



**A COMPARATIVE STUDY BETWEEN THE USE OF
CONVENTIONAL TREATMENT COMBINED WITH
ENERGY IMPULSE THERAPY TO CONVENTIONAL
TREATMENT ALONE IN ACUTE BRUISE AND
PAIN INJURED BY THAI BOXING**

KAMONTHIP TRIWANAPONG

**MASTER OF SCIENCE
IN
ANTI-AGING AND REGENERATIVE SCIENCE**

**SCHOOL OF ANTI-AGING AND REGENERATIVE MEDICINE
MAE FAH LUANG UNIVERSITY**

2015

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ACKNOWLEDGEMENTS

First and foremost, I deeply appreciate my large respected advisor, Dr. Karnt Wongsupasawat, and also my large respected teachers, Professor Dr. Thamthiwat Narawatwanchai and Assistant Professor Dr. Phakkharawat Sittiprapaporn, for their helpful suggestions for improvement of my research knowledge. Without them, this independent study would not be completed.

I also would like to express grateful thanks to Assistant Professor Dr. Akkarach Bumrungpert, Department of Nutrition and Assistant Professor Dr. Tawee Saiwichai, Faculty of Public Health, Mahidol University, for their help as the external examiner of the research defense.

Furthermore, I also would like to express special thanks to Dr. Piyanuch Rakpanich, MD., ONDAMED's expert and Dr. Silvia Binder, The CEO and owner of ONDAMED GmbH, Germany, who has been especially helpful during my study and practice on ONDAMED device.

Special thanks go to all the research participants, Khun Jit Cheosakul and Khun Sasirada Sutthiluck, the management of Rajadamnern Singh Muay Thai Academy (RSM) and also RSM's Thai Boxing students. I also thanks all staffs of Mae Fah Luang Hospital, Bangkok and School of Anti-aging and Regenerative Medicine, Mae Fah Luang University for all of this support and encouragement.

Lastly, I would like to express my love and gratitude to my family, for their love, understanding, kindness and support throughout the duration of my study at Mae Fah Luang University.

Kamonthip Triwanapong

Independent Study Title A comparative Study between the use of Conventional Treatment Combined with Energy Impulse Therapy to Conventional Treatment Alone in Acute Bruise and Pain Injured by Thai Boxing

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Degree Master of Science (Anti-aging and Regenerative Medicine)

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ABSTRACT

The objectives of this study were to compare the result of acute bruise and pain treatment in patient which were injured by Thai Boxing through the use of conventional treatment combined with energy impulse therapy (by ONDAMED devise) to conventional treatment alone. Bruise treatment recovery criteria were measured by using ‘Bruise Rainbow Scale’ and pain treatment using ‘Wong-Baker Facial Grimace Pain Assessment Scale’, and recovery period was measured by recording number of recovery day(s).

When compared the results of treatment between the two groups by applying t-statistics at 95% of confidence interval or below 0.05 significant level. The result indicates the significant differences between the recovery days of bruise and pain treatment of two groups. The aggregate mean score and SD of bruise treatment showed that the respondents who cured by conventional treatment have been taken longer period ($\bar{x} = 10$, $SD = 2.62$) than combining treatment ($\bar{x} = 6$, $SD = 1.84$). In addition, the pain treatment results indicated the same direction, mean score and SD showing that the respondents who cured by conventional treatment have been taken

longer recovery period ($\bar{x} = 7.47$, $SD = 2.34$) than combining treatment ($\bar{x} = 4.48$, $SD = 1.53$).

This study indicates that the use of conventional treatment combined with the energy impulse therapy of bruise and pain patients which were injured by Thai Boxing spent shorter recovery period than conventional treatment alone. Therefore, energy impulse therapy should be considered as another alternative for healing bruise and pain.

Keywords: Conventional Treatment/Energy Impulse Therapy/ONDAMED/Bruise/Pain/Thai Boxing



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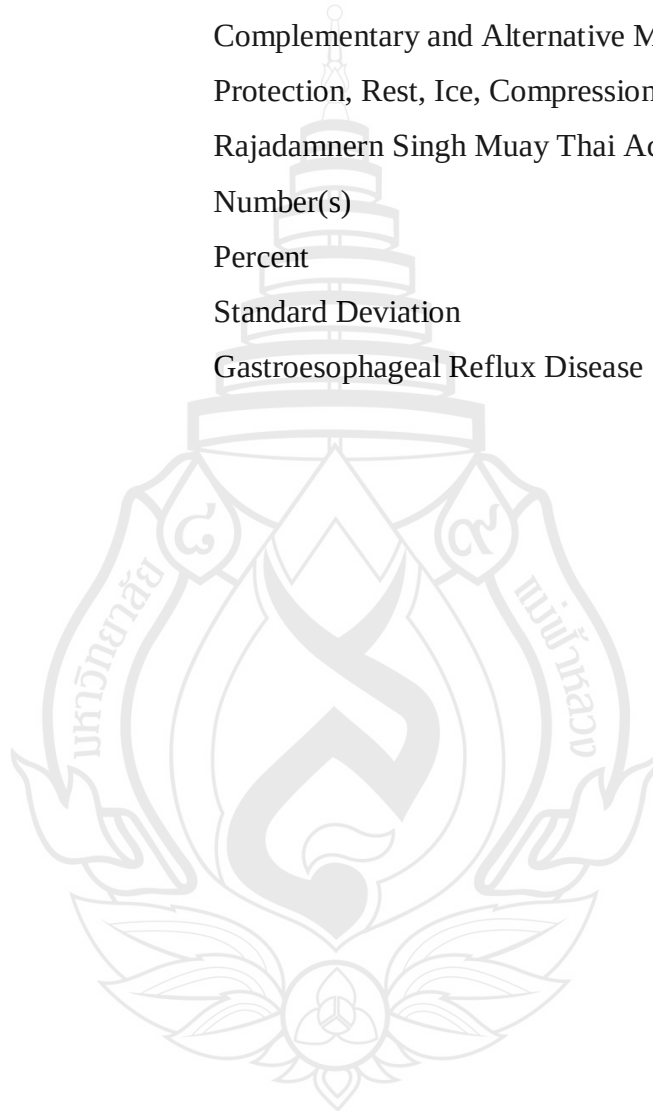
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SYMBOLS AND ABBREVIATIONS

R-I-C-E	Rest, Ice, Compression and Elevation
CAM	Complementary and Alternative Medicine
P-R-I-C-E	Protection, Rest, Ice, Compression and Elevation
RSM	Rajadamnern Singh Muay Thai Academy
n	Number(s)
%	Percent
S.D.	Standard Deviation
GERD	Gastroesophageal Reflux Disease



CHAPTER 1

INTRODUCTION

1.1 Background and Rationales

This Independent Study intends to compare the results of bruise and pain treatment in patient injured by Thai boxing practicing through the use of energy impulse therapy treatment combined with conventional treatment to conventional treatment only. Bruise and pain injury is classified as sport injury and energy impulse therapy that is classified as energy medicine using for treatment. It is used as treatment tool together with conventional treatment compared with conventional treatment alone.

Physical activity and exercise are increasingly preferred by Thai people because physical activity and exercise will enhance our body's strength, delight our mind, and help to reduce risk of several diseases, especially chronicle diseases such as hypertension, diabetes, dyslipidemia, heart disease, etc. From data of World Health Organization (WHO), mortality rate that is not caused by transmitted diseases was found in South East Asia by 54% in 2005. These diseases are able to be prevented by effective and cheap methods. From scientific data, it was found that good food and sufficient exercise are important element for reducing several diseases (e.g., Heart Disease, Stroke, Type II Diabetes) by 80% and they are also able to prevent cancer by 40%. WHO established a policy on Diet, Physical Activity and Health (DPAS) in the 57th meeting on November 22nd, 2004, at Yang Kung, Burma, with the proposal that every country should emphasize on and enhance potential of developing process and knowledge on food and physical activities leading to vigorous and serious health promotion. (DPAS: Diet, Physical Activity and Health, 2004)

Physical activity is defined as any bodily movement produced by skeletal muscle that requires energy expenditure. Physical inactivity has been identified as the fourth

leading risk factor for global mortality causing an estimated 3.2 million deaths globally. Regular moderate intensity physical activity – such as walking, cycling, or participating in sports – has significant benefits for health. For instance, it can reduce the risk of cardiovascular diseases, diabetes, colon and breast cancer, and depression. Moreover adequate levels of physical activity will decrease the risk of a hip or vertebral fracture and help control weight. (DPAS: Diet, Physical Activity and Health, 2004)

Even though physical activity or exercise benefit for health, but it can cause an injury. Injury can happen to anyone, no matter have an experience of fitness level. The most common injuries found in sport that could be divided into 2 types including:

1. Acute injury
2. Overuse injury

In this study, researcher select the injuries from Thai Boxing practicing as the case study. Because Thai Boxing is an ancient sport of Thailand and has been popular in every class of Thai People, the most common injuries among boxers include:

1. Cuts and bruises
2. Sprains and strains
3. Concussion
4. Fracture
5. Shoulder dislocation

(Common Boxing Injuries & Prvention, n.d.)

Healings of bruise and pain by conventional treatment primarily include R-I-C-E (Rest, Ice, Compression and Elevation) therapy and medication therapy. However, there are more another alternatives such as Energy Medicine, Meditation Therapy, treatment by supplement and other constitute Complementary and alternative medicine (CAM).

Therefore, conventional treatment may not be the absolute answer to acute bruise and pain treatment. In addition, medical and health technology has been researched and developed more and more comprehensively. Alternative approaches to treat the injuries have been more acceptable among patients. An example is Suzanne Somers (actress, author and zealous crusader for anti-aging medicine and alternative methods), from her book BREAKTHROUGH, Eight Steps To Wellness, she writes about what makes us age, what makes us sick, and how breakthrough technology such as ONDAMED delivered “truly miraculous” results. ONDAMED is a pulsed electromagnetic bio-feedback device

invented by Rolf Binder. It has been used in Germany for over a decade and in the United States for many years. It has quickly become indispensable for the practice of Energy Medicine (Suzanne Somers, 2008).

Given the above mentioned reasons, I propose to conduct an independent study on the topic of “A Comparative Study between the use of conventional treatment combined with energy impulse therapy to conventional treatment alone” . I do research each approach of conventional treatment and energy impulse therapy by using ONDAMED device in both acute bruise and pain patients which were injured by Thai boxing practicing including methods, advantage, disadvantage as well as limitation for the benefit of being the guideline for Thai medical personnel in selecting integrated technology for healing the patients with more effectiveness.

1.2 Objectives

1.2.1 To compare the results of bruise treatment in patient injured by Thai boxing through the use of conventional treatment combined with energy impulse therapy (by ONDAMED device) and conventional treatment alone.

1.2.2 To compare the results of pain treatment in patient injured by Thai boxing through the use of conventional treatment combined with energy impulse therapy (by ONDAMED device) and conventional treatment alone.

1.3 Hypotheses

1.3.1 Bruise in patient injured by Thai boxing and treated with conventional treatment combined with energy impulse therapy (by ONDAMED device) spend shorter period of treatment and recovery than conventional treatment alone.

1.3.2 Pain in patient injured by Thai boxing and treated with conventional treatment combined with energy impulse therapy (by ONDAMED device) spend shorter period of treatment and recovery than conventional treatment alone.

1.4 Conceptual Framework

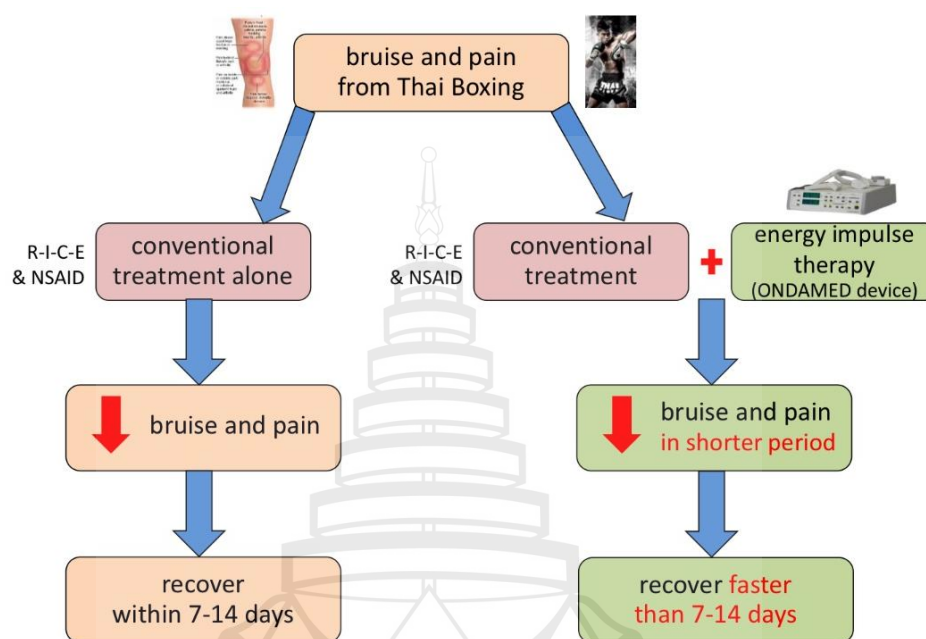


Figure 1.1 Research Conceptual Framework

1.5 Benefits and Applications

1.5.1 To implement energy impulse therapy (ONDAMED device) as another alternative for healing acute bruise and pain.

1.5.2 To be the guideline for Thai medical personnel in selecting integrated technology for healing acute bruise and pain with more effectiveness.

1.5.3 To utilize the effectiveness of energy impulse therapy (ONDAMED device) in healing acute bruise and pain in people who practice Thai boxing and to motivate those people to pay attention on training and reduce worry on possible bruise and pain caused by Thai boxing.

1.6 Scope of Independent Study

The subjects of this Independent Study were 42 healthy volunteers in the age of 20-45 years suffering with bruise and acute pain caused by Thai boxing.

1.7 Limitation on Independent Study

1.7.1 From scope of Independent study, this study investigated on patient with bruise and acute pain only. As a result, in the event that the patient has another symptom or beyond the scope of this study or other symptoms caused by other causes, they would be excluded from this study.

1.7.2 Since ONDAMED device is an medical equipment used in Mae Fah Luang Hospital, all patients needed to be treated by ONDAMED were operated at Mae Fah Luang Hospital only. As a result, all participants were Thai boxers and those who were practicing Thai boxing and living near hospital with convenience to visit the hospital.

1.8 Operational Definitions

The operational definitions are provided below:

1.8.1 Bruise

Also known as contusion, the injury of the soft tissues resulted in breakage of the local capillaries and leakage of red blood cell. In the skin it can be seen as a reddish-purple discoloration that does not blanch when pressed. When a bruise fades, it becomes green and brown, as the body metabolizes the blood cells in the skin. It is best treated with local application of a cold pack immediately after injury.

1.8.2 Pain

Pain is an unpleasant sensation in animals that is caused by acute or perceived injury to body tissues and produces physical and emotional reactions. Presumably, pain sensation has evolved to protect our bodied from certain actions and avoid others. Pain might be called a protector, a predictor, or simply a hassle.

18.3 Pain Management

The process of providing medical care that alleviates or reduces pain. Mild to moderate pain can usually be treated with analgesic medications, such as aspirin. For chronic or severe pain, opiates and other narcotics may be used, sometimes in concert with analgesics; with steroids or non-steroidal anti-inflammatory drugs when the pain is related to inflammation; or with antidepressants, which can potentiate some pain medications without raising the actual dose of the drug and which affect the brain's perception of pain. Narcotics carry with them the potential for side effects and addiction. However, the risk of addiction is not normally a concern in the care of terminal patients. For hospitalized patients with severe pain, devices for self-administration of narcotics are frequently used. Other procedures can also be useful in pain management programs. For bedridden patients, simply changing position regularly or using pillows to support a more comfortable posture can be effective. Massage, acupuncture, acupressure, and biofeedback have also shown some validity for increased pain control in some patients.

1.8.4 Sports Injury

Sports injuries are injuries that occur in athletic activities. They can result from acute trauma, or from overuse of particular body part.

1.8.5 Thai Boxing

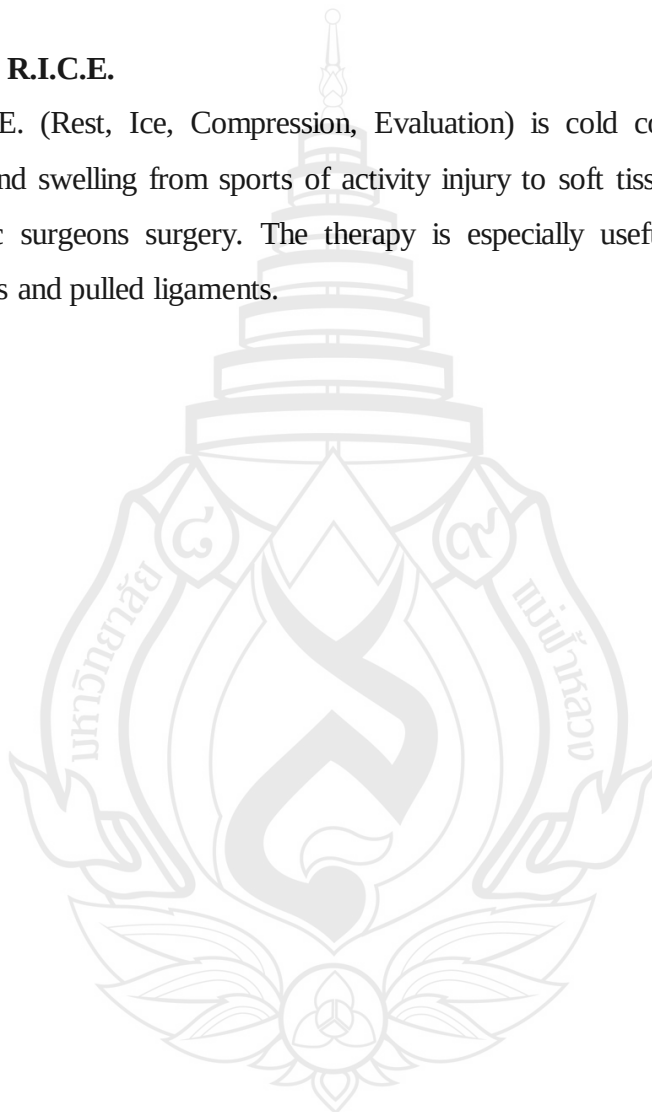
Thai Boxing or Muay Thai is a combat sport from the muay material arts of Thailand that uses stand-up striking along with various clinching techniques. This physical and mental discipline which includes combat on foot is known as 'the art of eight limbs' because it is characterized by the combined use of fists, elbows, knees, shins and feet, being associated with a good physical preparation that makes a full-contact fight very efficient.

1.8.6 Treatment

Treatment or Therapy means ‘curing, healing’ and is the attempted remediation of a health problem, usually following a diagnosis. In the medical field, it is synonymous with the word ‘therapy’. Among psychologists, the term may refer specially to psychotherapy or talk therapy.

1.8.7 R.I.C.E.

R.I.C.E. (Rest, Ice, Compression, Evaluation) is cold compression therapy to reduce pain and swelling from sports of activity injury to soft tissues and recommended by orthopedic surgeons surgery. The therapy is especially useful for sprains, strains, pulled muscles and pulled ligaments.



CHAPTER 2

LITERATURE REVIEW

2.1 Conventional Treatment of Sports Injuries

In Self-treatment, a five-point program to handle injuries; the key is P-R-I-C-E (Protection, Rest, Ice, Compression, and Elevation) is used as followed:

2.1.1 Protection

Injured tissues must be protected against further injury. Protect small injuries by applying bandages, elastic wraps, or simple splints. Something as easy as taping an injured toe to its healthy neighbor can do the job. See the doctor for problems that require precision splints or casts.

2.1.2 Rest

Injured tissues need time to heal. It is an obvious principle, but once you are hooked on exercise you may be tempted to ignore it. Do not give in to temptation — you will shortchange yourself with shortcuts. But you can rest selectively; you may have to give up tennis while your serving shoulder recovers from tendinitis, but you can still walk, jog, or hike. In a curious way, an injury is often a blessing in disguise, forcing you to diversify your workouts and acquire new skills.

2.1.3 Ice

It is the cheapest, simplest, most effective way to manage many injuries. Ice is an excellent anti-inflammatory, reducing swelling and pain. For best results, apply an ice pack for 10 to 15 minutes as soon as possible after an injury. Repeat the ice treatment each hour for the first four hours, then four times a day for the next two to three days. Protect skin with a thin cloth, and do not allow your skin to become red, blistered, or

numb. After 48 to 72 hours, switch to heat treatments, using the same schedule and principles.

2.1.4 Compression

Pressure will help reduce swelling and inflammation. In most cases, a simple elastic bandage will suffice; it should be snug but not too tight. Remember that swelling may develop slowly hours after an injury, so you may have to loosen your wrap. Another trick is to place a small piece of foam rubber directly on the injured area before you wrap it; this will allow you to put gentle pressure where it's needed without constricting an entire joint or limb.

2.1.5 Elevation

It's a simple strategy that enlists the force of gravity to drain fluid away from injured tissues, reducing swelling, inflammation, and pain. Keep the sore foot or other limb up on a hassock or put a pillow under it in bed; elevating an injured area will help you get back to Earth faster. (Harvard Medical School, 2010)



Source R-I-C-E (Rest, Ice, Compression, and Elevation) Treatment (n.d.)

Figure 2.1 R-I-C-E (Rest, Ice, Compression, and Elevation) Treatment

2.2 Thai Boxing

Thai boxing is an ancient sport of Thailand that has been popular in every class of Thai people. Previously, Thai boxing had no written rule however the judge clarified the rules of each competition. Since these rules had been used extensively, they became tradition and criteria for subsequent competition.

2.2.1 History of Thai Boxing

There is no explicit evidence of commencement of Thai boxing. However, there are some beliefs that Thai boxing was invented for such a long period and it may be occurred together with Thai nation because Thai boxing is one of Thai arts that is hard to be imitated. Formerly, Thai boxing was trained among soldiers because Thailand formerly had several battles with neighboring countries. In addition, there was no gun in ancient war, hand to hand combat and sword was important. However, some Thai people considered that battle with sword was too hand-to-hand and may be too dangerous for soldiers, Thai people were trained kicking and shoving away with foot to keep proper distance with enemies and proper distance for easier fence. Subsequently, there were some people modified such hand-to-hand battle style as one of Thailand's arts for showing in various festivals. As a result, Thai boxing was popular and trained extensively until there were several Thai boxing schools established. However, they were formerly famous sword schools with professional trainers. As a result, there were 2 objectives of Thai boxing training in such period including:

1. For fighting with enemies;
2. For self-defense

In such period, anyone who had good ability on sword, he must be good at Thai boxing as well. As a result, during such period, the objective of Thai boxing training was to train sword along with Thai boxing for becoming soldiers. After season of war, Thai boxing was used for fun and gambling. Skillful Thai boxer of each village will compete in festival for gambling. In such period, Thai boxing was hand-hand fighting without any rope-binding. In early Ayutthaya period, there was a Thai boxer who built up Thailand's reputation on boxing. He was Nai Khanom Tom who used Thai boxing to fight with ten

Burmese boxers and won them all until the King of Burma said that "Although Thai people have no sword, they still have kick." As a result, Nai Khanom Tom was compared as the Father of Thai Boxing because he built up Thailand's reputation on boxing since then.

In the following period, Thai boxing was still preferred to be trained with sword for war and self-defense. However, there were some people practiced Thai boxing for participating in competition held in several festivals. In the late Ayutthaya period, some kings of Thailand were also skillful in boxing, for example, Phra Chao Suea or Khun Luang Sorasak who escaped from royal palace to compete Thai boxing with villagers and always won. Subsequently, Thai people perceived and accepted that he was really skillful in Thai boxing. In the following period, there were several Thai kings who were excellent at Thai boxing such as King Taksin.

In addition, in the late Ayutthaya period, Thai boxing was added with rope-binding, i.e., binding boxer's hands with plain rope or rope soaked with oil and pound glass. As a result, some boxers may be harmed to dead in some matches. Consequently, Thai boxing of this period was very dangerous. In the following period of the late Ayutthaya period, Thai boxing was trained in several boxing schools extensively until Rattanakosin period. In Rattanakosin period, there were several Thai boxing matches held for entertainment in several boxing rings, for example, Suan Chao Chet Boxing Ring and Suan Kularb Boxing Ring. There was rope-binding tradition in boxing of this period until boxing gloves were extensive in Thailand. As a result, Thai boxers in the following period have were boxing gloves since then. However, the art of eight limbs or the use of fists, elbows, knees, shins and feet was maintained up till

2.2.2 Benefits of Thai Boxing

Anyone who practices Thai boxing will receive the following benefits: (not for purpose of money)

2.2.2.1 Build self-confidence

2.2.2.2 Be brave

2.2.2.3 Have better mental power

2.2.2.4 Be more calm and prudent and not too much sensitive

2.2.2.5 Be more careful and reasonable

2.2.2.6 Be durable with more determination for building capability

2.2.2.7 Have more cleverness

2.2.2.8 Be durable, strong and dauntless

2.2.2.9 Be loyal and equitable (evaluated from above topics)

As a result, it could be considered that Thai boxing helps to build physical and mental fitness. Consequently, anyone who is learning and practicing Thai boxing strives to achieve his goal.

2.2.3 Postures of Thai Boxing Destruction

There are 15 postures of excellent Thai Boxing Destruction recorded by ancient teachers for using the art of eight.

Table 2.1 The 15 Actions of Mae Mai Muay Thai

	Mae Mai Muay Thai	Usage	Example Picture
1	Salab Fun Pla (สับฟันปลา) Zig-zag sting	For blocking and dodging the weapons of the enemy.	
2	Pak sa wak rung (ปีกขาเหวกรัง) Break into nests of bird	For attacking when the opponent into the ring and careless.	

Table 2.1 (Continued)

	Mae Mai Muay Thai	Usage	Example Picture
3	Cha wa sud hok (ชาวซัดหอก) Java beat pike	Opponent's defense and responding with the elbow.	
4	Inao tang krij (อิเหนาแทงกฤษ) Aiehna dagger stab	Opponent's defense and responding with knee.	
5	Yok kao pra su main (ยกเขาพระ สุเมรุ) Uplift the Mount Meru	Preventing swing foot and responding with 45 degree kick.	
6	ดาเถรค้ำฟัก (Ta then kum Fuk) Ta Then push Gourd	Responding with a jab and punch up 60 degrees.	

Table 2.1 (Continued)

Mae Mai Muay Thai	Usage	Example Picture
7 มอญยันหลัก (Mon yan Lak) Mon push pole	Against an opponent with the foot.	
8 น้กตุกตอย (Pak luk toi) Sticky pins	Against an opponent with the elbow.	
9 จระเข้ฟาดหาง (Jarakaefad hang) Crocodile tail strike	Against an opponent with kick.	
10 หักวงไธยา (hak ngung iyara) Broken trunk Erawan	Nudge with top of the thigh.	

Table 2.1 (Continued)

	Mae Mai Muay Thai	Usage	Example Picture
11	นาคาบิดหาง (Na ka bid hang) Twist tail naka	Twist the opponent's leg and attack with knee at calf.	
12	วิรุณหกกลับ (Wi run hok krub) Bird turned back	Against the kick of opponent with foot .	
13	ดับชวาลา (Dub chawala Shut the light eye Chawala	Push away opponent's fist and respond with fists.	

2.2.4 Boxing Injuries

As the above reviews about Thai Boxing or Muay Thai, it is characterized by the combined use of fists, elbows, knees, shins and feet, being associated with a good physical preparation. Injury can happen to anyone, no matter have an experience of fitness level.

The most common injuries among boxers include:

1. Cuts and bruises
2. Sprains and strains
3. Concussion
4. Fracture
5. Shoulder dislocation

(Common Boxing Injuries & Prevention, n.d.)

2.3 Energy Medicine

Energy medicine, energy therapy, energy healing, or spiritual healing a branch of complementary and alternative medicine, holds the belief that a healer can channel healing energy into the person seeking help by different methods: hands-on, hands-off, and distant (or absent) where the patient and healer are in different locations. There are various schools of energy healing. It is known as biofeedback energy healing, spiritual healing, contact healing, distant healing, therapeutic touch, Reiki or Qigong. Spiritual healing is largely non-denominational: practitioners do not see traditional religious faith as a prerequisite for effecting a cure. Faith healing, by contrast, takes place within a religious context.

Early reviews of the scientific literature on energy healing were equivocal and recommended further research, but more recent reviews have concluded that there is no evidence supporting clinical efficacy. The theoretical basis of healing has been criticized, research and reviews supportive of energy medicine have been criticized for containing methodological flaws and selection bias and positive therapeutic results have been dismissed as the result of known psychological mechanisms.

Edzard Ernst, lately Professor of Complementary and Alternative Medicine at the University of Exeter, has warned that "healing continues to be promoted despite the absence of biological plausibility or convincing clinical evidence ... that these methods work therapeutically and plenty to demonstrate that they do not." Some claims of those purveying "energy medicine" devices are known to be fraudulent and their marketing practices have drawn law-enforcement action in the U.S. (Edzard Ernst, n.d.)

Classification of Energy Medicine

1. Veritable Energy Medicine: include magnet therapy, colorpuncture and light therapy. Mainstream medicine involving electromagnetic radiation (radiation therapy, or magnetic resonance imaging) is not considered “energy medicine” in the terms of complementary medicine. Cymatic therapy uses sound waves.

2. Putative Energy Medicine : include Biofield energy healing therapies where the hands are used to direct or modulate “energies” which are believed to effect healing in the patient; this includes spiritual healing and psychic healing, Therapeutic touch, Healing Touch, Esoteric healing, Magnetic healing (now a historical term not to be confused with Magnet therapy), Qigong healing, Reiki, Pranic healing, Crystal healing, distant healing, intercessionary prayer, etc. Acupuncture and Ayurvedic medicine also come within this category. Concepts such as Qi (Chi), Prana, Mana, Pneuma, Vital fluid, Odic force, Orgone, etc. are amongst the many terms which have been used to describe these putative energy fields, but are not necessarily used to refer to energy medicine. Yoga, for instance, has historically been believed to modify the body's subtle energy pathways - the Prana - within the body, but Yoga includes actions such as stretching “healing at a distance” characteristic of energy medicine (Edzard Ernst, n.d.)

2.4 Research and Previous Studies

2.4.1 Sports Injury and Treatment

Bahr and Krosshaug (2005) researched on “Understanding injury mechanisms: a key component of preventing injuries in sport”. They found that anterior cruciate ligament (ACL) injuries are a growing cause of concern, as these injuries can have serious consequences for the athlete with a greatly increased risk of early osteoarthritis. Using specific training program, it may be possible to reduce the incidence of knee and ankle injuries. However, it is not known which program components are the key to preventing knee and ankle injuries or how the exercises work to reduce injury risk. Our ability to design specific prevention program, whether through training or other preventive measures, is currently limited by an incomplete understanding of the causes of injuries. A multifactorial approach should be used to account for all the factors involved-

that is, the internal and external risk factors as well as the inciting event (the injury mechanism). Although such models have been presented previously, we emphasize the need to use a comprehensive model, which accounts for the events leading to the injury situation (playing situation, player and opponent behavior), as well as to include a description of whole body and joint biomechanics at the time of injury.

Saowanee Naowapanich, Wandee Fooseang, Lamai Kheawklee, Pathatrus Robkob and Potchanard Tancharoon Ouangjan (2008) researched on Randomized Controlled Trial of cold application on the occurrence of bruise, hematoma and pain at the injection site of subcutaneous low molecular weight heparin to compare rate of the occurrence of bruise and hematoma after injected site of subcutaneous Low Molecular Weight Heparin during 72 hours in patient who had Acute Coronary Syndrome by the standard injection technique and Before the standard injection technique with cold application. And also to compare level of pain after injected Low Molecular Weight Heparin at injected site of subcutaneous Low Molecular Weight Heparin during 72 hours in patient who had Acute Coronary Syndrome by the standard injection technique and Before the standard injection technique with cold application. . They found that Using cold application before subcutaneous injection of LMWH about 30 second by standard technique cannot decreased rate of hematoma or bruise and pain but decreased hematoma 49.1% and decreased size of bruise.

Steinbrück (1999) reviewed of Epidemiology of sports injuries--25-year-analysis of sports orthopedic-traumatologic ambulatory care, he found that In a 25-years period (1972-1997) 30,603 sportsmen, having a total of 34,742 sports related injuries, were treated in our outpatient department specialized in sports orthopedics and traumatology. All cases were systematically recorded and analyzed right from the beginning. This is the most extensive clinical statistics currently known. The absolutely highest incidence rate of sports-related injuries is seen in common disciplines like soccer with 10,493 (34.3%), skiing with 3632 (11.9%), handball 2307 (7.5%), tennis 1643 (5.4%) and volleyball 1550 (5.1%). 3/4 were male. The distribution of age shows a significant peak between 20 and 29 years of age, whereas in women we found a wide plateau between 10 and 39 years. Compared to earlier investigations we have an increase of injuries in higher age. In 72.4% the lower extremities are mainly effected, followed by the upper extremities (21.8%) and the spine with 3.0%. With increasing tendency knee injuries take main part (36.6%--

12,708 cases) followed by injuries of the ankle (19.9%--6920 cases), shoulder (7.7%), lower leg (7.0%) and fingers (5.8%). Main diagnosis were: distortion (32.6%); ruptures of ligaments and menisci (21.5%); fractures (10.5%) and lesions of muscles and tendons (8.8%). Comparing our 15- and 25-years studies we found an interesting significant increase of injuries in skiing, tennis and physical exercising by 25%, in cycling four times. New disciplines like squash, snowboarding, mountain biking and inline skating have been added. All together the number of injuries is distributed to 87 different disciplines. In 1998 26.7 million sportsmen (one third of the German population) were member of the German Sports Association (DSB). The number of annual accidents in sports and sporting spare time activities is estimated at about 1.5-2 million, that's 25-30% of all accidents. The analysis of almost 35,000 treated sports injuries and further evaluation of more than 5000 orthopedic examinations of top athletes are useful for analysis comparing single disciplines.

Van Os et.al (2005) reviewed literature Comparison of Conventional Treatment and Supervised Rehabilitation for Treatment of Acute Lateral Ankle Sprains: A Systematic Review of the Literature. Results: Seven RCTs were included. The quality assessment resulted in 1 high-quality and 6 low-quality studies. There is limited evidence that the addition of supervised exercises to a conventional treatment approach results in greater reduction in swelling and faster return to work. Studies reporting a lack of difference between treatment approach did not report statistical power, making interpretation of those results difficult. The conclusions was the retrieved data failed to demonstrate a clearly superior treatment approach, although preliminary support exists for supervised exercises. Additional high-quality RCTs are needed that are appropriately designed and reported.

2.4.2 Thai Boxing or Muay Thai

Worayut Thipthiangtae (2010) researched on Muay Thai Elites' Stratagem Styles of the Royal Trophy Awarded boxers and the boxers honored by Ratchadamnoen Stadium Commission in 1984, and the boxers, sampling by snowball technique. It was found that Muay Thai elites' stratagem styles were making use of punches, kicks, elbows and knee strikes at opponent to put him down and couldn't fight back anymore. Those Muay Thai stratagem styles were instructed by Kru Muay and Muay Thai camp owners.

Some Muay Thai elites received Muay Thai stratagem styles from their experiences, some from changing of physical body and gained weight, some had more skills in using stratagem styles. Some didn't want to be disdained from the others. Some required applauding from the foreigners. Some had motives from "Death Punch" word of the ancients and desired having Muay Thai weapons like "Fah Pha" or thunderbolt. Training methods of Muay Thai stratagem styles were training with or without Muay Thai equipments and by applying Sports Science discipline. Performance or using of Muay Thai stratagem styles emphasized intelligence and appropriate opportunities by considering these factors: distance, own and opponents' physical figures. When using, making use of punches, kicks, elbows and knee strikes first, or the opponents unguarded, then, used Muay Thai stratagem styles with quickly, accurately, continuously and strongly. In passing of Muay Thai stratagem styles knowledge to students, Kru Muay imparted to the students who needed to be professional Muay Thai boxers and/or the ones who practiced in the same camp. However, some Kru Muay didn't want to impart his knowledge to anyone until those were good Muay Thai basic skills. The teaching methods began with Muay Thai basic skills and Muay Thai stratagem styles after they accomplished with skill.

Presalsit Srisak (2009) researched on Effects of Exercise by Muay Thai and Kee Ta Muay Thai Training on Body Fitness Development of Personnel in Royal Thai Army Military Recruiting in Buriram Province. The research aimed to develop an exercise program through Muay Thai and Keeta Muay Thai training, and to study effects of the program on body fitness development of personnel in Royal Thai Army Military Recruiting Section, Buriram Province. The sample population for this study were 20 personnel in Royal Thai Army Military Recruiting Section, Buriram Province. The instrument used in this research was an exercise program by Muay Thai and Kee Ta Muay Thai Training designed to suit the age group of personnel in Royal Thai Army Military Recruiting Section, Buriram Province, taking 12 weeks of 3 days. each, lasting 60-90 minutes. Before the treatment with the exercise program, subjects' body fitness was analyzed by using the 720 Body Composition Analysis, a reliable instrument in health science, and their fitness was measured after the 12-week treatment, measured of body weight, muscle mass, right arm muscle, left-arm muscle, trunk muscle, right-leg muscle, left-leg muscle and body fitness. Findings of the study were as follow: Muay

Thai and Kee Ta Muay Thai Exercise Training can be developed to be a valuable exercise program to increase physical fitness and has suitability according to essential Muay Thai and Kee Ta Muay Thai elements. After The 12-week experiment with the exercise program using Muay Thai and KeeTa Muay Thai training, the study revealed that subjects' physical fitness was increased in body weight and muscle mass: right-arm muscle, left-arm muscle, trunk muscle, right-leg muscle, left-leg muscle and physical fitness increasing significantly at the .05 level.

Jittinan Puangmalai (2009) researched on achievement of using the Muay Thai Training for developing the discipline of Matthayomsuksa I students in Prajeenkanlayanee school, Prajeenburi province. The sample used in the research consisted of 226 the Matthayomsuksa I of Peajeenkanlayanee School in Prajeenburi province. The instrument used in the research was questionnaire for auditing virtue which was creating by researcher. Data were analyzed by using percentage, mean, and standard deviation.

The results were as follows:

1. The sample in the research were the Matthayomsuksa I of Prajeenkanlayanee school. 120 (45.11%) were male; 146 people (50.89%) were female. On age aspect, 215 people (80.83%) were in the age range of 12-13 years; 36 people (13.53%) were in the age range of 10-11 years and 150 people (56.4) were in the age range of 14-15 years.

2. Achievement of using the Muay Thai Training for developing the Matthayomsuksa I students's discipline in Prajeenburi province. It was found on most opinion at a highest level which consisted of drug and gamble prevention, endurance, saving and gratitude. They had average of 4.55, 4.54, 4.53 and 4.52 respectively. On human relation, regulation, responsibility and honesty had average of 4.35, 4.34, 4.34 and 4.34 respectively.

Heilbronner et al. (2009) researched on Neuropsychological Consequences of Boxing and Recommendations to Improve Safety: A National Academy of Neuropsychology

Education Paper, they found that boxing has held appeal for many athletes and audiences for centuries, and injuries have been part of boxing since its inception. Although permanent and irreversible neurologic dysfunction does not occur in the

majority of participants, an association has been reported between the number of bouts fought and the development of neurologic, psychiatric, or histo-pathological signs and symptoms of encephalopathy in boxers. A great deal of research has occurred over the past 10 years, but there is much that is still not understood about boxing-related brain injury. What is known is that boxing mortality rates are comparable with other high-risk sports, and long-term neurologic compromise in boxers is found in only a very small percentage of those involved in the sport, more often in professional fighters with extensive careers. Although empirical data to answer many questions is still lacking, the available evidence provides some useful information to design methods (e.g., reduced number of rounds and bouts, rule changes) and equipment (e.g., head gear) to improve professional boxing safety.

Pappas et al. (2007) researched on 'Boxing, wrestling, and martial arts related injuries treated in emergency departments in the United States, 2002-2005', he found that The incidence of injury in combat sports has not been adequately reported although it is important to identify the nature and frequency of injuries prior to the implementation of prevention programs. This study compared injury rates treated in Hospital Emergency Departments between different combat sports of boxing, wrestling, and martial arts. A secondary objective described anatomic region and diagnosis of these injuries. Data were obtained on all boxing, wrestling, and martial arts-related injuries that were in the National Electronic Injury Surveillance System database and resulted in Emergency Department visits between 2002 and 2005. Pearson's chi-square statistics were calculated to compare injury rates for each activity accounting for complex sample design. Martial arts had lower injury rates compared to boxing and wrestling for all diagnoses ($p < 0.001$). Boxing had lower injury rates compared to wrestling for strains/sprains and dislocations. Boxing and wrestling had similar injury rates for concussions. Injury prevention efforts should consider the distribution of injuries and concentrate on preventing strains/sprains in wrestling, concussions in boxing and wrestling, and fractures for all three activities. The findings of the present study do not provide evidence that combat sports have alarmingly high rates of injuries resulting in emergency department visits.

2.4.3 Energy Medicine and Energy Impulse Therapy

Oschman & Kosovic (2007) researched on 'Energy Medicine and Longevity', they found that After much skepticism, energy medicine and the science behind it are emerging as rich and fascinating topics with major implications for anti-aging medicine. The public is attracted to energetic techniques because they are cost-effective, are relatively non-invasive, and have few if any side effects. Those who follow the emerging field of energy medicine are exposed to entirely new vistas about how the human body works in health and disease. Some of the major new perspectives will be considered here: the cell is not a "bag of solution"; biochemistry in living cells is very different from biochemistry in a test tube; because of resonance, molecules do not have to touch to interact; and bio-energetic fields are real and important in the healing process. The "bag of solution" model has been replaced with a matrix model that incorporates the latest findings of cell biology: the trans-membrane proteins or integrin are key elements in a continuous molecular fabric or living matrix that extends throughout the living body in the form of connective tissue and throughout the cell as the cytoskeleton and nuclear matrix. Many biochemical reactions take place in highly ordered systems called metabolons, sequences of enzymes ordered along the matrix. Regulation by signal molecules randomly diffusing to receptors must be very slow, and is undoubtedly supported in life by non-contact resonant electromagnetic interactions between regulatory molecules and their receptors. Energy fields are measurable in the spaces around the body using technologies such as magneto-cardiography and magneto-encephalography. Taken together, these concepts help us understand new diagnostic /therapeutic technologies. Well-documented and widely used examples include: scanning the body with microcurrents to evaluate the condition of organs and systems and even to image tiny tumors; the use of pulsing electromagnetic fields (PEMF) to stimulate bone growth and the healing of soft tissue injuries; and a technology called ONDAMED® that combines PEMF with pulse biofeedback to establish treatment frequencies on a patient-by-patient basis. The system is extremely sensitive for detecting elusive pathologies and serious medical conditions in the earliest stages of development. The implications for prevention and longevity are profound.

Karin Löprich (2009) reported the result of the treatment of patients in his practice on ONDAMED that he liked to combine the biological medicine with the

ONDAMED®-System where the electromagnetic impulse has a synergistic effect on other useable treatment methods. Since he began to treat with this therapy method, He hardly ever need to use acupuncture. The electromagnetic impulse replaces the needles and there is hardly any evidence that treatment by this means is less effective, but rather more than ear or body acupuncture.

Christian Appelt (2006) reported pulsed electromagnetic fields (PEMF) researched on measurable effects with pain relief (90% on 27 subjects 2-12 treatments at the University Clinic of Maastricht, Netherlands). With a PEMF device that is combined with Biofeedback, such as ONDAMED, it is possible to solve one of the most important problems in the therapy of chronic illness: The re-opening of the communication network in the living matrix. Flow and movement will be brought back into stagnating areas. PEMF therapy combined with Biofeedback is beneficial for clinical application, as well as for Spa, Wellness, and Anti-Aging practices. The ONDAMED system kick-starts the nervous system, lymphatic system, the immune system, and metabolism as well as hormone functions.

Schroeter (2005) reported the result of the treatment of patients in his practice Pain treatment with the ONDAMED Pilot study with 10 shoulder pain patients, 15 spine pain patients and 2 neurology patients. His conclusion on this report is ONDAMED: an excellent assessment tool for treatment and ONDAMED is a treatment modality that can be used by itself or in conjunction with other modalities for which it will potentiate efficacy. And 90% (n=27) of patients with different types of pain recovered within 2 – 12 treatments.

A pilot study conducted by Edman (2013) demonstrated that in addition to ONDAMED® being safe, 30% of the subjects reported “significant improvement in pain levels.” The treatment protocol was only 3 sessions since the purpose of the study was to document safety only. What was unexpected is that a significant reduction in pain was reported with just 3 sessions. The recommended protocol for ONDAMED® is at least 10-12 treatments.

All patients were experiencing pain from conditions such as:

1. fibromyalgia
2. migraine headaches
3. interstitial cystitis
4. polymyalgia rheumatica
5. pain in the lower back, spine, neck and hand from a variety of causes

All of these patients had been taking medications for years without significant results in managing their chronic pain. It was remarkable that just three sessions of ONDAMED® not only proved to be safe, it also significantly reduced pain. None of the patients reported any adverse side effects. This study was the first phase in a series of studies that will be conducted by the University.

Fernandez, Watson & Rowbotham (2007) researched on “Effect of pulsed magnetic field therapy on pain reported by human volunteers in a laboratory model of acute pain”. Pulsed magnetic field therapy (PMFT) is a non-invasive, simple technique used extensively for the treatment of muscle pain. However, evidence to support its use from well-designed, clinical, or experimental studies is sparse. He found that there were no significant differences in mean VAS pain scores between the two machines at any time. In addition, there were no significant differences with respect to mean (sum) maximum pain score. He concluded that using the electromagnetic characteristics of the machine in this study, the PMFT had no effect on pain in our experimental model. More work is required to provide an evidence base in support of the use of this technique for pain.

Nonthalee Santiniyom (2013) studied the effectiveness of electromagnetic therapy stimulator on weight reduction. All subjects were treated with electromagnetic therapy stimulator (ONDAMED). The results found that an electromagnetic therapy stimulator was ineffective in reducing BWT, BMI and PBF. However there was significantly reduced in waist circumference after the last treatment (mean reduce 1.02 cm, $p = 0.041$). In addition, most of subjects reported that they had change in excretory system, digestive system, appetite, and other system especially decreased pain and had better sleep at night.

Sarinrat Khotaphan (2013) studied the effectiveness of electromagnetic therapy stimulator (ONDAMED) in reduce stress. 21 subjects were measured stress and physiological changes in heart rate and respiratory rate. The results showed that after treatment program, volunteer groups had lower stress levels. Rate of the heartbeat, respiratory rate, blood pressure systolic and diastolic blood pressure decreased significantly. The study concluded that the use of electromagnetic therapy stimulation in stress reduction program. It can be used to reduce stress effective immediately after the treatment.



CHAPTER 3

RESEARCH METHODOLOGY

This Independent Study, A Comparison Study of Acute Bruise and Pain Treatment in Patients Injured by Thai Boxing Through The Use of ONDAMED Treatment Combined With Conventional Treatment to Conventional Treatment Only, collect and analyze data as its research methodology with the following steps.

3.1 Types of Study Design

This Independent Study is experimental intervention, cross-over study. The researcher manipulated a study and measured the effect of this manipulation.

3.2 Population and Sample Size for the Independent Study

3.2.1 Population

Population, who were studied herein, were acute bruise and pain patients caused by practicing Thai Boxing Sports of 20 to 60 year-of-age from Rajadamnern Singh Muay Thai Academy (RSM), Bangkok, Thailand.

3.2.2 Sample Size

Sample in this study included acute bruise and pain patients caused by practicing Thai Boxing Sports of 20 to 45 year-of-age. In this Independent Study, the total sample size was 50 participants, calculated by :

$$\begin{aligned}
 n &= \frac{2\delta^2(Z_{\alpha/2} + Z_{\beta})^2}{(\bar{\mu}_1 - \bar{\mu}_2)^2} \\
 &= \frac{2(0.98)(1.96 + 1.28)^2}{(1.8 - 1.1)^2} \\
 &= 41.96 \\
 &\sim 42
 \end{aligned}$$

Plus 20% contingency ~ 8

Then, total sample size = 50

Where

$$\begin{aligned}
 n &= \text{Sample size} \\
 Z_{\alpha/2} &= \text{Z-score at Confident Interval 95\%} = 1.96 \\
 Z_{\beta} &= \text{Z-score when specify power of test} (=1.28) \\
 \delta^2 &= \text{Variance} \\
 &= (SD_1 + SD_2)^2 / 2
 \end{aligned}$$

SD_1 =Experimental group : SD_2 =Control group)

$(\mu_1 - \mu_2)$ = Different of mean between experimental group and control group. Refer from the bruise mean (Table 2) of the research “Randomized Controlled Trial of cold application on the occurrence of bruise, hematoma and pain at the injection site of subcutaneous low molecular weight heparin, (Naowapanich et.al., 2008). Where bruise score means between experimental group and control group are 1.1 ± 0.5 and 1.8 ± 0.9 , respectively.

The sample were divided into 2 groups, each 25 samples per group :

Group 1: Treated with conventional treatment alone.

Group 2: Treated with conventional treatment combined with energy impulse therapy (by ONDAMED device).

3.3 Variables

3.3.1 Independent Variables

3.3.1.1 Conventional Treatment

3.3.1.2 Conventional treatment combined with energy impulse therapy (ONDAMED device)

3.3.2 Dependent Variables

3.3.2.1 Pain : measured in ordinal scale

3.3.2.2 Bruise : measured in ordinal scale

3.3.2.3 Number of day to recover from bruise and pain

3.4 Inclusion, Exclusion and Discontinuation Criteria

3.4.1 Inclusion Criteria

3.4.1.1 Male or female with good health conditions age between 20 to 45 years

3.4.1.2 Practicing Thai Boxing and got acute bruise and pain with pain score between 3 – 8 of Wong-Baker FACES Pain Rating Scale

3.4.2 Exclusion Criteria

3.4.2.1 Acute bruise and pain patients caused by practicing Thai Boxing whom were diagnosis by the doctor to treat more complicate that conventional treatment.

3.4.2.2 Acute bruise and pain patients caused by practicing Thai Boxing with pain scale lower than '3' or more than '8' of Wong-Baker FACES Pain Rating Scale

3.4.2.3 Patients with pacemaker, metallic implantations or pregnant women.

3.4.3 Discontinuation Criteria

Patients are no longer willing to continue conventional treatment and/or ONDAMED treatment.

3.5 Research Tools

3.5.1 Research tools

Research tools were ONDAMED Device and a copy of questionnaire applied by researcher from Wong-Baker FACES Pain Rating Scale and Bruise Rainbow Scale.

3.5.2 ONDAMED Device

ONDAMED device is a battery-powered, hand-held stimulator that applied electromagnetic (EM) to the body to alleviate pain associated with various disorders and/or to treat wounds and soft-tissue injuries. In Europe the ONDAMED System is CE certified as a Class II Therapy Device and also approved with ISO 13485 Certificate. It is a pulsed electromagnetic bio-feedback device invented by Rolf Binder. It has been in use in Germany for over a decade and in the United States for many years. It has quickly become indispensable for the practice of Energy Medicine. In Europe the ONDAMED System is CE certified as a Class II Medical Therapy Device. ONDAMED is also used in combination with pulse feedback. While stimulation the patient with various applicators, adjusting the device parameter and adjusting the location of stimulation the ONDAMED user is guided by the patient's arterial pulse response, choosing the most beneficial treatment setting (ONDAMED Operations Manual, Ondamed GmbH – Kurzeller Str., Schwanau, Germany). The complete ensemble of the ONDAMED System includes :

1. Base unit
 2. Neck Applicator (NA)
 3. Regulator
 4. Hand Held Applicator (HA)
 5. Matrix Applicator(s) (MA4) 5" x 10" or 290 x 130 mm or (MA8) 5" x 20" or 510 x 130 mm
 6. Hand carrying case
- (ONDAMED, 2007)



Source ONDAMED (2007)

Figure 3.1 Components of ONDAMED® system

Contra Indications (ONDAMED, 2007)

1. ONDAMED should not be applied to individual with pacemakers or other metallic implantations. It should be used under medical supervision with pregnant women.
2. The duration of this therapy should not exceed 30 minutes.
3. When using the Hand held applicator for scanning or treatment between 300 Hz and 2800 Hz, one should not have this application in direct contact with the skin of the patient for longer than 5 minutes (after 5 minutes the metal output pieces become warm).

ONDAMED Modules offers 4 different modules. (ONDAMED, 2007)

Module 1 : uses two frequencies at on time, making the application more specific. The therapy time is preset to 12 minutes and the practitioner uses the patient's biofeedback to determine the intensity and applicator placement.

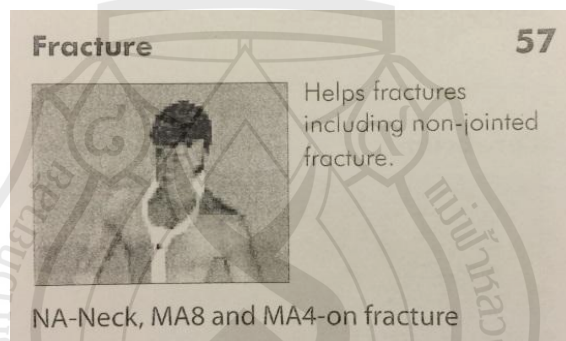
Module 2 : uses two frequencies at one time at a preset intensity and preset time. The patient's biofeedback determines applicator placement or you may follow the applicator placement suggestions in your Visualization Software and/or in the Research Manual under definition of Pre-sets. Every program consists of different frequency arrangements going from one pair of frequencies to the next, never sending more than 2 frequencies at one time. One may consider this modules as a 'symphony'.

Module 3 : uses one frequency at one time, making this application the most specific of all Modules. The time is preset to 5 minutes and the practitioner uses the patient's biofeedback to determine the intensity and applicator placement.

Module 4 : represents specific programs from which the practitioner selects a particular sub-category. Every program and sub-category uses two frequencies at one time, making the application more specific. The time and intensity and preset. Follow the applicator placement suggestions in your Visualization Software and/or in the Research Manual under Nutrient Point Listing and Nutrient Point.

In this study, researcher used ONDAMED module 2, program 57, 52 and 98 respectively. Each program is as follow:

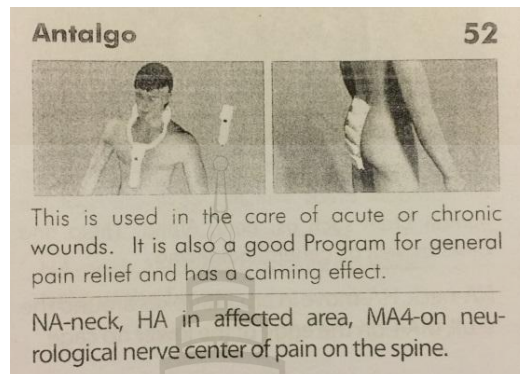
Program 57 : Helps fractures including non-jointed fracture.



Source ONDAMED (2007)

Figure 3.2 ONDAMED Module 2, Program 57: Fracture

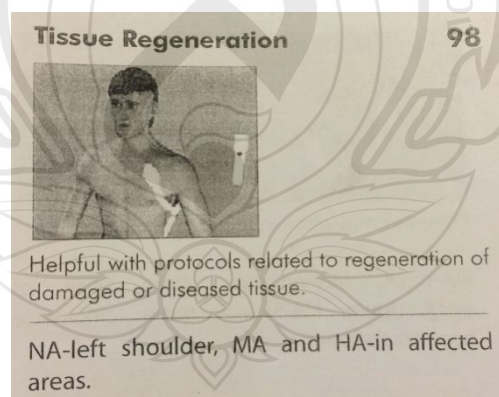
Program 52 : Good program for general pain relief and a calming effect.



Source ONDAMED (2007)

Figure 3.3 ONDAMED Module 2, Program 52: Antalgo

Program 97: Generation of damaged or diseased tissue



Source ONDAMED (2007)

Figure 3.4 ONDAMED Module 2, Program 98: Tissue Regeneration

3.5.3 Questionnaire

The questionnaire consists of four parts including,

Part 1 : General information of the sample population comprises of Multiple choice questions and Short-answered questions.

Part 2 : Pre-Treatment Information include Health condition, Pain Assessment Scales, applied from Wong-Baker FACES Pain Rating Scale and Bruise Rainbow Scale use to diagnose the severity and quality of pain and bruise experience.

Part 3 : Post-Treatment Information include Pain Assessment Scales and Bruise Rainbow Scale and short- answered questions, use to diagnose the severity and quality of pain and bruise experience.

Part 4 : Doctor or practitioner report.

3.6 Data Analysis

Data gathered from questionnaires were checked for completeness, cross-checked against recorded photos and analyzed by a statistics computer analysis program.

3.6.1 Descriptive Statistics

Descriptive statistics to find fundamental statistical data consisted of frequency, percentage, arithmetic mean and standard deviation presented on table with description.

3.6.2 Qualitative Data Analysis

Data analysis using t-test statistics were applied. The Confident Interval (C.I.) for this Independent Study was at 95%.

3.6.3 Area of the body pain

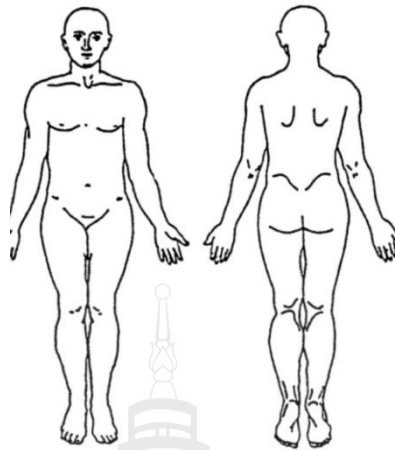
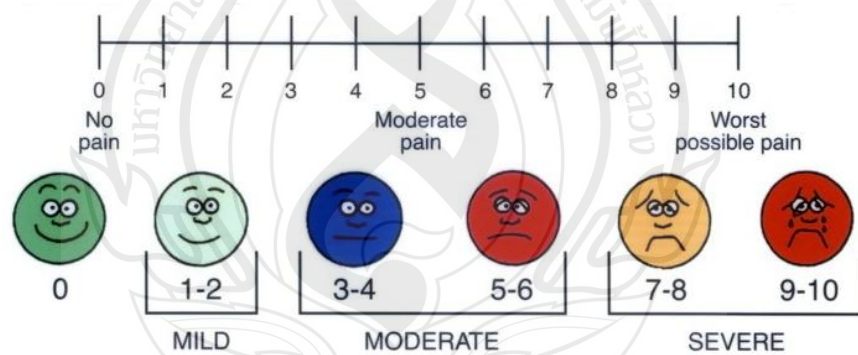


Figure 3.5 Picture of Point Area for Body Pain

3.6.4 Criteria in Wong-Baker Facial Grimace Pain Assessment Scales Interpretation of Arithmetic and Picture Means



Source Wong-Baker Facial Grimace Pain Assessment Scales (n.d.)

Figure 3.6 Wong-Baker Facial Grimace Pain Assessment Scales

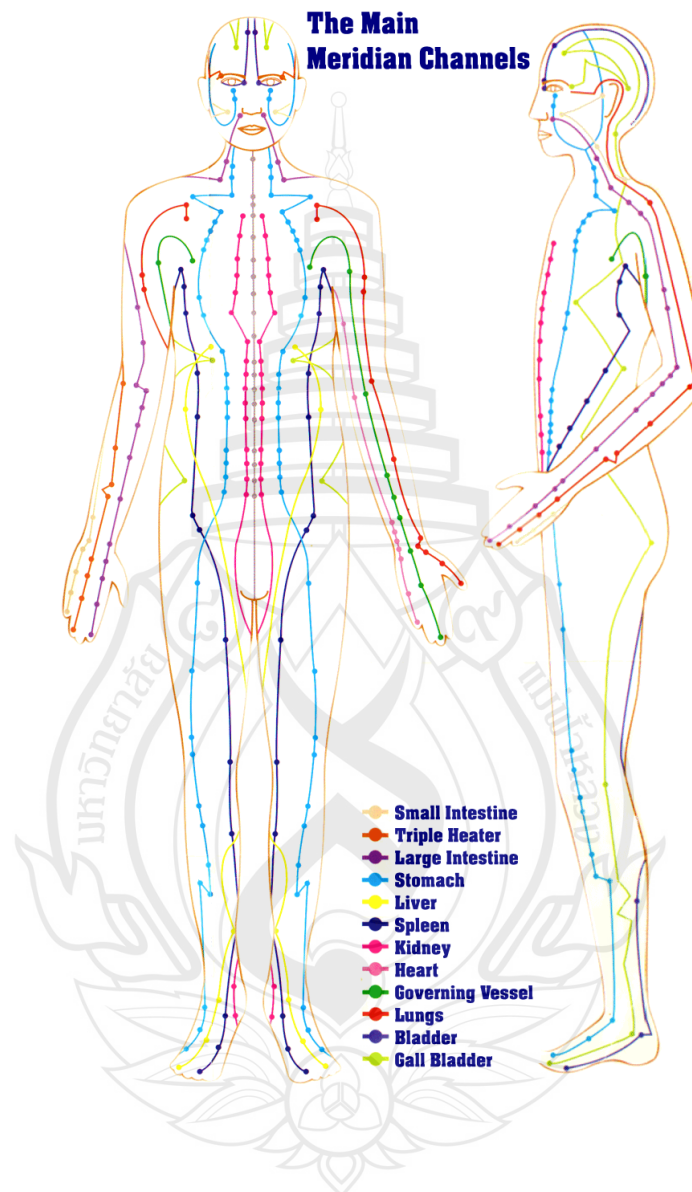
3.6.5 Criteria in the Color of Bruise Interpretation Means

			1	Day 1
			2	Day 2
			3	Day 3
			4	Day 4
			5	Day 5
			6	Day 6
			7	Day 7
			8	Day 8
			9	Day 9
			10	Day 10

Source Bruises: The Secret Behind The Rainbow of Colors (n.d.)

Figure 3.7 Bruise Rainbow Scale

3.6.6 The Meridian Channels : for the doctor or practitioner to point out area of bruise, pain and treatment.



Source ONDAMED (2007)

Figure 3.5 The Main Meridian Channels

CHAPTER 4

RESEARCH RESULTS

This chapter aims to provide the result of the statistical analysis. In order to explore the difference between the use of conventional treatment combined with energy impulse therapy (by ONDAMED device) and conventional treatment alone in acute bruise and pain patients which were injured by Thai boxing, both descriptive and inferential analysis were implemented. Firstly, descriptive statistics were applied to summarize collected data, including general information, pre-treatment and post-treatment information from 59 participants and represented in the form of table. Secondly, inferential statistics includes independent t-test statistics was applied to test the research hypotheses. The raw data were analyzed and interpreted by using Statistical program.

4.1 Descriptive Results

In this section, descriptive statistics were tested in order to describe the characteristics of participants including general information and treatment information. The conventional treatment contains 30 participants who were treated by conventional treatment, while the combined treatment consists of 29 participants who were treated by combination of conventional treatment and energy impulse therapy (by ONDAMED device). The statistical analysis consists of frequency, percentage, arithmetic mean and standard deviation presented in the tables with descriptions.

4.1.1 General Information

Table 4.1 Demographic Information

Demographic Information	Conventional treatment (n = 30)		Combined treatment (n = 29)		Total (n = 59)	
	n	%	n	%	n	%
Gender						
Female	9	30.0	14	48.3	23	39.0
Male	21	70.0	15	51.7	36	61.0
Occupation						
Business owner	9	30.0	12	41.4	21	35.6
Employee	12	40.0	8	27.6	20	33.9
Boxing instructor	3	10.0	3	10.3	6	10.2
Other	6	20.0	6	20.7	12	20.3
Education						
Lower than Bachelor degree	1	3.3	1	3.4	2	3.4
Bachelor degree	11	36.7	10	34.5	21	35.6
Master degree	17	56.7	8	62.1	35	59.3
Doctor degree	1	3.3	-		1	17.0

From table 4.1, the result shows general information of participants from two treatments as a follow:

From the conventional treatment alone group, it found that the majority of participants were male (70.0%), while 30.0% of the participants were female. Most of them were employee (40.0%) followed by business owner (30.0%), other occupation (20.0%) and Thai boxing instructor (10.0%), respectively. They had the highest education

at Master degree (56.7%), Bachelor degree (36.7%) and lower than Bachelor degree (3.3%) equal to Doctor degree (3.3%).

According to the combined treatment, combination of conventional treatment and energy impulse therapy, it found that the percentage distributions were slightly difference from the conventional treatment in gender and occupation. It found 51.7% of participants were male and 48.3% were female. Most of them were business owner (41.4%), followed by employee (27.6%), other occupation (20.7%) and Thai boxing instructor (10.3%), respectively. They had the highest education at Master degree (62.1%), Bachelor degree (34.5%) and lower than Bachelor degree (3.4%).

Table 4.2 Personal Information

Personal Information	Min.	Max.	Conventional treatment (n = 30)		Combined treatment (n = 29)		t-value	p-value
			Mean	S.D.	Mean	S.D.		
Age (year)	23.0	38.0	29.4	3.9	28.9	3.7	0.542	0.590
Weight (kg)	47.5	75.0	63.0	9.1	59.2	9.5	1.552	0.126
Height (cm)	159.0	181.0	170.3	6.1	167.8	5.6	1.645	0.106

From table 4.2, to compare the different of population of conventional and combined treatment, participants in this study had age ranges between 23 and 38 years old. In term of weight and height, they had body weight ranges between 47.5 – 75.6 kg and had height between 159 and 181 cm. The t-statistic shows no difference between average ages, weight, and height of participants from those two treatments ($p > 0.05$), which mean those two treatments share similarity characteristics.

Table 4.3 Health Information

Health Information	Conventional		Combined		Total	
	treatment		treatment		(n = 59)	
	(n = 30)		(n = 29)			
	n	%	n	%	n	%
Practice sports						
Yes	30	100.0	29	48.3	59	100.0
No	-	-	-	51.7	0	-
Practice Thai Boxing						
Yes	30	100.0	29	41.4	59	100.0
No	-	-	-	27.6	0	-
Disease						
GERD	2	6.7	1	3.4	3	5.1
Migraine	1	3.3	-	-	1	1.7
Back pain	-	-	1	3.4	1	1.7
No disease	27	90.0	27	93.2	54	91.5
Ever Pain / Bruise						
Yes	27	90.0	28	96.6	55	93.2
No	3	10.0	1	3.4	4	6.8

GERD means Gastroesophageal Reflux Disease

Regarding to table 4.3, all of participants from two treatments have good health condition. It found that all of 59 participants practiced sports and Thai boxing. About 91.5% of participants had no disease, while 3 participants had GERD and only one participant who had back pain and migraine, respectively. It shows 55 participants or 93.2% had ever pain or bruise after practicing Thai boxing, while the rest (6.8%) are newcomers in this sports.

4.1.2 Treatment Information

Table 4.4 Area of Injuries

Body Zone	Conventional treatment (n = 30)		Combined treatment (n = 29)		Total (n = 59)	
	n	%	n	%	n	%
Arm	2	6.7	1	3.4	3	5.1
Feet	1	3.3	5	17.2	6	10.2
Fist	2	6.7	3	10.3	5	8.5
Shin	25	83.3	15	51.7	40	67.8
Knee	-	-	5	17.2	5	8.5

Refer to table 4.4, from both two treatments, it found that 40 participants had area of pain on shin (67.8%), followed by feet (10.2%), knee and fist (8.5%), and arm (5.1%), respectively. The table also shows most participants from both treatments have body pain in shin area, accounted for 83.3% in conventional treatment and 51.7% in combined treatment.

Table 4.5 R-I-C-E (Rest, Ice, Compression and Elevation) Treatment

R-I-C-E Treatment	Conventional treatment (n = 30)		Combined treatment (n = 29)		Total (n = 59)	
	n	%	n	%	n	%
Ice compress						
Yes	19	63.3	22	75.9	41	69.5
No	11	36.7	7	24.1	18	30.5
Hot compress						
Yes	-	-	-	-	-	-
No	30	100.0	29	100.0	59	100.0
Bandages roll						
Yes	5	16.7	5	17.2	10	16.9
No	25	83.3	24	82.8	49	83.1
Oral drug						
Yes	1	3.3	-	-	1	1.7
No	29	96.7	29	100.0	58	98.3
Healing cream						
Yes	25	83.3	16	55.2	41	69.5
No	5	16.7	13	44.8	18	30.5

Participants in both two treatments mostly treated by using ice compress (69.5%) and healing cream (69.5%). The difference between participants treated by two treatments is that conventional treatment mostly relies on using healing cream as the main treatment (83.3%), while combined treatment using ice compress (75.9%).

Table 4.6 Use of Healing Cream

Healing Cream	Conventional treatment (n = 30)		Combined treatment (n = 29)		Total (n = 59)	
	n	%	n	%	n	%
Hirudoid	4	16.0	-	-	4	6.8
Hirudoid Forte	2	8.0	10	62.5	12	20.3
Reparil	1	4.0	-	-	1	1.7
Counterpain	3	12.0	3	18.8	6	10.2
Thai Boxing Liniment Oil	3	12.0	3	18.8	6	10.2
Tiger	1	4.0	-	-	1	1.7
Not use	11	44.0	-	-	11	18.6

From table 4.6, healing cream was mostly used for curing the pain in both treatments. It shows that most of participants used Hirudoid Forte (20.3%), Counterpain (10.2%) equal to Thai Boxing Liniment Oil (10.2%), Hirudoid (6.8%) followed by Reparil gel (1.7%) equal to Tiger balm (1.7%) respectively. Only 18.6% was reported no use of any cream.

Table 4.7 Pain Assessment

Pain Level	Conventional treatment (n = 30)		Combined treatment (n = 29)		Total (n = 59)	
	n	%	n	%	n	%
Pain level - before treatment						
No pain	-	-	2	6.9	2	3.4
Mild (1-2)	-	-	-	-	-	-
Moderate (3-6)	27	90.0	27	93.1	54	91.5
Severe (7-10)	3	10.0	-	-	3	5.1
Pain level - after treatment						
No pain	22	73.3	27	93.1	49	83.1
Mild (1-2)	8	26.7	2	6.9	10	16.9
Moderate (3-6)	-	-	-	-	-	-
Severe (7-10)	-	-	-	-	-	-

The descriptive findings from table 4.7 illustrated the pain level of participants before and after treatment with conventional treatment and combined treatment. It shows only 2 participants who had less pain before treatment with energy impulse therapy (ONDAMED).

This study also applied Wong-Baker FACES Pain Rating Scale to diagnose the level of pain occurred by all 59 participants. It shows that most of participants had moderate pain (around 3 – 6) (91.5%) before treatment. Only 5.1% had severe injured and 3.4% of the rest showed no pain. It found that 83.1% of all 59 participants had no pain after the treatment while 16.9% of the rest still had mild pain. When distinguished between two treatments, it found that 93.1% of participants who were treated by both ONDAMED and conventional treatment had no pain, while 73.3% of participants who were treated by conventional treatment alone had no pain.

Table 4.8 Bruise Assessment

Bruise Assessment	Combined treatment (n = 30)	
	frequency	%
Bruise color - before treatment		
Red (day 1)	16	55.2
Purple (day 2-3)	11	37.9
Light purple (day 4-6)	0	-
Yellow (day 7-10)	2	6.9
Bruise color - after treatment		-
Red (day 1)	-	-
Purple (day 2-3)	-	-
Light purple (day 4-6)	-	-
Yellow (day 7-10)	29	100.0

According to table 4.8, this study implemented the Bruise Rainbow Scale to diagnose the severity and quality of bruise to the participants who were treated by using conventional treatment combined with energy impulse therapy (ONDAMED). Most of participants had red bruise (55.2%), followed by purple (37.9%) before treatment, and only 2 participants showed yellow bruise (6.9%). All of participants had yellow bruise (100%) after the treatment.

4.2 Hypothesis Testing

In order to test the research hypotheses, the researcher applied independent t-statistics to differentiate between participants from two treatments, the conventional treatment consists 30 participants who treated by conventional treatment only, and combined treatment is the 29 participants who were treated the pain and bruise with the combination of conventional treatment and energy impulse therapy by ONDAMED device. The confident interval was accepted at 95% or below 0.05 significant level.

4.2.1 Hypothesis 1

Hypothesis 1: Bruise in patient injured by Thai boxing and treated with conventional treatment combined with energy impulse therapy (by ONDAMED device) would spend shorter period of treatment and recovery than conventional treatment only.

Table 4.9 The Difference between Recovery Days of Bruise after Treated with Conventional Treatment Alone and Combined with Energy Impulse Therapy (by ONDAMED device)

Bruise Recovery Day(s)	Min.	Max.	Conventional treatment (n = 30)		Combined treatment (n = 29)		t-value	p- value
			Mean	S.D.	Mean	S.D.		
Bruise Recovery Day(s)	1.0	14.0	10.00	2.62	6.03	1.84	6.694	0.000

Note. * p-value < 0.05

The result from table 4.9 indicates the significant difference between recovery days of bruise between participants from two treatments $t(58) = 6.694$, ($p = 0.000$). The aggregate mean score shows participants who cured by conventional treatment only have

taken longer period of treatment and recovery (10.00 ± 2.62) than conventional treatment combined with energy impulse therapy (6.03 ± 1.84). The hypothesis 1 was supported.

4.2.2 Hypothesis 2

Hypothesis 2: Pain in patient injured by Thai boxing and treated with conventional treatment combined with energy impulse therapy (by ONDAMED device) would spend shorter period of treatment and recovery than conventional treatment only.

Table 4.10 The Difference between Recovery Days of Pain after Treated with Conventional Treatment Alone and Combined with Energy Impulse Therapy (by ONDAMED device)

Pain Recovery Day(s)	Min.	Max.	Conventional		Combined		t-value	p-value
			treatment		treatment			
			(n = 30)		(n = 29)			
			Mean	S.D.	Mean	S.D.		
Pain Recovery Day(s)	3.0	14.0	7.47	2.34	4.48	1.53	5.771	0.000*

Note. * p-value < 0.05

According to table 4.10, the result indicates the significant difference between recovery days of pain between participants from two treatments $t(58) = 5.771$, ($p = 0.000$). The aggregate mean score shows pain in participant injured by Thai boxing and were treated by conventional treatment combined with energy impulse therapy (by ONDAMED device) spent shorter period of treatment and recovery (4.48 ± 1.53) than conventional treatment only (7.47 ± 2.34). The hypothesis 2 was supported.

4.2.3 Pain Assessment Effectiveness

Table 4.11 Comparison Effectiveness of Pain Assessment

Pain scores	Conventional treatment (n = 30)		Combined treatment (n = 29)	
	Before	After	Before	After
Mean of pain score	4.100	0.333	3.552	0.069
Different of pain score mean	-3.767		-3.483	
Different of pain score SD	0.898		1.153	
Pair t-test	p<0.05		p<0.05	

From table 4.11 pair t-test statistics was applied to test the effectiveness of pain assessment in both two treatments. It found that both treatment results reported effectiveness ($p < 0.05$). When distinguish between two treatments, it found that combined treatment had less mean of the different of before and after pain score than conventional treatment, where mean of conventional treatment is 3.767 and 3.486 in the combined treatment.

CHAPTER 5

CONCLUSION, DISCUSSION AND SUGGESTION

5.1 Conclusion

In this section, descriptive statistics were tested in order to describe the characteristics of participants from two treatments, including general information and treatment information. Conventional treatment contains 30 participants who were treated by using conventional treatment, while combined treatment consists of 29 participants who were treated by use of combination of conventional treatment and energy impulse therapy (by ONDAMED device). This study selected statistical analysis consists of frequency, percentage, arithmetic mean and standard deviation presented on table with description.

5.1.1 General Information of Participants

Age, weight and height: The sample population in this study have age ranges between 23 and 38 years old. In term of weight and height, they have body weight ranges between 47.5 – 75 kg and have height between 159 and 181 cm. The t-statistic shows no difference between average ages, weight, and height of participants from those two treatments ($p > 0.05$), which mean those two treatments share similarity characteristics.

Health information: all of sample population have good health condition. All participants practice sports and Thai boxing. About 90% of respondents have no any disease, while 3 respondents have GERD and only one participant have back pain and migraine.

Area of injury: 40 participants of all have area of pain on shin (67.8%) followed by feet (10.2%), knee and fist (8.5%), and arm (5.1%), respectively. The

table also shows participants from both treatments have body pain in shin area, accounted for 83.3% in conventional treatment alone group and 51.7% combined treatment group respectively.

Conventional treatment by R-I-C-E treatment: participants from both two treatments mostly use ice compress (69.5%) and healing cream (69.5%). The difference between two treatments is that the conventional treatment mostly use healing cream as main treatment, while the combined treatment mostly select ice compress.

Pain assessment : in the conventional treatment, it found that 83.1% of all respondents have no pain after treatment left, while 16.9% still have mild pain. When distinguish between two treatments, it found that 93.1% of participants who were treated with both ONDAMED and conventional treatment have no pain, while 73.3% of participants who treated by conventional treatment alone have no pain.

The researcher also applied pair t-test statistics to test the effectiveness of pain assessment in both two treatments. It found that both treatment results reported effectiveness ($p < 0.05$). It also found that combined treatment had less mean of the different of before and after pain score than conventional treatment, where mean of first group is 3.767 and 3.486 in the combined treatment.

Bruise assessment: after treatment stage, all of participants from combined group have yellow bruise and all of them also recover from bruise .

5.1.2 Results and Prove of Hypotheses

Hypothesis 1: Bruise in patient injured by Thai boxing and treated with conventional treatment combined with energy impulse therapy (by ONDAMED device) spent shorter period of treatment and recovery than conventional treatment alone. The result indicated the significant difference between recovery days of bruise between patients from two treatments ($p < 0.05$). The aggregate mean score shows respondents who treated by conventional treatment alone have been taken longer period of recovery (10.00 ± 2.62) than conventional treatment combined with energy impulse therapy (6.03 ± 1.84). The hypothesis 1 was supported.

Hypothesis 2: Pain in patient injured by Thai boxing and treated with conventional treatment combined with energy impulse therapy (by ONDAMED

device) spent shorter period of treatment and recovery than conventional treatment only. The result indicates the significant difference between recovery days of pain between patients from two groups ($p < 0.05$). The aggregate mean score shows that pain in patient injured by Thai boxing and treated with conventional treatment combined with energy impulse therapy (by ONDAMED device) spent shorter period of treatment and recovery ($\bar{x} = 4.5$) than conventional treatment only ($\bar{x} = 7.4$). The hypothesis 2 was supported.

5.2 Discussion

5.2.1 Pain Treatment by Energy Impulse Therapy (by ONDAMED device)

From this research, it has been found that the most patients encountered problems with pain from Thai Boxing who were treated by combined treatment spent significantly shorter period of recovery than conventional treatment alone. Most of the combined treatment patient group spent shorter period of recovery than conventional treatment group. The results are in accord with Oschman's study result on 'Energy Medicine and Longevity', the use of pulsing electromagnetic fields (PEMF) to stimulate the healing of soft tissue injuries (Oschman & Kosovic, 2007). The results also correspond with Christian Appelt's study on 27 subjects 2-12 using pulsed Electromagnetic Field Therapy (PEMF) treatments at the University Clinic of Maastricht, 90% on 27 subjects have shown measurable effects with pain relief (Christian Appelt, 2006). Although the mechanisms of action for these phenomena have still not been completely clarified, ONDAMED is a technology that incorporates diagnostic and therapeutic modalities and that has proven its effectiveness and safety for the diagnosis and treatment.

5.2.2 Bruise Treatment by Energy Impulse Therapy (by ONDAMED device)

Healing bruise by ONDAMED's treatment is lacking of a statistical records. There was a very rare case associated with healing process. But one of ONDAMED's client treated over huge bruise case could be recover within 8 days, giving the great

result as shown in figure 5.1. Although there was a very rare case associated with bruise healing, but from this research, it also has been found that the most patients encountered problems with bruise from Thai Boxing who were treated by combined treatment spent significantly shorter period of recovery than conventional treatment only.



Source ONDAMED (n.d.)

Figure 5.1 ONDAMED Therapy treatments on bruise case, recovered over 8 days

5.2.3 Energy Impulse Therapy Treatment

This study results also corresponded with Sarinrat Khotaphan's study of effectiveness of electromagnetic therapy stimulator in stress reduction by using the same device, ONDAMED. Khotaphan found that the use of electromagnetic therapy stimulation in stress reduction program, it can be used to reduce stress effective immediately after the treatment (Sarinrat Khotaphan, 2013). Furthermore, the study of Nonthalee Santiniyom found that electromagnetic therapy, which also using ONDAMED device, was significantly reduced in waist circumference after the last ONDAMED treatment (mean reduced 1.02 cm, $p = 0.041$). In addition, most of subjects reported that they had change in excretory system, digestive system, appetite and other system especially decrease pain and had better sleep at night (Nonthalee Santiniyom, 2013)

5.3 Recommendations

Based on the independent study a comparative between the use of conventional treatment combined with energy impulse therapy to conventional treatment only in acute bruise and pain injured by Thai Boxing, the researcher would like to propose the following suggestions.

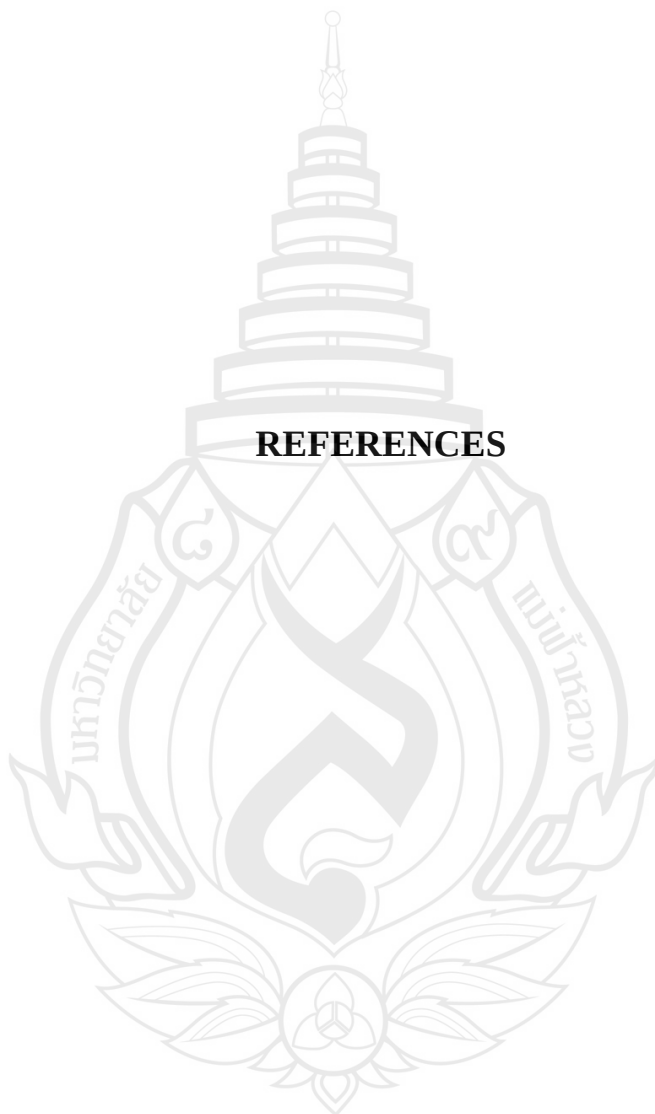
5.3.1 This study researched on acute bruise and pain patients caused by practicing Thai Boxing Sports only. There should be more research studies on other kind of sports injuries to investigate significance of treatments.

5.3.2 As this independent study researched on acute bruise and pain patients caused by practicing Thai Boxing Sports only. There should be more research studies on other group, such as chronic patients to investigate significance of treatments.

5.3.3 The research results suggest that both treatments, conventional and conventional combined with energy impulse therapy, are able to heal bruise and pain injuries. Moreover, the results significantly shown that combining both treatments together spent significantly shorter period of recovery than conventional treatment only. In conventional medicine, medical doctors or physicians would consider appropriate treatments for each patient. They may consider or should be willing to use other treatment such as energy impulse therapy as an alternative medicine to promote the healing injuries.

5.3.4 As this independent study used ONDAMED device as one of research tools. The researcher had been advised from Ms.Silvia Binder, owner of ONDAMED, selected module 2 - program 57, 52 and 98 respectively to treat bruise and pain injuries. The following research studies should be careful to select ONDAMED's module and program because each program give the different treatment results.

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APPINDICES



APPENDIX A

ETHICAL APPROVAL

เอกสารเลขที่ ๑๓/๒๕๕๗



มหาวิทยาลัยแม่ฟ้าหลวง

คณะกรรมการจริยธรรมการวิจัยในมนุษย์

ขอรับรองว่า

โครงการวิจัย : การศึกษาเปรียบเทียบระหว่างการรักษาแผนปัจจุบันรวมกับการใช้เครื่องกระตุ้น
ในการรักษา กับการรักษาแผนปัจจุบันเพียงอย่างเดียว ในผู้ป่วยที่มีอาการรอยจ้ำ
เลือดและอาการเจ็บจากการฝึกซ้อมมวยไทย
(A COMPARATIVE STUDY BETWEEN THE USE OF CONVENTIONAL
TREATMENT COMBINED WITH ENERGY IMPULSE THERAPY
AND CONVENTIONAL TREATMENT ONLY IN ACUTE BRUISE
AND PAIN INJURED BY THAI BOXING)

โครงการเลขที่ : REH-๕๗๐๑๓

ชื่อหัวหน้าโครงการ : นางกมลทิพย์ ตรียานพงศ์

สังกัด : สำนักวิชาเวชศาสตร์ชะลอวัยและฟื้นฟูสุขภาพ

เป็นโครงการวิจัยที่ไม่ขัดต่อหลักจริยธรรมสากลตามคำปฏิญญาเฮลซิงกิ (The Declaration of
Helsinki) และแนวทางจริยธรรมการวิจัยในคนแห่งชาติ พ.ศ. ๒๕๕๕

จึงเห็นสมควรให้ดำเนินการวิจัยในขอบข่ายของโครงการที่เสนอต่อคณะกรรมการจริยธรรมการ
วิจัยในมนุษย์ มหาวิทยาลัยแม่ฟ้าหลวงได้ ณ วันที่ วันที่ ๖ เดือน พฤษภาคม พ.ศ. ๒๕๕๗

ลงชื่อ.....

(รองศาสตราจารย์ ดร.ชยาพร วัฒนศิริ)

ประธานคณะกรรมการจริยธรรมการวิจัยในมนุษย์

มหาวิทยาลัยแม่ฟ้าหลวง

APPENDIX B

INFORMED CONSENT FORM

หนังสือยินยอมเข้าร่วมโครงการวิจัย (Informed Consent Form)

วันที่.....เดือน..... พ.ศ.

ข้าพเจ้า (นาย/นาง/นางสาว)..... อายุ.....ปี
อยู่บ้านเลขที่..... หมู่ที่.....ถนน.....ตำบล.....
อำเภอ.....จังหวัด..... รหัสไปรษณีย์.....

ขอทำหนังสือแสดงความยินยอมเข้าร่วมโครงการวิจัยเพื่อเป็นหลักฐานแสดงว่า

1. ข้าพเจ้ายินยอมเข้าร่วมโครงการวิจัยของ นางกมลทิพย์ ตรีวนพงษ์ เรื่อง การศึกษาเปรียบเทียบระหว่างการรักษาแผนปัจจุบันร่วมกับการใช้เครื่องกระตุ้นในการรักษา กับการรักษาแผนปัจจุบันเพียงอย่างเดียว ในผู้ป่วยที่มีอาการรอยจำเลือดและอาการเจ็บจากการฝึกซ้อมมวยไทย ด้วยความสมัครใจ โดยมิได้มีการบังคับ หลอกลวงแต่ประการใด และพร้อมจะให้ความร่วมมือในการวิจัย
2. ข้าพเจ้าได้รับการอธิบายและตอบข้อสงสัยจากผู้วิจัยเกี่ยวกับวัตถุประสงค์การวิจัย วิธีการวิจัย ความปลอดภัย อาการ หรืออันตรายที่อาจเกิดขึ้น รวมทั้งประโยชน์ที่จะได้รับจากการวิจัย โดยละเอียดแล้วตามเอกสารชี้แจงผู้เข้าร่วมการวิจัยแนบท้าย
3. ข้าพเจ้าได้รับการรับรองจากผู้วิจัยว่าจะเก็บข้อมูลส่วนตัวของข้าพเจ้าเป็นความลับ จะเปิดเผยได้เฉพาะในรูปแบบของการสรุปผลการวิจัยเท่านั้น
4. ข้าพเจ้าได้รับทราบจากผู้วิจัยแล้วว่า หากเกิดอันตรายใด ๆ จากการวิจัย ผู้วิจัยจะรับผิดชอบค่ารักษาพยาบาลที่เป็นผลสืบเนื่องจากการวิจัยนี้
5. ข้าพเจ้าได้รับทราบว่า ข้าพเจ้ามีสิทธิที่จะถอนตัวออกจากการวิจัยครั้งนี้เมื่อใดก็ได้ โดยไม่มีผลกระทบใด ๆ ต่อการรักษาพยาบาลตามสิทธิที่ข้าพเจ้าควรได้รับ

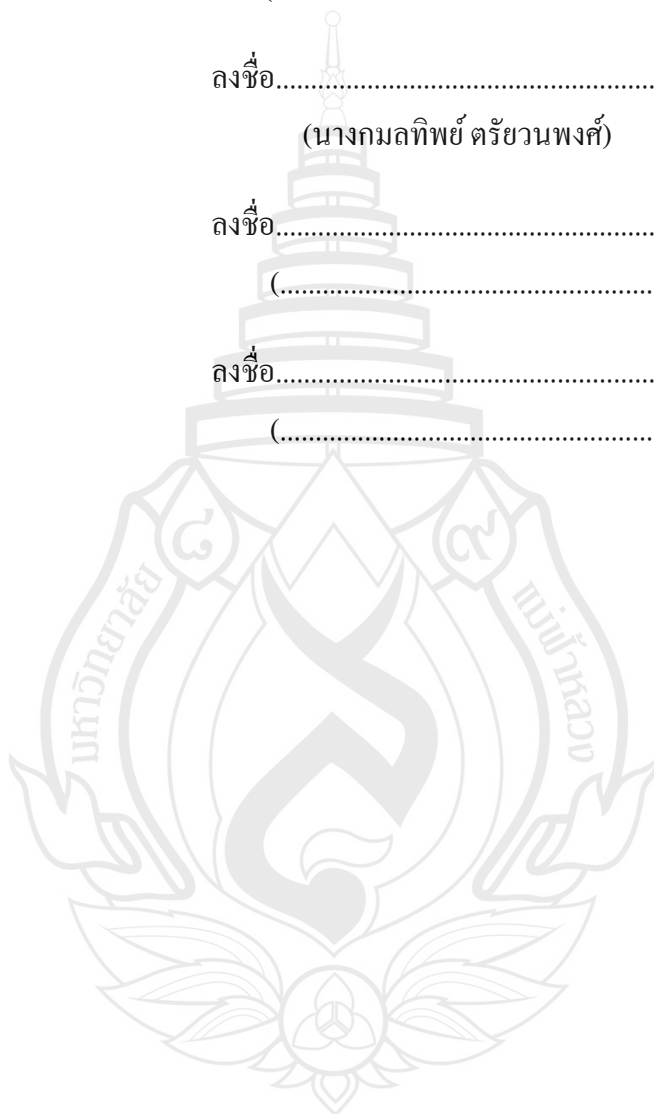
ข้าพเจ้าได้อ่านและเข้าใจข้อความตามหนังสือนี้แล้ว จึงได้ลงลายมือชื่อไว้เป็นสำคัญ พร้อม
กับหัวหน้าโครงการวิจัยและพยาน

ลงชื่อ..... ผู้ยินยอม/ผู้ปกครอง
(.....)

ลงชื่อ..... ผู้วิจัย
(นางกมลทิพย์ ตรีชวนพงศ์)

ลงชื่อ..... พยาน
(.....)

ลงชื่อ..... พยาน
(.....)



APPENCIX C

INFORMATION SHEET

เอกสารคำชี้แจงโครงการวิจัยแก่ผู้เข้าร่วมโครงการ (Information Sheet)

ชื่อโครงการวิจัย

การศึกษาเปรียบเทียบระหว่างการรักษาแผนปัจจุบันร่วมกับการใช้เครื่องกระตุ้นในการรักษา กับการรักษาแผนปัจจุบันเพียงอย่างเดียว ในผู้ป่วยที่มีอาการรอยจ้ำเลือดและอาการเจ็บจากการฝึกซ้อมมวยไทย.

A COMPARATIVE STUDY BETWEEN THE USE OF CONVENTIONAL TREATMENT COMBINED WITH ENERGY IMPULSE THERAPY AND CONVENTIONAL TREATMENT ONLY IN ACUTE BRUISE AND PAIN INJURED BY THAI BOXING

วัตถุประสงค์การวิจัย

1.1 เพื่อการศึกษาเปรียบเทียบระหว่างการรักษาแผนปัจจุบันร่วมกับการใช้เครื่องกระตุ้นในการรักษา กับการรักษาแผนปัจจุบันเพียงอย่างเดียว ในผู้ป่วยที่มีอาการรอยจ้ำเลือด (Bruise) จากการฝึกซ้อมมวยไทย

1.2 เพื่อการศึกษาเปรียบเทียบระหว่างการรักษาแผนปัจจุบันร่วมกับการใช้เครื่องกระตุ้นในการรักษา กับการรักษาแผนปัจจุบันเพียงอย่างเดียว ในผู้ป่วยที่มีอาการเจ็บ (Pain) จากการฝึกซ้อมมวยไทย

ความเป็นมาและความสำคัญของโครงการ

กีฬามวยไทย (Thai Boxing) เป็นกีฬาประจำชาติของประเทศไทย และเป็นกีฬาที่ได้รับความนิยมมาตั้งแต่สมัยโบราณจนถึงปัจจุบัน ในการฝึกซ้อมกีฬามวยไทยนั้น นักกีฬามักจะได้รับบาดเจ็บโดยเฉพาะอาการรอยจ้ำเลือด (Bruise) และอาการเจ็บ (Pain) จากการฝึกซ้อม ทำให้นักกีฬาหรือผู้สนใจกีฬามวยไทยเกิดความท้อถอยและไม่อยากมาทำการฝึกซ้อมหรือเรียนมวยไทยอีกต่อไป โดยในการรักษาอาการดังกล่าวโดยทั่วไป จะรักษาด้วยวิธี R-I-C-E ซึ่งให้ผลในการรักษาหายใน

ระยะเวลาประมาณ 7 – 14 วัน แต่จากการศึกษาผลงานวิจัยที่เกี่ยวข้อง พบว่าเครื่องกระตุ้นแบบ Energy Impulse ยี่ห้อ ONDAMED ซึ่งเป็นเครื่องมือที่ใช้อยู่ในโรงพยาบาลแม่ฟ้าหลวง (อโศก) สามารถให้ผลการรักษาอาการรอยจ้ำเลือด (Bruise) และอาการเจ็บ (Pain) ให้หายได้ในระยะเวลาที่รวดเร็วกว่า รวมถึงยังไม่เคยมีการทำการศึกษาวิจัยโดยใช้เครื่องกระตุ้นแบบ Energy Impulse ยี่ห้อ ONDAMED ดังกล่าวกับกีฬามวยไทยมาก่อน

ดังนั้น ผู้วิจัยจึงมีความสนใจเพื่อทำการศึกษาเปรียบเทียบระหว่างการรักษาแผนปัจจุบัน ร่วมกับการใช้เครื่องกระตุ้นในการรักษา กับการรักษาแผนปัจจุบันเพียงอย่างเดียว ในผู้ป่วยที่มี อาการรอยจ้ำเลือดและอาการเจ็บจากการฝึกซ้อมมวยไทย เพื่อนำไปสู่ผลสรุปว่าเครื่องกระตุ้นแบบ Energy Impulse สามารถใช้เป็นทางเลือกอีกทางหนึ่งในการรักษาอาการรอยจ้ำเลือด (Bruise) และ อาการเจ็บ (Pain) ได้หรือไม่

สถานที่และระยะเวลาที่ต้องทำการวิจัยกับอาสาสมัคร

การศึกษานี้ดำเนินการแก่อาสาสมัครที่มารับการรักษาด้วยเครื่อง ONDAMED ที่ โรงพยาบาลมหาวิทยาลัยแม่ฟ้าหลวง (อโศก) กรุงเทพมหานคร โดยใช้ระยะเวลาในการรักษาครั้ง ละ 30 นาที จำนวน 1-2 ครั้ง

รายละเอียดการปฏิบัติต่ออาสาสมัคร

อาสาสมัครจะได้รับการประเมินอาการบาดเจ็บประเภทรอยจ้ำเลือด (Bruise) และอาการ เจ็บ (Pain) ที่เกิดขึ้นจากการฝึกซ้อมมวยไทย และรักษาด้วยเครื่อง ONDAMED ที่โรงพยาบาล มหาวิทยาลัยแม่ฟ้าหลวง (อโศก) กรุงเทพมหานคร โดยใช้ระยะเวลาในการรักษาครั้งละ 30 นาที จำนวนอย่างน้อย 2 ครั้ง และติดตามผลว่ารอยจ้ำเลือดและอาการเจ็บ สามารถหายได้ในระยะเวลาที่ วันหลังจากได้รับการรักษา

APPENDIX D

QUESTIONNAIRE A

แบบสอบถาม (สำหรับผู้เข้ารับการรักษา)

เรื่อง การศึกษาเปรียบเทียบระหว่างการรักษาแผนปัจจุบันร่วมกับการใช้เครื่องกระตุ้นในการรักษา
กับการรักษาแผนปัจจุบันเพียงอย่างเดียว ในผู้ป่วยที่มีอาการรอยจำเลือดและอาการเจ็บจาก
การฝึกซ้อมมวยไทย

คำชี้แจง โปรดทำเครื่องหมาย x ลงในช่อง () หรือกรอกข้อมูลที่ตรงกับของข้อมูลผู้เข้ารับการรักษา

ส่วนที่ 1 : ข้อมูลทั่วไป

1. อายุ _____ ปี
2. เพศ ☐ ชาย ☐ หญิง
3. โรคประจำตัว (โปรดระบุ) _____

4. แพ้ยา (โปรดระบุ) _____

5. อาชีพ
☐ ไม่ประกอบอาชีพ ☐ เกษตรกรรม ☐ รับจ้าง
☐ พนักงานบริษัทเอกชน ☐ ข้าราชการ / รัฐวิสาหกิจ ☐ ธุรกิจส่วนตัว / ค้าขาย
☐ อื่นๆ (โปรดระบุ) _____
6. การศึกษา
☐ ไม่ได้ศึกษา ☐ ประถมศึกษา ☐ มัธยมศึกษาตอนต้น / ปวช.
☐ มัธยมศึกษาตอนปลาย / ปวส. ☐ ปริญญาตรี ☐ สูงกว่าปริญญาตรี

7. การเล่นกีฬาหรือออกกำลังกาย
() ไม่เคยออกกำลังกาย () ออกกำลังกายบ้าง () ออกกำลังกายสม่ำเสมอ
8. ความถี่ในการออกกำลังกาย
() 1-2 ครั้ง/สัปดาห์ () 3-4 ครั้ง/สัปดาห์ () มากกว่า 5 ครั้ง/สัปดาห์
9. ท่านเล่นกีฬา “มวยไทย” หรือไม่
() เล่น () ไม่เล่น
10. สถานที่ฝึกซ้อมกีฬามวยไทย
() ที่บ้าน () โรงเรียนมวยไทย () สนามมวย
() อื่นๆ (โปรดระบุ) _____
11. ท่านเคยได้รับบาดเจ็บ หรือมีรอยฟกช้ำ หรือบาดแผล หรือมีอาการเจ็บ จากการฝึกซ้อมกีฬามวยไทยหรือไม่
() เคย () ไม่เคย
12. ในช่วง 1-2 สัปดาห์นี้ ท่านได้รับบาดเจ็บ หรือมีรอยฟกช้ำ หรือมีบาดแผล หรือมีอาการเจ็บ จากการฝึกซ้อมกีฬามวยไทยหรือไม่
() มี () ไม่มี

ส่วนที่ 2 : รอยฟกช้ำ บวม มีอาการเจ็บ หรือได้รับบาดเจ็บ (ก่อนการรักษา)

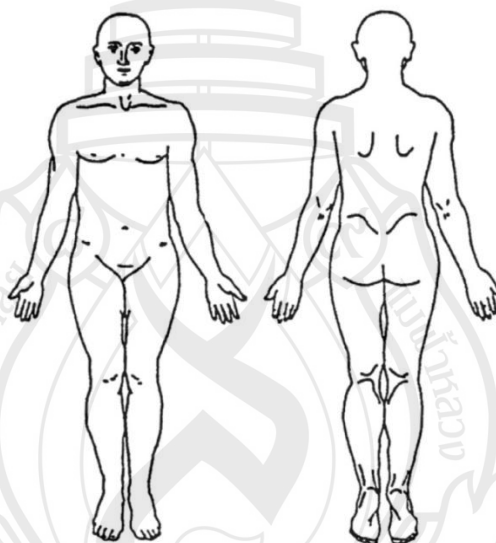
2.1 ก) วันที่บันทึกข้อมูล _____

ข) น้ำหนัก _____ กิโลกรัม

ค) ความสูง _____ เซนติเมตร

ง) ความดันโลหิต _____ มิลลิเมตร ปรอท

2.2 โปรด x ในตำแหน่งของร่างกายที่ท่านมีรอยฟกช้ำ บวม มีอาการเจ็บ หรือได้รับบาดเจ็บ และโปรดระบุข้อความ “ใน” หากมีอาการภายใน / ข้อความ “นอก” หากมีอาการบริเวณ ผิวหนัง



2.3 โปรดเลือกระดับความเจ็บที่เกิดจากการฟกช้ำหรือแข่งขันกีฬามวยไทย



ไม่เจ็บ

เจ็บเล็กน้อย

เจ็บปานกลาง

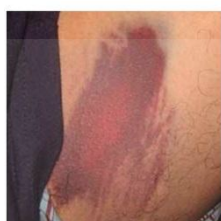
เจ็บมาก

() () () () () () () () () () ()
0 1 2 3 4 5 6 7 8 9 10

2.4 รอยจ้ำเลือด หรืออักเสบ

2.4.1 ท่านมีรอยจ้ำเลือด หรืออักเสบมาแล้วเป็นระยะเวลา _____ ชั่วโมง

2.4.2 ท่านคิดว่ารอยจ้ำเลือด หรืออักเสบของท่าน (อยู่ในระยะใดเทียบกับสีตัวอย่าง)



	1	Day 1
	2	Day 2
	3	Day 3
	4	Day 4
	5	Day 5
	6	Day 6
	7	Day 7
	8	Day 8
	9	Day 9
	10	Day 10

2.5 ท่านได้รับการรักษาอย่างไรบ้าง

2.5.1 ประคบน้ำแข็ง ☐ ใช่ ☐ ไม่ใช่

2.5.2 ประคบร้อน ☐ ใช่ ☐ ไม่ใช่

2.5.3 พันผ้ายืดรัดบริเวณบาดแผล ☐ ใช่ ☐ ไม่ใช่

2.5.4 ยกบริเวณบาดแผลให้สูง ☐ ใช่ ☐ ไม่ใช่

2.5.5 ใช้ยาทา ☐ ใช่ ☐ ไม่ใช่

ถ้า “ใช่” โปรดระบุชื่อยา _____

2.5.6 ใช้ยารับประทาน ☐ ใช่ ☐ ไม่ใช่

ถ้า “ใช่” โปรดระบุชื่อยา _____

2.5.7 ท่านรับประทาน “น้ำมันปลา (fish oil)” เป็นอาหารเสริมหรือไม่ () ใช่ () ไม่ใช่

2.5.8 ได้รับการรักษาด้วยวิธีอื่น (โปรดระบุ) _____

ส่วนที่ 3 : รอยฟกช้ำ บวม มีอาการเจ็บ หรือได้รับบาดเจ็บ (หลังการรักษา)

3.1 ก) วันที่บันทึกข้อมูล _____

ข) น้ำหนัก _____ กิโลกรัม

ค) ความสูง _____ เซนติเมตร

ง) ความดันโลหิต _____ มิลลิเมตรปรอท

3.2 โปรดเลือกระดับความเจ็บที่เกิดจากการฟกช้ำหรือแข่งขันกีฬามวยไทย



3.3 รอยจ้ำเลือด หรืออักเสบ

3.3.1 ท่านมีรอยจ้ำเลือด หรืออักเสบมาแล้วเป็นระยะเวลา _____ วัน

3.3.2 ท่านคิดว่ารอยจ้ำเลือด มีอาการดีขึ้นหรือไม่ () ใช่ () ไม่ใช่

3.3.3 ท่านคิดว่ารอยจ้ำเลือด หรืออักเสบของท่าน (อยู่ในระยะใดเทียบกับสีตัวอย่าง)

			1	Day 1
			2	Day 2
			3	Day 3
			4	Day 4
			5	Day 5
			6	Day 6
			7	Day 7
			8	Day 8
			9	Day 9
			10	Day 10

3.4 ท่านได้รับการรักษาอย่างไรบ้าง

3.4.1 เครื่องออนดามัด (ONDAMED) () ใช่, กรุณาตอบข้อ 2.5 () ไม่ใช่

3.4.2 ไขยาทา () ใช่ () ไม่ใช่

ถ้า “ใช่” โปรดระบุชื่อยา _____

3.4.3 ไขยารับประทาน () ใช่ () ไม่ใช่

ถ้า “ใช่” โปรดระบุชื่อยา _____

3.4.4 ได้รับการรักษาด้วยวิธีอื่น (โปรดระบุ) _____

3.5 ท่านคิดว่าการใช้เครื่องออนดามัด (ONDAMED) ช่วยในการรักษาครั้งนี้ ช่วยให้รอยจ้ำ

เลือด และ/หรืออาการเจ็บของท่าน สามารถรักษาให้หายได้เร็วขึ้นหรือไม่

() หายเร็วขึ้น () หายช้ากว่า () ไม่แตกต่างกัน

APPENDIX E

QUESTIONNAIRE B

แบบสอบถาม (สำหรับแพทย์ หรือผู้ให้การรักษา)

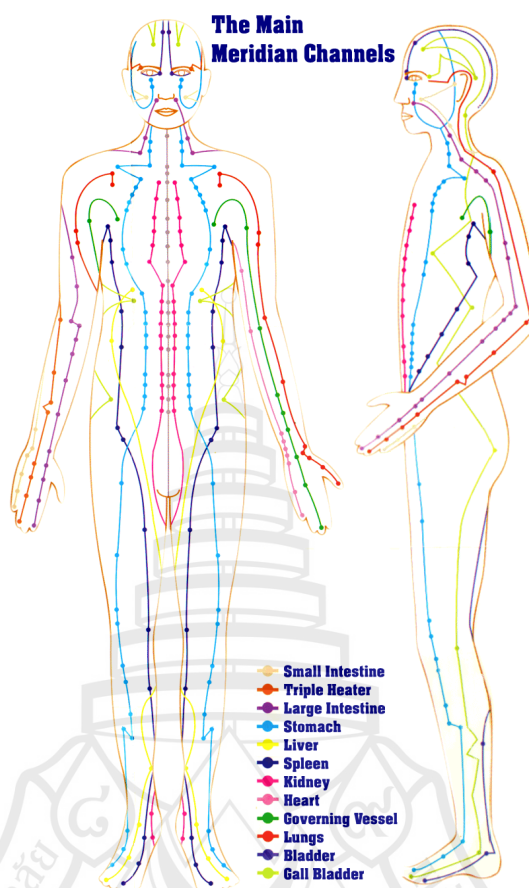
เรื่อง การศึกษาเปรียบเทียบผลการรักษาผู้ป่วยที่มีรอยจ้ำเลือด (Bruise) และอาการเจ็บ (Pain) จากการเล่นกีฬามวยไทย ด้วยเครื่องออดาเมตร่วมกับการรักษาแบบทั่วไป เทียบกับการรักษาแบบทั่วไปเพียงอย่างเดียว

คำชี้แจง โปรดทำเครื่องหมาย x ลงในช่อง () หรือกรอกข้อมูลที่ตรงกับของข้อมูลผู้เข้ารับการรักษา

เจ้าหน้าที่ผู้รักษา _____

ส่วนที่ 1 : ข้อมูลทั่วไปของผู้ป่วย

1. อายุ _____ ปี
2. เพศ () ชาย () หญิง
3. วันที่เข้ารับการรักษา _____
4. โปรด x ในตำแหน่งของร่างกายที่มีรอยฟกช้ำ บวม มีอาการเจ็บและโปรดระบุข้อความ “I (Internal)” หากมีอาการภายใน / ข้อความ “E (External)” หากมีอาการบริเวณผิวหนัง



Module 2 : Programs (#57, #52, #98)

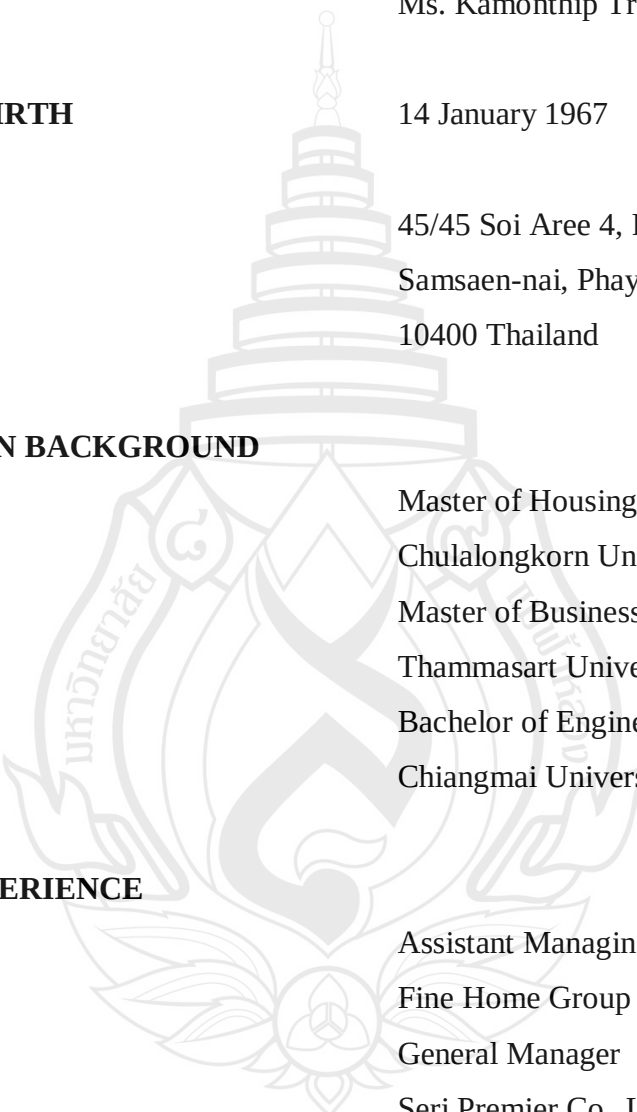
No. : _____ No. : _____ No. : _____

No. : _____ No. : _____ No. : _____



CURRICULUM VITAE

CURRICULUM VITAE



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1995	Master of Business Administration Thammasart University
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1997-2004	General Manager Seri Premier Co., Ltd.
1992-1996	Project Director Green Valley Properties Co., Ltd.
1990-1992	Project Manager McThai Co., Ltd.