personen mit Schulterpathologien berichten häufig über Schlafprobleme aufgrund von Schmerzen. Die Verbesserung der Schlafqualität ist bei gegebener Indikation ein Behandlungsschwerpunkt der Schulter-Endoprothetik. Bisher ist unklar, ob veränderte Anatomie und Biomechanik bei inversen Schultertotalprothesen die Schlafqualität längerfristig beeinflussen. Zu einer zuverlässigen Einschätzung führt nebst subjektiver Bewertung die Erhebung von objektiven Schlafparametern (Schlafzeit, Einschlaflatenz, wache Zeiten nach Schlafbeginn). Mithilfe der Aktigraphie werden Körperbewegungen registriert und mittels Schwellenwert in aktive und inaktive Phasen eingeteilt. Dank der validen Übereinstimmung mit Wach- und Schlafphasen gelingt die Berechnung der objektiven Schlafparameter. Die Schlafeffizienz (Verhältnis der geschlafenen Zeit zur gesamten Bettzeit) ermöglicht den Vergleich zwischen zwei Studiengruppen.

Ziele: Ziele der Studie waren zu untersuchen (1) ob sich objektive Schlafparameter bei Personen mit inverser Schultertotalprothese ab einem Jahr postoperativ im Vergleich zu einer gesunden Kontrollgruppe unterscheiden und (2) was mögliche Gründe dafür sind.

Methode: Vorliegende Arbeit ist eine explorative Querschnittsstudie mit einem Messzeitpunkt. 29 Studienteilnehmende (15 Schultergruppe, 14 Kontrollgruppe) erhoben während sieben Nächten mithilfe der Aktigraphie objektive Schlafparameter und Daten zur Körperlage. Gründe für die Wachphasen wurden explorativ untersucht. Der Mann-Whitney-U-Test wurde für den Mittelwertvergleich der Schlafparameter verwendet.

Resultate: Die Gruppen zeigten bei allen objektiven Schlafparametern keine signifikanten Unterschiede mit einer nahezu identischen Schlafeffizienz ($p = 0.978$). Die Schultergruppe lag zu 11% auf der operierten Seite und zu 65% auf dem Rücken. Dies ist im Vergleich zur Kontrollgruppe mit 45% Rückenlage knapp über dem Signifikanzniveau ($p = 0.056$).

Schlussfolgerung: Personen mit inverser Schultertotalprothese zeigten ab einem Jahr postoperativ objektiv keinen veränderten Schlaf mehr im Vergleich zur Kontrollgruppe.

The effect of sleep on relative oxygen saturation after maximal eccentric exercise of the biceps brachii muscle using NIRS measurement and polysomnography: an exploratory study

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Objectives: This study investigated whether a session of eccentric contractions of the elbow flexors alters or impairs muscle oxygenation (SmO2) of the biceps brachii in slow wave sleep (SWS) compared to the non-exercised arm.

Design: In this exploratory study a cross-sectional design was adopted.

Method: Seventeen sports students of the University of Bern performed an eccentric exercise for the biceps brachii muscle of the non-dominant arm and subsequently spent the night in the sleep laboratory of the University of Bern where a polysomnographic recording was performed. During sleep, local oxygen saturation of both biceps brachii muscles was measured using NIRS technology.

Results: Complete data was available from 11 participants. The analysis of NIRS data revealed no significant effect of side on wakefulness or SWS ($p = 0.534$). While no significant interaction effect of dominant and non-dominant ($p = 0.053$) was found, the condition (SWS or awake) revealed a significant effect ($p = 0.006$) on the mean SmO2 value. Data shows that the participants had a sleep efficiency of 92% (± 7%). An average of 12.7% (± 5.1%) of sleep duration (SPT) was spent in SWS.

Conclusions: This study raises awareness about a possible connection between sleep and regeneration. Although there are indications in the literature of increased regeneration during sleep, no supportive results in terms of oxygen saturation could be obtained in the present study. Further research is needed to explore the field of regeneration during sleep in more depth.

Wie aktiv sind Patient:innen in Schweizer Akutspitälern? – Eine Machbarkeitsstudie

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Hintergrund: Die Inaktivität von Patient:innen im Spital zieht häufig einen Verlust an physischer Funktion nach sich. Aktuelle Studien beschreiben unterschiedliche Methoden, um die physische Aktivität zu messen. Der Vergleich der Ergebnisse ist deshalb häufig schwierig.

Fragestellung: Diese Studie verfolgte die Ziele (a) die Machbarkeit dieser Aktivitätsmessung auf verschiedenen Stationen zu untersuchen, (b) zu bestimmen wie aktiv die Patient:innen dieser Stationen sind und (c) zu analysieren, ob es einen Unterschied des Aktivitätsniveaus zwischen Wochentagen und Wochenendtagen gibt.

Methode: Total wurden 197 Messtage von 56 Proband:innen aus vier unterschiedlichen Abteilungen erhoben. Für das Outcome der Machbarkeit wurde die Rekrutierungsrate anhand eines Screeninglogs, die Akzeptanz anhand eines selbst zusammengestellten Fragebogens, die Missing Data und die Drop-out Rate eruiert. Die physische Aktivität wurde anhand der Anzahl gegangener Schritte ermittelt. Diese wurden mit dem Step Watch Activity Monitor 3 gemessen.

Resultate: Die Rekrutierungsrate auf den vier Stationen lag zwischen 6% und 42%. Während den Messungen kam es zum Drop-out von drei Proband:innen. Die Akzeptanz zum Messgerät wurde von 79% der Proband:innen mindestens mit «Das Messgerät am Fuss zu tragen war komfortabel» bewertet. Der Median der gegangenen Schritte auf den Stationen lag zwischen 194 und 1398 gegangenen Schritten pro Tag. Es konnte kein signifikanter Unterschied zwischen den gegangenen Schritten an Wochenendtagen im Vergleich zu Wochentagen gezeigt werden.

Schlussfolgerung: Die gewählte Messmethode eignet sich gut, um die physische Aktivität im Akutspital zu messen. Für eine Folgestudie sollte das Screeninglog vereinfacht werden und es sollte in Erwägung gezogen werden, die neuere Version des Step Watch Activity Monitors 3 zu verwenden.

Profile and variability of the postoperative management of arthroscopic rotator cuff repairs – Analysis as part of a multicentric cohort study

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Purpose: To describe the postoperative management after arthroscopic rotator cuff repairs (ARCR) in Switzerland, measure the variability within different modalities and between clinics and to identify groups of specific rehabilitation paths.

Methods: As part of a large multicenter Swiss cohort study (ARCR_Pred), characteristics and rehabilitation data were gathered at baseline, six weeks and six months after first time ARCR in 942 patients from 19 clinics via patient interviews. Data was categorized and frequencies of the whole sample and clinics were described. Variability was analyzed by a categorical analysis of variance to explain the clinic´s influence. A polytomous latent class analysis (poLCA) was applied to the medication-, immobilization- and rehabilitation management.

Results: Non-NSAIDs exceeded the NSAIDs use (53% [50,55] vs. 44% [41,47]). Immobilization was in internal rotation with no abduction in 26% [24,28] or in neutral with 15° or 30° abduction in 21–22% (19,24) for six weeks. Passive movements started from day one and active movements from six weeks on. Passive and active physiotherapy started accordingly. Strength training started after twelve weeks in 50% [48,53]. Variability was high for non-opioid agents (99–100%). For NSAIDs clinics explained 62% of the variance. Communication of precautions and immobilization position were also highly variable and explained by 61% and 47%. Physiotherapy, although variable, was less influenced by clinics (≤45%). LCA revealed four groups in the medication-, three in the immobilization- and five in the rehabilitation management.

Conclusions: Variability was high and the influence of clinics was observed especially in topics of debate, like NSAIDs or immobilization position. Immobilization was best explained via a three-class model, exceeding the ongoing «early vs. delayed» discussion.

Clinical Relevance: These findings apply to clinical practice after ARCR in Switzerland. Variability in the postoperative management was high. Clinicians should be aware that different groups exist within rehabilitation procedures.

The German Revised Version of the Niigata PPPD Questionnaire (NPQ-R): Development with patient interviews and an expert Delphi consensus

Background: Persistent postural-perceptual dizziness (PPPD) is a chronic, functional disorder of the nervous system and currently one of the most common dizziness diseases. Questionnaires on dizziness-related complaints either do not reflect the typical characteristics of this clinical picture or are not available in German language. The aim of this study was to develop an illness-specific questionnaire in German based on the Niigata PPPD Questionnaire (NPQ). To ensure content validity the questionnaire was refined with the expertise of patients and experts.

Methods: A 3-round expert Delphi study and qualitative patient interviews were conducted. For analysis both qualitative content analysis and descriptive data analysis were used.

Results: Seven new items were implemented in the German version of the questionnaire and the Revised version of the NPQ was created (NPQ-R). It includes 19 items (in five subscales) asking the intensity of PPPD which is rated on a 7-point Likert-scale.

Conclusion: The NPQ-R is the first patient reported outcome measurement for patients with PPPD in German language. Due to our study an illness-specific PPPD questionnaire is available which represents an assessment for the use in everyday medical practice. Here, it can help to reflect the patient´s point of view, to unify communication between health professionals and to document the course of treatment.

Keywords: Persistent postural-perceptual dizziness (PPPD), questionnaire, patient reported outcome measurement (PROM), Delphi study, qualitative research, content validity

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Eine Alternative zur klassischen Testtheorie? Eine exemplarische Anwendung der Generalisierbarkeitstheorie auf der Basis von Sekundärdaten

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Hintergrund: Messungen bilden die Grundlage des wissenschaftsbasierten therapeutischen Vorgehens. Messfehler sind jedoch ein verbreitetes Problem. Um Fehlerquellen zu ermitteln, sind erweiterte statistische Modelle notwendig. Im Gegensatz zur klassischen Testtheorie ermöglicht die Generalisierbarkeitstheorie, mehrere Fehlerquellen gleichzeitig zu untersuchen.

Ziel: Vergleich der klassischen Testtheorie und der Generalisierbarkeitstheorie anhand eines physiotherapeutischen Beispiels zur Reliabilitätsermittlung und deren Ergebnisse.

Methode: Die Messeigenschaft „Reliabilität" wurde anhand von Daten einer vorangegangenen Reliabilitätsstudie, in der die klassische Testtheorie zum Einsatz kam, untersucht. Dazu wurde exemplarisch eine Generalisierbarkeitsstudie durchgeführt.

Ergebnisse: Die Variabilität ging hauptsächlich von den Proband:innen und der Proband:innen-Untersuchenden-Interaktion aus. Unabhängig von fixen oder zufälligen Facetten waren die Generalisierbarkeitskoeffizienten für alle Bedingungen (overall, inter-rater, intra-Messzeitpunkte) exzellent.

Schlussfolgerung: Die Ergebnisse deuten darauf hin, dass die Generalisierbarkeitstheorie gegenüber der klassischen Testtheorie Vorteile hat. Diese ermöglicht es, einen wirkungsvollen und effizienten Einsatz von Messinstrumenten im klinischen Alltag zu ermitteln.

Cultural adaptation, reliability and validity of the German translation of the Activity Patterns Scale (APS) in patients with musculoskeletal pain

Abstract: The self-reported questionnaire Activity Patterns Scale (APS) was designed to assess the three activity patterns: pacing, avoidance, and overactivity. These subscales can be further refined into eight dimensions. This study translated the APS into German and tested its reliability and validity in patients with musculoskeletal pain (MSP). Sixty-five participants with MSP participated in a baseline survey with a follow-up. Internal consistency, test-retest reliability, and construct validity were investigated. For the construct validity, the Avoidance Endurance Fast-Screening (AE-FS), Tampa Scale of Kinesiophobia (TSK), Coping Strategies Questionnaires (CSQ) subscales (increasing pain behavior, ignoring pain sensations, catastrophizing, and coping self-statements), and the State-Trait Anxiety Inventory (STAI) subscale state were employed. The APS demonstrated highly significant internal consistency and moderate to good test-retest reliability. Significant and strong correlations in the expected direction were found between the APS subscales and dimensions and their corresponding questionnaire. The APS dimensions correlated differently with the included questionnaires, and therefore, this distinction led to different categorizations. The APS is a suitable questionnaire for classifying MSP patients into pacing, avoidance, and overactivity and their corresponding dimensions. This distinction could contribute to more appropriate research and refining the treatment instructions to regulate the patient's activity in clinical practice.

Perspective: This study presents a reliable and valid instrument with a multidimensional construct to assess activity patterns in patients with MSP. The findings suggest that pacing, avoidance, and overactivity should be further refined by their corresponding dimensions. This approach facilitates consistency in research and its application in the clinical practice.

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The effects of standardised versus individualised seat height on 1-minute sit-to-stand test performance in healthy individuals: A randomised crossover trial

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Background: The 1-minute sit-to-stand test (1MSTST) is a popular functional exercise capacity test. However, depending on body height, significant inter-individual knee joint angle variability is present when seated on a conventional chair – ultimately leading to non-generalisability of 1MSTST performance across populations and study samples.

Objectives: We aimed to i) investigate differences in 1MSTST performance (i.e. the number of repetitions) between a standardised modality (i.e. starting from a conventional chair) and an individualised modality (i.e. starting with a knee joint flexion angle of 90°), and to ii) quantify the influence of tibia and femur length on 1MSTST performance.

Methods: We performed a randomised crossover study. Healthy participants performed each 1MSTST modality twice in a randomised order. The primary outcome was the number of repetitions in the 1MSTST. Secondary endpoints were the acute responses in peripheral oxygen saturation, heart rate, and leg fatigue and dyspnoea.

Results: Thirty participants were recruited and all completed the study. They achieved significantly less repetitions in the standardised 1MSTST compared to the individualised 1MSTST (B = -12.1, 95% confidence interval [95% CI] = -14.8/-9.4, p = <0.001). We found a significant effect of femur length on 1MSTST performance (B = -1.6, 95% CI = -2.6/-0.7, p = 0.01), tibia length showed significant interaction with the 1MSTST modality (B = 1.2, 95% CI = 0.2/2.2, p = 0.03).

Conclusions: An individualisation of the 1MSTST start position to 90° knee flexion angle leads to more repetitions compared to the common start position. The higher repetition count is explained by controlling for differences in tibia length. We recommend individualisation of the 1MSTST, enabling more valid comparisons across populations and study samples.

German translation of the modified «Pain Attitudes and Beliefs Scale for Physiotherapists for Rotator Cuff related Shoulder Pain (PABS-PT-RC)»: a cross-cultural adaptation and validation study

Introduction: Physiotherapists' pain attitudes and beliefs towards rotator cuff related shoulder pain (RCRSP) may influence their treatment approach and management. Despite the growing body of evidence that RCRSP is a multidimensional disorder, the management of these patients seems to be predominantly biomedically driven. The pain attitudes and beliefs questionnaire for physiotherapists (PABS-PT) for rotator cuff related shoulder pain targets to explore a clinician's biomedical versus biopsychosocial orientation. This study aims to translate and validate the newly modified questionnaire.

Methods: Translation of the questionnaire into German followed the TRAPD process (Translation, Review, Adjudication, Pretest, Documentation). Internal consistency of the total score and the subscales was calculated by Cronbach's alpha. To test construct validity, Pearson's correlations were analyzed between the Neurophysiology of Pain Questionnaire (NPQ-D) and the biopsychosocial subscale, and between the Health Care Providers' Pain and Impairment Relationship Scale (HCPAIRS) and the biomedical subscale.

Results: German-speaking physiotherapists (n=292) participated in the study. For internal consistency, Cronbach's alpha was 0.82 for the biopsychosocial subscale and 0.78 for the biomedical subscale. A weak negative correlation between NPQ-D and the biopsychosocial subscale and a weak positive correlation between HC-PAIRS and the biomedical subscale was found. Age correlated negatively with the biopsychosocial, but positively with the biomedical subscale with significant differences. ANOVA between highest educational degree and biopsychosocial subscale (p-value = 0.000603***) and biomedical subscale (p-value = 0.00189**) showed significant differences.

Conclusion: PABS-PT-RC-G showed acceptable and good internal consistency. Age and highest educational degree influenced physiotherapists' attitudes and beliefs.

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Patient education in physical therapy for temporomandibular dysfunction, the patient perspective: a qualitative study

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Objective: Patient education is an integral part of physical therapy practice. Recent research supports the incorporation of patient education in the treatment of temporomandibular disorder (TMD). However, there is uncertainty about the content of education. The purpose of this study was to investigate patient education in physical therapy for TMD from the patient's perspective.

Methods: In this qualitative study, semi-structured individual interviews were conducted with 10 patients diagnosed with TMD. The interviews were transcribed and analyzed according to deductive-inductive content analysis. Deductive coding was developed along the interview guide, followed by inductive coding for a more in-depth understanding of the patient perspective.

Results: Five main categories were developed, expectations towards the physical therapy, shaping knowledge, coping with symptoms, motivational aspects of patient education and preferred approaches for receiving education. From the patient's perspective, the most important aspects are information on causes, prognosis, and treatment options; explanations of jaw anatomy and symptoms; guidance on jaw exercises and advice on stress management as well as instructions on self-monitoring.

Conclusion: Dealing with TMD is a dynamic process between therapist and patient, which requires multifaceted education. According to patients, physical therapists should provide education that is simple, patient centered, and multimodal to meet the health needs. Patient education should incorporate a balance between providing knowledge and teaching self-management skills.

Impact: Communication is critical and affects the patient's perception. These findings will inform physical therapists about the content of patient education and may guide the development of patient-centered education with the aim of empowering patients.

Evaluation of muscle soreness in dreams – an explorative overnight sleep study with REM awakenings

Regeneration management (RM) is a key issue in sports. However, the role of sleep, an important aspect of recovery, has being neglected for a long time. Understanding that the significance of sleep to RM is increasing, yet the role of dreams here has barely been studied. This paper asks whether physical events, such as indications of delayed onset muscle soreness (DOMS), could also be present in dreams and thus influence regeneration or even athletic performance. To explore this question, an exploratory overnight sleep study in between-subject design has been conducted. Participants performed strength training and afterwards spent the night in the sleep laboratory. REM awakenings were performed, dream reports were requested and analysed based on eight different categories. No evidence for incorporation of DOMS could be found in any assessed category. Conversely, strength training was incorporated once, which might need to be re-examined in a larger sample. Further, evaluating the category «arms» could have yielded relevant results as this category occurs more frequently. Hence, it would be relevant to examine the category «arms» in a comparison group. The results of the present study should be viewed as a fundamental contribution in a still underexplored domain. Future studies should take into account the approaches from this study, performing further research.

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Abstracts von Projekten aus Fachentwicklung und Forschung

Master of Science in Physiotherapie: Studiengang 2019

Is it time to «teach an old dog a new trick?» Viewpoint on the current neurological examination in peripheral neuropathies

Cedric Bender

Betreuungsperson
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Neurological testing is an essential part of the screening and diagnostic process for peripheral neuropathies. Changes in motor and somatosensory nerve function are not only imperative for diagnostics but have also direct implications for treatment and management decisions. While the core components of the general neurological bedside examination have been studied, there is no agreement for peripheral neuropathies. In clinical practice, there seems to be a vast amount of variability in what constructs to include, possibly resulting in varying degrees of probability to detect peripheral neuropathies. This viewpoint will reflect on the neurological examination as a broad screening tool. Therefore, the article's first section will include the most commonly used components of the neurological examination, such as somatosensory testing with regards to dermatomal maps, inclusive fibre assessment and contralateral testing, the proprioceptive and motor examination and reflex testing. We will highlight variations in the performance and resulting challenges and suggest ways to increase the probability to detect suspected peripheral neuropathies. While the neurological examination is extensively used to screen for the extent of neural involvement in musculoskeletal conditions, we propose that its use as an outcome measure is not used to its full potential jet. Consequently, the second section of this article will attempt to show the benefits of quantifying the extent of specific nerve-related dysfunction highlighted by the neurological screening examination. We will provide practical examples for the quantification of sensory deficits, motor and reflex testing as well as present possible aspects that influence the timing of the reassessment.

Statement des Praxispartners

Annina Schmid, PT, PhD
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Cedric hat sein online Praktikum mit unserem Team am Nuffield Department of Clinical Neurosciences in Oxford absolviert. Sein selbstinitiiertes Projekt beinhaltet eine narrative Review zum Neurologischen Untersuch. Das ist ein sehr zeitgemässes Thema, da es klinisch sehr viel Variation und keinen Konsensus zur optimalen peripher neurologischen Untersuchung gibt. Cedric ist in diese Literatur hineingetaucht und hat eine tolle Review erarbeitet, die er nun zur Publikation vorbereitet. Ich möchte Cedric für seine engagierte Mitarbeit ganz herzlich danken und bin überzeugt, dass seine Arbeit bei Klinikern auf grosse Resonanz stossen wird. Ich freue mich auf unsere weitere Zusammenarbeit.

The reliability of clinical sensory testing batteries: A narrative review

Cedric Bender

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Background: Increasing research effort has gone into the development of time efficient and low-cost sensory test batteries as an alternative method for quantitative sensory testing. The objective is, by narrative review, to synthesize the inter-tester and intra-tester reliability of sensory test batteries. A secondary objective is to summarize and discuss included patient populations, sensory modalities and measurement devices, and time efficacy.

Method: Electronic searches of PubMed and Google Scholar were performed until the end of June 2022. Articles were included if they reported on the reliability of sensory bedside tests, were not older than ten years, and examined three or more sensory tests.

Results: Four studies were eligible for inclusion. Synthesis inter-tester reliability showed moderate agreement for most of the sensory modalities, while inter-tester reliability revealed substantial agreement for most sensory modalities. Some modalities related to gain of function varied between poor to moderate agreement. Included patients represented neuropathic pain populations, sensory modalities and devices used different substantially between the studies but covered all primary sensory afferents and time duration for the varied between a few minutes and thirty minutes.

Discussion/Conclusion: The Results must be interpreted with caution as two out of four studies used correlation coefficients to report reliability and did not report confidence intervals. There is also a lack of blinding in all studies, possibly leading to a high bias of the results. These results support the use of most sensory tests, especially related to loss of function, to reliably test for somatosensory dysfunction in patients with neuropathic pain. While the reported time duration supports the usage in research trials, the test batterie needs to be further optimized for a clinical application.

Statement des Praxispartners

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It was a pleasure to welcome Cedric in our laboratory at the Nuffield Department for Clinical Neurosciences at Oxford University. Cedric has been working on a narrative review on the reliability of low-cost bedside sensory testing tools. In addition, he has finalised a viewpoint article on the bedside clinical neurological examination, which is currently under revision. Both projects nicely align with his MSc dissertation in which he examines the inter and intratester reliability of a low-cost sensory test battery. Whereas it can be daunting to work in a world-leading neuroscience department especially while pandemic restrictions are still limiting social interactions, Cedric has quickly integrated in my team and contributed meaningfully to our meetings. His well conducted review is an important foundation for his ongoing work in this area. I would like to thank Cedric for his important contribution to this field and am looking forward to continue our collaboration.

Differences in tests for cortical representation of the shoulder in swimmers with and without shoulder pain – research protocol

Jan Schätz

Betreuungsperson
Kevin Kuppens, PhD

Background: Shoulder pain in swimmers is frequent and is often accompanied by altered motor output. The cortical body matrix theory suggests that nociception influences secondary neurotags that lead to primary pain neurotags or primary motor neurotags. These neurotags can be measured with simple assessments.

Objective: The objective is to explore the differences in cortical changes of neuro-tags between swimmers with and without shoulder pain using force sense assessment, tactile acuity and implicit motor imagery.

Methods: Force replication in external rotation, tactile acuity of the anterior shoulder and implicit motor imagery of the tested shoulder are assessed in a cross-sectional design in N=80 flemish swimmers (n=40 per group) with and without shoulder pain of all ages. Patient reported information about swimming, pain, central sensitization and kinesophobia are gathered. The difference between groups is estimated with its measure of uncertainty. In absence of a minimal clinical important difference, the differences are interpreted in relation to the existing literature.

Strengths/limitations: The limitations include the lack of a standardized protocol to assess forcesense, response bias in tactile acuity and the organization after a swimpractice. The strengths, however, are the testing with three testers to maximize reliability, blinding of the assessors and a custom-built device to minimize noise and maximize reliability during the force sense testing.

Implications: The results must be interpreted in relation to existing studies with similar designs but allow for a deeper understanding of the coexistence of altered cortical representation and shoulder pain in swimmers.

Statement des Praxispartners

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Jan Schätz contacted me to collaborate and did this with a clear idea about a research proposal. At the University of Antwerp, we have done some research about swimmers with shoulder pain and about chronic pain problems (in cooperation with international research group 'Pain in Motion'). No surprise that Jan's proposal of doing research about the cortical representation in swimmers with and without shoulder pain was received well. The preparatory work became visible during his research stay in Belgium during which we have had the opportunity to test the proposed protocol in young elite swimmers. I would like to thank Jan for his great commitment during his internship.

Vergleich einer frequentistischen und bayesianischen Schlussfolgerung und deren Interpretation in der klinischen Praxis

Jan Schätz

Betreuungsperson
André Meichtry, PT, MSc

Ausgangslage: Evidence Based Practice (EBM) ist ein wichtiger Bestandteil der Physiotherapie. Mixed Methods Studien zeigen jedoch, dass viele Therapeut:innen Probleme haben die Statistik und die Terminologie dieser beim Lesen von Studien vollständig zu verstehen. Dies könnte zum Teil an dem primär gelehrten und gelerntem frequentistischen Ansatz in der klinischen Statistik liegen. Eine Alternative bietet ein bayesianischer Ansatz. Das Ziel dieses Artikels ist es die Interpretation von zwei statistischen Vorgehen (frequentistisch vs. bayesianisch) aus Sicht des Klinikers oder der Klinikerin, anhand von Beispieldaten und einem einfachen statistischen Test zu verdeutlichen.

Methode: Per Zufall werden zwei normalverteilte Stichproben von je 100 Proband:innen, mit einem Durchschnitt von 75 und 69 sowie einer Standardabweichung von 12 erstellt. In einem ersten Schritt wird ein frequentistischer t-Test sowie ein bayesianischer Zwischengruppenvergleich mit einem uninformativen Prior berechnet. Anschliessend werden zwei weitere Stichproben von je 200 Proband:innen erstellt mit einem Durchschnitt von 72 und 70 und einer Standardabweichung von 9. Es werden wieder ein frequentistischer t-Test sowie nun ein bayesianischer Zwischengruppenvergleich mit einem informativen Prior berechnet. Ein Minimal Clinically Important Difference von fünf wird in alle Berechnungen mit einbezogen. Die wörtlichen Gedanken der Interpretation aus Sicht des Klinikers oder der Klinikerin werden beschrieben.

Ergebnisse: Der frequentistische t-Test der ersten Studie mittels p-Wert zeigt keinen Zwischengruppenunterschied. Die Interpretation des frequentistischen Konfidenzintervall einen unsicheren Unterschied. Im Licht der zweiten Studie ergibt sich ein weiterer t-Test im p-Wert ohne Zwischengruppenunterschied. Das Konfidenzintervall beider Studien zeigt keinen und einen möglichen Unterschied. Das Highest Density Interval der ersten Studie ohne Prior zeigt einen unsicheren Gruppenunterschied. Im Licht der zweiten Studie zeigt sich kein Unterschied der Gruppen.

Diskussion/Schlussfolgerung: Obwohl beide Verfahren zu einem ähnlichen Ergebnis gelangen, zeigt sich, dass die bayesianische Interpretation der Ergebnisse sehr viel gradliniger ist. Die Interpretation entspricht den intuitiven Gedanken vieler evidenzbasiert arbeitenden Kliniker:innen sowie dem was Patient:innen zur informierten

Entscheidung brauchen. Ein bayesianischer Ansatz könnte eine Möglichkeit sein EBP zu vereinfachen.

Statement des Praxispartners

André Meichtry, PT, MSc
ZHAW, Institut für Physiotherapie

Jan Schätz hat in seiner Arbeit die Unterschiede studiert und aufgezeigt zwischen dem bayesianischen und frequentistischen Zugang bei der Analyse und insbesondere der Interpretation eines Zwei-Stichprobenproblems. Der Bayesiansimus ist im Umfeld der Physiotherapie-Wissenschaft – im Gegensatz zu anderen Wissenschaften (z.B. Physik) – praktisch inexistent. Darum ist seine Auseinandersetzung mit einem fundamentalen Aspekt der Wissenschaft – «der Interpretation von Wahrscheinlichkeit» – sehr relevant. Er gehört damit zu einer Handvoll Pionieren, die sich schon während dem Physiotherapie-Studium vertieft mit dem Bayesianismus auseinandergesetzt hat.

Outcomes of operated and non-operated patients with acromioclavicular joint instability – a registry-based analysis: Study protocol

Iris Sterkele

Betreuungsperson
Audigé Laurent, PhD

Background: Acromioclavicular joint instability (ACJI) is a frequent injury affecting young and athletic adults. To date, evidence of clinical outcomes and patient-reported outcome scores (PROs), especially long-term outcomes is lacking. Well-documented clinical data registers are valuable for assessing the effectiveness of health-related interventions. For this purpose, the Acromioclavicular Instability Registry (ACIR) was implemented at the Schulthess Clinic. The aim is to re-use register data to analyze clinical outcomes and PROs of patients with ACJI treated conservative or operatively, including comparative effectiveness analyses.

Method: All patients with ACJI and without clavicula fracture are included. Outcome data are collected and documented at baseline, at 3- and 6- months and at 1-, 2-, 5- and 10- years follow-ups. They are obtained from valid and well-established assessments including shoulder scores, questionnaires, level of patient satisfaction, radiology and safety parameters. An observational study design is used for the register data analyses.

Results: not available. This registry started in January 2020 and therefore no results are yet available.

Discussion/Conclusion: Benefits of observational studies are that their results are generalizable to a wide range of patients because they collect data in comprehensive manner with only few exclusion criteria and they are an alternative to investigate the effectiveness of health-related interventions, in particular in surgery, when clinical studies are difficult to conduct. A disadvantage of observational studies is that they may provide more bias because of their less rigorous methodology. Results from ACIR-based studies provide valuable information on variation in patient outcomes, effectiveness of interventions and patient safety and are relevant to develop high level of evidence. Long-term outcomes of patients with ACJI are urgently needed to gain insight into late functional sequelae or secondary complications.

Statement des Praxispartners

Audigé Laurent, PhD
Schulthess Klinik, Zürich

Iris Sterkele significantly contributed to the development of the local Schulthess Klinik Acromio-clavicular Joint Instability (ACJI) Register. This register is the first of its kind worldwide and aims at documenting all patients treated for ACJI along with a prospective assessment of their clinical, functional and radiological long-term outcomes up to 10 years follow-up. She completed a detailed data management plan for this register, as well as contributed to ethical approval for the further use of collected data for research purpose. This is a milestone achievement for an increased evidence-based decision-making process in the management of this condition. Iris Sterkele was extremely dedicated to this project and showed high personal and professional skills and expertise in preparing the registry documentation.

Rückkehr zum Sport nach einer Gehirnerschütterung – Return to Sport Protokolle für das Schwingen und Mountainbiken

Johanna Winter

Betreuungsperson
Fabian Kühne

Ausgangslage: Das Team der Orthopädie St. Gallen unterstützt die Sportler:innen bei der Rückkehr zum Sport nach einer sportbedingten Gehirnerschütterung (SRC). Ein Return to Sport (RTS) Protokoll nach SRC kann bei der klinischen Entscheidungsfindung helfen, inwieweit die Wettkampffähigkeit wiederhergestellt ist. Das bestehende RTS Protokoll für Mannschaftsportarten ist nicht aktuell und hat keine klare Teststruktur. Das Ziel dieser Arbeit ist es ein sportart-spezifisches Protokoll mit einem Testmanual zur Beurteilung der Belastungsfähigkeit für Leistungssportler:innen in den Sportarten Schwingen und Mountainbike für die Rückkehr zur Wettkampffähigkeit nach einer SRC zu erstellen.

Methode: Es wurde eine Literatursuche nach Belastungstests in der Datenbank Pubmed, im Zeitraum vom 07. Februar 2022 bis 20. März 2022 durchgeführt.

Ergebnisse: Das Protokoll beinhaltet eine Erholungsphase (24–48h) und 6 Schritte bis zur Wettkampfähigkeit. Das Protokoll kann in 9 Tage durchlaufen werden. Die Sportler:innen werden wie folgt getestet. Baseline: Sport Concussion Assessment Tool (SCAT5), Vestibulär Okulomotorik Motor Screening (VOMS). Stufe 1: Postconcussion Symptom Scale (PCSS), Klinischer Reaktionszeit Test (RTclin). Stufe 2: Buffalo Concussion Treadmill Test (BCTT), PCSS. Stufe 3: PCSS, VOMS, Optojump für Mountainbike, Upper Quarter Y-Balance Test (YBT-UQ) und Sandbag Throw Conditioning Test (STCT) für das Schwingen. Stufe 4: PCSS, für Mountainbike mit Wingate Anareobic Test (WIN), Maximale Tretfrequenz, für das Schwingen der Specific Wrestling Fitness Test (SWFT). Stufe 5: Normales Training ohne Symptome. Stufe 6: Teilnahme am Wettkampf ohne Symptome.

Diskussion/Schlussfolgerung: Es bestehen Unterschiede in den Empfehlungen zwischen dem alten und dem neuen Protokoll. Die Stufeneinteilung des Protokolls ist in 7 Phasen gegliedert. Die absolute Ruhe nach einer SRC ist verkürzt, wobei die Gesamtlänge des Protokolls um zwei Tage länger ist. Die Einführung von Assessments in den unterschiedlichen Rehabilitationsstufen ermöglicht eine Einschätzung der Behandlungsdauer und der Wettkampffähigkeit. Diese Arbeit empfiehlt die routinemässige Anwendung von Assessments zur Beurteilung einer SRC, in allen Stufen des RTS Prozesses.

Statement des Praxispartners

Fabian Kühne
Orthophysio St. Gallen

Dank der ausserordentlich präzisen Arbeitsweise ermöglichte Johanna Winter mit dem Abschluss ihres Projektes unserer Einrichtung einen enormen Gewinn. Schnell analysierte und erkannte sie in der Anfangsphase des Projekts die aktuell ergebende Schwierigkeit der Situation in diesem Themenbereich. Durch ihre genaue wissenschaftliche Herangehensweise an die Problematik schaffte sie es, auch aufgrund Ihrer Praxiserfahrung als äusserst fähige Physiotherapeutin, den erhofften Transfer der Wissenschaft in den Praxisalltag unserer Physiotherapie. Die Zusammenarbeit sowie die Kommunikation waren stets unkompliziert, zielgerichtet und sehr sympathisch. Wir danken Johanna Winter sehr für Ihr grosses Bemühen, ihre Energie in das Projekt und das fantastische Endresultat.

Wenn Sie mehr erfahren möchten über unsere Projekte aus Fachentwicklung und Forschung, können Sie uns gerne kontaktieren unter der E-Mail-Adresse:

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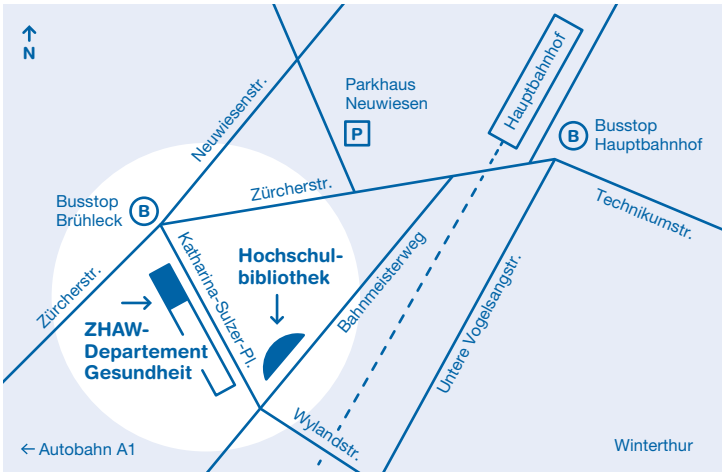

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