



## Physical Therapy and Exercise – Part 2

By Philippe De Clerck (Director, Physical Therapist)

In the spring edition of *BiM@Work*, the article “Physical Therapy and Exercise” emphasized that Physical Therapists (PTs), through their extensive university and post-university training, are well prepared to prescribe therapeutic exercises to help restore a person’s physical and functional well-being following an injury or disease. The purpose of this article is to explore how exercise principles should be applied when working with patients.

The major objective of any exercise program is to bring about (biologic) adaptations, also known as training changes, with the purpose of improving performance. For an athlete, this will mean improving their athletic performance, e.g., lowering their 10 km time. On the other hand, for patients recovering from injury or disease this will mean regaining or approximating their pre-injury or pre-illness physical and functional status.

The first fundamental principle underlying these biologic adaptations is the **overload** principle. That is, with repetitive and progressive overloading the different bodily systems, e.g., the musculoskeletal and cardiovascular systems, become more efficient and functional. By manipulating combinations of exer-

cise intensity (weight, repetitions and/or speed), frequency (number of weekly sessions) and duration the appropriate overload, or dosage, for each individual can be achieved. Essentially, a minimum dosage is required for the systems and tissues to adapt. In other words, doing too little will have no or limited effect. Alternatively, when doing too much the systems and tissues are not able to adapt. Typically, to achieve maximum results, one would ‘test’ an athlete’s current fitness level to determine what dosage needs to be applied and to what system (note that the latter is also dependent on the training goals). Since testing for current fitness level can be quite strenuous on the musculoskeletal

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### BiM Buzz



### ArriveBC Immigrant Career Services

By Cameron Brine (Program Manager)

*ArriveBC* is a Skills Connect program delivered in partnership with Back in Motion, MOSAIC Immigrant Services, and the Ministry of Economic Development. It is a Provincial government initiative aimed at helping newly landed and skilled immigrants obtain employment in their area of expertise. *ArriveBC* has been up and running since July 2006 and we have been very happy with the interest it has generated so far. With a specific focus on the construction and transportation sectors, *ArriveBC* helps skilled immigrants develop career plans, get recognition for their international credentials, gain Canadian credentials, upgrade their skills and gain valuable Canadian workplace experience. For more information please visit our website at [www.arrivebc.com](http://www.arrivebc.com) or call us at 604-575-3800.



### Triumph Fun Day

By Annalise Wickers (Job Coach)

On July 7, nine *Triumph* participants (past and present) and five BiM staff members gathered at Douglas Park in Langley to celebrate the summer with a picnic and games. *Triumph* includes pre-employment services designed to support persons with disabilities achieve greater independence, prepare for the workplace and create opportunities in their lives. In place of the regular Friday afternoon workshop the staff and participants enjoyed the sunshine while making sandwiches and playing bocce ball, Frisbee and soccer. It was a great afternoon of working on communication skills in an open, summer-time environment.



Triumph Fun Day at Douglas Park, Langley (Summer 2006).

## FEATURE

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### An Example of the Principle of Specificity



Work simulation — pushing.

and/or cardiovascular system, it is not always wise to ‘test’ patients, in particular, in the earlier stages of recovery. Also, testing of patients with more chronic presentations may not provide an accurate picture of their fitness/functional level. Testing at this stage may be more a reflection of a person’s coping abilities, motivation and fear and provide an underestimate on his/her actual fitness and/or functional level. This leads some clinicians to conclude that an aggressive approach in terms of prescribing exercise is appropriate with this latter group of patients. However, for both groups of patients it is much more prudent to start at an exercise load that is below the (estimated) target level and to gradually increase the exercise load. Signs (e.g., swelling), and to a certain extent symptom response, will dictate exercise progression for patients in the early stages of recovery. For patients in the later, especially chronic stages, exercises will gradually, but consistently be increased using a quota-based system.

lifting and pushing/pulling activities.

The third principle is the principle of *individual differences* (i.e., age, fitness level and other individual variations such as type, severity and level of recovery from injury). This means that persons vary in their response to a given exercise dosage. Consequently, there is a need to individualize exercise programs to optimize the response to exercise, especially when the person is recovering from injury or disease. This can only be achieved through a comprehensive evaluation performed by an individual with the required education and training.

The final principle is the *reversibility* principle. While research suggests that one does not have to continue to exercise or be physically active at high levels to maintain gains made, it is, unfortunately, the case that the benefits from exercise or being active are very rapidly lost once one becomes inactive. This is specifically important following an injury,

# Four Exercise Principles:

1. Overload

2. Specificity

3. Individual Differences

4. Reversibility



Work simulation — pulling.

The second principle is the principle of *specificity*. Essentially, strength-types of activities lead to specific strength-type adaptations of the body or tissues (i.e., an improved ability to perform shorter, more intense burst-type of activities). In contrast, aerobic-types of activities lead to specific endurance-type adaptations of the body (i.e., an improved ability to perform sustained activity of lower intensity). Thus, when prescribing exercises for patients, the exercises will have to address the identified areas of deficiency (based on assessment findings). The principle of specificity also extends to how the different muscles work together when performing an activity or task. For instance, we only become better at swimming through swimming. Similarly, a patient returning to a job that involves lifting and pushing/pulling needs an exercise program that includes progressive

when a prescription of ‘relative rest,’ (i.e., resting the injured area only), can be misinterpreted as complete rest. Therefore, to prevent or at least minimize the deconditioning process, it is vital that clinicians be clear and specific in terms of their communication with the patient.

To summarize, understanding exercise principles is important when prescribing therapeutic exercises. However, it is equally important to understand how these exercise principles need to be applied and modified to maximize the benefits from exercise for patients.

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# Cameron Brine

Cameron with daughter Hannah (Mt. Seymour, Summer 2006).

**Cameron Brine has been with BiM for 7 years. He started here as a kinesiologist then took on the role as a marketing coordinator, and now is the manager of ArriveBC (See page 1 for a summary of the program). Let's have a little chat with Cam.**

**YY: What is your favourite sport/hobby?**

CB: My favourite summer sport is outrigger canoeing, my favourite winter sport is skiing, my favourite couch potato sport is hockey, and my favourite hobby is chasing around after my 1.5-year-old daughter.

**YY: Describe your most memorable trip/vacation.**

CB: I've been fortunate enough to travel to many places around the world, but my most memorable moment was when I proposed to my wife at Everest Base camp in Nepal — how's that for cheesy?

**YY: If you were given the time and opportunity to learn a new language, what language would you choose?**

CB: I'm still working on my English, but after that I would like to learn Pig Latin. Because Iway inkthay igpay atinlay isway oinggay otay akemay away omebackcay.

**YY: Name one challenge that you overcame within the last five years.**

CB: Completing an MBA degree while working full time and raising a newborn for the last couple of years has been a challenge, to say the least.

**YY: When I turn on my TV, what reality show could I find you in?**

CB: Jerry Springer — just to see if they're acting or not.

**YY: What do you enjoy most about your new position as the program manager of ArriveBC?**

CB: I enjoy two things: 1) overcoming the challenges that come with starting a new program and 2) the rewarding feeling that comes with helping people, which is what ArriveBC is all about.

Historically, psychology has focused on negative emotional states and the factors that contribute to mental illness. In tribute to the **World Mental Health Day** (October 10), I'd like to focus on those factors which contribute to happiness.

Research has shown that the sense of happiness is higher in countries that ensure their security, autonomy, freedom, educational opportunities and access to information. People are generally happier in a climate of peace where personal freedoms and democracy are secure.

Happiness rises with social involvement and participation in volunteer organizations, sports and leisure activities. It is also closely tied to the maintenance and quality of personal relationships. People who are married or cohabiting are generally significantly happier than singles, widows, widowers, or the divorced or separated.

Happiness tends to be greater among those who have paid work. Yet housewives are no more dissatisfied with their lives than professionals, and retirement does increase personal satisfaction. Can money buy happiness? Although living standards and income have increased significantly for most of us in the West over the past 50 years, our level of subjective happiness has not.

Happiness does not seem to be linked to intelligence, sex, ethnicity, or physical beauty. People who believe that they can exert control over their personal circumstances, can quickly and clearly identify their emotions, and are open and empathic to others tend to be happier.

Finally, a spiritual dimension or belief system that helps us to set goals in life and promotes human values such as compassion, charity, generosity, and openness brings us closer to happiness.

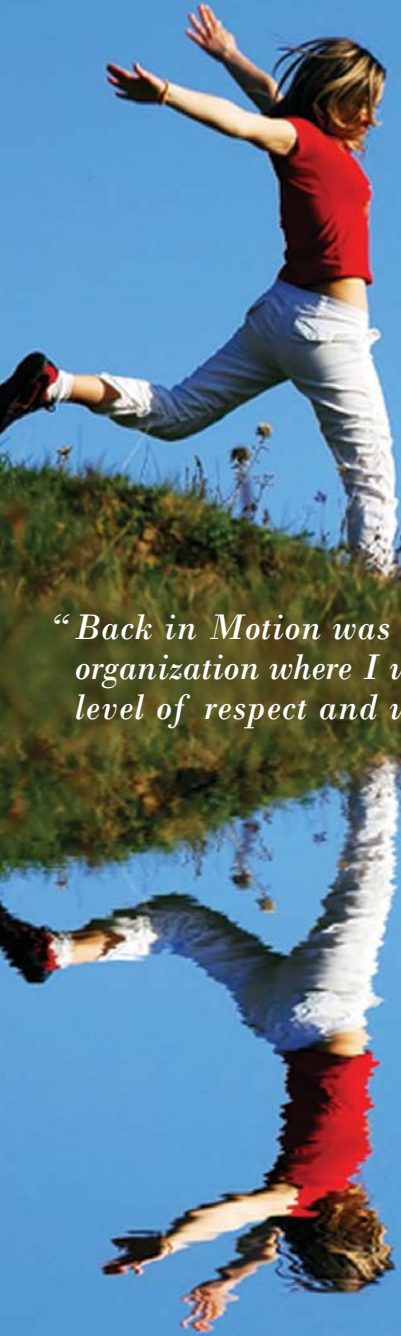
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WHO, "World Health Report, 1999".

By Kate (InFOCUS Client, Summer 2006)



*“Back in Motion was the first rehabilitation organization where I was treated with a high level of respect and was really listened to.”*

**M**y name is Kate and I am in my 30s working in the health care profession. In 2005, I was diagnosed with a rapid cycling bipolar disorder. Prior to that, I was misdiagnosed with depression/anxiety. None of these “labels” or the accompanying symptoms were easy to accept. My experience with the road to wellness has been quite difficult but I am thankful now that proper pieces are now in place and I’m moving forward with life in a positive way.

In August 2005, I was referred to Dr. Owen Garrett of Back in Motion’s *InFOCUS Psychological Services* by my Long Term Disability Rehabilitation Consultant. The aim was to help me prepare for a gradual return to work and to learn some pacing strategies for my daily activity level. Initially, I was a little reluc-

tant to see Dr. Garrett as I had varied experiences within the mental health care system with psychiatrist and counsellors. Fortunately, my negative attitude quickly subsided upon meeting Dr. Garrett, whom I found to be professional, respectful, caring, and had a laid back approach.

My experience with *InFOCUS* has been very positive. I was always treated with respect, understanding, and support by the staff here. During the early stages of my treatment, I was not doing very well and Dr. Garrett went “beyond his call of duty” to ensure I received the medical attention I needed, which is

something I will never forget. My weekly sessions with Dr. Garrett were very beneficial to my overall progress. I have learned valuable wellness strategies for a variety of situations which included “mindfulness meditation” and cognitive behaviour strategies for work and personal relationships. Dr. Garrett demonstrated to me his expertise in the field of psychology and health rehabilitation week after week.

I am feeling great now that I finally have the right combination of medication and a psychiatrist who specializes in mood disorders. My mood has been quite stable for a good length of time, which is something that I had never experienced before. I have also started a new fulltime position in my trained specialty. The skills and strategies that I learned from Dr. Garrett, combined with a much healthier work environment, contribute to my success at this new job. I am now pacing my weekly schedule, sleep patterns, and I have learned to say “no” to requests when needed. I am enjoying time with friends and volunteering in the community on a regular basis.

There is so much that I have gained from my experience here. Back in Motion was the first rehabilitation organization where I was treated with a high level of respect and was really listened to. Dr. Garrett’s sense of humour really helped with treatment as well! I was able to come to terms with the fact that I have a life long medical condition that requires proper care and monitoring by professionals. I am very grateful for the intervention provided by Dr. Garrett and it is something that I will always remember and value as I continue on in my journey of life. Thank you and keep up the good work!

**QUARTERLY OUTCOMES**

**November 2005 – January 2006**

By Yvonne Yua (Communications/Project Coordinator)

- Total number of clients served: 614
- Average client satisfaction score: 93.29% (N=241)
- % of clients “very satisfied”: 96.68% (N=241)
- % of clients who would refer BiM to a friend: 95.95% (N=222)

**C O N T A C T S**

**SURREY:**  
206-5500 152nd Street  
Surrey, BC V3S 5J9

T: 604.575.2262  
F: 604.575.2272

**RICHMOND:**  
110-6651 Elmbridge Way  
Richmond, BC V7C 5C2

T: 604.273.7600  
F: 604.273.7662

**VICTORIA:**  
(Functional Assessments)  
4-3318 Oak Street  
Victoria, BC V8X 1R1

T: 604.233.2210  
F: 604.233.2211

Website: [www.backinmotion.com](http://www.backinmotion.com)

E-mail: [info@backinmotion.com](mailto:info@backinmotion.com)