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An Exploration of Rock-Climbing Based Counseling Interventions

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ROCK-CLIMBING BASED COUNSELING INTERVENTIONS

An Exploration of Rock-Climbing Based Counseling Interventions

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A Capstone Project submitted in partial fulfillment of the
requirements for the Master of Science Degree in
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CERTIFICATE OF APPROVAL

CAPSTONE PROJECT

An Exploration of Rock-Climbing Based Counseling Interventions

This is to certify that the Capstone Project of

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Abstract

Rock-climbing can be successfully combined with counseling interventions and may be healing for a variety of mental health concerns. This review identifies several areas in mental health counseling which can be addressed by adding rock-climbing-based counseling interventions. These include depression, trauma, building self-efficacy, and providing skills practice. These two fields fill important gaps in each other's shortcomings. Rock climbing offers what counseling lacks in the form of a body focused physical activity aspect of intervention. In a similar way, counseling offers a code of ethics, multicultural focus, and an emphasis on the best interest of clients to an activity which can lack these. The two represent a dialectic which can be resolved by combining the best aspects of both activities and providing the resulting intervention to mental health clients.

Key Words: Rock-Climbing, Bouldering, Counseling, Self-Efficacy, Trauma, Depression, Mindfulness, Mental Health, Recreation, Counseling Intervention, DBT Skills

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Introduction & Rationale

The first goal of this review is to examine and consolidate the ways in which the physical activity known as rock-climbing can be used as a mental health specific intervention in a counseling setting. The second goal of this review is to inform the creation of an evidence-based curriculum or model for use in a group counseling setting. There is considerable anecdotal evidence present in the climbing community for the mental health benefits of rock-climbing (see Pennington, 2022, International Medical Aid, 2021). In addition, emerging scholarly research is beginning to describe and support the nature of the relationship between rock-climbing and various supportive factors for mental health and wellbeing (e.g., Karg et al., 2020; Kelley et al. 1997; Luttenberger et al., 2015). This emerging research is relevant to counselors who may be able to add another evidence based therapeutic intervention to their toolbelts to serve a greater variety of clients in a new way. This emerging literature is relevant to clients in that it makes available a new way for them to become engaged in the counseling process and support their mental health.

Rock-Climbing Introduction

Rock-climbing involves using one's body to move across vertical terrain in an indoor or outdoor setting with the assistance of ropes and other safety gear (Encyclopedia Britannica, 2021). It is present in the literature in recreational, educational, and therapeutic settings. While outdoor climbing poses its fair share of riskiness, indoor rock-climbing facilities are becoming increasingly more common which creates a safe and accessible way to practice the activity (Larew & Haibach-Beach, 2017). Rock-climbing tends to be perceived as either an extreme sport or a children's play activity, however individuals of all ages and ability levels

now have relatively safe access to indoor rock-climbing (Larew & Haibach-Beach, 2017). Rock-climbing is structured in such a way that individuals can set small goals and progress at their own pace, for example an individual afraid of heights can start with four feet off the ground and progress from there (Larew & Haibach-Beach, 2017). The concept of “challenge by choice” illustrates the importance of individual agency in this process and helps participants to feel safe setting their own goals (Larew & Haibach-Beach, 2017). Many climbing gyms and physical education programs offer rock-climbing classes which emphasize safety, learning to use the equipment, different types of climbing, and appropriate attire including appropriately sized shoes and harnesses (Larew & Haibach-Beach, 2017). Rock-climbing has been found to be generally associated with both physical fitness and strength as well as improved mood (Larew & Haibach-Beach, 2017). Some amount of interest in rock-climbing can be associated with the “extreme” and riskiness the activity is often associated with it, which creates the necessity for a strong focus on safety (Larew & Haibach-Beach, 2017). Safety in the form of introductory classes, belay classes (where climbers learn to safely catch each other’s falls on top-rope), lead belay classes (where climbers learn to safely catch each other’s falls while lead climbing), learning how to fall safely, and having available staff enforcing safety rules are necessary facets of running an indoor rock-climbing wall (Larew & Haibach-Beach, 2017).

Misconceptions & Risk Management

Though it is worth mentioning, the riskiness of climbing will not be the main focus of this review. Climbing is misrepresented as dangerous and dramatic, when there are in fact many safe ways to practice this activity. The public usually does not hear about rock-climbing apart from viewing media featuring the most recent famous “free solo” climber. Free solo climbing refers to climbing without a rope and harness, or any other safety gear. Of all types and styles of

climbing, free soloing is the most dangerous. In the larger climbing community, high-risk behavior by the average climber including soloing is seldom viewed with admiration. Effective risk management is extremely important in the climbing community, as well as in indoor rock-climbing gyms. There is evidence that climbers demonstrate their competence by managing and controlling risk rather than by attempting daring and risky behaviors while climbing (West & Allin, 2010). Climbers, especially experienced ones, will take calculated risks, but it is because they believe themselves capable of meeting the challenges presented by those risks safely (West & Allin, 2010). This is contrary to the perception that climbing is about risking one's safety to test one's ability, implying that there is some assumption that the climber cannot meet the challenges of the activity safely and must prove themselves. This exaggerated concept of risk in climbing is not only inaccurate but harmful to people who may benefit from therapeutic climbing in an environment with appropriate risk management. For example, Kelley et al., found that

Denial by health and recreation service providers of opportunities for adventure by disabled persons may stem partly from inaccurately exaggerated perceptions of the riskiness or actual danger associated with adventure activities; inaccurate perceptions of the generalized incompetence of disabled persons, despite demonstrated abilities and skills (1997, p.10).

Luttenberger et al. summarized the risk associated with indoor bouldering well with "In contrast to the public's impression (likely evoked by reports on free solo climbing or extreme climbing), indoor bouldering is a comparatively safe sport, and the most common injuries concern bruises" (2015, p.7). Some practical ways risk is managed by staff in rock-climbing gym settings include the use of boulder pads and mats, ropes and automatic belay devices, presence of staff to monitor belay and climbing technique, mandatory classes for beginners, mandatory belay

classes or belay tests, and the encouragement of spotting and falling correctly when bouldering. In an outdoor setting, there are certainly more variables to account for but many of the same practical risk management techniques still apply including boulder pads, knowledge of lead and top rope belay technique, gear which has been safety checked, and the presence of a skilled guide or instructor if the climbers are inexperienced or lack the knowledge of techniques needed to complete their climb (Bradley Kramers, personal communication, March 31, 2022). A climbing guide or instructor might be hired in a situation where the climbers have not learned or have not used in a while more advanced skills including building anchors and using traditional or “trad” gear (Bradley Kramers, personal communication, March 31, 2022). For instance, a counselor or pair of counselors who hoped to use this modality in an outdoor setting (who would need to balance attending to risk management factors with group curriculum and the emotional safety of the entire group) would be wise to hire a rock-climbing instructor (Bradley Kramers, personal communication, March 31, 2022).

“Comfort Zone” Mythology

“Getting out of one’s comfort zone” is a popular concept in the climbing community as well as in adventure education (Brown, 2008). The belief is that people who are stressed and having strong emotional reactions to risk will grow through that experience. The idea that growth only happens when we are pushed past our limits and uncomfortable is so pervasive that it feels intuitive. Inherent in this assumption, however, is the idea that if one is comfortable, they are not learning or growing (Brown, 2008). “Just get outside your comfort zone” carries with it a tone of invalidation, minimization, and condescension that is the antithesis of a counseling relationship. This concept has no place in the field of counseling and will not be used or encouraged in this writing. Part of the justification for using this framework is that it is vaguely based on the work

of Jean Piaget (Brown, 2008). Though Piaget's psychosocial stages are widely used in the field of counseling- using his theory of cognitive development to attempt to validate the concept of the comfort zone is not appropriate (Brown, 2008). The concept of flow is also reported to be more accurate and more beneficial in both rock-climbing instruction and therapeutic recreation (Bradley Kramers, personal communication, March 31, 2022; Patricia Ardovino, personal communication, April 4, 2022).

Window of Tolerance

Window of tolerance is a concept borrowed from trauma therapy (Hersher et al., 2021). One's window of tolerance is their middle ground between hyper and hypo arousal (Hersher et al., 2021). Here lies the optimal zone in which a person can remain aware of their surroundings and process information. In hyper and hypo arousal, the individual loses these capacities (Hersher et al., 2021). The concept of "get outside your comfort zone" endorses the opposite, that the only way to learn is in hyperarousal. From the trauma-informed perspective that this project seeks to take, the comfort zone model lacks both accuracy and utility. Optimal arousal is characterized by an ability to remain aware of one's surroundings as well as experiences (Hersher et al., 2021). A wider window of tolerance is the goal and enables an individual to cope with stress and emotions (Hersher et al., 2021). Hyperarousal is characterized by the fight/flight/freeze response, anxiety, anger, tension, shortness of breath, desire to run, desire to yell or fight, or thoughts that something awful is going to happen (Hersher et al., 2021). Hypoarousal is characterized by collapse or feigned death the way an animal would, feelings of shame or sadness, sleepiness, heaviness, and thoughts of "why bother trying" or "something is wrong with me" (Hersher et al., 2021). Kremers describes the factors which occur and are visible to an instructor before an incident occurs while climbing as "little red flags" (Bradley Kramers,

personal communication, March 31, 2022). These “little red flags” are emotional and physical wellbeing factors in participants including mood, food, water, previous activities, lack of sleep, pain, conflict between participants, and others (Bradley Kramers, personal communication, March 31, 2022). He further reports that ignoring the little red flags, meeting them with something like “toughen up” or “get outside your comfort zone”, or rushing through dealing with the flags is dangerous (Bradley Kramers, personal communication, March 31, 2022). The little red flags can correspond with both basic needs being unmet and with hyper and hypo arousal rather than an optimal level of arousal to be able to be present during the climbing activity (Hersher et al., 2021). Hersher et al. (2007) reports that training in DBT emotion regulation and distress tolerance skills may allow an individual to increase their window of tolerance. In the context of rock-climbing counseling interventions, replacing sayings like “toughen up and get out of your comfort zone” with concrete DBT skills training in a supportive environment is a more effective and research driven option (Hersher et al., 2021).

Types of Climbing

“Climbing” is a rather broad term in terms of the several types of climbing that exist. A counseling group that resulted from this review would probably use bouldering or indoor top rope climbing. Bouldering refers to climbing to relatively low heights without ropes (Luttenberger et al., 2017). In an indoor setting there are permanent pads designed to cushion falls. In an outdoor setting, climbers bring their own. Top roping involves building an anchor at the top of a route climbing that route while being attached to a rope the entire time (Bradley Kramers, personal communication, March 31, 2022). This is often replicated indoors and arguably this is the safest form of climbing. Outdoor top roping on the other hand, is more dependent on where the individual is climbing and in which season. It is much harder to quantify

the level of safety in an outdoor setting, which is why one would hire a rock-climbing guide or instructor who is familiar with the area (Bradley Kramers, personal communication, March 31, 2022). In an outdoor setting, more risk factors exist, including rock falls, seasons changing the integrity of the anchors, weather, and increased opportunities for human error (Bradley Kramers, personal communication, March 31, 2022). In general, outdoor climbing involves more decision making (Bradley Kramers, personal communication, March 31, 2022). Being aware of this, if I were ever to facilitate a climbing group outdoors, I would do so with a qualified climbing instructor present in order to effectively manage risks. Lead, or Sport Climbing, refers to climbing a route with existing bolts which the climber clips gear into, which is attached to a rope, attached to the climber, for protection. More risk is associated with this type of climbing as the climber climbs about his/her last piece of equipment and takes the risk of falling twice as far as they are away from the last piece of gear (Bradley Kramers, personal communication, March 31, 2022). This happens because the rope doubles back on itself as the climber falls (Bradley Kramers, personal communication, March 31, 2022). Traditional climbing or “trad” climbing refers to climbing a route without bolts where the climber is placing gear in weakness/openings in the rock that they can clip into for safety (Bradley Kramers, personal communication, March 31, 2022). Ice climbing is described as technical climbing on an ice face (Bradley Kramers, personal communication, March 31, 2022). Technical climbing refers to ascending a vertical face with specialized tools on a route rated as 5.0 or higher on the Yosemite decimal scale. This scale is used to rate hikes, scrambles, and climbs based on how vertical they are (Bradley Kramers, personal communication, March 31, 2022). Ice climbing equipment includes, boots, crampons, ice tools, specialized ropes, and ice screws (Bradley Kramers, personal communication, March 31, 2022). Otherwise, all other equipment is the same and the goal of ascending is the same in

ice climbing (Bradley Kramers, personal communication, March 31, 2022). “Soloing” refers to climbing without any (in free climbing, not aid climbing) backup protection of a rope and is widely known however not widely practiced or encouraged in the climbing community (Bradley Kramers, personal communication, March 31, 2022). The goal of a climbing instructor is to teach and facilitate positive and meaningful outdoor climbing experience, the biggest concern being safety and risk management (Bradley Kramers, personal communication, March 31, 2022). The next biggest concern being making the experience enjoyable and educational (Bradley Kramers, personal communication, March 31, 2022). With these descriptions in mind, the safest condition in which to conduct a counseling group would be indoor bouldering or top roping with an instructor present.

Therapeutic Recreation

Therapeutic Recreation is a field of study and practice which is distinct from mental health counseling. The goal of this review is not to reinvent the wheel by re-creating therapeutic recreation. Recreational therapists work alongside helping and health professionals including physical therapists, art therapists, occupational therapists, and mental health counselors. (Patricia Ardovino, personal communication, April 4, 2022). Recreational therapists use art, music, adventure, and other play activities, but this does not mean they are art or music therapists (Patricia Ardovino, personal communication, April 4, 2022). They can also facilitate groups, but these groups are not the same as therapy groups that a mental health counselor would facilitate. While there can be tension between professions, the similarities and differences which are present point to the necessity that we collaborate as professions rather than compete (Patricia Ardovino, personal communication, April 4, 2022). This is also in the best interest of clients, as learning something in several different ways and having several forms of support makes that

information and support more accessible (Patricia Ardovino, personal communication, April 4, 2022). Leisure education, or teaching people how to engage in leisure in a therapeutic way, is a large part of therapeutic recreation (Patricia Ardovino, personal communication, April 4, 2022). This is clearly distinct from the agreed upon definition of counseling “a professional relationship that empowers diverse individuals, families, and groups to accomplish mental health, wellness, education, and career goals” (ACA 2010, pg. 3.). In some ways the field of therapeutic recreation is broader than counseling, as recreational therapists work across a range of mental and physical health settings using recreation to reach identified goals (Patricia Ardovino, personal communication, April 4, 2022). For example, a recreational therapist might work towards the physical rehabilitation goal of strengthening torso control after a spinal injury by facilitating exercises with a client using a pool and eventually kayaking exercises as the intervention (Patricia Ardovino, personal communication, April 4, 2022). Recreational therapists use task analysis to break down an activity into manageable parts (Patricia Ardovino, personal communication, April 4, 2022). Task analysis is like the idea of breaking down climbing tasks into the smallest possible mastery experience, which is associated with building self-efficacy (Boudreau & Gibbons, 2019; Llewellyn et al., 2008). While mental health is our realm as counselors, therapeutic recreation hopes to bypass the “mental blocks” which can be barriers to completing treatment goals of any kind (Patricia Ardovino, personal communication, April 4, 2022).

Depression and Bouldering Studies

There is compelling evidence for the use of climbing in a counseling setting to treat depression. In a 2015 study, bouldering was identified as an effective treatment for depression (Luttenberger et al.). This study implemented a rock-climbing intervention in a group counseling

setting. This intervention involved “bouldering psychotherapy therapy” for this group of 13 people for once per week for eight weeks for three hours at a time (Luttenberger et al., 2015). Sessions began with a meditation or mindfulness activity and a psychoeducational group session explaining the topic of group (Luttenberger et al., 2015). Then, the group participated in bouldering specific activities, followed by a free session of bouldering among small peer groups (Luttenberger et al., 2015). All of the above was facilitated by two mental health counselors who were also familiar with rock-climbing and educated in their respective countries (Luttenberger et al., 2015). The sessions closed with a mindfulness activity and discussion of how the topic and things learned during the session can be applied to individuals’ lives (Luttenberger et al., 2015). The control group was placed on a waitlist (Luttenberger et al., 2015). Both groups took the Beck Depression Inventory before and after the 8-week intervention (Luttenberger et al., 2015). On average, the experimental group showed an increase of six points on the beck depression inventory, which is a significant increase (Luttenberger, K. et al., 2015). The effect size of this result was reported to be $d=.77$, which is consistent with other forms of short-term group therapy (Luttenberger et al., 2015). This study was the only study of its kind, which directly examines the effect of a rock-climbing-based counseling intervention on a measure of depression. This study is the clearest evidence in support of using rock-climbing in a counseling setting with the goal of treating depression. This study does however beg the question of whether climbing is different in any way than general physical activity. The professionals wondered the same thing, which led to a study which examined on that exact question. Over a period of ten weeks, one group was given the bouldering psychotherapy intervention while another was given a home-based physical activity program (Karg et al., 2020). A different depression assessment was used in this study: the Montgomery-Asberg Depression Rating Scale (MADRS) which was designed as a more

sensitive depression screening assessment (Nedea, 2020). This assessment was designed to be more effective at identifying changes due to depression treatments (Nedea, 2020). The bouldering psychotherapy group in this study showed a significant decrease in this measure of depression as well (Karg et al., 2020). Other areas assessed which showed improvement after this intervention included anxiety, body image, and global self-esteem (Karg et al., 2020). Physical activity was found to be more effective in comparison to the waitlist group of the original trial, but not more effective than the bouldering group. This result is consistent with both the previous study and findings related to physical activity (Karg et al., 2020). The goal of examining this information is to identify how a counselor can realistically implement rock-climbing as a therapeutic modality for the treatment of mental health issues. Thus far, the only researchers to begin using this approach and evaluate its effectiveness are Luttenberger et al., 2015., and Karg et al., 2020. Another question which naturally arises then, is whether bouldering psychotherapy is as effective as the typical treatments for depression. Again, the researchers wondered about this as well. A study done in 2021 by the same researchers as the previous two studies looked to examine this question (Luttenberger et al., 2021). In this study, the effectiveness of bouldering psychotherapy was compared with the effectiveness of CBT (Cognitive Behavioral Therapy) on depression scores (Luttenberger et al., 2021). The researchers hypothesized that bouldering therapy would be equally effective to CBT (Luttenberger et al., 2021). The same manualized 10-week bouldering therapy was given to groups of no more than 11 participants with two counselors facilitating (Luttenberger et al., 2021). The MADRS depression assessment as well as the PHQ-9 were used in this study as dependent variables (Luttenberger et al., 2021). In addition, participants were given these assessments one year after the completion of the study (Luttenberger et al., 2021). Participants were divided into three

groups: bouldering therapy, CBT, and a physical exercise control group. Topics of bouldering therapy included mindfulness, center of gravity, handling limitations, expectations and standards, self-efficacy, self-esteem, fear and trust, social relationships, and the application of lessons learned to daily life (Luttenberger et al., 2021). Topics covered in the CBT group included mindfulness, psychoeducation, identifying dysfunctional beliefs, behavioral activation, social relationships, self-confidence, handling limitations, ABC technique, transforming dysfunctional beliefs, and application of lessons learned to daily life (Luttenberger et al., 2021). Both groups share similar themes, however only the bouldering group included climbing, physical activity, and a real time activity to apply and practice the new skills they were taught. CBT and Bouldering therapy were found to be equally effective at treating depression.

Rock-Climbing and Self-Efficacy

Kelley et al. (1997) found that participants with a variety of mental illnesses scored higher on multiple measures of self-efficacy following a rock-climbing intervention. These findings support the relationship between rock-climbing and self-efficacy as well as the therapeutic value of climbing. Llewellyn et al. found that self-efficacy was a reliable predictor of all sorts of rock-climbing behavior (2008). Among climbing behaviors, self-efficacy also predicted the likelihood that climbers engaged in medium and high-risk types of climbing at high levels of difficulty for males and females in indoor and outdoor climbing environments. Self-efficacy is necessary for rock-climbing, but the nature of the relationship appears to be more complicated. Boudreau & Gibbons describe mastery experiences, vicarious learning, verbal persuasion, and affective states as ingredients for self-efficacy, and examine the way that rock-climbing interacts with each of these (2019). Mastery experiences were shown to affect self-efficacy most positively (Boudreau & Gibbons 2019; Llewellyn et al., 2008). Mastery

experiences include participating in climbing tasks involving progressive steps, starting at an activity which everyone can successfully complete and getting harder as climbers become more educated and physically fit. Llewellyn et, al. also found vicarious learning experiences to be associated with self-efficacy (2008). Vicarious learning involves seeing someone similar to oneself complete a task. Boudreau & Gibbons found,

When the observer perceived him- or herself to be similar in height, age, or climbing proficiency as the model climber, the observer was more likely to be able to relate to the success of the model and develop self-efficacy for climbing that route. (2019, pg. 1055).

Negative affective states including anxiety were associated with lower self-efficacy. On the other hand, sometimes high self-efficacy was associated with higher expectations, and thus higher stress and pressure on climbers (Boudreau & Gibbons, 2019).

Self-efficacy in relation to physical activity in general is worth examining. Hu et al., manipulated the exercise-related self-efficacy of college age women (2007). They found that women enjoyed exercise more in the high self-efficacy condition. They also found that the influence of self-efficacy was more prominent in more physically demanding activities. These findings are consistent with other research citing self-efficacy as a prerequisite for rock-climbing participation. The relationship between rock-climbing and self-efficacy is still not completely clear (Llewellyn et al., 2008). The goal of the curriculum would be to attempt to foster self-efficacy using rock-climbing. Some ways to do that from the literature include developing an environment that is conducive to fostering self-efficacy. Boudreau and Gibbons (2019). They indicate that one can do this by encouraging collaborative experiences, effectively managing risks, individualizing the activity, using progressively challenging tasks, and having instructors

and participants who are similar enough that vicarious learning can occur (avoid using elite climbers to model to beginning climbers).

Climbing as a Trauma Intervention

Semantic or declarative memory is defined as memories which are stored actively and constructively (Van der Kolk, 1994). It is also associated with conscious recall of memory (Van der Kolk, 1994). Trauma interferes with this kind of memory, but not with non-declarative memory which refers to conditioned emotional responses skills, and sensorimotor sensations (Van der Kolk, 1994). In other words, the concrete information may be lost but the feelings and responses to the event are not. Sensory experiences and images do not fade over time and are difficult to put into words and explain. When responding to stress, traumatized individuals go straight to an emergency response as if the trauma were recurring (Van der Kolk, 1994). This occurs whether the original situation is relevant to the present situation or not because high emotional arousal retrieves those somatic memories. Animals and humans alike have been observed to avoid new things and return to familiar behavior whether that is beneficial or safe or not (Van der Kolk, 1994). When not hyper aroused, individuals choose more pleasant circumstances rather than the familiar (Van der Kolk, 1994). For example, animals who have been shocked in a box will return to the box when mildly stressed, not considering that the box is the source of the trauma (Van der Kolk, 1994). Traumatic memories and arousal states operate in a feedback loop that can absorb all other connections and detract from the ability to accurately perceive the present moment (Van der Kolk, 1994). The hippocampus is responsible for both processing new events and comparing them to past events as well as the inhibition of exploratory behavior (Van der Kolk, 1994). This is significant to the present subject of using climbing in a counseling setting as an intervention for PTSD and CPTSD because the hippocampus is also

involved in memory, spatial processing, and navigation (Yassa, 2022). All of these processes are required to engage in rock-climbing as rock climbers need to engage with their spatial surroundings, remember routes and movements, and decide which direction to go based on where they have already been. With a decrease in hippocampal functioning comes behavioral disinhibition which can explain the immediate jump to emergency mode in traumatized individuals (Van der Kolk, 1994). This raises the question of whether the physical activity and use of spatial memory associated with learning new routes while rock-climbing can mediate this process in some way or increase the overall health of this part of the brain. Serotonin is also involved in this process in that it inhibits the initiation of emergency mode suggesting that medications which increase serotonin in the brain may be helpful in treating PTSD (Van der Kolk, 1994). This also raises the question of whether rock-climbing can increase the amount of serotonin having a similar effect to this type of medication. If hyperarousal inhibits the hippocampus, can rock-climbing strengthen it, and combat the hyperarousal? If so, can rock-climbing activity be used as a valid treatment for PTSD? To summarize Van der Kolk, traumatic memories do not occur through ordinary recall, but as affect states, somatic sensations or as visual images (1994). In reference to treating PTSD with this information in mind, spatial distance needs to be created in the mind of the individual between the traumatic event and the present moment. Again, this description of PTSD treatment implies that helping the brain get better at this spatial separation hypothetically through rock-climbing might be beneficial to individuals with PTSD symptoms.

Rock-Climbing and Mindfulness

Mindfulness can be defined as the practice of nonjudgmental observation (Lee et al., 2017). Mindfulness has been shown to be an effective intervention in a variety of ways. For

example: increasing ability to sustain attention, ability to regulate emotions (Krumholz et al., 2021; Lee et al., 2017), and potentially the way we process facial expressions (Lee et al., 2017; Wheatley, 2021). Reports that mindfulness in rock climbers has been documented through anecdotal evidence but that there remained a gap in empirical research on the subject. This gap in the research is consistent with what is available on other uses of rock-climbing in counseling. In the Wheatly study, participants were given a bouldering intervention paired with a mindfulness activity in the experimental group, and a general physical activity paired with a mindfulness activity in the control group (2021). The bouldering group was found to have higher scores on mindfulness measures than the general physical activity, indicating that the activity of bouldering paired with mindfulness activity yields better outcomes than general physical activity (Wheatly, 2021). This information would inform an emphasis on mindfulness in a climbing group based on this paper.

Dialectical Behavior Therapy Skills

Rock-climbing could easily be used to reinforce and complement the emphasis on mindfulness that exists within DBT. The four core skills groups DBT uses include Mindfulness, Emotion Regulation, Distress Tolerance, and Interpersonal Effectiveness (Linehan, 2014). Rock-climbing offers numerous situations in which an individual can practice applying the other three groups of skills as well. Mindfulness is the core of DBT, and within certified DBT programs the curriculum circles back around to mindfulness skills every four weeks (Linehan, 2014). The reason for this is that mindfulness skills are necessary to learn in order to practice any of the other skills. For example, to regulate an emotion, one must be able to first become aware of that emotion through observation and description (Linehan, 2014). An example of mindfulness DBT skill includes observing the moment rather than reacting to it, letting thoughts and feelings roll

off oneself rather than sticking to them which is known as Teflon mind (Linehan, 2014). Another is known as describing the situation nonjudgmentally, with words that do not imply moral value or make judgements (Linehan, 2014). An example of these skills being used by a rock climber could be “I observe that I just fell off that route, I observe that am feeling frustrated.” The skill of nonjudgmental observation is in direct contrast to the toxic culture of judging oneself and others based on their climbing ability that can be present in some climbing gyms and discourage individuals from persisting in the activity (Strand, 2020). An example of an emotional regulation skill that can be reinforced with rock climbing is building mastery, or doing something regularly, that makes one feel “more competent” referring to increasing self-efficacy (Linehan, 2014). As previously discussed, there is a clear association between rock-climbing and the development of self-efficacy. Another emotion regulation skill involves getting regular physical activity, which is clearly present while rock-climbing (Linehan, 2014). Building positive experience includes doing things one enjoys and avoiding avoidance, both of which can be present in regularly rock-climbing (Linehan, 2014). Distress tolerance skills which can be practiced through climbing include healthy distraction, creating different physical sensations, doing something active, helping another person, encouragement, and radical acceptance. Radical acceptance- the practice of accepting reality including one’s own feelings- is something that is especially applicable in climbing as the activity can be challenging the more an individual participates (Linehan, 2014).

Curriculum Outline/Example

A very basic outline of the curriculum is outlined in the first Lutenberger study (Lutenberger et al., 2015). This outline could be applied to another theoretical or skills base approach. For example, the core DBT skill of mindfulness, interpersonal effectiveness, distress tolerance, and emotion regulation skills (Linehan, 2014). There are 8 weeks (about 2 months) of group, which would allow two passes through each skill area of DBT. I would compile the skills

which are the most compatible with use while climbing and facilitate discussions and assign homework on those skills. For example, interpersonal skills including DEAR MAN and GIVE FAST assertive communication skills would be feasible to practice in the context of communicating with one's belay partner or asking other group members to spot them while bouldering (Linehan, 2014). A skill which would not be compatible to use while climbing is "tipping the temperature" which refers to putting one's face in ice water or holding onto ice cubes. Even skills incompatible with active climbing could be practiced during break times or in moments of frustration. See appendix A for curriculum example (Luttenberger et al., 2015).

Multicultural Participation

At minimum, counseling in any setting using most theories and interventions should be conducted with consideration for multicultural clients' existence. This includes the use of rock-climbing in mental health counseling. Some basic cultural contexts clients bring with them include culture, race, ethnicity, gender, religion, sexuality, nationality, etc. (Hayes & Erford, 2017). Counselors should be cognizant that clients will see any technique or activity through their own cultural lenses and experiences (Hayes & Erford, 2017). It is important to consider both the role of climbing as a tool and the theory and skills which are being combined with climbing and how to make both fit each individual client's needs. This sounds complicated; however, it is something we should all already be doing. Even two clients of the same race and similar upbringing can have drastically different needs and goals. It would not make sense in that scenario to not use a technique or theory in a way each of those clients understands, though they do not culturally or racially appear so different. It will also be important to continue to be aware of our own cultural identities and perceptions as counselors and to continue to explore and build awareness for this throughout our career (Hayes & Erford, 2017). Using an unconventional

technique does not change basic multicultural counseling requirements. For example, if a counselor facilitating a bouldering based DBT skills group maintains the unconscious beliefs that “women are weak and in need of more guidance” and “men are strong and can figure it out on their own,” this would pose serious problems on both the DBT skills and basic counseling skills front and the bouldering skills and safety front. This hypothetical counselor may take more time’ instructing and hovering over the female clients and inhibit their autonomous practice. They might also provide limited instruction to the male clients in the group, which could lead to misunderstanding of DBT skills at best and to potentially injuring themselves bouldering at worst. Not to mention that the counselor in this hypothetical with rigid and archaic gender role biases probably has no idea what to do with nonbinary, transgender, or agender clients.

Combining climbing with any form of counseling places the counselor with the responsibility for not only the client's emotional safety as usual, but their immediate physical safety as well, if the counselor is also a climbing instructor (Bradley Kramers, personal communication, March 31, 2022). This added responsibility does not negate the value and potential of this technique. Using climbing and counseling together still has clear possibilities for making a positive impact due to the natural engagement of the client's physical body as well as their brain and cognition. That said, in this context, even more than in individual therapy sessions, the counselor must be aware of the clients’ immediate safety needs. This is relevant to multicultural considerations because a counselor who implicitly undervalues a client based on one or more of their identities should absolutely *never* be in charge of that individual’s immediate physical safety. Arguably, counselors are always somewhat responsible for clients’ physical safety, especially in the case of clients with history of self-harm and suicide attempts. For that reason, it would be important in a rock-climbing group to regularly assess clients for

self-harm urges and suicidal ideation as well as intent, means, and concrete plans to engage in those behaviors.

Gender Considerations

Women in adventure sports have historically been regarded either as less than their male counterparts or as “belay bunnies,” which refers to the girlfriends of male climbers who are “taken climbing” or only participating to belay their boyfriends (Robinson, 2008). In this writer’s own experience, an older man at the sugar loaf in Winona, MN remarked, “Oh, these are your girlfriends you brought to watch!” to this writer who regularly climbed at the time, a female friend who had no intention of climbing (or belaying anyone), and two male friends who also climbed. None of the four of us were romantically involved, and all of us felt somewhere between entirely horrified and vaguely uncomfortable with the comment. This is not to say that every single male rock climber sees women this way. Typically, the male view of women participating in rock-climbing ranges from acceptance and respect to the perception that women just should not participate and might prefer to be indoors where it is safer (Robinson, 2008.) The spirit of the latter is not only in direct opposition to several counseling theories and ethical standards but will not under any circumstances be tolerated in a counseling setting (ACA, 2014). In not-so-distant history, female outdoor educators rated themselves lower in rock-climbing skill than males did (Galpin, 1987). This suggests an internalization of male attitude towards women is present even in females who have made climbing their livelihood. It will be important to take care to avoid reinforcing negative messages as they do get internalized even by the very women who are defying them. Theories which can be integrated to combat and prevent these attitudes from leeching into the atmosphere of a therapeutic climbing group include person centered and feminist theory. Ethical standards which can be emphasized include autonomy: the right to self-

determination, nonmaleficence: the commitment to do no harm, and justice: a commitment to treating clients fairly (ACA, 2014).

Racial Considerations

An example of racial conflict which is present in the rock-climbing community includes the climbing of Devil's Tower National Monument. Throughout the 20th century, there has been a conflict between the national park service and the Native American community regarding the devils tower national monument (Dustin et al., 2002). Devil's Tower was designated as the first national monument in 1906 (Dustin et al., 2002). This was something done without significant consideration of the religious importance of Devil's Tower to the Native American community (Dustin et al., 2002). This religious importance is characterized by the presence of the tower as sacred in several creation stories and as a site where religious ceremonies are performed (Dustin et al., 2002). In the 1970s and 80s, rock climbers began to use this site as a recreational climbing area (Dustin et al., 2002). This is consistent with the history of poor treatment of Native Americans by the United States government and having climbing as an interest does not remove one from their nation's history of racism (Hayes & Erford, 2017). One way to avoid this sort of conflict regarding acceptable spaces to climb entirely is to participate in climbing indoors. The setting of a curriculum which uses the activity of climbing as a counseling intervention would likely be conducted indoors in a rock-climbing gym. If it were to be conducted outside, cultural consideration would be taken for the site at which the climbing group would gather.

In somewhat recent news, an attempt to make rock climbing more accessible to black college students was met with a negative backlash. In the 2021 semester at Cornell university, a class entitled "BIPOC (Black Indigenous and People of Color) Rock-Climbing" appeared as an available course for students to register to take (Chamberlain, 2021). This ignited an online

uproar in which the class was regarded as “segregation” and “evil” in its apparent exclusion of white students (Chamberlain, 2021). Meanwhile, there were in fact 8 sections of a “Basic Rock-Climbing” class available. The instructor of the course responded to the online backlash with an explanation that the class was not meant to be “exclusive” or “segregate” but rather was intended to provide minority students a space to participate in climbing (Chamberlain, 2021). He also reported that the reason a class like this should exist is that the typical climbing culture is predominantly white and impacted by racism, sexism, and sizeism (Chamberlain, 2021). That assertion is consistent with this writer’s own experience and observations, and again, does not mesh with our code of ethics as counselors (ACA, 2014). Unethical behavior will simply not be tolerated in a counseling group, whether in the form of racism, sexism, sizeism, etc.

Limitations

Adaptive climbing or climbing designed to be accessible to individuals with physical disabilities, exists within a larger adaptive sports movement (Move United, 2022). Every form of physical activity has physical limits; however, these limits are much further out than many people believe. For more information about adaptive climbing, please see Move United site. While it is important to recognize and mitigate the ways in which rock-climbing has the potential to be inaccessible through the field of adaptive climbing, it is also important for us to examine the ways in which rock-climbing is more accessible to some individuals depending on the needs of each individual. Perhaps counterintuitively, rock-climbing is a more accessible activity to individuals with certain mental and physical disabilities. Individuals with Autism Spectrum Disorder for example, may struggle to participate in physical education classes or participate in team sports in their community (Oriel et al., 2018). Rock-climbing allows individuals at all skill levels to start anywhere they feel comfortable and able to (Oriel et al., 2018). Parents in this

study endorsed the idea that climbing has allowed their children with ASD to participate in physical activity in a way that was unavailable to them in a traditional physical education and community team sport setting (Oriol et al., 2018). The same barrier applies in traditional counseling as well. Clients who struggle with verbal and social interaction exist and may find more physical interventions more accessible. The same way we use more structured interventions with clients who struggle with finding the words, we could use a more body focused rock-climbing intervention.

Luttenberger et al. notes that the mental health related limitations of rock-climbing interventions include active psychosis and suicidality as well as any medical reasons identified by an individual's primary care provider (2015). Though it would depend on the type of hallucination, actively psychotic clients could potentially misperceive something that would otherwise provide safety, for instance not clipping into an auto belay device. An actively suicidal client or client experiencing self-harm urges in this environment runs the risk of using the activity as self-harm, for example jumping from high places or taking unnecessary risks. Medical issues which have been identified to pose a risk while climbing by a client's primary care provider would make a client ineligible to participate (Luttenberger et al., 2015). Another accessibility issue is cost. Admittance to the gym, a harness, and shoes can easily cost a climber upwards of twenty dollars each time they climb. However, one answer to this concern is that a rock-climbing-based counseling group is evidence based mental health treatment, which could theoretically be paid for by insurance. A limitation of this writing itself is that it does not investigate potential negative effects of climbing on mental health. This writing does not cover the entirety of applications of climbing in counseling, rather, it focuses on the application with

the most evidence. This writing is also limited by the sparse empirical research in existence on the subject, as this is a relatively novel approach.

Summary

In summary, rock-climbing can be successfully combined with counseling interventions and may be healing for a variety of mental health concerns. These include depression, trauma, building self-efficacy, and providing skills practice. These two fields fill important gaps in each other's shortcomings. Rock climbing offers what counseling lacks in the form of a body focused physical activity aspect of intervention. On the other hand, , counseling offers a code of ethics, multicultural focus, and an emphasis on the best interest of clients to an activity which can lack these. The two represent a dialectic which can be resolved by combining the best aspects of both activities and providing the resulting intervention to mental health clients.

Author's Note

This project has been an important part of my integration of my own interests and personal story with my potential career pursuits. During and immediately after my first year and a half in the program my own mental health was the poorest it had ever been. I will not discuss my own mental health diagnoses however I will say that I was utterly crippled by a sense of doubt in everything I was doing. I had no faith in my abilities, choices, or even in my worth as a human being. I realized during this time that the *only* times I did not experience intrusive thoughts and constant anxiety were times when I was rock-climbing. Climbing was an interest I had as a child and adolescent and off and on as a young adult, however I had not yet seriously invested time into it. Along with starting my own counseling and anxiety medication, climbing became my entire life for the better parts of 2018 and 2019. In the beginning of 2018, I started working as a front desk attendant at a rock-climbing wall in Rochester which has since closed. The more time I spent there the better I began to feel. This was my only escape from the pressure

of school and the greater pressure of my own brain. The summer of 2018 that rock wall closed, but thankfully I had been there long enough to become absorbed in the rock-climbing community. I did not get rehired as a GA (Graduate Assistant) (which was a huge blessing in disguise). I spent that entire summer climbing as much as possible. I had enough money saved up that I could do that for a limited amount of time, however I was telling myself I was looking for a job. I eventually did find another job, or rather it found me. I was climbing on sugarloaf with some friends when one of them started talking to a very tall fellow. The tall fellow turned out to be Eric Barnard, the director of the outdoor education and recreation center (Winona State rock wall). I was informed the OERC was in desperate need of female staff and that I should apply to work there. I worked at the OERC from 2018 to 2021. I taught belay classes, co-led climbing trips, and even managed the wall for a semester. Throughout this time however, I began to realize that counseling had become a large part of how I communicated with others. In 2019, I was still in the program however passively. I took a complete break when social and family stress surpassed my coping skills and I had to return to my hometown in Arizona to move my parents out of my childhood home. Throughout all these experiences, counseling continued popping up in my relationships with other humans. I had not nailed down the boundaries piece yet, but I continuously found myself using counseling skills and being more comfortable with difficult emotions than most of my peers. I found myself being sought out for emotional matters and getting dragged into situations which were really not my business in the name of having “an objective observer” present. I realized two things as these instances kept occurring. The first, is that I will try to understand the people around me and be endlessly fascinated by other people’s emotions and experiences in every setting I inhabit. This is not something I can turn off. The other, is that I desperately needed to learn appropriate boundaries and have an outlet to channel

and hone the use of counseling skills. I realized I am a counselor at my core, and that this is something which will come out of me in ways that are inappropriate if I do not put the time and effort in to learn how and when to use these skills and tendencies for good. These realizations, as well as encouragement and some tough love from supportive others, led me to continue on with the program. I recommitted to the process, and it did not come easily. My first semester back was the roughest of my entire academic career and the beginning of the pandemic. That being the case, I made a resolution to myself that I had two options, finish the program, or be removed from it. The latter has not yet happened, which leaves finishing the program my only remaining option, even today as I write this. This remains the simplest form of my larger goal of learning and using counseling in a way which positively impacts those around me. Climbing did not turn out to be my passion as a job, however it helped me to gain a sense of self-efficacy which I had not ever developed. This allowed me to imagine having self-efficacy in another area, which is why there is a strong emphasis on self-efficacy in this paper. Climbing provided the only place which I felt calm and could be mindful of my body rather than my constant swirling thoughts. Climbing absorbed my broken brain, healed my sense of self as much as it could, and returned me to a sense of trust in myself, my career path, and my ability to achieve my goals.

References

- Boudreau, P., & Gibbons, S. (2019). A case study of the rock-climbing self-efficacy of high-school students. *Physical Educator*, 76(4), 1046-1063.
https://www.researchgate.net/publication/335728247_A_Case_Study_of_the_Rock_Climbing_Self-Efficacy_of_High_School_Students
- Brown, M. (2008). Comfort Zone: Model or Metaphor. *Australian Journal of Outdoor Education*, 12(1), 3-12.
- Chamberlain, S. (2021, May 5). *Cornell defends BIPOC only rock-climbing class after online uproar*. New York Post. <https://nypost.com/2021/05/05/cornell-defends-bipoc-only-rock-climbing-class-after-online-uproar/>
- Cushing, R. E., Braun, K. L., Alden, S. W., & Katz, A. R. (2018). Military-tailored yoga for veterans with post-traumatic stress disorder. *Military Medicine*, 183(5–6), e223– e231.
<https://doi-org.wsuproxy.mnpals.net/10.1093/milmed/usx071>
- Encyclopedia Britannica. (2021) *Rock-climbing*. The Britannica dictionary.
<https://www.britannica.com/dictionary/rock-climbing>
- Dustin, D. L., Schneider, I. E., McAvoy, L. H., & Frakt, A. N. (2002). Cross-cultural claims on Devils Tower National Monument: A case study. *Leisure Sciences*, 24(1), 79–88.
<https://doi-org.wsuproxy.mnpals.net/10.1080/01490400252772845>
- Galpin, T. (1987). *Is It Really a Man's World? Male and Female Outdoor Adventure Leaders Rate Their Competency*.
- Gerstein, J., & Association for Experiential Education, B. C. (1992). *Directory of Experiential Therapy and Adventure-Based Counseling Programs*.
- Hays, D. G. & Erford, B. T. (2017). *Developing multicultural counseling competence: A systems approach, 3rd ed.* Upper Saddle River, NJ: Pearson. ISBN-10: 0134522702, ISBN-13: 978- 0134522708
- Hersher, A. Hughes, L. Nguyen, P. Wall S. (2021). *Looking at trauma: A toolkit for clinicians*. Pennsylvania State University Press.
https://books.google.com/books?hl=en&lr=&id=pE8_EAAAQBAJ&oi=fnd&pg=PA25&dq=window+of+tolerance&ots=XsXbMD19_A&sig=rtPw7f3lon_wifxU3t1Pr5udn-Q#v=onepage&q=window%20of%20tolerance&f=false
- Hu, L., Motl, R. W., McAuley, E., & Konopack, J. F. (2007). Effects of self-efficacy on physical activity enjoyment in college-aged women. *International Journal of Behavioral Medicine*, 14(2), 92–96. <https://doi-org.wsuproxy.mnpals.net/10.1007/BF03004174>
- International Medical Aid. (2021, April 2) *Five mental health benefits of rock-climbing*. International Medical Aid. <https://medicalaid.org/5-mental-health-benefits-of-rock-climbing/>

- Karg, N., Dorscht, L., Kornhuber, J., & Luttenberger, K. (2020). Bouldering psychotherapy is more effective in the treatment of depression than physical exercise alone: Results of a multicentre randomized controlled intervention study. *BMC Psychiatry*, *20*.
- Kelley, M. P., Coursey, R. D., & Selby, P. M. (1997). Therapeutic adventures outdoors: A demonstration of benefits for people with mental illness. *Psychiatric Rehabilitation Journal*, *20*(4), 61–73.
- Kleinstäuber, M., Reuter, M., Doll, N., & Fallgatter, A. J. (2017). Rock-climbing and acute emotion regulation in patients with major depressive disorder in the context of a psychological inpatient treatment: A controlled pilot trial. *Psychology Research and Behavior Management*, *10*. <https://doi-org.wsuproxy.mnpals.net/10.2147/PRBM.S143830>
- Langseth, T., & Salvesen, Ø. (2018). Rock-climbing, risk, and recognition. *Frontiers in Psychology*, *9*. <https://doi-org.wsuproxy.mnpals.net/10.3389/fpsyg.2018.01793>
- Larew, B., & Haibach-Beach, P. (2017). Climb hard, train harder: supplemental training techniques for improved rock-climbing performance. *Journal of Physical Education, Recreation & Dance*, *88*(6), 13–20.
- Linehan, M. M. (2014). DBT (R) skills training handouts and worksheets, second edition (2nd ed.). Guildford Publications.
- Luttenberger, K., Karg, H. N., Berking, M., Kind, L., Weiss, M., Kornhuber, J., & Dorscht, L. (2021). Bouldering psychotherapy is not inferior to cognitive behavioral therapy in the group treatment of depression: A randomized controlled trial. *British Journal of Clinical Psychology*. <https://doi-org.wsuproxy.mnpals.net/10.1111/bjc.12347>
- Luttenberger, K., Stelzer, E.-M., Först, S., Schopper, M., Kornhuber, J., & Book, S. (2015). Indoor rock-climbing (bouldering) as a new treatment for depression: Study design of a waitlist-controlled randomized group pilot study and the first results. *BMC Psychiatry*, *15*. <https://doi-org.wsuproxy.mnpals.net/10.1186/s12888-015-0585-8>
- Move United. (2022, August 6). Rock climbing. Move united. <https://moveunitedsport.org/sport/rock-climbing/>
- Nedea, D. (2020, July 8). *Montgomery-asberg depression rating scale (MADRS) score*. MDApp. <https://www.mdapp.co/montgomery-asberg-depression-rating-scale-madrs-score-calculator-497/>
- Oriel, K. N., Kanupka, J. W., Fuehrer, A. T., Klumpp, K. M., Stoltz, K. N., Willey, D. W., & Decvalcante, M. L. (2018). The impact of a rock-climbing program for adolescents with autism spectrum disorder: a pilot study. *International Journal of Kinesiology in Higher Education*, *2*(4), 113–126.
- Ong, I. (2021). Treating complex trauma survivors: A trauma-sensitive yoga (TSY)-informed psychotherapeutic approach. *Journal of Creativity in Mental Health*, *16*(2), 182–195. <https://doi-org.wsuproxy.mnpals.net/10.1080/15401383.2020.1761498>

- Pennington, P. (2022). *How does Rock-Climbing Help with your Mental Health?* Rock-climbing. <https://rockclimbingcentral.com/how-does-rock-climbing-help-with-your-mental-health/#:~:text=Rock%20climbing%20has%20had%20at%20least%20three%20studies,and%20helps%20combat%20anxiety%20while%20increasing%20your%20self-confidence.>
- Robinson, V. (2008). *Everyday masculinities and extreme sport: Male identity and rock-climbing*. Berg.
- Strand M. Attitudes towards disordered eating in the rock-climbing community: a digital ethnography. *Journal of Eating Disorders*. 2022 Jul 7;10(1):96. doi: 10.1186/s40337-022-00619-5. PMID: 35799224; PMCID: PMC9264506.
- Talbot, M. (2013, November 16). Climbing out of addiction and depression [Video]. TED. https://www.youtube.com/watch?v=kayj6oew9_M
- West, A., & Allin, L. (2010). Chancing your arm: the meaning of risk in rock-climbing. *Sport in Society*, 13(7–8), 1234–1248. <https://doi-org.wsuproxy.mnpals.net/10.1080/17430431003780245>
- Wheatley, K. A. (2021). Exploring the relationship between mindfulness and rock-climbing: a controlled study. *Current Psychology: A Journal for Diverse Perspectives on Diverse Psychological Issues*. <https://doi-org.wsuproxy.mnpals.net/10.1007/s12144-021-01593-y>
- van der Kolk B. A. (1994). The body keeps the score: memory and the evolving psychobiology of posttraumatic stress. *Harvard review of psychiatry*, 1(5), 253–265. <https://doi.org/10.3109/10673229409017088>
- Yassa, M. A. (2022, July 29). *hippocampus*. Encyclopedia Britannica. <https://www.britannica.com/science/hippocampus>

Appendix A

Bouldering Psychotherapy Curriculum (Luttenberger et al., 2015)

Session Topic

1 Introduction to bouldering, support for group cohesion, obtaining an overview of the physical abilities of the participants

- Introduction to mindfulness-breathing techniques
- First steps into bouldering: safety rules, getting to know the place, spotting, difficulty of routes
- First experiences with bouldering, sharing

2 Old habits – new ways

- Body perception in shifting the focus
- Bouldering techniques II: Self-awareness, body perception, center of gravity. Focusing on legs instead of arms
- Different ways of bouldering the same boulder: old habits vs. new possibilities

3 Expectation versus experience, healthy handling of limitations

- Focusing on the moment: what are my expectations of me?
- Feelings of limitation: when is it better to push, when to ease up?
- Bouldering techniques III: different possibilities for holding and stepping

4 Self-efficacy: the power of small steps

- Self-efficacy and one's own experiences
- Bouldering techniques IV: twisting and Egyptian

5 Fear and trust

- Fear, anxiety, and panic: what to do?
- Breathing and other techniques when experiencing fear

- Differences between objective risks and false alarms

6 Trusting yourself and trusting others

- Acknowledging and accepting your own limits
- Accepting help from others
- Handling the emotions of shame or disappointment

7 Transfer to daily life

- Sharing of lessons learned
- One's own daily life problems: transferring to bouldering situations and back?

8 Reflection of lessons learned, free topic (reflecting the group's wishes)