



RESEARCH TO
PRACTICE 2018

27-29 MARCH 2018
BRISBANE, QUEENSLAND

PRACTITIONER AWARD FINALISTS

Tuesday, 27 March 2018

11:00am – 12:30pm

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Minimum 10 year follow-up of a randomised trial investigating an accelerated weight bearing rehabilitation program after autologous chondrocyte implantation

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A pilot randomised controlled trial of a structured exercise intervention after the completion of cancer treatment in adolescents and young adults (AYA)

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Are participants of balance programs achieving and maintaining a reduction in falls risk?

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Translating high intensity loading for osteoporosis to the real world: Two year observations from The Bone Clinic

Belinda Beck

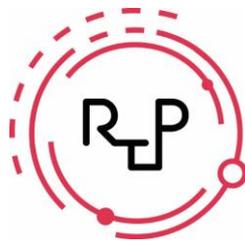
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Translating what we know into what we do: Reach of exercise physiology services implemented as standard care for prostate cancer survivors in Canada

Sarah Weller

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Minimum 10 year follow-up of a randomised trial investigating an accelerated weight bearing rehabilitation program after autologous chondrocyte implantation

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Introduction & Aims: Autologous chondrocyte implantation (ACI) is a surgical option for symptomatic knee cartilage defects. Long-term patient outcomes are lacking, while post-operative weight bearing (WB) rehabilitation protocols are traditionally conservative. This study sought to investigate long-term outcomes after an accelerated WB return after ACI.

Methods: After ACI, 70 patients were randomized to an accelerated (AR, 8 weeks, n=34) or conservative (CR, 12 weeks, n=36) return to full WB gait. Clinical outcomes were assessed at 3 months and 1, 2, 5 and 10 years post-surgery. Subjectively, the Knee Injury and Osteoarthritis Outcome Score, Lysholm, Cincinnati and Tegner surveys were employed. Objective measures included knee range of motion, the 6MWT and peak isokinetic knee flexor and extensor strength. Magnetic resonance imaging (MRI) was undertaken to assess graft repair, including an MRI composite score. Repeated measures ANOVA was employed to investigate scores over time between the AR and CR groups.

Results: No group differences ($p>0.05$) were observed, though a significant improvement ($p<0.001$) existed for all clinical scores to 5 years, maintained to 10 years. At 10 years, a mean Limb Symmetry Index for peak knee extension strength was calculated for the AR (94.9%) and CR (98.9%) groups, comparing the operated and non-operated limbs. There were no differences ($p>0.05$) in MRI scores between the two groups. At 10 years, 79.4% (AR) and 83.3% (CR) of patients had good-excellent tissue infill on MRI, while a good-excellent MRI composite score was observed in 82.4% of AR and 83.3% of CR patients. At 10 years, 88.2% (AR) and 88.9% (CR) of patients were satisfied with ACI for relieving knee pain.

Conclusion: The AR group that accelerated post-operative WB produced comparable outcomes to the conservative regimen, without compromising graft integrity. ACI is a viable option for symptomatic knee cartilage defects, with high satisfaction levels and tissue durability.





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A pilot randomised controlled trial of a structured exercise intervention after the completion of cancer treatment in adolescents and young adults (AYA)

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Background: Cancer and its treatment are frequently associated with impaired physical fitness which often persists into survivorship. Functional impairments such as cancer-related fatigue, muscle atrophy, deconditioning and reduced aerobic capacity, are common reported side effects.

The aim of this study is to determine whether a 10 week exercise intervention is associated with improved functional capacity (VO_2 peak), compared with controls in AYA patients who have recently completed treatment.

Method: Participants aged between 15-25 years of age were assessed following the completion of systemic cancer therapy. Functional capacity was measured via the following assessments; cardiopulmonary exercise test (VO_2 peak), maximal push-up test and sit-ups in 60 seconds.

Participants were stratified according to gender and treatment intensity. The exercise arm received a 10 week intervention consisting of 2 supervised exercise sessions per week under the direction of an Exercise Physiologist. The control arm received no intervention.

Results: 37 AYA (21 males) median age 21 \pm 6 years of mixed tumour types completed fitness testing. Mean VO_2 peak was 25.9 ml/kg/min, significantly lower than age-based population norms. The exercise intervention demonstrated a statically significant greater improvement in VO_2 peak than the control group (7.5ml/kg/min \pm 3.9 vs 3.4ml/kg/min \pm 2.7, $p=0.003$). Participants who completed the exercise intervention had a trend towards greater improvement in push up test (11reps vs 3 reps) and sit-ups (13reps v 5reps) compared to the control arm.

Conclusion: The results illustrate the impacts of cancer therapy on functional capacity and how deconditioned patients are at the completion of treatment. Preliminary data suggests that a 10-week exercise intervention is associated with a more rapid improvement in VO_2 peak when compared to controls. Future studies should explore whether an exercise intervention during treatment could ameliorate this deconditioning.





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Tele-Cardiac Investigations is transforming access to treatment for patients living in rural Queensland

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Introduction & Aims: Rural areas of Qld have 25% higher morbidity and mortality, from cardiovascular disease, due to reduced access to primary health care programs. People are detected late in the course of their disease and die young. Significant time constraints exist in rural areas on the health professionals' ability to directly supervise and perform Cardiac Investigations (Exercise Stress Tests (ESTs), Holter monitoring (HM)). Our aim was to create early access to specialist cardiac investigations, provided via telehealth, to supervise and educate rural staff during 'live' investigations, then reporting the result, for rural Qld.

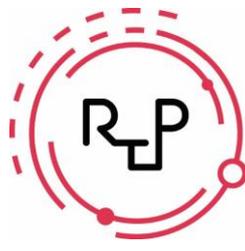
Methods: Since Feb 2016, 9 rural hospitals have utilised trolley-based videoconference units to be physically present and communicating, via telehealth, in the room with the patient/staff during the investigation. RBWH clinicians provide real-time instructions, supervision and education during the test. For **ESTs**, RBWH staff viewed direct live streaming of the ECG via connection to the rural EST unit. At sites with untrained staff, the RBWH remotely operated and controlled the entire EST (treadmill and EST process).

For HM, the RBWH pre-programmed the device remotely, then guided local nurses to apply the device via telehealth. The data was then uploaded to the RBWH server for analysis with direct reporting back to the health center.

Results: 670 patients have had early access to local ESTs and HM, resulting in; a reduction in waiting times from 3 months to same day; increased education, training and support for rural staff; improved reporting time of ESTs from 3 months to 27 minutes; reduction of up to 2,345km round trip/patient for travel to major hospital for test conduction; creation of rapid access pathway to further provocative testing at the RBWH for positive tests.

Conclusion: Tele-Cardiac Investigations are an effective method to ensure patients gain local access to testing to receive a diagnostic test result in rural Qld.





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Are participants of balance programs achieving and maintaining a reduction in falls risk?

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Introduction & Aims: Falling is a significant issue, especially amongst older individuals or those with neurological issues, and is a substantial cause of morbidity. This study aimed to determine if an outpatient falls and balance exercise program reduced participants' risk of falling.

Methods: Patients referred into one of the three Royal Melbourne Hospital balance groups volunteered to participate in this non-randomised observational research project. Two land-based exercise groups; high level (n = 5), low level (n = 9) or water-based Ai Chi (n = 2) were the referral options. High and low level groups differed only in the starting physical capacity and the pace and/or difficulty of balance tasks. Ai Chi was for patients whose treating therapist determined they would benefit from water-based therapy more, or they prefer water-based therapy. Falls risk was assessed by a timed-up and go (TUG) test and 5 times sit-to-stand. Participants also completed the modified falls efficacy scale before and after the 10-week accredited exercise physiologist led program.

Results: 17 participants completed a program and on average were 73 ± 8 years old. The age of participants in each group was not different ($p = 0.87$). At program entry, participants in the high level group completed the TUG 6.27 ± 9.24 sec faster than those in the Ai Chi group ($p = 0.04$), and 5.99 ± 5.98 sec faster than those in the low level group ($p = 0.003$). There was no difference in time for the sit-to-stand or falls efficacy ($p > 0.05$). The TUG improved by 1.94 ± 2.5 sec ($p < 0.01$) and the sit-to-stands improved by 3.47 ± 4.88 sec ($p = 0.01$), with no difference in the change between groups ($p > 0.05$). Falls efficacy was unchanged ($p > 0.05$).

Conclusion: Participation in 10 week balance exercise program results in statistically significant improvement in physical balance measures. Improved physical balance does not translate into reduced fear of falling.

Keywords: Falls and Balance, Behavior Change, Practice





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Translating high intensity loading for osteoporosis to the real world: Two year observations from The Bone Clinic

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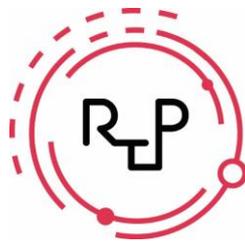
Introduction and Aims: High intensity resistance and impact training (HiRIT) has been shown to be safe and improves bone, muscle and function in postmenopausal women with low bone mass under strict RCT conditions. The establishment of a translational research clinic, in which HiRIT is offered with systematic longitudinal monitoring, provides the opportunity to examine effectiveness, feasibility and acceptability of the program as a legitimate osteoporosis intervention in the 'real world'. The aim of the current work was to do so, by analyzing data from the first 2 years of operations.

Methods: Clients undergo comprehensive testing for height, weight, lumbar spine (LS), total hip (TH) and femoral neck (FN) bone mineral density (BMD), lean and fat mass, kyphosis angle, back extensor strength (BES), functional performance, and falls and fracture, at baseline and annually thereafter. Twice-weekly supervised HiRIT with balance training is undertaken. Compliance and injuries are recorded. Training effect was examined using within-subjects repeated measures ANOVA.

Results: We report data for 63 women (62.3±7.9yrs, 161.0±7.3cm, 59.9±11.3kg, LS T-score -1.7±1.5, FN T-score -2.2±0.8; average training compliance 78.9±30.6%). Improvement was observed in every measured parameter and reached significance for LS (4%, P<0.0001), TH (1%, P<0.037) and FN BMD (1.6%, P<0.007), lean mass (1.8%, P<0.003), functional reach (6.7%, P<0.0001), timed up and go (10.7%, P<0.0001), tandem walk (23.3%, P<0.0001), sit to stand (11.8%, P<0.0001), BES (34.9%, P<0.0001), kyphosis angle (3.1%, P<0.046), and LS T-score (P<0.007). There was a trend for a reduction in falls (P<0.064) and fracture (P<0.051), and a tendency for height to increase (P<0.09). One injury was sustained in a combined total of 5668 training sessions.

Conclusion: Bone-targeted HiRIT is safe and reduces risk for osteoporotic fracture in postmenopausal women with low to very low bone mass in a 'real world' clinical setting.





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Translating what we know into what we do: Reach of exercise physiology services implemented as standard care for prostate cancer survivors in Canada

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Introduction: A disconnect exists between evidence that supports exercise as an effective management strategy for adverse side effects of prostate cancer (PC) treatments and the implementation of exercise services into clinical care in Canada. In 2014, the Prostate Cancer Supportive Care (PCSC) program started to incorporate exercise physiology services into standard clinical care to improve patient support.

Method: The services were introduced in two stages: 1) Quarterly education session began in June 2014 (90-minute session that addressed PC side effects, exercise guidelines and behaviour change); and 2) Individualized exercise counselling clinic was added in July 2015 (4 x 45 minute sessions over 12-months). The clinic visits used co-constructed goal setting and evidence-based exercise prescription, and evaluated physical measures, treatment side effects and exercise behaviour. We undertook a quality improvement analysis using the RE-AIM Framework to understand the impact and overall reach of the services.

Results: 227 PC survivors attended 1 or more session(s), reaching 14.4% of those who enrolled in the PCSC program from January 2013 to November 2017. Education sessions were attended by 167 participants (114 PC survivors, 53 partners) and overall session satisfaction was 4.6/5. 150 PC survivors attended the exercise counselling clinic, the majority of whom (>80%) were insufficiently active at baseline.

Conclusion: Exercise physiology services included as standard care for PC survivors showed strong translatability into a clinical setting, high satisfaction and was well attended. The exercise counselling clinic was successful in reaching our key target group, namely PC survivors who are insufficiently active. Both services have continued. Future work will evaluate long-term behaviour change with these services and develop a clinic-to-community model to support access to exercise physiology services for every man with PC in British Columbia.

