

AN EVALUATION OF A PHYSICAL ACTIVITY-BASED RESIDENTIAL  
TREATMENT PROGRAM

by

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## ABSTRACT

An Evaluation of a Physical Activity-based Residential Treatment Program

by

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This study evaluated a physical activity-based residential treatment program. It explored the current literature on adolescent treatment implementing physical exercise with parental participation, specifically at residential treatment centers. While the current literature strongly supports physical exercise and family involvement in adolescent treatment, research on combining physical exercise with family involvement is insufficient at best.

The data were obtained from Telos Residential Treatment Center, an all-boys treatment program that incorporates a triathlon into their treatment curriculum and keeps pre- and posttest scores of the Youth Outcome Questionnaire for their students as well as completed questionnaires from students' parents. Research questions addressed whether or not the pre- and posttest scores support Telos' treatment program in terms of standardized test scores as well as possible differences in outcomes based on parent participation in the triathlon.

Missing data and data corruption were major flaws in the study, significantly limiting the sample size. Consequently, the research questions could not be tested appropriately; however, there were statistically significant relationships ( $p < .05$ ) between pre and post scores of intrapersonal distress as well as scores from the Global Assessment of Functioning, with both scores indicating change in a positive direction. Cohen's  $d$  also showed change in the desired direction in regards to interpersonal relationships and somatic symptoms. Students of parents who did not participate in a triathlon showed more improvement in interpersonal relationships as well as in intrapersonal distress and somatic symptoms. Parents who trained and physically participated in at least a portion of the triathlon with their son attributed their sons' treatment gains to the emotional intensity of the triathlon more than nonparticipating parents. Contrary to expectation, however, they did not weigh their own participation in the triathlon as heavily as nonparticipating parents in explaining treatment gains, specifically in improvements in how they and their son perceive and experience each other.

(70 pages)

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## CHAPTER I

### INTRODUCTION

Strong, positive parent-adolescent relationships are associated with greater adolescent optimism and ability to build healthy identities, feelings of competence and psychological well-being, lower levels of depression and aggression, and less involvement in risk-taking behavior (Corsano, Majorano, & Champretavy, 2006; Dmitrieva, Chen, Greenberger, & Gil-Rivas, 2004; Liddle, Rowe, & Dakof, 1998; Sim, 2000; Ungar, 2004). In addition, positive parental involvement is significantly related to low levels of drinking, illicit drug use, deviance, and school misconduct (Adams et al., 1990; Barnes & Farrell, 1992; Sartor & Youniss, 2002).

There are a variety of treatment modalities to help adolescents who are involved in risky behaviors or who have legal issues requiring therapeutic treatment. K. Henley of Woodbury Reports (personal communication, November 12, 2007) reports that at more severe levels, generally determined by the court, some adolescents are mandated to an inpatient program. She stated that in rarer cases, parents initiated this treatment on their own. While these residential treatment centers (RTCs) are widely used for a variety of problems, many RTCs focus specifically on adolescent problems using a number of treatment modalities (K. Henley, personal communication, November 12, 2007). There are large bodies of general treatment and related literature that seem relevant to adolescents at RTCs.

For adolescents in RTC programs, parent-therapist collaboration is currently acknowledged as a fundamental part of effective child treatment; the importance of the



parent cannot be denied or ignored (Lakin, Brambila, & Sigda, 2004; Nevas & Farber, 2001). Involving parents in adolescent residential treatment promotes successful discharge and post-discharge adaptation. Unfortunately parental/family involvement in physical treatment interventions, (which for the purpose of this study and literature review was defined as physical activity intended as a treatment modality) as part of adolescent therapy is extremely limited and unstudied even though positive outcomes of adolescent physical treatment interventions are well documented and understood. Parental involvement in any sort of physical treatment intervention implemented at a residential treatment center has not been researched to date.

In addition to parental involvement, another content area that has relevance to adolescent RTCs is physical activity. Physical activity detoxifies stress-related compounds, acts as an outlet for anger and hostility, enhances feelings of self-esteem and self-efficacy, provides periodic solitude and introspection/meditation, provides opportunities for social support and the power of human touch, reduces muscular tension, increases endorphin levels and somatic awareness, improves sleep and rest, and enhances our ability to fight stress and disease (Edwards, 2006; Mascher, 2002; Nelson & Gordon-Larsen, 2006). Athletic participation additionally enhances social relationships, builds motivation and self-regulation skills, develops character, and decreases aggression and anti-social behaviors (Reeve & Weiss, 2006).

A review of the literature on family involvement in RTCs showed that most often families work towards common goals only cognitively and emotionally, and that very few RTCs invite families to physically train and participate in a common physical goal (Bandoroff & Scherer, 1994). No research has been done comparing treatment outcomes

between one group whose family involvement has been limited to working together mentally and emotionally towards a common goal and purpose, and another group whose treatment extends to include physical work towards a common goal and purpose.

Telos is an RTC for boys that has both a strong family component as well as a strong physical exercise program. Apart from weekly family therapy and “family days” which occur several times a year, Telos invites families to directly participate with their son in a triathlon. The students train 2 hours a day, 6 days a week. Although Telos’ treatment focus on having boys train for a triathlon aims to break down the boys’ preconceptions of what is possible and not possible for them, the researched literature suggests that there may be further therapeutic benefits for those families whose parents choose to train and participate.

#### Theoretical Link

Therapeutic treatment based on a family systems perspective addresses the full network of family relationships and interactions in developing communication and promoting adaptive family functioning (Henricson, Coleman, & Roker, 2000). Therapists involved in adolescent treatment currently recognize that adolescents are best understood in context of their families (Cafferty & Leichtman, 1999). To expedite successful adolescent treatment and transition from treatment facilities to homes and communities, family situations must be addressed and parents accepted as partners in treatment (Cafferty & Leichtman). Family involvement helps change old family patterns of interaction and perceptions. These patterns become part of the family dynamic and are often hard to change. This inability or resistance to change is called “homeostasis” and

can be described as a tendency to return to previous behavioral patterns (Becvar & Becvar, 1999). Parental involvement in adolescent treatment helps reduce the power of homeostasis by re-writing how they experience each other (Becvar & Becvar).

Specifically, parental participation in physical activities with their teens has powerful potential in sparking new family insights and breaking down destructive family myths and communication barriers (Minuchin, 1974). According to systems theory, the content of a conversation is probably not where the problem lies (Minuchin). Families often believe that if issues are talked about and resolved, the problems will disappear; but from the systems perspective, the problem lies in the how family members actually interact with each other (Becvar & Becvar, 1999). Until family members experience each other differently, the power of homeostasis will pull those members back into their same problem roles that were already “talked about” and “resolved” (Minuchin). The physical intervention re-writes how family members experience each other by changing the structure and context of how they experience each other, which according to systems theory is necessary for change in the family (Becvar & Becvar). The family begins to see and experience each other more systemically. The student is no longer alone at an RTC trying to be “fixed” by a therapist because he is bad or broken, but is actively participating with his parents at a very real and core level. Together the parent and child accept physical pain and suffering, supporting and encouraging each other. There is no blaming, dysfunctional family rules, or myths. Together they experience the emotional and mental challenges and successes. New family stories are created which guide their lives and future interactions (White & Epston, 1990). The physical and emotional stress of intense and/or lengthy family physical activity heightens therapeutic intensity and

eliminates distractions that interfere with family awareness and relationships (Bandoroff & Scherer, 1994). This increase in family awareness helps members understand how they participate in the creation and maintenance of their relationships, an understanding that is essential in marriage and family therapy and is known in systems theory as “recursion” (Becvar & Becvar).

### Purpose of Study

While there is strong empirical validation for both family involvement and physical activity in adolescent treatment, there is insufficient research on physical family interventions in general and none whatsoever in relation to RTCs. Unfortunately, parental/family involvement in physical treatment interventions as part of adolescent therapy is extremely limited and unstudied, even though positive outcomes for adolescent physical treatment interventions are well documented and understood. Parental involvement in any sort of physical treatment intervention implemented at a residential treatment center has never been researched to date. The purpose of this study is to examine treatment outcome differences of adolescent boys in an RTC setting, by comparing one group whose parents trained and participated with them in a triathlon (the variable), with another group whose parents did not (comparison group).

## CHAPTER II

### LITERATURE REVIEW

The purpose of this chapter is to review current literature on parent-adolescent relationships and parental involvement in adolescent treatment at residential treatment centers (RTCs) and in adolescent physical treatment interventions. In addition, information on a specific RTC, Telos, will be provided and the review will conclude with the research questions.

#### Parent-Adolescent Relationships

As Maccoby (1992) predicted, the field of adolescent development today strongly favors the view that parental influence draws mainly on the nature of the relationship that parents and their teens have built and are constantly rebuilding (Barber, Bolitho, & Bertrand, 2001; Meschke, Bartholomae, & Zentall, 2000; Michael & Ben-Zur, 2007; Sim, 2000; Ungar, 2004). Liddle and colleagues (1998) cited multiple studies in their research review on the role of parenting in adolescent psychosocial development and indicated that disconnection between parents and teens was linked with adolescent externalizing problems. They suggested one of the primary goals of family-based interventions with problem adolescents was rebuilding parent-adolescent closeness.

Strong positive parent-adolescent relationships are associated with greater adolescent optimism, feelings of competence and psychological well-being, lower levels of depression and aggression, and less involvement in risk-taking behavior (Cattellino & Bonino, 1999; Corsano et al., 2006; Dmitrieva et al., 2004; Farrell & White, 1998; Liddle

et al., 1998; Meschke et al., 2000; Michael & Ben-Zur, 2007; Sim, 2000; Ungar, 2004).

Adolescents reported in Ungar's study that relationships with their parents were central to their endeavors to build healthy identities and protect themselves from risk. In contrast, stronger relationships between adolescents and their peers in comparison to the relationship with their parents related to increased involvement in a variety of at-risk behaviors (e.g., smoking, drugs, and sex risks (Flannery, Huff, & Manos, 1998; Glendinning & Inglis, 1999; Paetsch & Bertrand, 1997; Romer, Black, Ricardo, & Feigelman, 1994; Santor, Messervey, & Kusumakar, 2000)). Some researchers have shown that the majority of adolescents greatly value relationships with parents and other family members throughout the entire period of adolescence, many ranking family member relationships above peer relationships in importance (Noller, 1994). Adolescents tend to rely more on their peers for support and to engage in more problem behaviors when they do not perceive support and closeness in their family relationships (Noller).

Positive parent-adolescent relationships have also been associated with adolescent emotional stability, moderating both externalizing behavior, such as alcohol/drug use and criminal behavior, and internalizing problem behavior, such as depression and self-harm (Manders, Scholte, Janssens, & De Bruyn, 2006; Smetana, Crean, & Daddis, 2002). Current research continues to corroborate past research findings in that positive, lasting relationships between parents and adolescents decrease externalizing problem behavior, while fostering positive perceptions of self which effectively decrease internalizing behaviors (Dekovic & Meeus, 1997; Gove & Crutchfield, 1982; Kandel & Andrews, 1987; Meeus, Branje, & Overbeek, 2004; Parker & Benson, 2004).

Based on self-reports of 984 high school juniors and seniors and their parents, Barber et al. (2001) discovered that, contrary to their expectations, family harmony and “synchrony” (reciprocation or ‘give-and take’ behavior between two parties) in parent-child relationships predicted adolescent adjustment and conduct disorder, but not parenting practices. In this study synchrony was measured by the degree of concord between parents and teens in their appraisals of family environment and the teen’s level of adjustment and adjustment scores derived from a composite of scores from the hyperactivity, emotionality, and somatization subscales of the Child Behavior Checklist (CBC). They suggested that clinical work with adolescents and their parents concentrate on adolescent and parental empathy since ultimately it was this relationship synchrony that dictated adolescent developmental outcomes. Synchrony or reciprocation in parent-adolescent relationships was paramount to proper socialization of adolescents (Collins & Repinski, 1994). Maccoby (1992) further stated that noncoercive joint activity between parents and teens, in which both are acting freely but together, developed relationship synchrony such that the behavior of one shapes the behavior of the other.

Children who enjoy a close relationship with their parents may be more willing to disclose to them what is going on in their lives (Crouter, Bumpus, Davis, & McHale, 2005). Parental knowledge of teens’ day-to-day experiences or “parental monitoring,” therefore, depends on trusting parent-adolescent relationships. Effective parental monitoring is associated with lower levels of adolescent delinquency (Crouter, Helms-Erikson, Updegraff, & McHale, 1999; Kerr & Stattin, 2003; Laird, Pettit, Bates, & Dodge, 2003).

## Positive Parental Involvement

Evidence indicated that parental involvement was a significant influence on adolescent well-being (Wenk, Hardesty, Morgan, & Blair, 1999). As most therapists in residential treatment centers currently assume, children are only understood completely in context of their families and communities (Cafferty & Leichtman, 2001). Increasing positive interactions between the adolescents and their parents helps develop communication and promotes adaptive family functioning (Henricson et al., 2000).

Johnson, O'Malley, and Bachman (2001) found that concern about parent disapproval of alcohol and drug use was the number one reason why youth choose not to use. To the extent that parental involvement is supportive and noncoercive, parent-adolescent relationships are strengthened, and delinquent behavior minimized. Barnes and Farrell's (1992) study of 699 adolescents and their families indicated that high levels of both mother and father support are related to low levels of regular drinking, illicit drug use, deviance, and school misconduct in adolescents. Barnes and Farrell additionally reported that higher measures of parental coercive control predicted higher measures of adolescent deviance and school misconduct; however it is important to note that this may not be cause and effect as Barnes and Ferrell implied, though we can still note the correlation. Marta (1997) confirmed these findings specifically regarding the importance of parental support and communication in adolescent adjustment. Adolescent self-reported perceptions of support and openness in communication were correlated with lowered psychosocial risk as measured in terms of self-esteem, socialization, and educational success.



Sartor and Youniss (2002) found a statistically significant, positive linear relationship between positive parental involvement (i.e., high levels of support and monitoring) and adolescent identity achievement. In positive parent-adolescent relationships, parents provide structure such that adolescents feel at liberty to engage in identity exploration and reciprocate by valuing and seeking to maintain the relationship (Allen, Hauser, Bell, & O'Connor, 1994). Parental encouragement and support are imperative during this individuation process (Sartor & Youniss).

### Residential Treatment Centers (RTCs)

Residential treatment centers (RTCs) are “out-of-home 24 hour facilities that offer mental health treatment using multi-disciplinary teams that often make therapeutic use of the daily living milieu, but are less restrictive than inpatient psychiatric units” (Hair, 2005). K. Henley of Woodbury Reports (personal communication, November 12, 2007) describes common problems that are addressed in these programs: anxiety, addiction, identity problems, attention-deficits, learning differences, teen impulsivity, attachment problems, hyperactivity, oppositional behavior, adoption issues, teen depression, and substance abuse. She states that while the programs may treat similar issues, modes of treatment vary. Some focus on overt behaviors, others on the decisionmaking process that drives behaviors, while many have a relationship focus. Lengths of stay may be as short as 6 months or as long as 18 months. Similarly, the numbers of students in these programs vary, ranging from 12-180 students (K. Henley, personal communication, November 12, 2007).

The system of mental health care developed by Stroul and Friedman in 1996 that guides U.S. and Canadian services emphasizes using the least restrictive treatment center possible (Hussey & Guo, 2002). Hussey and Guo suggest that shorter, repeatable periods of residential treatment offer stability not achieved by a “once and for all cure.” Moreover, shorter treatments narrow therapeutic focus to the most salient problems and intensify work on these problems at an accelerated pace. Lyons, Martinovich, Peterson, and Bouska (2001) recommend three key reasons why greater understanding of RTC outcomes is needed: (1) Residential treatment is the most expensive of all child/adolescent services; (2) Substantial variation in cost exists across facilities; and (3) There is controversy concerning the merits of traditional residential treatment relative to community-based or other alternatives.

Shorter lengths of stay at RTCs are associated with reductions in cost and adolescent behavioral misconduct as established by a number of researchers (Hoagwood & Cunningham, 1992; Hussey & Guo, 2002; Shapiro, Welker, & Pierce, 1999). For example, Shapiro et al. found that the clients they studied achieved almost all of their improvement during their first 3 months of treatment; however, additional progress was made up to 6 months. Beyond 6 months no evidence of further improvement was detected. Under a significant time constraint, treatment will necessarily be oriented towards preparing adolescents and their families to manage their problems at the rapidly approaching time of discharge (Leichtman & Leichtman, 1999).

Hair (2005) reviewed 18 RTC outcome studies published between 1993 and 2003 and found that maintaining treatment gains post-discharge, a serious challenge for RTCs, correlates with three primary factors: (1) extent that the resident’s family is involved in

the treatment process before discharge; (2) stability of the place where the child or adolescent goes to live after discharge; and (3) availability of aftercare support for the child or youth and their families.

The available evidence indicates that RTC's are generally more effective with a relatively short treatment. This progress is accentuated with focused treatments, family involvement, and some type of after care.

### Family-Focused RTCs

To increase the likelihood of successful transition from RTCs to homes and communities, Cafferty and Leichtman (1999) strongly advocated a family systems perspective, a view of parents as partners rather than adversaries, involvement of families in residential treatment, and a focus on building individual and family strengths. Although they used no research to support their family systems perspective, they based their argument on theory, interpretation of literature, and personal experiences.

Prior to the last two decades, families were largely excluded from active participation in RTCs, reflecting the prevailing "family etiology hypothesis" or "blame and shame theory," (i.e., parents directly cause the developmental outcomes of their children; hence, successful youth rehabilitation requires removal from parents' polluting influence; DeSalvatore & Rosenman, 1986; Vander Ven, 1991; Whittaker, 1979). Views of family therapy have continued to evolve and current literature on prevention and intervention endorses family engagement in RTCs as a central goal (Cafferty & Leichtman, 1999; Henggeler, 2001; Kumpfer & Alvarado, 2003; Nickerson, Salamone, Brooks, & Colby, 2004). Family support and involvement, ranging from participation in

family therapy to letters and phone calls, significantly affected children and adolescents' successful discharge and reintegration into the community (Erker, Searight, Amanat, & White, 1993; Hair, 2005; Landsman, Groza, Tyler, & Malone, 2001; Stage, 1999; Sunseri, 2001; Wilmshurst, 2002). Stage found that of 130 former RTC residents, family participation in treatment (family therapy) was the only significant predictor of successful discharge (discharge to a less restrictive setting), better predicting successful discharge by almost eight fold, than other predictors including: a history of anti-social behaviors, victimization, and family dysfunction. Sunseri likewise highlighted the importance of family involvement in residential treatment. Children aged 9 to 17 who received frequent family visits during treatment were 5.7 times more likely to achieve treatment goals and graduate than children who received no visits. A comparison of 38 adolescents randomly assigned to an intensively family-focused treatment program and 27 adolescents randomly assigned to a standard residential program showed that residents of the family-focused program demonstrated a long-term reduction in symptoms of ADHD, anxiety, and depression while residents of the standard program demonstrated a slight increase in the same symptoms (Wilmshurst). Adolescents at the family-focused program were provided almost twice the family contact time as the standard program.

Many parents genuinely want to participate in their adolescent's treatment (Miskimins, 1990). Nickerson and colleagues (2004) recommended an open door policy for parents and other significant persons in resident youths' lives. Staff at the Southern Oregon Adolescent Treatment Center (SOATC) go beyond an open door policy, actively pursuing an alliance with parents on behalf of their child, and rarely fail to gain support (Miskimins). Future adaptation for adolescents leaving RTCs relies in great part on

family-supported treatment. Adjustment within a program does not predict post-treatment adjustment so much as degree of support and continuity in significant relationships (Curry, 1991).

Landsman et al. (2001) investigated the use of families as partners in residential treatment and aftercare in a project called REPARE: Reasonable Efforts to Permanency through Adoption and Reunification Endeavors. REPARE was designed to maximize family participation and decision-making throughout the residential treatment experience. They observed that while family involvement in RTCs was widely recommended for successful treatment, involvement continued to be inconsistent and sporadic, although they cited no specific evidence for this. Knecht and Hargrave (2002) echoed this observation, as obvious as family involvement and community support were to maintaining treatment gains, many RTCs did not actively involve family or community.

Oftentimes program staff are heavily identified with residents and try to protect them from parents, even so far as discouraging family contact; however, when a residential team's relationship with parents is adversarial, progress in treatment is delayed if not impossible (Cafferty & Leichtman, 1999). Integrating parents in REPARE called for a redefinition of the generally ambiguous parental role that emerges during residential treatment as staff members "replace" parents as caregivers, teachers, disciplinarians, and so forth (Landsman et al., 2001). REPARE achieved stable family placement outcomes for adolescents above and beyond their own standard residential treatment program, the most striking success measured by percent of participants residing at home twelve months after discharge: 50% of REPARE youths were home as compared to 8% of youths who graduated from the standard program (Landsman et al.).

Martone, Kemp, and Pearson (1989) implemented a parent support intervention at an RTC housing up to 30 adolescents in Chicago reflecting their belief that success in therapy relies on a working relationship with parents. They involved parents in a four-part system of *engagement, participation, empowerment, and discharge*. Staff engaged parents on the day of admission in making simple decisions regarding their child's individual care and in family and personal history sharing. Gathering information on family history and family interactions prior to treatment is a valuable prerequisite to structuring individualized treatment plans (Jenson & Whittaker, 1987). Parents were invited to participate in games, sports activities, and holiday festivities designed to build awareness of relationship strengths and deficiencies. During these activities staff modeled needed parental skills in disciplining, nurturing, consistency, and activity planning. The third stage of involvement, empowerment, put parents back in charge of everyday care-taking responsibilities, while minimizing power and control struggles between parents and staff. From a multi-systemic view, an adolescents' caregiver is the key to favorable long-term outcomes, even if that caregiver presents serious clinical challenges; hence, empowering caregivers to define treatment resident and after-care goals is crucial (Henggeler, 2001). Finally, at time of discharge staff provided extra support and encouragement to parents experiencing natural feelings of loss, fear, anxiety, and inadequacy. Full involvement of parents through application of this program helped staff address issues quickly and meet treatment goals, reducing treatment length from 65.5 months (in 1983) to 23.6 months (in 1987). No follow-up studies have been published on how these results have held up.

Knecht and Hargrave (2002) implemented Familyworks, a family program at the River Oaks RTC in Sacramento, CA, that succeeded measurably in positively impacting youth and parents by meeting treatment goals while decreasing the average residence term from 14 to 9 months. Familyworks added to the existing treatment program a 6-week orientation for the family, parent participation in the education and after-school programs, intensive family therapy continuing through aftercare, family advocacy supports, and the ability to support the family in its natural environment. Underscoring these changes, Knecht and Hargrave (2002) maneuvered a paradigm shift toward caregiver-friendly service, involving caregivers as valuable assets in treatment. They expressed confidence that more active utilization of family in residential treatment could create a new generation of residential treatment programs that better prepare teens for transition to life outside the institution, although no follow-up study confirmed their assertion. They visualized future family-focused RTCs as more cost-effective, as was their Familyworks program, and better able to create and sustain improvement.

Carlo (1991, 1993) implemented and studied a program at an RTC at Five Acres in Los Angeles County designed to resocialize parents to a more competent role. Program interventions were founded on parent involvement, parent education, and a combination of both parent involvement and parent education. Results clearly showed that a combination of parent involvement and parent education was the most effective intervention as measured by probability of family reunification following treatment. These results held over a 3-year period. Carlo acknowledged that unavoidable researcher bias relegated the study to exploratory status (1993).

Different clinical and family circumstances necessitate different decisions relating to the frequency and nature of parental involvement in therapy (Nevas & Farber, 2001). One obvious challenge to family-focused residential treatment is that not every adolescent admitted to an RTC has family resources (Knecht & Hargrave, 2002). Some parents and family members, especially in rural states, may reside very far away from RTCs, which are often concentrated in larger cities (Lakin et al., 2004). In addition, not every adolescent admitted will be returned home (Knecht & Hargrave). However, even if a child's permanency goal is other than to return home, parents are still an important resource, and their involvement will help with the child's sense of self-identity and connectedness (Martone et al., 1989). Ideally, these parents will give their child permission to move on and create new relationships with other caring adults, and then continue to work on their issues while retaining some contact with their child in foster care or in an open adoption arrangement (Martone et al.).

### Physical Treatment Interventions

Physical treatment interventions are defined as physical activity intended as a treatment modality (Bandoroff & Scherer, 1994; Edwards, 2006; Hallal, Victora, Azevedo, & Wells, 2006; Kirkcaldy, Shepard, & Siefen, 2002). Common interventions for this treatment modality may include but are not limited to hiking, running, biking, and swimming.

The number of at-risk youth in the U.S. is steadily increasing and youth problems have intensified to where interventions from multiple service areas are crucial, including



physical treatment interventions (Autry, 2001). Randolfi (2002) has given the following reasons why exercise is a useful coping technique:

detoxification of stress-related compounds, outlet for anger and hostility, form of moving meditation, enhanced feelings of self-esteem and self-efficacy, periodic solitude and introspection, opportunities for social support, power of human touch, reduction of muscular tension, increased endorphin levels, increased somatic awareness, training for competition, improvement in sleep and rest, and enhanced fitness to fight stress and disease.

Nationally representative, self-reported data obtained from nearly 12,000 youth, grades 7-12, supported correlation that engagement in a diverse range of physical activities reduced involvement in health risk behaviors and promoted positive health outcomes such as higher self-esteem and academic performance (Nelson & Gordon-Larsen, 2006). Specifically, adolescents grouped as engaging in sports with their parents were less likely to engage in risk outcomes related to sex, delinquency, smoking, alcohol, drug use, truancy, and non-seatbelt use and showed the lowest risk of low self-esteem of the seven groups described. Exercise has further therapeutic value as a “personal exception to oppression,” a reclamation of physical self, and a means of self-expression (Mascher, 2002). Athletic participation additionally enhances social relationships, builds motivation and self-regulation skills, develops character, and decreases aggression and anti-social behaviors (Reeve & Weiss, 2006). Kirkcaldy and colleagues (2002) found a strong association between regular participation in endurance sports and reduced drug use in a survey of 988 adolescents. Adolescents who reported regular participation in endurance sports also scored lower on anxiety-depression and social behavioral inhibition characteristics.

Currently, a variety of types of physical activities are used in RTC's ranging from basic P.E. classes to rock climbing or even triathlon training. While the basic P.E. classes are required, oftentimes the recreational physical activities such as rock climbing or skiing are privileges that are earned (K. Henley, personal communication, November 12, 2007).

Extensive research into the effects of physically-based interventions as part of wilderness or "adventure" treatment programs for delinquent youth has been conducted and results generally support their continued application (Autry, 2001; Bandoroff & Scherer, 1994; Gillis & Gass, 1993; Hattie, Marsh, Neill, & Richards, 1997). Adventure programs require participants to accomplish specific and difficult physical objectives away from their normal environments (Hattie et al.). Hattie and colleagues documented the impacts of adventure programs based on a meta-analysis of 96 studies. They concluded that adventure programs (required physical treatment) positively impact leadership competencies, self-concept, assertiveness, academic performance, social competence, cooperation, and interpersonal communication. Participation in adventure programs also resulted in reduced aggression, emotional stabilization, increased motivation, strengthened loci of control and maturity, and reduced neurosis. Hattie et al. attribute positive effects of adventure therapy generally to increased feelings of self-worth associated with attaining goals, quantity and quality of feedback, and necessary reassessment of coping strategies and replacement of ineffective strategies with more functional and positive strategies. They caution, however, that adventure programs are not inherently good; outcomes vary considerably between different studies, different programs, and different individuals.

Autry (2001) conducted an interpretive study to assess the feelings and perceptions of at-risk teenage girls subsequent to physical interventions at an adventure-based psychiatric rehabilitation facility. Comparison of interview responses given before and after the interventions revealed four general perceptions about their effects: (1) increased *trust* in oneself and others; (2) a sense of *empowerment* acquired through recognition of the close connection between visualized and achieved goals; (3) improved *teamwork*; and (4) recognition of *personal values*. Successful completion of the required physical challenges prompted powerful and positive changes in the girls' emotions and attitudes, especially greater courage and confidence in facing personal treatment issues. Autry strongly urges therapists and researchers of adventure therapy to focus more, however, on extensive post-intervention processing to strengthen learning transfer.

Unfortunately, while there is strong empirical validation for both family involvement and physical activity in adolescent treatment, as previously discussed, there is wholly insufficient research on treatment interventions that combine these in an RTC program. Nelson and Gordon-Larsen (2006) concluded from their survey that support of parental involvement in physical activity and overall increases in physical activity participation offered benefits far beyond weight and fitness. They reported that adolescents with limited decision-making power related to TV, who were active in sports with their parents, showed a significant reduction in risk behavior especially compared to adolescents characterized by high TV/video viewing and video/computer gaming. These same adolescents also showed significantly higher self-esteem.

Bandoroff and Scherer (1994) offer the only relevant study on a physical family treatment intervention in the current literature. They compared 39 families who enrolled

an adolescent in a standard wilderness program in southern Idaho with 27 families who additionally participated in a physical family intervention called The Family Wheel. The intervention followed completion of the standard wilderness program. Pretest, posttest, and follow-up evaluations provided information on differences in family functioning, adolescent problem behavior, and adolescent self-concept between the two groups.

Family Wheel participants completed a 4-day desert trek, which included family therapy sessions, family group discussions, and metaphorical exercises designed to ease the transition home and to challenge them to establish a healthier family process. They observed that a high level of therapeutic intensity benefited both groups resulting from physical and emotional stress and the extended length of time families spent together in a remote and physically active setting, without distractions. In contrast, however, to families who took part only in the standard wilderness program, those that also participated in The Family Wheel reported less adolescent problem behavior at follow-up. These participants expressed greater confidence that wilderness gains would reach past the wilderness into future home environments. Many commented on the opportunity for family intimacy away from home distractions and believed The Family Wheel to be essential in the restructuring and continued success of their relationships. While The Family Wheel intervention does not ultimately differentiate between the success of family participation versus the success of the additional physical challenge, the obvious success of the combination of both elements merits further research into how physical family interventions impact treatment outcomes.

## Telos

Telos is an RTC located in Orem, Utah. According to Aristotle, the Greek word “telos” means “purpose” or “ultimate potential for being” (Cohen, 2009); Telos aims to direct its students in achieving their individual telos. They specialize in treating depression, anxiety, self-injurious behaviors, social problems, low frustration tolerance, drug abuse, trauma, and low self-esteem. Eighty-six students have completed the program and there are 24 students in the program at a time. It is a private pay program, which was opened in 2004. Two components, family involvement and training for a triathlon, set Telos apart from other RTCs. Each of these components will be discussed below.

### *Family Involvement*

Family involvement is considered essential in creating lasting, meaningful change in adolescents at Telos, which will support and help maintain change post-graduation from Telos. Family therapy, defined as doing therapy with both the students and families, is ongoing and takes place a minimum of one hour per week, either by phone or in person. Family Days also occur 5 times a year in which multi-family support groups meet for therapy, recreation therapy, and various activities for two days. A triathlon takes place the following day, and families are invited to directly participate or cheer on participants.

### *Triathlon*

Telos staff believe regular daily cardio activity has a more stabilizing effect on emotional disorders than the combined treatment of medications and therapy. Reflecting this belief, Telos trains students for triathlons 2 hours a day, 6 days a week. Upon their

arrival the boys are placed on a safety phase that generally last 2-3 days to ensure that they are not at risk for harming themselves before starting the training program. There is a registered nurse on board that monitors the boys' health throughout their stay. After completing their safety phase, they begin their training program. Coaches and trainers teach safety and are also available to teach the boys how to swim or ride a bicycle if they arrive not knowing how. The focus of the training is to break down the boys' preconceptions of what is possible and not possible for them. All students train at one of three training levels and may compete in community-based triathlons (K. Gillett, personal communication, November 15, 2007).

### Program Evaluation

As previously discussed, there is strong empirical validation for both family involvement and physical activity in adolescent treatment, but there is wholly insufficient research on physical family treatment interventions in general, and none in relation to RTCs. This project aims to determine whether there is evidence to support physical family treatment interventions in Telos. Results from Hawkins, Fawcett, Carrol, and Gilliland's (2006) pilot study on the Marriage Moments Program reinforce the need to assess the outcomes of evaluation research before claiming research success. Despite participants positive response to the Marriage Moments Program, outcome analysis failed to find any significant differences between compared treatment groups.

Nelson and Steele (2006) noted that a shift toward evidence-based practice necessitates the need for strong research evidence supporting treatments. They advocated a more comprehensive evaluation approach (i.e., considering not only outcomes but also

provider, consumer, and economic considerations). A review of evidence-based approaches to dissemination and diffusion of physical activity interventions shows that lack of dissemination and diffusion evaluation research limits the impact of those interventions on public health (Owen, Glanz, Sallis, & Kelder, 2006).

### Summary

The research presented in this chapter emphasizes the importance of parent-adolescent relationships, and the importance of parental involvement, in RTCs. It also emphasizes the importance of physical activity as a fundamental component of adolescent treatment. Research on the combined power of parental involvement and the physical activity component of adolescent treatment is sadly limited, but supportive. Parental involvement in physical activity of any kind at an RTC has not been studied.

The research questions that guide this project are:

1. Do the pre- and post-standardized test scores support the treatment program offered by Telos?
2. Is there a difference in the outcomes based on whether or not the parents participate in the triathlon?

## CHAPTER III

### METHODOLOGY

This chapter will review and build a case to help underscore the significance of this project. Specific content related to design sample measures and procedure will all be addressed in this section.

#### Research Design

This study utilized a pretest-posttest design, selected due to the absence of random assignment and the purposeful assignment of students into groups to meet the criteria of the study (Dooley, 2001). Students were organized into two groups according to parental participation. Group A comprised students whose parents participated with them in a triathlon, while group B comprised students whose parents did not participate in the triathlon. These two groups of adolescents were tested on standardized measures (described below) upon admittance (pretest) and discharge (posttest) to Telos RTC. Using the symbol O to represent observations or points of measurement and X to represent parental participation in the triathlon, the following is a diagram of the study design:

O	X	O
O		O

#### Research Sample

Requisite for inclusion in the study, Telos students needed to have taken both a



pre- and posttest of the Youth Outcome Questionnaire (Y-OQ) or, alternatively, students' parents must have completed a questionnaire specifically addressing the triathlon training and participation. In most cases the Y-OQ was not administered and poor recordkeeping along with electronic data corruption made data collection spotty at best. Although initially there were 16 students identified with triathlon-participating parents, only 4 had pre- and post-Y-OQ scores; 5 had a completed parent questionnaire. Another 16 were randomly drawn from a pool of 70 students of non-participating parents, and, of these 16, only 3 had pre- and post-Y-OQ scores; 4 had a completed parent questionnaire. With an already small sample size, all available data were used when possible, thus the varying sample sizes are reflected in the tables.

The sample population was drawn from Telos Residential Treatment Center, an all boys school which treats adolescents between the ages of 13-17. In this sample the boys' average age was 16. They had multiple diagnoses upon admittance and spent 9 to 10 months in the program (see Table 1).

The boys were born either in the continental US or Canada and their families ranged from the middle to upper socioeconomic class. Telos is a private-pay treatment center located in central Utah; however, only 3-5% of its student population (86 students) come from within the state of Utah. Twenty to 30% of program participants are adopted. All participants in this study were diagnosed with a major mental illness, most with a mood/anxiety disorder. Forty to 50% were substance abusers, but few were substance dependent. Almost all of the students had prior multiple modalities of therapy (i.e., wilderness, inpatient, and outpatient treatments and other RTCs and therapeutic boarding schools).

Table 1

*Demographic Summary of Telos Residents (2)*

Variable	Parent involvement <i>N</i> = 5		No parent involvement <i>N</i> = 4	
	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>
Age (years)	15.80	1.09	16.06	.84
Diagnoses at intake	3.60	1.14	3.60	1.14
Diagnoses at discharge	3.75	1.13	3.00	1.00
Time in program (months)	10.11	2.07	8.54	3.66
Family days	4.20	1.10	3.50	1.29

The sample was consistent with the general program demographics in that two of the nine students in the study were adopted. One student from each group had a judicial history, and most derived from intact family units with both parents at home. The sample included only one stepfamily and one single parent family (see Table 2).

## Measures

*Youth Outcome Questionnaire (Y-OQ)*

The Youth Outcome Questionnaire (Y-OQ; Burlingame et al., 2004) is a 64-item parent report on behavioral symptoms of children, ages 4-17, receiving psychological or psychiatric treatment. Most parents require 5 to 7 minutes to complete the measure,

Table 2

*Demographic Summary of Telos Residents*

Variable	Parent involvement <i>N</i> = 5		No parent involvement <i>N</i> = 4	
	<i>n</i>	%	<i>n</i>	%
Adopted				
Yes	2	40	0	0
No	3	60	4	100
Judicial history				
Yes	1	20	1	25
No	4	80	3	75
Family type				
Intact	4	80	3	75
Step	0	0	1	25
Single	1	20	0	0

although particularly careful parents may take as long as 20 minutes. It is divided into six subscales: intrapersonal distress, somatic symptoms, interpersonal relations, social problems, behavioral dysfunction, and critical items. Of these subscales, this study specifically uses three: intrapersonal distress, somatic symptoms, and interpersonal relations. Intrapersonal distress assesses the amount of emotional distress in the child/adolescent (i.e., anxiety, depression, fearfulness, hopelessness, and self harm). This subscale has 18 items with a range of scores between 0-72. Somatic symptoms assess the

change in somatic distress that the child/adolescent may be experiencing (e.g., headaches, dizziness, stomachaches, nausea, bowel difficulties, and pain or weakness in joints). This is the smallest subscale in the Y-OQ and consists of 8 items with scores ranging from 0-32. Interpersonal relations assess the child/adolescent's attitude towards others, communication and interaction with friends, cooperativeness, aggressiveness, arguing, and defiance. There are 19 items in this subscale with a range of scores from 0-76. Issues all pertain to the child/adolescent's relationship with parents, other adults, and peers. The Likert-type scale has response ranges from 0 (never or almost never) to 4 (almost always or always). Subscale scores are calculated by adding these ratings. Seven of the subscale items are reverse scored from +2 to -2. Subtotals are then summed for a total score. The measure is designed to be sensitive to change over time; an individual's scores must differ by 13 points to reliably show clinically significant change. The Y-OQ is appropriately recommended as a screening tool, not as a diagnostic device, and subscale data should be used collectively, not separately. A summary on the Y-OQ can be found in the Mental Measurements Yearbook database.

*Reliability.* Based on several samples, (non-clinical elementary students,  $n = 427$ , community sample,  $n = 651$ , and a clinical sample,  $n = 490$ ) a Cronbach's alpha of .94 indicates high reliability in relation to internal consistency (Burlingame et al., 2004). Subscale estimates range from .51 to .90. Test-retest reliability with two samples, ( $n = 56$ ,  $n = 93$ ) at 2 and 4 weeks resulted in an average coefficient of .83.

*Validity.* A comparison of total scores and subscales with the Child Behavior Checklist (CBCL) and the Conner's Parent Rating Scale revealed correlations between similarly constructed measures ranging from .48 to .78 (acceptable). The Y-OQ also

favorably compares with the CBCL with respect to sensitivity and specificity indices, correctly identifying clinical group members 82% of the time and normal group members 89% of the time. The Y-OQ's ability to reliably distinguish between groups of normal, outpatient, and inpatient samples (with scores significantly rising with restrictiveness of setting) gives evidence of discriminate validity.

#### *Global Assessment of Functioning (GAF)*

The Global Assessment of Functioning (GAF; APA, 2005) is a clinician's judgment of an individual's overall level of functioning with respect to psychological, social, and occupational functioning. The assessment is done using the GAF Scale which is divided into 10 ranges of functioning, each with a 10 point range for a total possible score of 100. A higher score reflects a higher level of functioning. The scoring on the GAF Scale is assessed according to the current period of functioning at the time of evaluation, with "period" often being operationalized as the lowest level of functioning for the past week.

#### *Satisfaction Survey*

The satisfaction survey consists of 11 items using a five-point Likert type questionnaire written by the Telos staff, specifically addressing the triathlon portion of the program (see Appendix A). Questions addressed how strongly the parents viewed themselves as having participated with their son in the triathlon and training, how the program in general as well as the triathlon, specifically, affected their parent-adolescent relationship. The survey included an opportunity for parents to write in their own thoughts and comments. Parents were asked to rank how strongly they agreed or

disagreed with a given statement (e.g., “Our participation in the triathlon has changed how we experience and perceive each other,” or “Our participation in the triathlon has helped establish new patterns of communication and interactions”).

### Procedure

All of the assessment measures were taken by both the students and their parents at admittance (pretest) and again at discharge (posttest). A satisfaction survey was mailed out by Telos to the parents of discharged students. The purpose of the survey was to track student progress and collect as much information as possible that may influence treatment options. The data was assigned to groups as to whether or not the parents physically trained and participated in a triathlon with their son. Students whose parents participated with them in a Telos triathlon were designated as Group A, and students whose parents did not participate as Group B for purposes of comparison. Prior to treatment the program goals and objectives were described to the program participants and their parents. As part of the treatment, a parent or guardian signed an informed consent on the treatment procedures including the triathlon training. If a young man opted out of training, this resulted in a failing grade in P.E., and being placed on academic probation. Data was gathered by Telos staff, who provided aggregate summaries. No names were included in the data set and all collection sheets were secured in a locked closet in a secure filing cabinet. This study was reviewed by the Utah State University Internal Review Board for Human Subjects (see Appendix B). All subjects’ information was kept confidential and secured in a locked room.

## CHAPTER IV

### RESULTS

This chapter will review the results obtained from the project. The tests that were used and results from those tests are described.

#### Research Question One

“Do the pre- and posttest scores support the treatment program offered by Telos in terms of standardized test scores?” The first research question on program efficacy was tested using a paired sample *t* test with Youth Outcome Questionnaire (Y-OQ) pretest/posttest scores being the independent variable. This test was used as we were comparing the same group and their pre- and post-scores. The dependent variables were intrapersonal distress, somatic symptoms, and interpersonal relations. Comparing the group means of the dependent variable helped determine if Telos’ treatment program was supported in terms of YOQ test scores.

Because of the small sample size, statistical significance was tested at the .05 level, however this could have been set even higher to detect trends with such a small sample. The paired samples *t* test showed statistical significance ( $p < .05$ ) between pre- and post-scores of the YOQ subscale of Intrapersonal Distress as well as for the GAF scores (see Table 3). The other two subscale scores were not statistically significant; however, the results for intrapersonal distress and the Global Assessment of Functioning (GAF) indicate change in a positive direction. The sample was too small to test appropriately, but the Cohen’s *d* for each subscale did show change in the desired

Table 3

*Combined Groups Pre- and Posttests: YOQ Subscales and GAF*

Variable	Total pretests <i>n</i> = 7		Total posttests <i>n</i> = 7		<i>t</i>	<i>d</i>
	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>		
Intrapersonal distress	22.14	14.27	9.86	12.19	2.70*	.92
Somatic symptoms	8.14	7.86	2.71	2.29	1.81	.94
Interpersonal relations	7.86	7.86	1.57	7.68	2.06	.81
GAF ( <i>n</i> = 6)	40.00	.00	59.33	3.20	-14.78**	-8.54

\**p* < .05, \*\**p* < .01

direction with each subscale having a large effect size. Cohen described effect sizes as the average percentile standing of the average treated group relative to the average untreated or control group (1,988). These effect sizes indicated that the mean of the treated group was at the 79th-82nd percentile of the untreated group.

GAF scores indicated that students entering the program did so with major impairment in several areas such as school, family relations, judgment, thinking, or mood. Their scores at discharge showed a positive change that was statistically significant at the .01 level. These scores indicated that all of the students at discharge were having only moderate difficulty in their social or school functioning. The large effect size of Cohen's *d* for the GAF scores indicated that the mean of the treated group was above the 98<sup>th</sup> percentile of the untreated group (Cohen, 1988). Although the sample



was too small to test appropriately, Cohen's  $d$  does show change in the desired direction.

### Research Question Two

“Is there a difference in the outcomes based on whether or not the parents participate in the triathlon?” The second research question was tested using a group  $t$  test. This test was used because the subjects were randomly assigned to one of two groups. In addition the assumption was met in that the distribution of the means being compared was normal with equal variances. The independent variables were the posttest scores of the YOQ for each subscale. The dependent variables were parent participation or nonparticipation. Comparing the group means of the dependent variable helped determine if parental participation was associated with the treatment outcome.

Again, because of the small sample size, statistical significance was tested at the .05 level. The group  $t$  test showed that there was statistical significance ( $p = .05$ ) between “parent involvement” and “no parent involvement” on the YOQ subscale of Intrapersonal Distress (see Table 4).

The other two subscale scores were not statistically significant. Although the sample was too small to test appropriately, the Cohen's  $d$  for each subscale did show change in the desired direction with each subscale having a large effect size. These effect sizes indicated that the mean of the treated group was in the 87<sup>th</sup>-98<sup>th</sup> percentile of the untreated group (Cohen, 1988).

The Satisfaction Survey was also used to answer research question 2. The sample was too small to show statistical significance ( $p < .05$ ) between almost all the questions and the two groups, with the exception of the first (see Table 5). The first statement, “I

Table 4

*Parental Involvement and No Parental Involvement: YOQ Subscales*

Variable	Parent involvement <i>n</i> = 4		No parent involvement <i>n</i> = 3		<i>t</i>	<i>d</i>
	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>		
Intrapersonal distress	-5.00	5.16	-22.00	12.17	-2.57*	-2.29
Somatic symptoms	-2.25	4.11	-9.67	10.79	-1.29	-1.15
Interpersonal relations	-1.75	6.70	-12.33	5.69	-2.19	-1.96

\**p* = .05

participated in the triathlon training with my son,” was the only statement to show statistical significance at the .05 level. Although the two groups were thus organized (i.e., according to their participation in the triathlon) some parents considered themselves to have participated when, in fact, they did not physically do so, attesting to the somewhat vague and loose definition of “participation.” Conversely, some parents physically participated but did not see their participation as complete since they only did a part of the triathlon. Results showed that the two groups closely agreed that their views were only slightly more than neutral on the statement that their participation helped to establish new patterns of communication and interactions. There was a very large effect size in regards to attributing associated benefits of the triathlon to the “emotional intensity,” (a term left open to personal interpretation from the parents, but referring to the heightening of strong emotions being evoked by the physical intensity of the triathlon) with the parental involvement group attributing greater benefits to the emotional intensity.

Table 5

*Parental Involvement and No Parental Involvement: Satisfaction Survey*

Variable	Parent involvement ( <i>n</i> = 5)		No parent involvement ( <i>n</i> = 4)		<i>t</i>	<i>d</i>
	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>		
Participation	4.75	.50	2.75	1.50	-2.53*	1.79
Improvement due to Telos	4.50	1.00	5.00	.00	1.00	-.71
Improvement due to triathlon	3.75	.96	4.00	.82	.40	-.28
Lasting benefits of triathlon	4.00	1.23	4.50	.58	.75	-.52
Perception change	3.25	1.26	4.00	.00	1.01	-.84
New patterns of interactions	3.50	1.29	3.67	.58	.21	-.17
Physical intensity	3.80	1.10	3.33	.58	-.67	.53
Mental intensity	4.00	1.41	3.67	.58	-.38	.31
Emotional intensity	4.60	.55	4.00	.00	-1.84	1.54
Support and encouragement	4.50	.58	4.33	.58	-.38	.29
Success and accomplishment	4.67	.58	4.50	.58	-.29	.29

\**p* < .05

Although not as large, there was still an effect size rated as “large” for two other statements on the questionnaire. These showed that those parents who did not participate attributed greater weight to their son improving as a result of residence at Telos, and that their participation in the triathlon changed how they experience and perceive each other.

## CHAPTER V

## DISCUSSION

The review of literature for this study focused heavily on the importance of parent-adolescent relationships and parental involvement, specifically in RTCs (Cattellino & Bonino, 1999; Corsano et al., 2006; Dmitrieva et al., 2004; Erker et al., 1993; Farrell & White, 1998; Hair, 2005; Landsman et al., 2001; Liddle et al., 1998; Meschke et al., 2000; Michael & Ben-Zur, 2007; Sim, 2000; Stage, 1999; Sunseri, 2001; Ungar, 2004; Wilmshurst, 2002). It also emphasized the importance of physical activity as a fundamental component of adolescent treatment (Edwards, 2006; Hattie et al., 1997; Kirkcaldy et al., 2002; Nelson & Gordon-Larsen, 2006; Reeve & Weiss, 2006). Research literature on the combined power of parental involvement and the physical activity component of adolescent treatment was limited but supportive (Bandoroff & Scherer, 1994; Nelson & Gordon-Larsen, 2006), and parental involvement in physical activity of any kind at an RTC had not been studied.

## Research Question One

“Do the pre and post standardized test scores support the treatment program offered by Telos?” The literature suggests that of the three Youth Outcome Questionnaire (Y-OQ) subscales, the subscale which would see the most improvement would be interpersonal relations due to the relationship component of the Telos model (Cattellino & Bonino, 1999; Corsano et al., 2006; Dmitrieva et al., 2004; Erker et al., 1993; Farrell & White, 1998; Hair, 2005; Landsman et al., 2001; Liddle et al., 1998; Meschke et al.,

2000; Michael & Ben-Zur, 2007; Sim, 2000; Stage, 1999; Sunseri, 2001; Ungar, 2004; Wilmshurst, 2002). Results from this study showed a trend that was supportive of this literature, but were statistically non-significant. The most significant result was with gains in the intrapersonal distress subscale of the Y-OQ. While it is difficult to extrapolate from such a small sample size, the findings suggest that while interpersonal relationships do show a trend in the desired direction, the program offered by Telos has a more profound impact on the student's level of intrapersonal distress. The circularity of the two may also be closely linked to one another (i.e., improving the interpersonal relationship may have a profound impact on intrapersonal distress); in fact, more so than the marked improvement on the relationship itself. In either case, somatic symptoms were reduced and change was seen in the desired direction, an expected result supported by the literature and the exercise component of Telos (Edwards, 2006; Hattie et al., 1997; Kirkcaldy et al., 2002; Nelson & Gordon-Larsen, 2006; Reeve & Weiss, 2006). In looking at how Telos was using their curriculum and the exercise component in their program, it supports the results in that more gains were seen in intrapersonal distress than in interpersonal relationships.

Although student progress at Telos followed trends established in the literature, the program did not appear to take full advantage of the therapeutic opportunities that it was consistently creating as described and recommended by Gillis and Gass (1993), and Huber (1997). Consequently, treatment gains may have been weaker than they could have been had Telos employed more direct therapeutic skills in concert with the physical treatment they offered. Gillis and Gass identify "metaphoric transfer" (generalization of treatment gains to everyday life) of family adventure experiences into future interactions

as the main aim of structuring those experiences. Processing experiences following the intervention additionally optimizes learning transfer by heightening family awareness (Huber). This processing of the triathlon experience never formally took place; no doubt, beneficial therapeutic gains and insight were thus lost and appear to be reflected in the scores of the interpersonal relationship subscale of the Y-OQ.

Global Assessment of Functioning (GAF) scores did show improvement and were statistically significant. Students entering Telos suffered from major functioning impairment in several areas. Upon exit, scores ranged from mild to moderate. Although Telos students were showing great improvement in their level of functioning, they generally retained some mild to moderate symptoms requiring a need for additional aftercare or a step-down program. However, these scores support Telos as an effective residential treatment center as additional aftercare is often necessary and expected for graduates of residential treatment centers (K. Henley, personal communication, November 12, 2007). Craig LaMont, acting CEO of Telos (personal communication, October 17, 2007), clarified that Telos is not a stepdown program such as a therapeutic boarding school or emotionally focused school, and is often used as a last alternative to hospitalization.

In answering research question one, the sample was too small to test appropriately, but Cohen's  $d$  did show change in the desired direction for all three subscales of the Y-OQ, and was consistent with the literature reviewed. The GAF scores were supportive of the program's efficacy and were consistent with the literature reviewed. These trends indicate that the treatment program offered by Telos does appear

to work, but how well and to what degree cannot be determined without a larger sample and better records.

### Research Question Two

“Is there a difference in the outcomes based on whether or not the parents participate in the triathlon?” Addressing research question two, results from the questionnaire attributed associated benefits with the triathlon to the emotional intensity, which was consistent with the literature. Although too small to test appropriately, Cohen’s *d* did show parental participation identified more emotional intensity involved in the triathlon than did those parents who did not participate, (with a very large effect size indicating that the mean of the treated group was in the 94<sup>th</sup> percentile of the untreated group; Cohen, 1988). If this were to be more appropriately tested with a larger sample, these different views between the two groups of parents could be more adequately tested to see if those parents participating can identify more accurately with their son, with increased empathy and respect for him. This hands-on experience of perspective-taking could be used therapeutically as an intervention in itself, and is supported by Barber and colleagues (2001), who suggested that clinical work with adolescents and their parents concentrate on adolescent and parental empathy since ultimately it is this relationship synchrony that dictates adolescent developmental outcomes.

Inconsistent with the literature was the effect size rated as “large” for two other statements on the questionnaire which showed that those parents who did not participate attributed greater weight to their son improving as a result of him having been at Telos, and that their participation in the triathlon changed how they experience and perceive



each other (Erker et al., 1993; Hair, 2005; Landsman et al., 2001; Stage, 1999; Sunseri, 2001; Wilmshurst, 2002). One of five participating parents stated in the questionnaire that their son was an atypical and improbable candidate for Telos and that they were not sure their experience should be included in the research results. Their responses in the questionnaire were indeed outliers in relation to the other parents who also participated, as well as information gathered from the Y-OQ. In the Y-OQ alone, this outlier skewed data by a factor greater than three than if the outlier was removed in the intrapersonal distress subscale, making the parental participation group score lower on intrapersonal distress than the no parent participation group by a factor of two. Interestingly, while reviewing the interpersonal relations subscale, regardless of whether or not the outlier was removed, the no parent participation group had more change in the desired direction than the group with parent participation. Although there is no doubt that this one “atypical and improbable candidate” easily skewed the sample size of 5, the study still casts doubts as to just how important parental involvement is. Could it be that the students of participating parents were simply more difficult and their parents were willing to try anything that might help them? If so, these more difficult students would reflect lower than expected scores on the tests and questionnaires despite parental participation. Indeed, with the small sample size, poor data collection and record keeping, very little can be drawn from this study except more questions.

#### Implications for Family Therapists

Stronger relationships between adolescents and their peers in comparison to the relationship with their parents relates to increased involvement in a variety of at-risk

behaviors (e.g., alcohol, drugs, and delinquency; Flannery et al., 1998; Glendinning & Inglis, 1999; Paetsch & Bertrand, 1997; Romer et al., 1994; Santor et al., 2000).

Adolescents tend to rely more on their peers for support and to engage in more problem behaviors when they do not perceive support and closeness in their family relationships (Noller, 1994). With the improvement of GAF scores at completion of the Telos Program, this is particularly important for therapists to note; responsible therapy will focus on support and closeness in family relationships.

The idea of having parents participate in a physically and emotionally intensive environment with their child is supported by the literature, but very few RTCs are incorporating such interventions into their programs. Sadly, when a RTC does implement such research-backed interventions, many of the therapeutic moments and opportunities are lost. To optimize learning transfer and highlight family awareness, experience processing needs to formally take place immediately following the intervention (Huber, 1997). Such physically demanding interventions for the parent/child relationship increase empathy and respect and promote perspective-taking, another component that needs to be processed immediately following the intervention (Barber et al., 2001).

#### Limitations of the Study

This study encountered two major limitations. First, poor record collection and keeping by Telos, compounded by significant electronic data corruption, led to a very small sample size. Second, an “atypical and improbable” (identified by parents) outlier was included, skewing data even further, such that very little could be drawn from the results. Lesser limitations included unavailability of information in reference to how hard

the students trained as well as the actual level and type of parental involvement. Some parents who did not physically participate in the triathlon reported on the questionnaire that they did, in fact, participate. It is presumed that they considered having shown up to cheer their son on as actual participation in the triathlon, whereas other parents who actually physically did participate in the triathlon considered their participation to be low to partial since they only physically participated in a portion of the triathlon.

### Recommendations

As has been noted in previous sections of this document, there is a need for RTCs to perform better outcome research. This recommendation can be specifically applied to Telos. In particular, the staff needs to administer standardized tests and assessments at intake and discharge to every student and parent, and then maintain secure records. The generality of the records made it virtually impossible to track students' progress longitudinally. Developing a systematic recordkeeping program would benefit both treatment and research viability of Telos. For example, while Telos incorporates research-based interventions such as exercise and parental participation into their programs, there is no way to know which interventions are most helpful. Furthermore, gathering dosage information in regards to training, participation, and involvement, in a systematic way will further advance knowledge and understanding for both the program and the field in general. If these recommendations are followed, then future researchers can complete quality studies on the effects of combining both rigorous exercise and parental participation in adolescent treatment. The Telos program is following much of the research-backed interventions correlated with positive outcomes, despite their

historical lack of quality control and inconsistency in their administration of measures.

This oversight was isolated to their research department and the rest of the program appears to be of a very high quality and is positively impacting families (see Appendix C).

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APPENDICES



Appendix A. Parent Questionnaire (Satisfaction Survey)

Please rank the following questions using this scale:

1	2	3	4	5			
		Strongly	Disagree	Neutral	Agree	Strongly	
			Disagree		Agree		

- \_\_\_ I participated in the triathlon training with my son.
- \_\_\_ My relationship with my son improved as a result of him having been at Telos.
- \_\_\_ My relationship with my son improved as a result of the triathlon.
- \_\_\_ Benefits of the triathlon have reached past Telos and are still with us today.
- \_\_\_ Our participation in the triathlon has changed how we experience and perceive each other.
- \_\_\_ Our participation in the triathlon has helped establish new patterns of communication and interactions.
- \_\_\_ I would attribute any associated benefits with the triathlon to the **physical** intensity.
- \_\_\_ I would attribute any associated benefits with the triathlon to the **mental** intensity.
- \_\_\_ I would attribute any associated benefits with the triathlon to the **emotional** intensity.
- \_\_\_ Highlights of the triathlon were in supporting and encouraging each other.
- \_\_\_ Highlights of the triathlon were in having shared in the success and accomplishment together.

Other thoughts and experiences of your son's time in Telos:

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Appendix B: IRB Approval Letter

USU Assurance: FWA#00003308  
Protocol # 2307

# UtahState UNIVERSITY


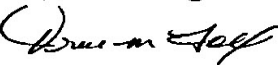
*INSTITUTIONAL REVIEW BOARD OFFICE*  
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SPO #:  
AES #: UTA00

3/30/2009

## MEMORANDUM

TO: Scot Allgood  
Eric Mikkelsen

FROM: Kim Corbin-Lewis, IRB Chair   
True M. Fox, IRB Administrator 

SUBJECT: Family Participation and Triathlon Training in a Residential Treatment Program

Your proposal has been reviewed by the Institutional Review Board and is approved under exemption #4.

- There is no more than minimal risk to the subjects.  
 There is greater than minimal risk to the subjects.

This approval applies only to the proposal currently on file. Any change in the methods/objectives of the research affecting human subjects must be approved by the IRB prior to implementation. Injuries or any unanticipated problems involving risk to subjects or to others must be reported immediately to the IRB Office (797-1821).

The research activities listed below are exempt based on the Department of Health and Human Services (DHHS) regulations for the protection of human research subjects, 45 CFR Part 46, as amended to include provisions of the Federal Policy for the Protection of Human Subjects June 18, 1991.

4. Research, involving the collection or study of existing data, documents, records, pathological specimens, or diagnostic specimens, if these sources are publicly available or if the information is recorded by the investigator in such a manner that subjects cannot be identified, directly or through identifiers linked to the subjects.

Appendix C: Satisfaction Survey Comments

Note: All names have been changed

Tyson was an atypical and improbable candidate for Telos. I'm not sure our experience should be included in your results.

I did not participate in triathlon training but was a spectator in July '07. The pride I felt in seeing Shawn complete the triathlon is still with me today and often inspires me to try my best.

I continue to do triathlons 2 years later. It has become part of me! It did bring us closer and he was very supportive of me trying! While at Telos, I believe it was a key part of his getting better and finding self-confidence.

I did not participate in triathlon training with Alan. However, I strongly believe that physical training was a key part to his recovery at Telos. He has not run, biked, or swam since Telos, but he continues to lift weights, a habit that he developed at Telos, and I think that discipline has been vital to his continued success and emotional stability. Soon after he returned home, Alan agreed to run in a 5k with me, and that was a positive experience for both of us.

I did not participate. I watched my son in a triathlon. He never in his entire life would have achieved this goal if it weren't for Telos. It makes him proud and self-assured. He now knows he can do anything he puts his mind to.

Telos helped Taylor change the direction of his life. I think the time he spent at Telos/transition was extremely important to how well he is doing today.

The experience at Telos was wonderful. It was clear from the beginning that the goal of every staff member was not only to help my son but also to heal the entire family. I will be forever grateful for my experiences at Telos.