

Massage Therapy Research Fund
(MTRF)



Project Completion Report – FINAL

Current Date:	June 30, 2017
Project Title:	The effect of massage therapy on the inflammatory response following high-intensity intermittent exercise and rest
Amount of grant:	\$20,000
Year grant awarded:	2014
Indicate extensions granted: <input type="checkbox"/> not applicable	Extended June 2016 to December 30, 2016 Extended January 2017 to June 30, 2017
Project completion date:	Data collection complete; final analyses underway; manuscript submission projected for September 2017. <i>*We will submit another report at that time</i>
Institution:	University of Toronto
Principal Investigator:	Dr. Greg Wells, Ph.D.
Co-Investigators:	Gillian White, MSc. Dr. Shawn Rhind, Ph.D. Ed Ratz, R.M.T. Dr. Alex DiBattista, Ph.D Victoria Myers

THE REPORT CONTENT:

Section 1 - Results. Provide a summary of results (outcomes, findings) – 1 page maximum

-The blood samples have been sent to the Defence Research and Development Canada labs at Downsview Park to be analyzed and results will be available by July 30, 2017.

-Upon completion of the blood sample analyses we will be preparing a manuscript for submission for publication. We have completed the introduction and methods sections of the paper and will be able to generate the results and discussion sections rapidly upon receipt of the blood sample analyses. We anticipate being able to submit the manuscript for publication in August of 2017.

-We would be pleased to send you a copy of the manuscript upon submission.

Section 2 - Recommendations. Provide any recommendations based on your findings – 1 page maximum

-In addition to the manuscript that will be submitted for publication we will create a series of recommendations for massage therapy practitioners based on the results of our research. These recommendations will be sent to you at the time of submission for publication, which we anticipate will take place in August of 2017.

Section 3 - Did the project take place as proposed? If not, briefly indicate difficulties encountered and adaptations made (maximum 500 words)

Data Collection:

The data collection procedures of the project took place as planned, other than some small discrepancies. We changed the exercise intervention from 12 x 120m sprints to 10x120m sprints on the advice of the massage therapist (Ed Ratz) who worked most closely with the Varsity teams. This was sufficient to induce significant stress without risking injury of the athlete participants.

Analyses:

Blood sample analyses were delayed significantly by an unavoidable administrative complication. This has been recently resolved and all materials and personnel for blood samples analyses have been organized and are expected to be completed by the middle/end of July 2017. As well, the panel of stress analytes that will be measured from the blood samples has been expanded to include a more comprehensive range that includes chemokines and vascular stress markers in addition to the inflammatory cytokines that were outlined in the original protocol.

Section 4 - Budget. Summarize how the grant was spent by category (Personnel, Equipment and Supplies, Dissemination, Other). Indicate amount of remaining funds (if applicable) – 1 page maximum

Results are not yet complete as blood analyses are underway; however, all costs for the study have been incurred and the account has been closed. Finance officer Jennifer Jung will be sending an official financial report to you directly. The funds were spent as follows:

Personnel:

Subtotal = \$11,000

Research Assistant (1) – \$3800 (hourly rate \$20; 25h/week, total hours worked 190)

Lab Technician (1) - \$1000 (hourly rate \$25; total hours worked 40)

Massage therapists (3) - \$4450.87 (hourly rate \$61.80; 6 sessions of 4 hours with 3 therapists; total 72 hours)

Participant compensations (11.6 – one participant only completed 2/3 sessions) - \$1750 (50\$/session x 3 sessions per participant x 11.6 participants)

Equipment/Supplies:

Subtotal = \$6,660.40

Mesoscale Discovery Kits: \$6462.75

Venipuncture, sample processing, sample storage supplies: \$197.65

Dissemination:

Subtotal = \$0

Other:

Subtotal = 2,312.90

Venipuncture Certification (3): \$807 (\$269 for each certification x3)

-80degC Freezer rental: \$1,505.90

TOTAL = \$19,973.30

Section 5 - Dissemination of information. Include a list all presentations, media appearances or reporting, and publications arising from the grant, specifying status (published, in press, under review, accepted but not yet published, etc.) and indicating whether peer-reviewed or not.

Non-Peer Review:

A presentation on recovery methods, including massage therapy, was given for Varsity coaches at the University of Toronto in March of 2017. No direct recommendations were included, as results were not available, however, a discussion around the physiological rationale of recovery modalities and how to strategize their use was the central theme.

We will provide another presentation with recommendations upon completion blood sample analyses, when the schedule of Varsity coach meetings permits.

Peer-Review:

No peer-review presentations or publications have been prepared as of yet. We anticipate having a manuscript prepared and submitted by August of 2017.

Results will also be presented in abstract / podium presentation format at a Sport Science conference, most likely the Canadian Society for Exercise Physiology Annual General Meeting.

Section 6 - Project summaries. Provide a lay language summary of this project (maximum 400 words).

Massage therapy (MT) has been long held as an effective therapeutic modality for reducing soreness and improving recovery of acute musculoskeletal injuries. More recently MT has become popular as a post-exercise recovery modality amongst athletes attempting to facilitate return of pre-exercise muscle function and perceptions of soreness/impairment. Additionally, MT has been suggested to reduce inflammatory gene up-regulation when used following a bout of high-intensity eccentric contractions⁵. While this finding supports the use of massage as an anti-inflammatory intervention, the downstream effects of massage on systemic inflammatory mediator production and activity has yet to be established. Furthermore, the functional implications of any anti-inflammatory effect of massage also remains to be elucidated. These questions are essential to validating massage therapy as an anti-inflammatory treatment promoting function and repair of skeletal muscle, which could be applied to a range of other dysfunctional musculoskeletal and inflammatory conditions. This project was designed to validate massage therapy as an anti-inflammatory treatment both in participants at rest and following a bout of high-intensity exercise. We investigated the downstream inflammatory mediators of these genes in a meaningful time-course for recovery from exercise (acute 0-2h and sub-acute 24-48h post-exercise), and validated attenuation of inflammation post-exercise as the mechanism through which massage may facilitate the recovery of skeletal muscle performance following a bout of exercise. Overall, we evaluated 1. The efficacy and effectiveness of massage used for performance enhancement and recovery by athletes, and 2. The inflammatory effects of massage therapy per se which may have implications in a broader range of therapeutic environments and scope of potential beneficiaries.