

AN ABSTRACT OF THE THESIS OF

Casey E. Masterson for the degree of Honors Baccalaureate of Arts in French
Presented on June 5, 2013.

The Grief Cycle:

An Integration of the Psychological and Physiological Stages of Recovery from a Lower
Extremity Stress Fracture in NCAA Division I Female Distance Runners

Abstract approved:

Anthony R. Wilcox, Ph.D., FACSM

Collegiate Athletics is glorified in the United States; particularly at the NCAA Division I level. Through the lens of a sport-loving spectator, talented, scholarship athletes live the good life of suiting up in university colors, competing before their fans, and, when they're taking a break from annihilating the competition, reveling in the perks being a collegiate athlete.

Often overshadowed, are the many stressors unique to representing one's university at the highest level of NCAA intercollegiate athletics. Beyond carrying a heavy academic load, Division I student-athletes are held to incredibly high athletic standards and face sports-related pressures, fears, and anxieties. With the demands of practice and competition often exceeding twenty hours per week, there is little time for a life outside of athletics. As these high-achieving student-athletes strive towards perfection on the field and in the classroom, the physical and emotional stress can mount to an unsustainable level, resulting in injury.

The objective of this paper is to reveal the stressors and psychological factors that influence the onset and recovery from an NCAA Division I female distance runner's lower extremity stress fracture. It depicts how the athlete's emotional responses to injury during each physiological phase of recovery mirror the five stages of the Kübler-Ross Grief Cycle.

Key Words: NCAA Division I female runner, injury, Kübler-Ross Greif Cycle, denial, psychology, recovery, acceptance, depression, bargaining, anger

Corresponding e-mail address: caseymast@gmail.com

@Copyright by Casey E. Masterson
June 5, 2013
All Rights Reserved

The Grief Cycle:
An Integration of the Psychological and Physiological Stages of Recovery from a Lower
Extremity Stress Fracture in NCAA Division I Female Distance Runners

by
Casey E. Masterson

A PROJECT
submitted to
Oregon State University
University Honors College

in partial fulfillment of
the requirements for the
degree of
Honors Baccalaureate of Arts in French (Honors Scholar)

Presented June 5, 2013
Commencement June 2013

Honors Baccalaureate of Arts in French project of Casey E. Masterson presented on June 5, 2013.

APPROVED:

Co-Mentor, representing College of Public Health and Human Sciences

Co-Mentor, representing College of Public Health and Human Sciences

Committee Member, representing College of Public Health and Human Sciences

Co-Director, College of Public Health and Human Sciences

Dean, University Honors College

I understand that my project will become part of the permanent collection of Oregon State University, University Honors College. My signature below authorizes release of my project to any reader upon request.

Casey E. Masterson

ACKNOWLEDGEMENTS

I would like to thank Anthony R. Wilcox, Ph.D., FACSM, and Samuel T. Johnson, Ph.D., for their invaluable guidance and patience as mentors.

I would also like to thank Kelly Sullivan, Travis Floeck, Dick Brown, Drew Wartenburg, and Chris Yorges; five track and cross country coaches who develop their athletes as well-rounded individuals, not simply as athletes. They have maintained faith in my ability from day one, each playing a unique and important role in my development. I am forever grateful to have them in my life.

Finally, I would like to thank my parents, Mike and Kathy Masterson, for the incredible support that they provided throughout the ups and downs of my collegiate running career.

TABLE OF CONTENTS

Introduction.....	1
Pre-College vs. College: Personality, Coping Resources, & History of Stressors	4
Pre-College Personality	4
College Personality	5
Pre-College Coping Resources	7
College Coping Resources	7
Pre-College & College History of Stressors	10
Onset of Injury	11
Physiological & Psychological Phases of Stress Fracture Healing	12
Physiological Healing Phase I	12
Psychological Healing Phase I.....	15
Cognitive Appraisal.....	15
Emotional Response.....	18
Behavioral Response	20
Physiological Healing Phase II	22
Psychological Healing Phase II	23
Cognitive Appraisal.....	23
Emotional Response.....	26
Behavioral Response	27
Physiological Healing Phase III.....	29
Psychological Healing Phase III	30
Cognitive Appraisal.....	30
Emotional Response.....	32
Behavioral Response	33
Implications	37
Implications for the Athletic Department and University	37
Implications for the Coach	37
Implications for the Healthcare Provider	39
Conclusion	41
Bibliography.....	42

LIST OF FIGURES

Figures	Page
I. A Model of Stress and Athletic Injury.....	3
II. R.E.S.T. acronym for the goals of stress fracture management.....	13

DEDICATION

This thesis is dedicated to two role models, Aunt Helen and Grandma Stella. To Aunt Helen, for displaying an ability to love unlike anyone I've met. To Grandma Stella, for her insight, love, friendship, and life advice of, "Case, enjoy every minute of it." I intend to.

The Grief Cycle:
An Integration of the Psychological and Physiological Stages of Recovery from a Lower
Extremity Stress Fracture in NCAA Division I Female Distance Runners

Introduction

I remember the first time my inner perfectionist was stirred: *The* team meeting, held by my track and cross country coach a few months into my freshman year of college. Coach spoke of commitment. He advised us not to waste our four precious years of eligibility; that to be a student-athlete was a privilege not to be taken for granted. Each athlete received a massive binder full of instruction on everything running-related; it described the ideal runner; how he or she was to eat, sleep, stretch, do ancillary work, ice bath, visualize, etc. Coach called all of these components “the little things,” emphasizing at length the importance of each. He said that “If the sport was simply about putting one foot in front of the other, then anyone could be good. ‘The little things’ are what ultimately make the difference.” It was revolutionary for the girl who’d never given running a whole lot of thought. It was exciting; inspiring; yet at the same time, fairly daunting. My naivety was brought to light that day. For the first time, I was given an image of the “perfect runner.” Not only that, but I was handed a binder laying out precisely how to achieve that so called ideal. You’d have to be a fool to mess that one up, right? It was a perfectionist’s dream. Or should I say demise... This meeting; this was my bittersweet turning point. I was ready to go all in; to invest fully into my running career and tackle all of these ‘little things’ that Coach spoke so highly of. The sweet part was that I dove in—I wanted no regrets. The bitter part was that I dove right off the deep end, fueling a destructive cycle of chronic injuries that lasted from my freshmen year of college through my senior year.

Don’t get me wrong; it’s an honor and a privilege to be a part of collegiate athletics; it simply comes with its fair share of stress. The bar is raised in terms of what it takes to succeed as

both a student and as an athlete at the collegiate level. The majority of athletes who are recruited into Division I athletics spent their high school years at the top of the athletic food chain. But at the Division I level, *every* athlete is talented, *every* athlete is fit, and *every* athlete is training at a high level. As such, *every* athlete is seeking an edge over her opponents. This can become quite the source of stress.

The transition from high school to college is a significant adjustment. The young adult is faced with independence from home, academic challenges, extracurricular activities, and financial burdens, to name just a few. For the NCAA Division I female distance runner, the case can be made that the transition from high school to college is increasingly more stressful than it is for the average university student (Lancaster). The primary stressors that have been identified to affect student-athletes both psychologically and physiologically are time management, burnout, fear of failure, anxiety, depression, and self-esteem (Wilson 2). Moreover, there is stress associated with the presence of scholarship money available to virtually all Division I sports; raising expectations for success from athletic directors, alumni, parents, and fans. Added pressures on university athletes to properly represent their institution can be an additional source of stress for student-athletes. Most athletic departments are the focal point of a university and their student-athletes set the tone for the school (Skinner 17). As a student-athlete at Oregon State University, I, along with my fellow student-athletes, were reminded by the athletic director annually of the role we played in enhancing the reputation of our university.

As I reflect back upon my collegiate running career, I recognize the need for athletic support staff and coaches to gain a better understanding of the psychological impact that a chronic injury, such as a stress fracture, has on an NCAA Division I distance runner. Only through deeper understanding of the psychology of chronic injury can optimal prevention and treatment be provided to the student-athlete.

To better illustrate the psychological effects of chronic injury on NCAA Division I female distance runners, I will tell my own story as a member of Oregon State University's track and

cross country teams. The hope is to provide a deeper understanding of the injury experience of NCAA Division I female distance runners. To do so, I will focus on the role that life stressors play in both the onset of and recovery from injury, as well as the intense psychological ramifications of chronic injury for the student-athlete. Wiese-Bjornstal's Model of Psychological Response to Athletic Injury and Rehabilitation (Wiese-Bjornstal, Smith, and LaMott 16-30) will be used to demonstrate the psychological factors that continually influence both the onset and recovery from an NCAA Division I female distance runner's lower extremity stress fracture during each of the three phases of Romani's physiological chronology of the stress fracture healing process (Romani et al. 310-13). The cyclical stress-response process, with recovery at its core, is central to Wiese-Bjornstal's model, demonstrating how continual interactions of cognitive, emotional, and behavioral responses impact the recovery process of an athlete's ever-changing external environment (see Figure I). This thesis will demonstrate how the athlete's emotional responses during each of Romani's physiological phases of recovery mirror the 5 stages of the Kübler-Ross Grief Cycle, discussed in On Grief and Grieving: Finding the Meaning of Grief Through the Five Stages of Loss.

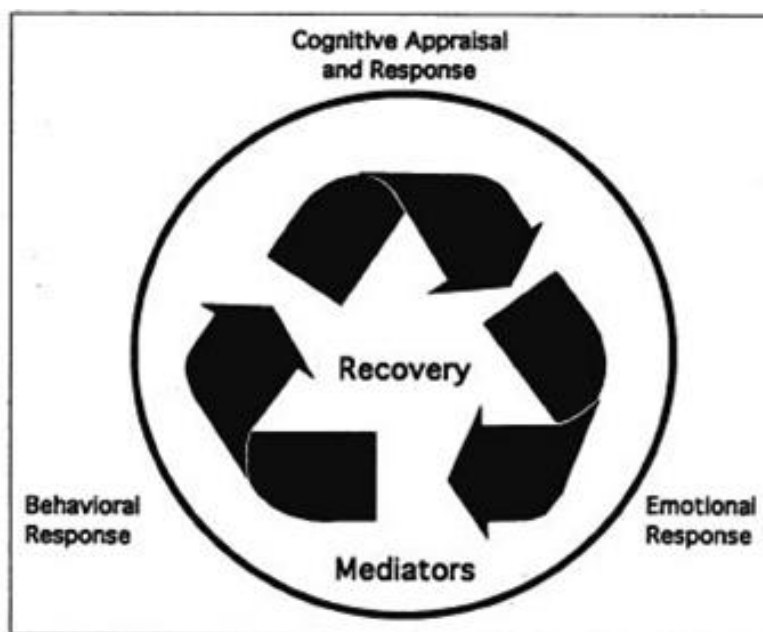


Figure I. A Model of Stress and Athletic Injury.

Pre-College vs. College: Personality, Coping Resources, & History of Stressors

So, what happened after that team meeting? Why did I capture stress fractures rather than school records? According to Anderson and Williams, the extent to which stress impacts an athlete both initially and throughout the recovery process from a stress fracture depends upon the individual athlete's unique personality, coping resources, and history of stressors (294-306). A description of my own personality and coping resources prior to and upon entering college will begin to shed light on the reasons why I, along with countless other NCAA Division I female distance runners, acquire a chronic injury at some point throughout their collegiate running careers. My history of stressors will not be a focus in the following sections, as they remained the same both prior to, and during the early stages of college.

Pre-College Personality

Webster's New Collegiate Dictionary defines personality as "the complex of characteristics that distinguishes an individual or a nation or group" (848). Prior to entering college, my complex of characteristics was very different. I was a completely different athlete. In high school, I was fearless. A huge part of that can be attributed to my naivety when it came to the world of running. Unlike most of my competitors, I didn't log hours with my nose buried in Runners' World; my evenings weren't spent on *letsrun.com*. In a sense, you could say that I was 'in my own little world,' and I liked it that way. It would be a lie to claim that my avoidance of such things came from a place of maturity. It was simply that I wasn't interested in the running blogs; the "who's who" of the running world; the latest diet or training fads. In hindsight, this was a huge advantage. When I toed the line, my competitors were just people—vulnerable; breakable; just like me. Because I was unaware of my competitors' stats, no opponent was put on a pedestal in my mind. Nobody was out of my league, partly because I didn't know any better. I

strove for perfection in a healthy, simple way. I showed up to every practice; I did what my coaches asked of me; I pushed hard during my workouts; and I raced with heart. During the twenty-two hours of the day when I wasn't at track practice, my mind was invested elsewhere. I undoubtedly strove toward perfection, but not at the expense my overall wellbeing.

Hamachek defines two types of perfectionism: there is a healthy, "normal perfectionism" and an unhealthy, "neurotic perfectionism" (27). While the normal perfectionist seeks perfection simply for the enjoyment of the journey, the neurotic perfectionist is driven by a *need* to attain perfection; his or her self-worth depends on it. One could make the argument that I've always been a perfectionist. I was that kid in elementary school who took pleasure in spending three times longer than necessary on an assignment to make sure that each letter had the perfect curvature; that junior athlete who had her own personal soccer goal set up in the backyard to work on perfecting her strike. Yet, the meticulous nature of writing had nothing to do with fearing reprimand of teachers; those hours spent outside of practice working on my strike were not fueled by the need to please my parents or coaches. Sure, I was like any other kid who took pleasure in gratification from my parents, coaches, professors, and peers. But ultimately, I sought perfection for its own sake—I worked hard because I loved the grind; not because I feared the failure. Unfortunately, it wasn't long after I entered college that I made the transition away from healthy, normal perfectionism to neurotic perfectionism.

College Personality

Adaptive perfectionism is described as "a positive pursuit towards achievement," whereas maladaptive perfectionism "is concerned with evaluation, and is associated with a fear of failure" (Enns, Cox, Sareen, and Freeman 1034-42). The latter describes my own personality transformation upon immersion into collegiate athletics; the resulting stress and anxiety of which likely contributed to the onset of athletic injury. Unfortunately, I am not unique; many collegiate

athletes share similar perfectionist tendencies that put them at risk of injury (Stirling and Kerr 14-15). Considering the dedication and high work-ethic that is required of a successful athlete, it shouldn't come as a surprise that elite athletes are more likely to be perfectionists than their non-athlete counterparts. However, it is challenging to keep maladaptive perfectionist tendencies at bay when faced with new and often elevated stressors of college life; it certainly was for me. Beyond carrying a significant academic load, the student-athlete trains and competes at the highest level of NCAA intercollegiate athletics. But, relax; just do your best, and that's all that you can do, right? Wrong. Not for the perfectionist female distance runner (Krane et al. 247). If doing her best does not equate to success as she's defined it, she has failed. In the New York Times Commentary, "The Myth of the 'Student-Athlete'," Gary Gutting, professor of philosophy at the University of Notre Dame, *notes* that due to the amount of time the majority of NCAA Division I student-athletes dedicate to their sports, they would "have to be intellectually *superior* to the average student" to succeed academically. Yet, in the mind of the maladaptive perfectionist athlete, she doesn't need to be academically superior to the average student in order to succeed academically. She needs more than that. She needs to be *perfect*; perfect in each and every one of her endeavors, including in the classroom and on the track. The issue with the maladaptive perfectionist is that when external expectations increase, she does not become more flexible; she doesn't consider balance as she tackles new challenges. She rises to each occasion in a rigid fashion, in her fear of failure. She refuses failure as an option; and in doing so, she forgoes the opportunity to succeed at all. As noted in Running Within, a universal trait of all successful people is that "they have no fixed minds; they are flexible and open in their beliefs" (Lynch and Scott 102)... Yet, they also note that "rigid, fixed minds make for rigid bodies and tight inflexible running performances. "To be impatient is to create stress that directly inhibits the natural fluidity of your muscles..." (10).

Pre-College Coping Resources

As described by Wiese-Bjornstal, “Coping resources include a wide variety of behaviors and social networks that help individuals deal with life” (Wiese-Bjornstal, Smith, and LaMott 18). During my adolescence, my coping resources worked just fine.

According to Csikszentmihalyi, there are three resources that account for an individual’s ability to cope with stress: Available external support, psychological resources, such as personality traits and intelligence, and personal coping strategies used to confront stress (198-99). Throughout my adolescence, I had each of these categories covered. In terms of external support, my family was incredibly supportive. I was financially well-off, attended an above-average school, and had access to necessary training resources. My psychological resources were sufficient as well. A quality education provided me a respectable level of intelligence; my extroverted nature enabled me to seek support from peers and operate well within social situations; an internal locus of control provided unwavering faith that I was in charge of my own destiny—I relied on hard-work. My external support and psychological resources set the stage for the third and final coping resource, my coping strategies themselves. For the minor obstacles that did present themselves, I relied on the following coping mechanisms: I sought out my best friend; I found comfort in my classmates; I relied on the security of problem-solving through hard work; I fell back on the safety of routine. During the care-free, adolescent stage of my life, these were effective coping strategies. However, they ultimately proved inadequate when faced with significant life stressors.

College Coping Resources

I like to fancy myself an independent individual; one who can shrug off a blow without needing to phone a friend for support. When a stress fracture arose and crushed yet another

dream, I would turn inward; isolate myself from my peers; pretend that I was fine; that I quite enjoyed spending my free time alone in the pool; that clunking around campus in a boot made for a nice fashion statement; that track season competitions were overrated. Any energy that didn't go towards the healing of my fracture was put towards maintaining the façade that I was "doing fine, thank you very much (insert fake smile here)." I wanted to be a role model for my teammates and keep my chin up. I wanted to be that success story that we all know and love; the one where the athlete faces adversity, comes out on top, and demonstrates the power of hard work and perseverance. I gave it my best shot, but in hindsight, some of my coping "strategies" were working against me.

Through an investigation of the primary stressors and coping resources of female first-year collegiate athletes, Giacobbi et al. developed five dimensions of stress that have been identified to most strongly impact first-year collegiate student-athletes. These five dimensions of stress include training intensity, high performance expectations, interpersonal relationships, transition from home-life, and academics. These broad dimensions of stress cover the major sources of stress that I personally experienced as a student-athlete (1-20).

The Division I student-athlete faces the unique challenge of balancing both the institution's athletic and academic demands. On top of meeting athletic demands of practice and competition that often exceed twenty hours per week (Visek and Watson 178-92), athletes must maintain full-time student status and maintain a minimum grade point average. They face stereotypes of faculty and students who may view them as "dumb jocks," "over-privileged," "lazy," and/or "motivated to be at school in order to play his or her sport" (Fletcher, Benschhoff, and Richburg 36). Managing relationships and functioning off of sleep deprivation are shown to be greater stressors to student-athletes than non-athletes, in addition to the sport related stressors of heightened anxiety, competition pressure, frustration, irritation, and fear (Wilson, and Pritchard 1-8). Furthermore, tougher competition and decreased social interactions, due to athletic commitments, have been identified as significant stressors (Richards and Aries 211-18). A

survey conducted on 231 student-athletes of an NCAA Division I college in Pennsylvania showed that course grades and attaining personal expectations created the highest levels of stress, followed closely by pressure to win, juggling academic and athletic demands, and pre-competition nerves (Steiner 198). Stress for high-caliber athletes also stems from a fear of falling short of the high standards set for them, fatigue, and getting injured. (qtd. in Dunn and Dunn 411-29). Moreover, in comparison with non-athletes, elite collegiate female athletes experience higher levels of depression and social anxiety, while holding the perception of having less social supports than female non-athletes (Goodger et al. 121-51). Unfortunately, the Oregon State University Athletic Department has no sports psychologist on staff to aid those student-athletes who struggle with depression and/or social anxiety. How then, do most student-athletes cope with psychological stress?

A study by Steiner showed that student-athletes use both problem-focused and emotion-focused coping skills by spending time with friends, taking breaks, exercising, and seeking social support from friends and family (198). They also rely on emotional release and religion to cope with stress (Giacobbi et al. 8), as well as time management and organizational mechanisms (Tracey and Corlett 81-102). A study by Crocker and Graham explored how high-caliber athletes deal with the stressors associated with competitive athletics. Results showed that athletes most often increase effort, plan ahead more extensively, use active coping, and cut back on competing activities (activities which take time away from a focus on athletics) (325-38).

Considering the unique stressors affecting collegiate athletes, it is unfortunate that they have been shown to underutilize mental health services in comparison to their non-athlete counterparts (Bergandi and Wittig 557-58). Instead, they tend to seek guidance from friends, family, and coaches (Steiner 198). Student-athletes may shy away from seeking help outside of the athletic department, potentially maintaining the perception that service providers will not understand their athlete-specific concerns (Greenspan and Anderson 177-91).

I can attest to having experienced the weight of each of these stressors, particularly as a first-year student-athlete. As the efficacies of my coping mechanisms were put to the test, they crumbled under pressure. Like most collegiate student-athletes, I was faced with the five dimensions of stress (i.e., training intensity, high performance expectations, interpersonal relationships, transition from home-life and academics), yet my efforts to subdue those sources of stress ultimately led to their augmentation. I relate strongly to the coping mechanisms that Crocker and Graham found to be commonly utilized by competitive athletes: increasing effort, planning ahead, active coping, and cutting back on any and all activities that deter focus from athletics (325-38). While I was well-intentioned, these means of coping constricted my life considerably. Increasing effort led to overtraining; planning ahead meant obsessing over the ancillary work and training runs that I'd do to perfect my fitness; active coping reminded me that I was responsible for my own destiny, setting the stage for merciless self-blame; and cutting back on competing activities led to a loss of balance in my life, as I constricted my focus down to athletics and academics.

Pre-College & College History of Stressors

An individual's "history of stressors" are considered major life events, chronic daily problems, and previous injuries (Anderson and Williams 294-306). As previously discussed, I didn't scratch the surface in any of these stress categories prior to my college years. I hadn't experienced a major life event that was significantly physically or emotionally debilitating. My days were busy, but for the most part, pleasant. I'd never experienced an injury that had sidelined me for a significant amount of time. Consequently, I never developed strong psychological intervention skills.

Onset of Injury

Jerry Lynch gets me. As a respected sport psychologist, he understands that competitive distance runners are likely to be drawn into the destructive, “more is better” trap that I, along with many collegiate student-athletes, have fallen victim to. It’s that “no pain, no gain” mentality that evolved from what was once a second century spiritual lesson from Pirkei Avot (5:21), yet over the centuries evolved into an all to glorified exercise motto; one that promises success from training harder, but not necessarily smarter. “On the brink of exhaustion, they (over-trained athletes) walk the fine line between not enough and disaster as they risk becoming imbalanced both psychologically and physiologically.” The onset of an overuse injury occurs when athletes cross that line, and typically first manifests itself as a musculoskeletal injury, like a stress fracture. Lynch describes the dangers of the mind convincing the body that it can handle more than it’s ready to take on, and effectively describes the onset of injury as a progressive process of depleting the body of its energy sources; or overtraining. “...Once you reach a certain amount of training, the gain that your body may experience from doing higher-volume or higher-intensity workouts are drastically offset by the accumulation of tightness, tension, stress, imbalance, and fatigue that wear your body down. By overtraining, you create a debt due to the constant withdrawals from your energy levels.” Lynch explains that if this debt is not repaid with recovery both physically and emotionally, injury is bound to ensue (130-31).

I didn’t repay my debt. My freshmen year at Oregon State University, I was diagnosed with the first of eight stress fractures. And no, the fracture didn’t “come out of nowhere,” despite my claims to the doctor that it had. It was the manifestation of depleted physical and emotional energy levels over the course of the year (Marinelli and Dell Orto 38-39).

Physiological & Psychological Phases of Stress Fracture Healing

The following sections describe the physical and psychological stages of recovery from a lower extremity stress fracture through the integration of the following three models: Weise-Bjornstal's Model of Psychological Response to Athletic Injury and Rehabilitation (17-28), Romani's Physiological Chronology of Stress Fracture Healing (310-13), and the Kübler-Ross Grief Cycle.

Weise-Bjornstal's Model of Psychological Response to Athletic Injury and Rehabilitation is used to demonstrate the psychological factors that continually influence both the onset and recovery from an NCAA Division I female distance runner's lower extremity stress fracture during each of the three phases of Romani's Physiological Chronology of Stress Fracture Healing. The cyclical stress-response process, with recovery at its core, is central to Weise-Bjornstal's model, demonstrating how continual interactions of cognitive, emotional, and behavioral responses impact the recovery process of an athlete's ever-changing external environment (see Fig. I). Moreover, the way in which the athlete's emotional responses during each of Romani's Physiological Phases of Stress Fracture Healing mirror those of the five stages of the Kübler-Ross Grief Cycle will be demonstrated.

Physiological Healing Phase I

According to Romani, the athlete's main focus during Phase I of stress fracture healing is to control inflammation, modify or remove abnormal stress to the injured area, and maintain cardiovascular fitness. During this time the athlete is advised to discontinue any activity that causes pain, as rest is necessary to allow for the development of the periosteum, repairing of damaged blood vessels, and maturing of osteocytes. This period of rest typically lasts one to three weeks, continuing until acute symptoms cease with normal activities. During Phase I, the

athlete's focus is on removing stress from the injured area, monitoring pain, and maintaining fitness levels. As such, the athlete is allowed to engage in pain-free activity, using pain as a guide for the acceptable intensity of training. Should pain occur during exercise, it is important that the athlete back off the intensity to avoid risking increased damage to the injured area (310).

If on crutches, the athlete gradually progresses to full weight-bearing, as tolerated without pain. Throughout Phase I, the athlete should partake in daily anti-inflammatory modalities that accompany bone remodeling. At this point, rehab for the injured extremity is light, consisting of exercises like towel toe curls, ankle isometrics, and sitting range of motion on a wobble board. The rehab exercises should be gradually progressed by adding weight (to the towel during toe curls, for instance) or by making range of motion exercises more difficult by using resistance tubing. For the strength and conditioning of the rest of the body, weight training three times per week is ideal, while overall fitness can progress using non-impact modalities such as the upper body ergometer, the stationary bike, swimming, or deep water running (310-11). The primary objectives of Phase I are described in the "REST" acronym below (see Figure II).

<p>R <u>R</u>emoval of the abnormal stress</p> <p>E <u>E</u>xercise to maintain cardiovascular fitness and prevent atrophy</p> <p>S <u>S</u>afe, pain-free return to previous level of activity</p> <p>T <u>T</u>ime for bone maturity to catch up with increased remodeling</p>
--

Figure II. R.E.S.T. acronym for the goals of stress fracture management.

In my experience, the “REST” acronym is frequently used by physicians during post-MRI appointments after the news of the discovered stress fracture has been revealed. As the physician spews instructions for the physical recovery of the injury and defines the meaning of the R; the E; the S; and the T, I stare at the floor, nod, and try not to cry. My mind wanders as he walks through the physiological rehabilitation protocol, emphasizing the “REST” component. Meanwhile, I’m defining the “REST” acronym quite differently; REST: Robbed; Empty; Stunned; Threatened. Or, REST: Ruthless; Endless; Scared; Tragic. For the injured NCAA Division I female distance runner, these are words that would resonate strongly with emotions and/or reactions experienced in response to a sidelining lower extremity stress fracture; particularly during the early stages of recovery, when a student-athlete’s world is flipped on its side.

Beyond balancing academics, a social life, and sleep, a student-athlete has significant training and competition demands. As such, achieving success on the track and in the classroom requires considerable short and long-term planning. We plan when and what we eat; when we sleep; how we prepare for a workout; how best to physically recover; how to fit in an assignment before an away competition; how to squeeze in that morning run and afternoon workout without compromising sleep. I’d be willing to bet that the typical student doesn’t think long and hard about the pros and cons of wearing high heels out on the town before getting dressed. Could these heels compromise my foot flexibility? Will I develop planter fasciitis? Will be calves be tight for tomorrow’s track workout?

Sure, the planning can be taxing at times. But as Coach always said, “It’s how you spend the twenty-two hours of the day that you’re *not* training that distinguishes the mediocre athlete from the great athlete.” Planning is key; and for the most part, we do it because we love it. If inspired by an intrinsic love of for the sport, it is an incredibly gratifying way to live. Creating and abiding to a daily routine that suits the needs and goals of a student-athlete builds confidence

and creates a sense of purpose. It ensures that necessary steps are being taken to work toward a goal; there is a sense of satisfaction and security in that.

However, that sense of purpose, confidence, satisfaction, and security can be severely compromised by unplanned for events, like a stress fracture. All of a sudden, the student-athlete's daily routine means nothing. She is injured, and all that she's worked towards now feels irrelevant. She has grown dependent upon a life-giving daily routine centered around training and competition. Without any kind of transition period, she is suddenly unable to train or compete as she once could. Now what? What is she left with? How does she fill her time? What are her goals? What is the function of an injured athlete?

The cognitive appraisal component of Wiese-Bjornstal's model refers to the how the athlete perceives the injury. The previously discussed moderators and mediators influence the athlete's thought process in response to injury, as do goal adjustment, rate of perceived recovery, self-efficacy, belief and attribution, and recognition of the injury (8-9). We will start by applying these factors to Phase I of physiological healing to determine how the athlete will most likely cognitively appraise the injury during the first one to three weeks. This cognitive appraisal will in turn influence the emotional response of the athlete, which will ultimately impact the behavioral response. We will see how the emotional response of the injured athlete reflects the stages of the Kübler-Ross Grief Cycle.

Psychological Healing Phase I

Cognitive Appraisal

The athlete's world changes drastically during this first phase of injury. Rather than interacting with the team at practice, the athlete now logs those hours doing daily treatments with the sports medicine staff. Her normal shoes have likely been replaced by crutches or a walking

boot. Her morning training runs and afternoon ancillary work are replaced by monotonous, non-impact cross training, such as deep water running or using the upper body ergometer (Romani 9) if she's lucky; complete time off of training if she's not. A study of athletes at a NCAA Division I university displayed athletes' dependency on the benefits of athletic training and competition. These benefits spanned from physiological benefits of exercise to the psychological benefits of receiving the daily social support of teammates. If this training and competition is taken away by injury, the secondary physiological and psychological benefits are lost along with them (Klenk 20). All of a sudden, the athlete's daily routine is changed; her primary sources of pleasure have been removed; team participation is put on hold for a month and a half at best.

At this point, the athlete's athletic goals are threatened; they must be downwardly adjusted now that health and training have been compromised. Considering that nearly half of the 250 NCAA Division I university athletes interviewed by Klerk stated that their biggest life goals were sports related (12), it is understandable just how devastating a sidelining injury like a stress fracture could be for a collegiate athlete in training. As such, the six to eight weeks off to allow for the stress fracture to heal is often perceived as an incredibly daunting amount of time for the NCAA Division I university athlete. When one's goals, daily routine, social support system, physical fitness, status on team, and personal identity (to name just a few) are all compromised by a sidelining injury, six to eight weeks can feel like a decade for the athlete.

I still recall a conversation that I had my freshmen year, just a few weeks after having been diagnosed with my first stress fracture. A friend back home asked how collegiate running was going. The empty look in my eyes must have clued her in on the fact that athletics wasn't going too well, so she promptly followed up with, "Well, aside from running, I bet the rest of your college experience is going great!" I wanted to scream; I wanted to tackle her to the ground and shake some sense into her. The "*rest*" of my college experience! There *is* no '*rest*' of my college experience! Don't you get it!? I just lost everything that means anything to me at Oregon State; my passion, my drive, my goals, my social life, my identity, my daily routine, my fitness,

my stress outlet. Throw in the guilt of being on a full-athletic scholarship, yet unable to contribute to the success of my university, and I feel as terrible as I've ever felt. Any other questions?

Well, okay...that was what I was screaming internally. Externally, I fell back on the typical, "Oh, it's fine, thanks." Anyone who has experienced a place of depression can likely relate to this copout. You simply reach a certain point where attempting to describe how you're truly feeling simply doesn't seem worthwhile. The smile and nod takes less energy; energy that many athletes use to convince themselves and others that they can and will "defeat" their injury both physically and emotionally.

The self-efficacy of an athlete relates to the belief in her ability to confront the challenges of the injury. This is an interesting component for the competitive athlete. Due to the nature of "No pain, no gain" attitude in regards to athletics in the United States, Dr. Fagan notes in her article on the Psychology of Sports Injuries that athletes do not want to accept missing a significant amount of time from their sport. "They try to convince their coaches and trainers that they are not really hurt and can continue competing. To admit to an injury is the equivalent of admitting to defeat and defeat is not a word that an athlete likes to be associated with" (Haluska, Abreu, and Fagan 2). So, unfortunately, it seems that whether the athlete truly believes that they can confront the challenge of injury isn't really the issue; they must live up to the invincibility expectation and at least fake a strong self-efficacy regardless of how they truly feel. During this first phase of injury, the "belief and attribution" and "recognition of injury" factors do not yet play a large role in the cognitive appraisal. According to Gould, the injured athlete will likely initially experience a brief period of shock. If the athlete is still in shock and disbelief that they could possibly have been vulnerable enough to fall victim to an injury in the first place, the recognition of injury and subsequent degree to which she feels in control of her rehabilitation does not yet factor into the equation (3).

Emotional Response

How the athlete perceives (cognitive appraisal) the onset of injury during Phase I subsequently influences how the athlete will feel about the situation. This early in the injury process, the student-athlete will likely experience feelings that reflect the first two of the five stages of the Kübler-Ross Grief Cycle: denial and anger.

Considering the devastating repercussions of a stress fracture for the student-athlete, it is not surprising that a period of denial is a common emotional reaction during Phase I of the injury. After all, what competitive athlete will easily accept the fact that they just lost 6-8 weeks of training and/or competition due to a stress fracture? Even by my eighth stress fracture of college I went through a phase of denial. My self-identity felt threatened, as is a common phenomenon for injured collegiate athletes (Klenk 20). I came to Oregon State University first and foremost to compete, second to study. Now I was simply a student; stripped of my title as an athlete. The passion and focal point of each day had been taken away. A life that had once revolved around athletics now revolved around an obsessive focus on its absence. If I wasn't an athlete, then who was I, really?

Denial, as described by the Kübler-Ross Grief Cycle, is the natural defense mechanism of refusing to accept the reality of a situation in an attempt to ignore and/or evade traumatic change (10). In the book titled, Applying Educational Psychology in Coaching Athletes, denial is referred to as "unacknowledged distress," creating tension in the athlete that he or she either unconsciously does not recognize or consciously refuses to acknowledge (Huber 318). "This first stage of grieving helps us to survive the loss. In this stage, the world becomes meaningless and overwhelming. Life makes no sense. We are in a state of shock and denial. We go numb. We wonder how we can go on, if we can go on, why we should go on. We try to find a way to simply get through each day. Denial and shock help us to cope and make survival possible. Denial helps

us to pace our feelings of grief. There is a grace in denial. It is nature's way of letting in only as much as we can handle" (Kübler-Ross 10).

This phase of denial resonates well with me. As I reflect back on each of my stress fractures, I always experienced a period of denial. I would hear the "Six to Eight Weeks Speech" by our team physician and feel devastated, yet the news wouldn't sink in enough to have it change my frame of thought about the season quite yet. It was enough to hear that I was injured; accepting the repercussions of that injury was too much to take in that early on in the injury process. I held onto my goals; held onto the idea that I'd be at practice with my teammates like usual the next day; held onto the idea that my hard work hadn't gone to waste; that I'd be lining up at the PAC-12 Conference Championship and kill it. You know, business as usual. Denial at its finest.

While denial can be a useful coping mechanism initially, as it was for me, it must come to an end; the runner must face the painful ramifications of a lower extremity stress fracture. As the athlete transitions out of a world of denial and into one of reality, she gains strength and begins the healing process. However, the transition is a painful one. It means that she must now deal with the emotions which had previously been overshadowed by denial. This typically results in a period of anger; anger at what could be a number of things; coaches, teammates, oneself, the medical staff, a training program, the universe etc; anyone or anything that may have been involved in the injury (Kübler-Ross 11). This correlates with findings from Tracey, who found that anger is among a list of common responses that collegiate athletes initially have in reaction to the onset of injury. This is in addition to depression, fear, worry, confusion, frustration, and lowered self-esteem, all of which have been found to be common responses to injury (279).

Kübler-Ross describes the emotion well when she says, "Anger is just another indication of the intensity of your love" (16). It's like Coach used to say to me when I would apologize for having a meltdown in his office after having been diagnosed with another stress fracture. He'd insist that I not apologize for my distressed emotions. Rather, he assured me that the real concern

would be if I *didn't* show any of those devastated emotions. For him, my distress and anger was proof of my level of investment in running and in his program; it was proof that my whole heart was in it. According to Kübler-Ross, anger is a necessary and natural step towards healing. It serves as an anchor for the athlete in the sense that it provides “temporary structure to the nothingness of loss...the strength of anger feels better than nothing” (15). This early in the injury recovery process, the diagnosis of the sport-halting lower extremity stress fracture is still a fresh wound; the “six to eight weeks” notion is still setting in. As such, the athlete truly does need an anchor, even if that anchor is anger for the time being.

Behavioral Response

Avoidance coping involves cognitive and behavioral efforts oriented toward denying, minimizing, or otherwise avoiding dealing directly with stressful demands and is closely linked to distress and depression (Cronkite and Moos 569-587).

Denial is an emotion that leads to behaviors of avoidance and minimizing (Huber 318). Avoidance coping is a means to evade a stressor by avoiding related thoughts, engaging in wishful thinking and emotional detachment, and making a behavioral effort to avoid the problem (Holahan et al. 658-66). Overall, it's a way of minimizing emotional pain. As Wiese-Bjornstal explains it in the Runner's World article, “Runners in denial know they're injured but won't admit it.” A classic example: “Oh, I'm doing just fine! I should be back to competition in no time,” in response to the “How are you doing?” question. I couldn't begin to count the number of times I did this during my collegiate running career. For those first few weeks post-injury, the fake smile and enthusiastic “fine, thanks” response became so natural that even I started to believe that I was doing well... According to DeFoore, author of Anger: Deal with It, Heal with

It, Stop it from Killing You, we are trained from a young age that this is the socially acceptable way to respond to the question. Unfortunately, buried emotions don't stay down for long (24).

DeFoore emphasizes to the reader that "Anger is just an emotion. Emotions are part of who we are, like our heads, hearts, and hands. All emotions are okay. The dictionary definition of anger that I like best is, 'A feeling one has toward something that offends, opposes, or annoys.' There's nothing malicious or mean in the basic feeling of anger" (5). Like Kübler-Ross, DeFoore describes anger as a healthy part of the grieving process, allowing for necessary healing and growth. However, issues arise when one gets "stuck" in the grief process by burying the anger and pushing through (119); an easy rut for the perfectionist, injured, collegiate distance runner to fall into.

Dysfunctional behaviors that can arise from an attempt to bury anger are compulsive and addictive "self-medicating" actions that actually affect body and brain chemistry. These compulsive behaviors, such as obsessive worrying, codependency, anorexia and/or bulimia, and workaholism (DeFoore 26) can become destructive to the athlete over time.

Throughout my experience with the stress fracture healing process, I let compulsive behaviors like these get the best of me; somehow it felt like a 'therapeutic' way for me to channel my anger. While I knew on a certain level that these behaviors were destructive, they gave me a feeling of control back; the sense of control that had been abruptly stripped from me upon injury. However, those behaviors ultimately led to physical and emotional breakdown. To obsessively worry about my stress fracture, overwork myself on the bike, and deprive myself of a sufficient caloric intake as a way of regaining a sense of personal control, there was little time or energy left to acknowledge my anger. It was a way to cope. However, DeFoore advises against this route: "Face your pain, and you are free to do something about it. Deny your pain, and you are powerless to stop the hurting, in the present and in the future" (14). He was right. While compulsive behaviors are distracting, ultimately the anger must be dealt with, or the grieving process can never be completed.

Physiological Healing Phase II

By Phase II, the athlete is ready to increase strengthening and conditioning rehab of the injured area, granted that activities of daily living and exercise conducted during Phase I can be performed pain-free. The chief goals of this phase are to transition to functional rehabilitation and continue gains in cardiovascular fitness. The transition to functional rehabilitation consists primarily of increasing the weight used in rehab exercises and incorporating more single leg balance exercises. Cardiovascular fitness training progresses from deep water running to running in chest-deep water. If at any point during this process there is pain that pops up during activities of daily living, the athlete needs to revert back to Phase I. The goal for the athlete during Phase II is to reach the point where she can walk pain-free for thirty consecutive minutes, three times a week. Pain may indicate potentially harmful stress to the injured area, and thus needs to be monitored closely during all exercise, rehab, and activities of daily living. As such, anti-inflammatory treatments should be used post-exercise to be sure that any pain during exercise is not masked (Romani 311).

As was the case during Phase I of the healing process, the athlete will yet again walk through Wiese-Bjornstal's cycle of cognitive appraisal, emotional response, and a behavioral response to Phase II of the physiological stress fracture healing process. The athlete's cognitive appraisal will be impacted by the same previously discussed moderators and mediators, as well as goal adjustment, rate of perceived recovery, self-efficacy, belief and attribution, and recognition of the injury. We will now apply these same factors to Phase II of physiological healing to determine how the athlete will most likely cognitively appraise the injury during weeks three, four, and five, therefore dictating subsequent emotional and behavioral responses during this phase of recovery.

Psychological Healing Phase II

Cognitive Appraisal

At this point in the recovery process, the athlete has been sidelined for one to three weeks; limited, if anything, to non-impact exercise (Romani 310). She has walked through the first two stages of the grief cycle, and now, as a result of Phase II's cognitive appraisal of the physiological recovery process; she enters an emotional response that reflects the third and fourth stages of the Kübler-Ross Grief Cycle: bargaining and depression.

The hope is that by this point, the emotional response of anger during Phase I is beginning to fade, along with its associated avoidance coping and internalization behavioral responses. After having gotten past the stages of denial and anger, the injured athlete is able to consider the idea of making adjustments to her season goals, set prior to the onset of injury. This is an extremely difficult concept to come to terms with. As the realization that goals set prior to the injury are now threatened, the athlete is forced to focus on short term goals. This is a crucial part of any injury rehabilitation program (Hamson-Utley 37), and can be very gratifying. Believe it or not, the first time you're able to take off that boot and go on a ten minute walk; or transition to single leg squats; try out deep water running; it feels like you've won the PAC-12 Conference Championship—as long as you are able to maintain focus on little victories, that is. However, it is worth reiterating at this point the perfectionist nature of most elite female distance runners, who had already set high goals for their seasons, prior to becoming injured. Sure, I could find joy in achieving short-term rehabilitation goals, but it is not in the nature of the maladaptive perfectionist to downwardly adjust a goal once it's been set; regardless of limitations. "Perfectionism reflects a commitment to exceedingly high standards combined with a tendency to critically appraise performance accomplishments...it is characterized by a rigid adherence to unrealistic performance goals that are the basis for self-worth." (Appleton and Andrew 130).

Thus, a difficult component of this phase of recovery is the magnification of the tension between the athletes' short-term rehabilitation goals and her long-term performance goals, which are not in sync. For instance, a study of 249 injured NCAA Division I student-athletes found that the sports goals of the injured athletes changed very little, if at all, after becoming injured (Klenk 14). This, as it was for me, is a bittersweet reality. Sweet in the sense that the athlete is still driven towards her dreams, yet bitter in the sense that her rigid goals may no longer be in sync with the reality of the situation. In my mind, I was still going to get top three at the PAC-12 Conference Championship. In reality, I was in a walking boot and strapped to an aqua jogging belt. As the Dixon Recreational Center employee put it one morning as I checked out my towel "I was stubborn as Hell."

At this point in the recovery process, the athlete's perception is less clouded by denial and anger, and the rate of perceived recovery can begin to be evaluated. This is largely dependent upon the athletic trainer, who is typically in charge of the injury rehabilitation and eventually giving the athlete the green light to return to competition. There remains a tension between understanding the fact that it will likely be at least a month of rehabilitation until they can fully return to training; yet the hell-bent preoccupation of somehow speeding up this recovery process in order to meet rigid performance goals. Unfortunately, in Rehabilitation Techniques for Sports Medicine, William Prentice notes that "Little can be done to speed the healing process physiologically, but many things can be done to impede healing" (4). This is why it is so crucial for the athlete support staff to keep the athlete focused on short-term goals and rehabilitation progression and monitor psychological wellbeing. Self-efficacy decreases significantly post-injury, as measured by Connelly in a study on injured athletes. Now that denial has faded and the incongruent nature of the athlete's physical state and season goals is being realized, it is not surprising that self-efficacy would begin to be compromised.

After having experienced time away from the team for a few weeks by this point, it'd be hard for the athlete not to believe that they're injured. If time on the bench hasn't done it, then

hobbling home from a few “sneak” runs will confirm it; not to mention the MRI and X-ray results. By Phase II, the issue is less about whether the athlete believes that the injury exists, but more about whether their beliefs about their injury are congruent with those of the medical staff and diagnosis itself. When each step elicits a surge of pain, the injury diagnosis is hard to negotiate. Yet for me, I still found myself negotiating with the Gods for a healing miracle. I’d wake up in the morning with a bit of hope that when I stepped out of bed and bore weight on the injured extremity, I’d be magically pain-free. So yes, I understood that I was injured, but I still had trouble fully accepting it; hence my turn towards the supernatural healing. I needed to feel like at least someone or something had some control over my well-being. I’m not alone in this— In a study on 87 depressed medical patients, intrinsic religiosity, defined for the purposes of this study as a strong importance of religion in a person’s life, was associated with a 70% increase in speed of depression remission (qtd. in Koenig, McCollough, and Larson 128).

The attribution component relates to whether or not the athlete feels like they have control over their situation. As discussed in previous sections and supported by Burns, an emotionally traumatic event like an injury can make the athlete feel as though they’ve lost control of their situation, and athletes, perfectionist athletes in particular, need to feel in control. Feeling victim of both a slow rehabilitation timeline and a rigid, unforgiving timeline of NCAA Division I athletic competition is torture. The track season doesn’t wait for the athlete to be ready to compete; this creates quite the internal tension.

Accurate realization of the nature and severity of an injury is not easy, even during Phase II of recovery. Even if the athlete understands the nature and timeline of a stress fracture by this point, she is bound to weigh the pros and cons of pushing through the pain for the sake of salvaging a season. While this is considered to be risky short-term gratification, it’s a choice that I know I was willing to make. I repeatedly over-trained on the bike and pool in order to have successful track and cross country seasons. Yet, in focusing on short-term gratification, I sacrificed my long-term health and burned myself out emotionally. In Running Within, Jerry

Lynch notes that “To be impatient is to create stress that directly inhibits the natural fluidity of your muscles, thus preventing you from performing optimally” (10-11).

Emotional Response

The injured athlete’s emotional response during Phase II of the physiological recovery process reflects the third and fourth stages of the Kübler-Ross Grief Cycle: bargaining and depression.

At this point, reality begins to sink in as denial and anger begin to fade away. The athlete gains a better and more realistic understanding of the recovery timeline that she faces, yet struggles to accept its repercussions (Dadkhah 37). As previously mentioned, the slow recovery process is not in sync with her current, or rapidly approaching competitive season. For this reason, I would argue that the bargaining phase involves the largest amount of desperation. Prior to this phase, the reality of the injury is masked by denial, followed by a clouded distraction of anger. Now that reality is setting in, the emotional response becomes one of desperate bargaining, rather than one of acceptance. “Following anger, the injured athlete might try bargaining/rationalizing to avoid the reality of the situation. A runner may promise herself to train extra hard or to be especially pleasant to others around her if she can recover quickly” (33). At this point, the athlete would benefit from the reminder that “little can be done to speed the healing process physiologically, but many things can be done to impede healing” (Prentice 3).

Unfortunately, the athlete’s emotional response following bargaining is a period of depression. “...By confronting reality, and cognitively realizing the consequences of the injury, an athlete can become depressed at the uncertainty of the future” (Dadkhuh 37). Depression has been found to be one of the most common emotional reactions to injury (Appaneal et al. 60-1) and the depressive symptoms have been found to be more severe for women than for men, regardless of the injury (70-1). It is also arguably the most difficult phase of the recovery process;

by Phase II, the athlete has already been sidelined for about a month, and likely has another month, minimum, to wait until they can fully return to their sport. Even then, the athlete begins to realize that their fitness and subsequent season goals will likely be compromised. As described by the Mayo Clinic, depression is characterized by the following symptoms, all of which I experienced during my injury-induced periods of depression:

Feelings of sadness or unhappiness; irritability or frustration, even over small matters; loss of interest or pleasure in normal activities; insomnia or excessive sleeping; changes in appetite; restlessness and irritability; slowed thinking, speaking or body movements; distractibility; fatigue—even small tasks may seem to require a lot of effort; feelings of worthlessness or guilt; fixation on past failures or blaming yourself when things aren't going right; trouble thinking or concentrating. (“Mayo Clinic Health Information”)

Behavioral Response

As noted in Physical Therapies in Sports and Exercise, the bargaining phase primarily manifests itself in the relationship between the recovering athlete and the athletic trainer. In their state of desperation, the athlete hopes to speed up both the rehabilitation and return to running agendas through desperate attempts of negotiation (Kolt and Snyder-Mackler 175). In Foundations of Sport and Exercise Psychology, Weinberg and Gould identify several maladaptive characteristics of athletes struggling to adapt to injury. Among these characteristics is an athlete's “obsession with the question of when one can return to sport” (454), which perpetuates the bargaining for an illogically rapid recovery.

Looking back on it with a clear mind and fresh perspective, I owe my athletic trainer for her incredible patience. By Phase II of the stress fracture recovery process, I bargained hard with her daily during my treatment and rehab sessions. I wanted her to magically make my broken bones heal faster. Was that really so much to ask? Or if not that, at least let me return to running sooner than initially proposed. What if I did twice as many rehab exercises? What if I iced six

times a day instead of just three? “What if” was the theme of Phase II. However, it didn’t take too long to realize that my “what ifs” weren’t being fulfilled by my athletic trainer; they weren’t being fulfilled by anyone; not even myself. I felt as though I’d lost control of my own wellbeing, which initiated the transition away from bargaining and into depression. I felt helpless; worthless; unexcitable. None of my typical passions excited me; I was completely fixated on how to get healthy and fit more quickly so that I could prove to myself, to my coaches, to my teammates, and to the PAC-12 Conference that I was worth something. And now that I realized my athletic trainer and coaches wouldn’t yield to my illogical requests, I allowed my depressed emotions to fuel unhealthy behaviors.

It’s not that I didn’t realize on some level that my thoughts and actions were illogical; but so was my physical state; so were my season dreams. I felt desperate; physically and emotionally exhausted. I came up with an illogical solution to what I viewed as an illogical situation. If nobody was going to grant me health, I’d at least work as hard as I could to be the fittest injured individual in the conference. That way, when I received the green light to compete, I’d be as ready as I could be. There’d be no question of whether I worked hard enough; no question of how badly I wanted it. However, I worked myself into the ground on the bike, in the pool, on the elliptical, and in the weight room. I did all of my coaches’ workouts at too high of an intensity. If anything, I should have dialed down the intensity, considering the significant emotional fatigue that I was experiencing. But let’s be realistic; a type A perfectionist at the end of her rope? Logic is no longer in the cards. In their study on depression and chronic fatigue in athletes, Puffer and Shane do a fine job describing the experience of the injured athlete during Phase II of recovery:

For the most part, the competitive athlete is a well-adjusted individual who demonstrates considerable vigor and well-being, as well as less depression, anxiety, and fatigue than nonathletic counterparts. The well-trained athlete, however, may also have a personality that is somewhat rigid, strongly goal oriented, and perfectionist. It is not unrealistic to expect that when confronted with diminished performance or success, such an athlete may be compelled to drive himself or herself harder to succeed. Such behavior typically

leads to the phenomenon of overtraining, which can express itself in the form of chronic fatigue and depression. (327)

Physiological Healing Phase III

If the athlete completes both Phase I and Phase II pain-free and has been cleared by a physician, she should be ready to further increase activity level during Phase III. The focus continues to be on bone healing and remodeling, as well as the gradual progression of the athlete's activity. This activity increase should be kept at fifteen to twenty percent per week, using pain as a guideline (Romani 311).

Zelko and DePalma developed a cyclical style return-to-running program that compliments the cyclical nature of bone growth. The cycle consists of a "functional phase," consisting of two weeks of activity while trabecular channels of the bone are forming, followed by a "rest phase" of one week of decreased activity, allowing for newly formed osteocytes and periosteum to mature. This three-week cycle continues for three to six weeks, with the intensity of both the functional and rest phases gradually increasing with each successive cycle. If pain is experienced during the functional cycle, it is recommended that the athlete return to the level of activity that was last carried out without pain and restart at that cycle. If pain persists, the athlete should reduce activity to the levels of previous functional cycles. If pain continues, a return to the treatments carried out during Phase I or Phase II may be necessary. The goal is for the athlete to transition from walk-jogging during the functional phases to sprinting and sport-specific activities, indicating readiness to return to competition (Romani 311-12).

Psychological Healing Phase III

Cognitive Appraisal

The primary goals for the athlete during Phase III shift away from a focus on gains in functional rehabilitation and cardiovascular fitness, transitioning more towards land running goals. The continuation of rehabilitation exercises and cardiovascular fitness throughout Phase III are of course important, yet the latest focus shifts towards the ever awaited return to running program (Romani 311-12). This is an interesting component of Phase III, because after having taken a minimum of one to two months off of running, the athlete gets their first taste of the sport again. However, it can feel like a tease; the previously crushed pre-injury training and competition goals feel once again within reach, yet there is still a fairly large hoop to jump through prior to their attainment.

The way in which the athlete cognitively perceives the severity of their injury and recovery during Phase III is difficult to predict, as it typically ping pongs between two extremes. Because the athlete is now beginning the return to running progression, the athlete may either feel A) very discouraged by her level of fitness and/or coordination during running, or B) feel encouraged by starting the running program and get carried away, deciding that its initiation must mean that she is completely healthy and ready to run full speed. As was the case during Phase II, there remains that tension between cognitively understanding the slow progression of the return-to-running program, while still feeling an antsy desire to speed things up and reach previously set season goals. Monitoring of the athlete's rehabilitation and training during this phase of recovery is as important as ever, whether it's encouragement for the discouraged athlete, or reigning in of the athlete who is jumping the gun on the progression. More likely than not, the athlete will need help protecting themselves from their own worst enemy: themselves. "...It has been recognized

that physical and psychological readiness to return to sport after injury are not necessarily synonymous” (Podlog and Eklund 44).

During Phase III, the self-efficacy of most recovering athletes is still shaky. Although the period of depression is hopefully beginning to fade, the athlete continues to feel the psychological effects of the injury. Their personal judgment of their ability to attain success and reach their goals is wavering for most athletes at this point. “Athletes returning from a serious injury may commonly experience concerns related to competence, autonomy and relatedness. Fears and concerns about how one’s body will withstand the demands of sport indicate that matters of physical competency are significant...Elite competitors also have concerns about how they will perform once they return to competition” (Podlog and Eklund 45).

After months of being discouraged to run by the medical support staff, the athlete has now been given the green light to begin her return-to-running program; she begins to see the light at the end of the tunnel. While this is an exciting time, it can also be a dangerous one; it’s easy to get carried away by the idea that, because the athlete’s likely been working on cardiovascular fitness in the pool or on the bike, they’re now prepared for full-fledged land running and can skip steps of the progression. “Running the prescribed every-other-day versus every day? What’s the big deal? It doesn’t feel hard...” However, as is emphasized by the Brigham and Women’s Hospital Department of Rehabilitation Services, the cardiovascular system adjusts much more quickly to stress than the joints. Thus, while the athlete’s cardiovascular system may be prepared to endure the stress of intense running, their joints have not yet been allowed proper preparation (through a gradual increase of stress to the joints, through the prescribed return-to-running program).

The attribution component relates to whether or not the athlete feels like they have control over their situation. While the athlete does regain a sense of previously lost athletic identity as he or she nears full return to sport (Podlog and Eklund 54), the athlete continues to be at the mercy of a rigid running progression program. In this situation, it is difficult to feel a sense

of personal control. However, the further along the athlete gets in the physical and emotional healing process, the more that the lost sense of control and identity will resurface. Unfortunately, it is not something that can be rushed.

It is often difficult for an athlete to accurately appraise the severity of their injury (Wiese-Bjornstal 24). Moreover, regardless of the accuracy of said appraisal, there is the issue of whether it is worth skipping steps of the progression in order return fully to training and competition more quickly than medically advised (24). Podlog notes that the factors influencing both the recognition of injury and speed of the return to sport are more ambiguous for chronic injuries than for acute injuries, and that athletes may thus receive more pressure to return quickly to competition. "...the decision-making process in returning acute versus chronically injured athletes is different. For those who were chronically injured, decisions to return may have been ambiguous given the uncertain nature of their injury. This uncertainty may also have been part of the reason why chronically injured athletes felt they were receiving pressure to return from coaches. From the coaches' perspective it may have been unclear whether athletes were legitimately hurt or whether other issues were preventing them from returning" (Podlog and Eklund 65).

Emotional Response

The athlete's cognitive appraisal during Phase III of recovery leads to an emotional response that reflects the fifth and final stage of the Kübler-Ross Grief Cycle: acceptance. According to Kübler-Ross, the final stage of acceptance, as it relates to the loss of a loved one, is centered on the individual accepting the reality of his or her loss and realizing that the new reality is a permanent one. She emphasizes that acceptance does not necessarily mean that one will ever be "okay" with the loss, but that one will eventually learn to accept it (24). For the recovering athlete, said "loss" refers to the losses associated with their stress fracture, whether that be

playing time, the attainment of a particular goal, status on team; a competitive season of eligibility; the social support of the team; a scholarship; etc. Acceptance for the athlete is coming to terms with where they stand both physically and psychologically. As is noted by Kübler-Ross, “Finding acceptance may be just having more good days than bad” (28). This describes my experience well. There was never a time during my stress fracture recovery that I felt “okay” about my physical and emotional situation, but I at least got more used to the situation.

Behavioral Response

The behavioral response during Phase III, the athlete’s final stretch towards full recovery, is contingent upon the “path of acceptance” chosen during the previous emotional response. The majority of athletes will have either accepted the route of compliance with the medical staff’s return-to-running program, or will have accepted the risks of speeding up the return to running progression in order to sooner return to full training and competition. As previously discussed, we are dealing with driven, competitive, perfectionist Division I female distance runners. As such, it is unlikely that the chosen path of acceptance will be one of slacking off on the running progression; if anything, it will likely be rigid compliance with the running program, or overtraining out of the fear of having an unsuccessful season. “High goal orientation and more successful athletic performance have been linked to perfectionism. A perfectionist trait is positive in the sense that it pushes the individual to achieve higher levels of achievement. However, the same trait can become extremely destructive once the individual feels that he or she must do anything to avoid failure” (Stirling and Kerr 15). The concern during Phase III of recovery is focused on the behavioral response of overtraining and subsequent burnout with these high-achieving, perfectionist athletes, regardless of the chosen path of acceptance. Gretchen Reynolds’ New York Times article, appropriately titled “Crash and Burnout,” describes the phenomenon of overtraining and burnout in driven NCAA Division I athletes:

To understand the toll that overtraining can take on an athlete's life, consider the competitive arc of Whitney Myers, a fifth-year senior and a world-class swimmer at the University of Arizona. In 2006, Myers won the women's NCAA title in the 200- and 400-yard individual medleys and, to the surprise of almost everyone, won gold in the 200-meter individual medley at the Pan Pacific Championships. The accolades kept coming: Myers was named an all-American in several events and an NCAA Breakout Performer of the Year and swam for the United States national team. But barely a year later, she floundered badly at the 2007 long-course championships, making the finals in only one event. For weeks before that, her performance in practices had been miserable: slow times, inert form. "I remember standing behind the starting blocks at the pool and thinking, 'I don't want to be here,'" she says. "I felt terrible, mentally and physically." While trying to build on her breakthrough season, she had pushed too hard. She had overtrained. She was, for a while at least, finished as a swimmer.

The recovering athlete is at a similar risk for overtraining, particularly during Phase III of recovery, as she tends to overreach in a need to capture that "breakthrough season." The issue for injured athletes, as is supported by Van Allen, is that they often maintain a notion of needing to 'make up' for lost time. Unfortunately, training doesn't work that way; running thirty-five miles in a single day to "make up" for having had to take the past week off of running is not the same as running a reasonable five miles per day. And while that seems like common sense, I can attest to the fact that common sense frequently goes out the window for the overachieving collegiate athlete desperate for breakthrough; particularly one who's been cooped up for the past few months, and has recently been given the green light to begin running. In a desire to capture that breakthrough season, it is difficult to reel in the compulsion to train at a high intensity and instead comply with a slow, gradual running progression. Overtraining doesn't necessarily have to mean sneaking in extra miles running; it can mean hammering on the bike several times per day; it can even be "technically" complying with Coach's prescribed training program, but doing it on minimal sleep. This in and of itself, will eventually lead to overtraining. A coach is banking on his or her athlete resting in order to allow for recovery from the stress of training; for an imbalance between training and adequate rest will ultimately lead to overtraining and performance decline.

In Lemyre's article on motivation, overtraining, and burnout, overtraining is defined as "a non-deliberate long-term decrement in performance capacity resulting from a failure to recover adequately from an accumulation of training and non-training stress" (Lemyre, Roberts, and Stray-Gunderson 116). For the recovering student-athlete walking through the grief cycle, it is difficult not to fall victim to overtraining in some capacity as they push for success. According to the New York Times article on athlete burnout, overtraining is typical of "the most hardworking and tenacious," which describes the NCAA Division I female collegiate athlete quite well.

"It is common for elite athletes, especially young and idealistic competitors, to push themselves too far, overreach, and experience extreme tiredness on a regular basis and never realize their full potential or achievement capability because of excessive training and insufficient recovery" (Lemyre, Roberts, and Stray-Gunderson 115). Unfortunately, injured, NCAA Division I female distance runners are not exempt from this.

I'll admit it. In my most desperate of times chasing that "breakthrough season," this was me. I went to ridiculous lengths to avoid failure. I was beyond physically and emotionally exhausted; I was feeling the effects of depression; anxiety wasn't allowing me to sleep during the night, yet I was too stubborn and hard on myself to rest. I was burning the candle at both ends to capture that breakthrough season dream that I wasn't even sure was my own anymore. I was known to use a few deceiving tactics to enhance the likelihood that Coach would have minimal concerns over my well-being, and therefore prescribe to me the maximal amount of training. So, what would I do to ensure that Coach would continue giving my training plan? Cover-up. I learned that if I showed up to get my training plan from coach with bags under my eyes, I'd be sent home to "rest." So, I covered my bags with makeup, stepped up my peppiness, walked into the office with a fake smile, got the desired training plan, and pushed on. It's a shame when the whole "joke's on you" ploy backfires... Thank you, Maybelline. Thank you for assisting me in my own demise.

It was as if each time I got injured, a whole new personality would take over and instigate a need to “push”. The thoughts are intrusive to the point where it’s as if you’ve become possessed. I’d been taken over by the fear of failure. I knew on a certain level that what I was doing training-wise was excessive, but I felt that I’d lost control over a much of my life. I’d lost my health; my happiness; my support group; my ability to rest; and the one thing that I felt could never be taken away from me was my ability to work hard; nobody could take away my grit. I knew I had become a slave to my own will to push; but at least it gave me a sense of control back.

Implications

As stated in the introduction, the hope is that this thesis, with the incorporation of the narration of my own collegiate athlete injury experience, can provide a deeper understanding of the injury experience of NCAA Division I female distance runners. The physical and emotional wellbeing of the student-athlete has implications that reach far beyond the confines of the team—it impacts the athletic department and the university as a whole.

Implications for the Athletic Department and University

As previously emphasized, the psychological stress of injury can affect all areas of the athlete's life, including performance in the classroom. Myles Brand, former president of the NCAA, spoke to the importance of the student-athlete's educational experience: “Since the participants in college sports are students—individuals whose first business is acquiring an education—their academic success is of central importance” (Brand, 2006). If this is the case, then it seems imperative that the athletic department and university invest into both the physical and emotional wellbeing of their student-athletes. There is little doubt that NCAA Division I Universities invest into athletic performance-related services, but are they investing equally into mental health-related services? If academic success is truly of central importance to the NCAA, then adequate mental health services, such as access to a sports psychologist, should be in place for their student-athletes.

Implications for the Coach

For the coach, it is critical to gain an awareness of the emotional toll that injury takes on the student-athlete. Only through this awareness can the necessary steps be taken to minimize the physical and emotional pain experienced throughout the rehabilitation process.

There are five strategies that I would encourage coaches to foster throughout an athlete's rehabilitation from injury: communication, empathy, sound social support, role on team, and cultivation of the athlete as a whole-person.

Communication is a fundamental component of the coach-athlete relationship; one that should increase during times of injury. Unfortunately, it tends to actually decrease when an athlete becomes injured, as he or she becomes less involved with team training and competition. It is important for the coach to focus on frequent communication with the athlete to show that he or she is still invested in the athlete's wellbeing, and to monitor how the athlete is doing physically and emotionally.

Empathizing with the injured student-athlete is key. I would argue that this is the most important component of communication. Injury can leave the student-athlete feeling emotionally confused and defeated. A coach who shows that he or she cares enough to make the effort to understand how an athlete is feeling goes a long way.

Providing sound social support for the student-athlete helps to ensure that he or she does not struggle alone. A good way to go about this is to take a team approach to rehabilitation, designating specific roles for various parties involved in the student-athlete's life. For instance, a few teammates could be there to join the student-athlete during cross-training workouts; the academic advisor could periodically check in on the athlete to monitor progress in the classroom; ideally, a sports psychologist would be made available to aid with the emotional stress of injury. The athlete would also benefit from the development of a support group composed of teammates who have also struggled with and overcome injury (Klenk 25).

An effective way to aid the athlete in maintaining self-esteem and identity is to make sure they are given a role on the team, whether that be as an assistant coach figure or a team manager; the goal is to allow them to maintain a presence at practice and keep them as involved as possible in their normal daily routine.

The cultivation of the athlete as a whole person, not simply as an athlete, is huge throughout the rehabilitation process; a time when the student-athlete's sense of identity and daily athletic routines are compromised. Taking interest in the athlete's life outside of running can help to remind the athlete of their multi-dimensionality; that athletics is just one aspect of who they are. A coach's investment in the athlete's life outside of athletics assures the athlete that he or she is valued as a person, not simply for athletic prowess alone. It can provide the nudge necessary to encourage the athlete to pursue interests outside of the realm of athletics during recovery from injury.

Implications for the Healthcare Provider

Beyond the physical rehabilitation of the athlete, the healthcare provider would benefit from a focus on the emotional rehabilitation of the athlete. Inform the athlete that emotional stress is a normal part of injury and encourage them to seek support, particularly if emotions begin to interfere with day-to-day functioning (Klenk 25). Throughout the rehabilitation process, finding ways to make the athlete feel as though he or she has some control over her situation would be advantageous; this could mean allowing the athlete to have a say in the development of the rehabilitation program, within reason. Furthermore, point out the non-athletic strengths of the athlete as a reminder of their multidimensionality and encourage them to foster those strengths throughout the recovery from injury. It should be noted that if a healthcare provider feels unable to adequately fulfill an athlete's needs, referral to another professional, such as a dietitian or sports psychologist, should be utilized.

Laura Harris, author of the Journal of Athletic Training's article, "Integrating and Analyzing Psychosocial and Stage Theories to Challenge the Development of the Injured Collegiate Athlete," describes the integral role that the athletic trainer can play in the positive progression of the injured collegiate athlete, if provided the appropriate information and training.

Ideally, the ATC (Certified Athletic Trainer) is in a position to listen actively and gauge the level of development of collegiate student-athletes. Knowing before injury what the current level of development is provides the ATC with a plan of action or at least an idea of what type of cognitive, emotional, or behavioral responses an athlete may exhibit based on his or her level of maturity. This knowledge places the ATC in the position of being able to use rehabilitation and the interaction between ATC and athlete as a positive experience. (81-2)

Conclusion

Throughout an injury-ridden collegiate career, Coach maintained faith in my ability. He was convinced that talent never goes away. That everything happens for a reason. That there'd come a day when I'd toe the line with a rested body, a peaceful mind, and an invigorated spirit. He'd smile visualizing it; certain that *when*, not *if*, it happened, that I'd turn heads. It always amazed me—his unwavering faith. He was so confident that I'd run free again. And deep down, so was I. I knew that I would rediscover that simplistic, childlike approach to the sport; and I can proudly say that I'm on my way.

I guess I'm a slow learner; I needed to mess up several times to learn that I needed to seriously reevaluate how I deal with the stressors in my life; that training hard and training smart are not one and the same; that stress must be faced head on, not buried, or detrimental physical and psychological ramifications await.

I still have the binder that Coach gave each of us at *the* meeting. Written across the front is Coach's trademark saying, "Keep Dreaming." Below, are the goals I'd hoped to achieve during my time as a collegiate athlete. Run 4:16 for the 1500m; Rock the 3000m steeplechase; Qualify for Nationals; Place top 3 in a PAC-10 final; Qualify for the 2012 Olympics Games. I can't say that any of my goals materialized. However, I can say that, upon reflection of how far I've come emotionally, I'm okay with it. In my naivety, I used to think that the declaration of being "at peace" with a failure was just something losers would claim to make themselves feel better about their shortcomings. Yet, "failure" is what has allowed for my physical and emotional growth as an athlete. As it turns out, "failure" wasn't my inability to qualify for nationals, or to run 4:16 in the 1500m. Failure was surrendering my life to external circumstances; failure was intertwining athletic prowess and self-worth. I allowed myself to lose sight of why I ever started to run in the first place. So yet again, I begin my comeback. But this time, I come back to love as intrinsic inspiration for my running. Game on.

BIBLIOGRAPHY

- Anderson MB, and JM Williams. "A model of stress and athletic injury: Prediction and prevention." *Journal of Sports Exercise Psychology*. 10. (1988): 294-306. Web. 9 May. 2013.
- Anderson, MB, and JM Williams. *A model of Stress and Athletic Injury*. 1988. Infographic. Journal of Sports Exercise Psychology Web. 18 May 2013.
- Appaneal, Renee, Beverly Levine, Frank Perna, and Joni Roh. "Measuring Postinjury Depression Among Male and Female Competitive Athletes." *Journal of Sport & Exercise Psychology*. 31. (2009): 60-76. Web. 16 May. 2013.
- Appleton, Paul, and Hill Andrew. "Perfectionism and Athlete Burnout in Junior Elite Athletes: The Mediating Role of Motivation Regulations." *Journal of Clinical Sport Psychology*. 6. (2012): 129-45. Web. 16 May. 2013.
- Bales, Amanda. "Stress Fractures in Female Runners." *University of Missouri-Columbia*. Virtual Health Care Team, 29 Nov 2012. Web. 21 Apr 2013.
- Bergandi, T., and A. Wittig. "Availability of and attitudes toward counseling services for the collegiate athlete." *Journal of College Students Personnel*. 25. (1984): 557-8. Web. 16 May. 2013.
- Burns, David. "The Perfectionist's Script for Self-Defeat." *Psychology Today*. Nov 1980: 34-52. Web. 16 May. 2013.
- Crocker, P, and T. Graham. "Coping by competitive athletes with performance stress: gender differences and relationships with affect." *Sport Psychologist*. 9.3 (1995): 325-38. Web. 16 May. 2013.
- Cronkite , Ruth, and Rudolf Moos. *Life Context, Coping Processes, and Depression*. 2nd ed. New York: Guilford Press, 1995. 569-587. eBook.
- Csikszentmihalyi, Mihaly. *Flow: The Psychology of Optimal Experience*. New York: Harper Perennial, 2008. Print.
- Dadkhah, Asghar. "Psychological Rehabilitation Techniques and Sports Injury Returning to Normal Daily Function." *Iranian Rehabilitation Journal*. 3.3 29-35. Web. 16 May. 2013.
- DeFoore, Bill. *Anger: deal with it, heal with it, stop it from killing you*. Deerfield Beach: Health

- Communications, 1991. 1-173. eBook.
- Dunn, John, and Janice C Dunn. "Relationships Among the Sport Competition Anxiety Test, the Sport Anxiety Scale, and the Collegiate Hockey Worry Scale." *Journal of Applied Sport Psychology*. 13. (2001): 411-29. Web. 14 May. 2013.
- Enns, MW, BJ Cox, J Sareen, and P Freeman. "Adaptive and maladaptive perfectionism in medical students: a longitudinal investigation." *National Center for Biotechnology Information*. 35.11 (2001): 1034-42. Web. 13 May. 2013.
- Farley, Megan. "Making a Comeback: Collegiate Athletes and the Emotional Response to Athletic Injury." Diss. St. Mary's College of Maryland, 2007. Web. 5 May 2013.
- Fletcher, Teresa, James M Benshoff, and Melanie J Richburg. "A Systems Approach to Understanding and Counseling College Student-Athletes." *Journal of College Counseling*. 6.1 (2003): 35-45. Web. 14 May. 2013.
- Giacobbi, P.R., T.K. Lynn, J.M. Wetherington, J. Jenkins, M. Bodendorf, and B. Langley. "Stress and coping during the transition to university for first-year female athletes." *Sport Psychologist*. 18. (2004): 1-20. Web. 14 May. 2013.
- Goodger, K, T Gorely, C Harwood, and D Lavallee. "Burnout in sport: A systematic review." *Sport Psychologist*. 21. (2007): 121-51. Web. 14 May. 2013.
- Gould, Daniel, Linda Petlichkoff, Bill Prentice, and Fred Tedeschi. "Psychology of Sports Injuries." *Sports Science Exchange Roundtable*. 11.2 (2000): 1-6. Web. 16 May. 2013.
- Greenspan, M, and M.B. Anderson. *Providing psychological services to student athletes: A developmental psychology model*. In S.M. Murphy (Ed.), *Sport psychology interventions*. Champaign: Human Kinetics, 1995. 177-91. Print.
- Gutting, Gary. "The Myth of the 'Student-Athlete'." *The Opinion Pages*. The New York Times, 15 Mar 2012. Web. 13 Feb. 2013.
- Haluska, C, M. Abreu, J.M. Fagan. "Athlete Injury Denial: The Psychology of Sports Injuries." Diss. Rutgers U, 2011. Web. 6 May 2013.

- Hamachek, Don E. "Psychodynamics of normal and neurotic perfectionism." *Psychology: A Journal of Human Behavior*. 15.1 (1978): 27-33. Web. 9 May. 2013.
- Hamson-Utley, Jordan. "The Comeback: Rehabilitating the Psychological Injury." *Sport Psychology and Counseling*. 13.5 (2008): 35-8. Web. 16 May. 2013.
- Harris, Laura. "Integrating and Analyzing Psychosocial and Stage Theories to Challenge the Development of the Injured Collegiate Athlete." *Journal of Athletic Training*. 38.1 (2003): 75-82. Web. 17 May. 2013.
- Holahan, Charles, Rudolf Moos, Carole Holahan, Penny Brennan, and Kathleen Schutte. "Stress Generation, Avoidance Coping, and Depressive Symptoms: A 10-Year Model." *Journal of Consulting and Clinical Psychology*. 73.4 (2005): 658-66. Web. 16 May. 2013.
- Huber, Jeffrey. *Applying Educational Psychology in Coaching Athletes*. Champaign: Human Kinetics, 1953. 1-342. eBook.
- Klenk, Courtney A. "Psychological Response to Injury, Recovery, and Social Support: A Survey of Athletes at an NCAA Division I University." Diss. U of Rhode Island, 2006. Web. 8 May 2013.
- Koenig, Harold, Michael McCollough, and David Larson. *Handbook of Religion and Health*. New York: Oxford University Press, 2001. eBook.
- Kolt, Gregory, and Lynn Snyder-Mackler. *Physical Therapies in Sport and Exercise*. 1st ed. Philadelphia: Elsevier Health Sciences, 2007. 1-622. eBook.
- Kubler-Ross, Elisabeth. *On Grief and Grieving: Finding the Meaning of Grief Through the Five Stages of Loss*. New York: Scribner, 2005. eBook.
- Lancaster, Ken. "The Stress of College Athletes vs. Other Students." *College Sports Scholarships*. Visually Inc, 21 Dec 2011. Web. 21 Apr 2013.
- Lemyre, Pierre-Nicolas, Glyn Roberts, and Jim Stray-Gundersen. "Motivation, Overtraining, and Burnout: Can Self-determined Motivation Predict Overtraining and Burnout in Elite Athletes?." *European Journal of Sport Science*. 7.2 (2007): 115-26. Web. 17 May. 2013.
- Lobby, Mackenzie. "Good Grief." *Runner's World*. 05 Aug 2010: n. page. Web. 16 May. 2013.

- Lynch, Jerry, and Warren Scott. *Running Within*. Champaign: Human Kinetics, 1999. Print.
- Marinelli, Robert, and Arthur Dell Orto. *The Psychological & Social Impact of Disability*. 4th ed. New York: Springer Publishing Company, 1999. eBook.
- Mayo Clinic Staff. "Health Information." *Diseases and Conditions: Depression*. 2012.
<<http://www.mayoclinic.com/health/depression/DS00175/DSECTION=symptoms>>.
- "Personality." *Merriam-Webster's New Collegiate Dictionary*. Springfield: 1973.
- Podlog, Leslie, and Robert Eklund. "A Longitudinal Investigation of Competitive Athletes' Return to Sport Following Serious Injury." *Journal of Applied Sport Psychology*. 18.1 (2006): 44-68. Web. 17 May. 2013.
- Prentice, William. *Rehabilitation Techniques for Sports Medicine*. 5th ed. McGraw-Hill College, 2010. 1-720. eBook.
- Puffer, JC, and JM McShane. "Depression and Chronic Fatigue in Athletes." *National Center for Biotechnology Information*. 2. (1992): 327-38. Web. 17 May. 2013.
- Reynolds, Gretchen. "Crash and Burnout." *New York Times*. 02 Mar 2008: n. page. Web. 17 May. 2013.
- Richards, S, and E Aries. "The division III student-athlete: Academic performance, campus involvement, and growth." *Journal of College Student Development*. 40. (1999): 211-18. Web. 14 May. 2013.
- Romani, William A., Joe H. Gieck, David H. Perrin, Ethan N. Saliba, and David M. Kahler. "Mechanisms and Management of Stress Fractures in Physically Active Persons." *Journal of Athletic Training*. 37.3 (2002): 306-14. Web. 6 May. 2013.
<<http://www.ncbi.nlm.nih.gov/pmc/articles/PMC164361/>>.
- Romani, William A., Joe H. Gieck, David H. Perrin, Ethan N. Saliba, and David M. Kahler. *R.E.S.T. acronym for the goals of stress fracture management*. 2002. Infographic. Mechanisms and Management of Stress Fractures in Physically Active Persons Web. 20 May 2013.
- Skinner, Ned. *A Case Study of Freshmen Swimmers' College Transition Experiences*. Diss. Graduate Faculty of the Virginia Polytechnic Institute and State University, 2004. privately published, 2004. Web. <<http://scholar.lib.vt.edu/theses/available/etd-04202004->

163316/unrestricted/Disseration.pdf>.

- Steiner, Denise D. "Coping with the Demands of Being a Collegiate Student-Athlete: An Exploratory Investigation Coupled with a Set of Procedural Guidelines for Athletic Department Personnel and Related Providers." Diss. Rutgers State U of New Jersey, 2010. Web. 9 May. 2013.
- Stirling, Ashley, and Gretchen Kerr. "Perfectionism and Mood States Among Recreational and Elite Athletes." *Online Journal of Sport Psychology*. 8.4 (2006): 13-27. Web. 17 May. 2013.
- Tracey, Jill. "The Emotional Response to the Injury and Rehabilitation Process." *Journal of Applied Sport Psychology*. 15.4 (2010): 279-93. Web. 20 May. 2013.
- Tracey, J, and J. Corlett. "The Transition Experience of First-Year University Track and Field Student Athletes." *Journal of the Freshman Year Experience*. 7. (1995): 81-102. Web. 16 May. 2013.
- Van Allen, Jennifer. "The Starting Line: How to Run Faster." *Runner's World* . 2013: n. page. Web. 17 May. 2013.
- Visek, Amanda, and Jack Watson. "Applied Research Ice Hockey Players' Legitimacy of Aggression and Professionalization of Attitudes." *Sport Psychologist*. 19.2 (2005): 178-192. Web. 14 May. 2013.
- Weinberg, Robert, and Daniel Gould. *Foundations of Sport and Exercise Psychology*. 5th ed. Champaign: Human Kinetics, 2010. 1-625. eBook.
- Wiese-Bjornstal, Diane M. "A model of psychologic response to athletic injury and rehabilitation." *Athletic Training: Sports Health Care Perspectives*. 1.1 (1995): 16-30. Web. 6 May. 2013. <<https://docs.google.com/file/d/0B0nZJ230gMuganBmaGkxaVBMbW8/edit>>.
- Wilcox, Reg. "Lower Extremity Functional Progression Following Stress Injury Protocol." *Brigham and Women's Hospital: Department of Rehabilitation Services* (2007): n.pag. *Running Injury Prevention Tips & Return to Running Program*. Web. 17 May 2013.
<<http://citationmachine.net/index2.php?reqstyleid=1&mode=form&reqsrcid=MLASubscripService&srcCode=17&more=yes&nameCnt=1>>.
- Wilson, Gregory. "Comparing Sources of Stress in College Student Athletes and Non-Athletes." *Online Insight: The Online Journal of Sport Psychology*. 7.1 (2005): 1-8. Web. 22 Apr. 2013.

<<http://www.athleticinsight.com/Vol7Iss1/StressPDF.pdf>>.

Wilson , Gregory, and Mary Pritchard. "Comparing Sources of Stress in College Student Athletes and Non-Athletes." *Athletic Insight: The Online Journal of Sport Psychology*. 7.1 (2005): 1-8. Web. 14 May. 2013.