

DEVELOPMENT POCKET BOOK THERAPY AND REHABILITATION INJURY: BUSINESS OPPORTUNITIES ON SPORT ASPECT SERVICES

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Abstract: Injuries are often experienced by everyone due to physical activity such as sports, work and more. Therapists and rehabilitation numbers are still not comparable with the population. First aid needs to be done. Understanding of injury needs to be known to everyone. Until now still needed a guide like a handbag injury handbook. On the other hand, not many people are interested in doing business services for therapeutic and rehabilitation services. This study aims to develop a pocket book handling sports injuries. And look at the business opportunity perspective of therapeutic services and rehabilitation of sports injuries. This research is included in the research and development. Data were collected by questionnaire, and data analysis was performed with quantitative descriptive with percentage. The results showed that the development of pocket book therapy and foot joint injury rehabilitation results obtained that the product is feasible and meet the rules that apply. On the other hand from the observation and study results it is found that therapeutic and rehabilitation services are prospective business opportunities to be developed. It can be concluded that therapy and rehabilitation are included in potential business opportunities.

Keywords: pocket book, therapy, rehabilitation, business, services, sports

PRELIMINARY

Sports in the modern era is now very advanced and developed with the application of science and technology. Sports can devide for physical fitness, achievement and recreation. Sports based on the Constitution of the Republic of Indonesia number 3 of 2005 about sports systems that sport is all aspects related with sports that require regulation, education, training, coaching, development and oversight. Then the sport can improve human resources healthy and healthy Indonesia. Regular and directed exercise and programmed will improve the condition of the prime body as revealed by Giri Wiarto, (2013: 163) said that Sports is a systematic musculoskeletal system activities and structured with the frequency, intensity, type and time has been determined. Irregular, directed, and programmed sports will cause prolonged injury.

Sports injuries result from errors of both external violence, internal violence, and overuse, as expressed by

Mukhamad Ikhwan Zein (2016: 7) that sports injuries can calculated based on the cause. Another opinion from Andun Sudijandoko (2000: 7) reveals that, sports injuries are a pain caused by exercise, which can cause disability, injury, and damage to muscles or joints and other parts of the body. occurs when and anywhere, and all sports are at risk of injury without exception. Sports Injuries can affect all parts of the body, especially areas that have motion functions or become the foundation during the move, which is characterized by symptoms of pain, swelling, bruising, abrasions, and broken on the bone. (Ali Satia Graha, 2005: 2). Types of sports injuries that are often experienced by the perpetrators of many sports, one of the most common is an ankle injury.

Ankle joint injuries usually occur because of sprains and ankle joint injury is an injury that is often experienced by the sport but long healing process. Ankle sprains are one of the most common acute injuries experienced by

athletes. The ankle joint is easily injured because it is less able to resist the medial, lateral, pressure and rotational forces (Sri Sumartiningih, 2012: 54). Ankle injuries are a daunting thing for the sportsman, because everyone will be lazy to exercise and athlete achievement becomes decreased. Initial observations of both college students and practicing athletes resulted in: (1) Many students and athletes during practice and lecture classes suffered bodily injury, (2) Many students and injured athletes were unable to continue sports or exercise activities. (3) Injuries that occur in students who are in practice and athletes who are training one of them is ankle joint injury, (4) Both athletes and many students who do not know help in handling ankle injuries, (5) Reference or book an ankle injury handling guide does not exist as a first aid guide.

Based on this background it is necessary to develop a pocket book guide handling injury and rehabilitation at the ankle joint. How to develop a pocket manual for handling injuries and rehabilitation at ankle joints with ankle injuries? This study aims to produce a book product pocket guide handling injuries and rehabilitation at the wrist joints provide an understanding of the handling of injury and rehabilitation at the ankle joint.

The development of an injection handbook for injury and rehabilitation of the ankle joint will be useful for providing knowledge about the handling of ankle joint injury and rehabilitation, Providing ease in learning to understand and recognize the handling of ankle joint injury and rehabilitation, facilitate sports actors in providing joint injury treatment solutions ankle and rehabilitation.

RESEARCH METHODS

Design The research used in this research is research and development with approach developed by borg and gall. Called research-based development, according to Sugiyono (2012: 407), development research method is a research method used to produce a particular product, and review the effectiveness of the product or in other words to produce a specific product needs analysis needs and to test the effectiveness of the product. The instrument in this development study is to use several data collection instruments, with questionnaires. Technique of data analysis conducted in this research is quantitative analysis technique.

RESULT AND DISCUSSION

Learning media developed in the form of learning media in the form of pocket book. The initial product produced is called “The Handbook of Injury and Rehabilitation Handbooks on Ankle Hands” to provide an understanding of the handling of injuries and rehabilitation of the ankle joints. Learning media products “The Handbook of Injury and Rehabilitation Handbooks on Ankle “ is developed with the concept of introducing ways of handling ankle joint injuries to sports actors. Thus, “Handbook of Injury and Rehabilitation Handbooks on Ankle” is expected to be used as an interesting learning resource and preferred by sports actors so that it can be an alternative in introducing ways of handling ankle injuries through the media of a pocket book.

The “Handbook of Hand Wrist Injury Handbook and Rehabilitation of Ankle” products developed is a book that contains material on how to handle injuries and rehabilitation at the ankle joint with a picture as well as a simple but clear explanation so that it is expected to be a guide for the sports actors in deal with ankle injuries. This pocket book also comes with case examples in case of ankle joint injury and prevention efforts to minimize the occurrence of ankle joints. Pocket book made with pocket-sized clothes with an attractive appearance that is expected to be used as a medium of learning by the perpetrators of sports.

The development of instructional media “The Handbook of Injury Handling and Rehabilitation of Ankle Hands” is validated by experts in their field, which is a learning media expert and sports injury material expert. This expert review yields several revisions as follows: In the first stage of validation the percentage obtained 85% can thus be stated that according to the material expert, in the first validation stage the pocket book learning media developed from the content feasibility aspects get the category “Eligible”.

In the second stage of validation percentage obtained increased from 85% to 95% of the maximum score. And the media expert in validating the first phase of the percentage obtained 73.33% thus can be stated that according to media experts, in the first validation stage

of learning media pocket book developed from design feasibility aspects get the category “worthy”. Field test results obtained total score assessment feasibility of media learning pocket book according to student respondents of 85.62% categorized “Eligible”.

Based on small group and large group test trials showing results in the “Eligible” category. The results of the data obtained are interpreted according to predetermined categories. The categories used in this development study are divided into sections, ie for values <40% categorized as inappropriate, 41-55% are categorized as unfeasible, 56-75% are categorized as reasonable, and 76-100% are categorized as viable.

According to Ali Satia Graha (2009: 25) Massage therapy sports injury, used for the management of minor injuries in the lower and upper limbs. One of the injuries to the lower limbs is an injury to the ankle joint. Early in the development of this pocket book was designed and produced into an initial product in the form of a pocket book guide handling injuries and rehabilitation at ankle joints for sports actors, especially athletes and coaches. Development process through research and development procedures. Through some planning, production and evaluation. Then the product is developed with the help of photoscape, photoshop CS6, and corel draw, after the initial product is produced then need to be evaluated to the experts through expert validation and need to be tested to the students FIK UNY. The evaluation stage is performed on material experts and media experts. While the research phase is done by small group trials, and large group trials.

The material expert validation process generates data that can be used for revision of the original product. In the process of validation of this material expert the researcher uses two stages of phase I and phase II. The first stage validation data serve as a basis for revising the product to refine until the product is ready for testing. Upon completion of the validation of the material expert, it is immediately validated to the media expert. From the media expert got suggestions and feedback to improve the quality of the contents of the pocket book being developed. In the process of media validation of the researcher through two stages of phase I and phase II. The first stage I media validation data validated the basis

for revising the product, after which the first revision was validated again until the product was ready for testing. The trials were conducted in two stages, ie small group trial stage, and large group trials.

The quality of this handbook included in the “Eligible” criteria of the statement can be proven by the analysis of “Eligible” assessment by both the expert material and media expert, as well as in small group trial assessments, and large group trials. This is seen from the provision of points to the questionnaire questions given from points 1 through 4, points that often appear are points 4, then point 3.

Most research subjects are still athletes and are highly enthusiastic and well-received coaches with a handbook on handling injuries and rehabilitation at these ankle joints, requiring that many pocket books be printed and immediately circulated to the public.

With the advantages of this product, the weaknesses in this product, including the reader saturation level in reading because the material is quite a lot, the term anatomy is difficult to understand the reader, more focused on handling injuries, and directly practice it directly than first understand the ways to do it. Some of these weaknesses, hope for attention and further development efforts to obtain better product results. This fact will increasingly open up opportunities for continuous subsequent revamping.

The results of sports questionnaire test of learning media of the book of sakumen showed that for the evaluation in terms of appearance of 82.67% which is categorized as “Eligible”, the material aspect of the book is 88,19% which is categorized as “Eligible”, legibility aspect of 85% pocket book. Total assessment of feasibility test of pocketbook learning media according to student respondents of 85.62% is categorized as “Eligible”.

Analysis of Pros and Cons of Media

Excess media: Can attract the attention of sports actors to recognize the handling of ankle injuries; Can be a practical medium for learning for sports; Easy to carry while traveling; Can add to the understanding of the handling of injuries. Media deficiency: Writings that are

too dense that can cause readers to hesitate to read; Anatomical terms that may be difficult for the reader to understand.

Analysis of the Pocket book Prespective

Prior to the existence of pocketbook learning media, there is no media learning that specifically provides an understanding of the handling of injuries and rehabilitation at the ankle joint. Learning books design literature with the media practical and simplified that facilitate the reader learn the contents of the pocket book material because of its small and can brought traveling anywhere so it is expected that sports actors, especially athletes and coaches can recognize and practice ways of handling injury and rehabilitation of the ankle joint properly. From the results of the analysis of pocket book learning media during product trial can be described as follows:

Sports Actors: a) Sportmakers are more motivated through pocket book learning media, materials handling ankle injuries more easily understood, the desire of sports actors to demonstrate the size of a pocket book into a pocket or pants. b) The sports practitioner can learn to know how easy the ankle injury is done. c) Doers of sports are independent by understanding how to deal with ankle injuries.

Mapping teraphy and rehabilitation from result of the research the results of research related to therapeutic and rehabilitation of sports injuries have begun to be widely practiced by experts. Based on the results of a review conducted by Eunkuk Kim * and Hokyung Choi, (2015), a mapping summary of the following 8 articles on aquatic physical therapy interventions: design, intervention, outcome, assessment, and results was performed.

Table 1
Summary of 8 articles of aquatic physical therapy interventions: design, intervention, outcome, assessment, and results (Eunkuk Kim* and Hokyung Choi, 2015)

<i>Authors</i>	<i>Design</i>	<i>N</i> <i>(% female)</i>	<i>Mean age</i> <i>(SD)</i> <i>in years</i>	<i>Intervention/</i> <i>Training</i>	<i>Outcome</i> <i>measures</i>	<i>Assessment/</i> <i>Follow-up</i>	<i>Results</i>
Robinson <i>et al.</i> [18]	Repeated measures	32 (100)	20.2 (0.3)	Plyometric training in water or on land (3 days a week for 8 weeks)	Sargent vertical jump test Peak torque 40 m sprint Self-report ordinal scale (muscle soreness) Pain sensitivity	Pre-training Mid-training (4 weeks) Post-training (8 weeks)	There were no treatment by time interactions, indicating that there were no performance and pain sensitivity differences between the land- and aquatic-trained groups (p>0.05). There was a significant interaction of treatment group by time for perception of muscle soreness (p=0.01).
Martel <i>et al.</i> [19]	Repeated measures	19 (100)	15(1)/14(1) (aquatic group/ control	Plyometric training in aqua or on land (twice a	Vertical jump Isokinetic peak torque	Baseline After 2 weeks After 4 weeks After 6 weeks	There were significant increases in vertical jump after 4 weeks and 6 weeks in both

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Authors	Design	N (% female)	Mean age (SD) in years	Intervention/ Training	Outcome measures	Assessment/ Follow-up	Results
			group)	week for 6 weeks)			groups (p<0.05). Significant improvements in concentric peak torque were observed in the dominant leg of both groups after 6 weeks (p<0.05).
Roth <i>et al.</i> [20]	Repeated measures	27(62)	21.18(1.24)/ 22.43(1.81) (female/male)	Balance training program in aqua or on land (for 4 weeks)	X and Y range of Single leg stance(SL), Tandem, stance (T), and Single leg foam stance (SLF) Tandem form stance (TF)	Pretest Mid-test (2 weeks) Post-test (4 weeks) Follow-up test (6 weeks)	A significant group* time interaction for the X range was found for SL, SLF, and TF (p<0.05). The Y range improved significantly, with posttest value lower than pretest value (p<0.05).
Stemm and Jacobson [22]	Pre-test/ Post-test	21 (unknown)	24(2.5)	Plyometric training in aqua or on land (twice a week for 6 weeks)	VERTEC vertical jump test	Pre-test Post-test	Aquatic and land-based groups significantly outperformed the control group in the vertical jump, but no significant difference was found in the vertical jump between the aquatic and land- based groups.
Dundar <i>et al.</i> [16]	Randomized controlled trial	65(47)	35.3(7.8)/ 34.8(8.3) (aquatic / land-based)	Exercise program in aqua or on land (5 times a week for 4 weeks)	Spinal range of motion Schober test Visual analogue scale for pain Oswestry low back pain disability questionnaire Short-form 36 health survey for quality of life	Before the treatment After the treatment (after 4 weeks and 12 weeks)	Statistically significant improvements were detected in all outcome measures except the Schober test compared with baseline (p<0.05).
Kim <i>et al.</i> [9]	Randomized controlled trial	22(27)	26(4.1) / 26(3.1) (aquatic / land- based)	Early functional rehabilitation program in aqua or on land (5 sessions per week for 3 weeks)	Visual analogue scale for pain Static stability Dynamic stability Percentage single-limb support time	Baseline After 2 weeks After 4 weeks	Both groups showed decrease in the visual analogue scale, static and dynamic stability, and percentage single- limb support time at 2 and 4 weeks (p<0.05). There were significant

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<i>Authors</i>	<i>Design</i>	<i>N</i> <i>(% female)</i>	<i>Mean age</i> <i>(SD)</i> <i>in years</i>	<i>Intervention/</i> <i>Training</i>	<i>Outcome</i> <i>measures</i>	<i>Assessment/</i> <i>Follow-up</i>	<i>Results</i>
Asimienia <i>et al.</i> [21]	Pretest / Posttest	30(46)	20.58 (0.64)	Balance program in aqua or on land (3 times per week for 6 weeks)	Total anterior- posterior and medial-lateral stability for static stability Dynamic stability test	Before the program After the program	group by time interactions for the visual analogue scale, static and dynamic stability, and percentage single-limb support time($p<0.05$). In both groups, balance ability of the injured leg was significantly improved after the training period ($p<0.05$). In the final measurements, no statistically significant differences were found between the injured and non-injured.
Nualon <i>et al.</i> [23]	Repeated measures	47(8)	20.79(1.89)/ 20.04(1.22) (hydro/ land-based)	Functional rehabilitation program in aqua or on land (twice a week for 6 weeks)	Single-limb hopping test Ankle joint position sense	Baseline After 6 weeks After 3 months	In the hydrotherapy group, the time taken for the single-limb hopping test decreased significantly immediately after exercise and at follow-up compared with the base line ($p=0.001$). In the land-based group, time taken for the single-limb hopping test decreased significantly at follow up compared with baseline ($p=0.05$). No significant differences were detected between groups in the ankle joint position sense ($p>0.05$).

The results of this study strengthen the development of therapy science and rehabilitation from various aspects of the study. One of the studies that needs to be developed is on the business opportunity aspects of sports services related to therapy and rehabilitation of injuries. In principle everyone will keep his health, because healthy is expensive. So when people are hit by injury it

will immediately find a suitable drug even though the price of the drug is very expensive. Thus the opportunity for the development of sports injury services is an excellent opportunity.

Business Opportunities Therapy and Rehabilitation Services for Sports Injuries Physical therapists have an important role to play in the prevention of sports injuries.

The process is effective one of risk management and should be based on a proper risk analysis. Many older studies give a misleading impression of the incidence and consequences of different sports injuries. Older studies on the causes of sports injuries were also poorly designed and misconceptions concerning injury risk factors are common. For example, there is little hard evidence that poor flexibility and hamstring-quad muscle imbalance are significant sports-injury risk factors.

The aquatic environment is ideal for early rehabilitation of injuries due to buoyancy, which decreases the effects of gravity on the body, and viscosity, which offers assistance or resistance [11]. Performing joint movements in water provides the limb support and allows the range of motion, without excessive muscle activation, and a transition to dry matter [12]. Konlian reported that aquatic physical therapy helps athletes return to exercise early and speeds up the overall rehabilitation process [11].

The results of the above study are the basis for therapy and rehabilitation. While in Indonesia has its own uniqueness. The uniqueness is supported by demographic aspects, and the development of existing therapy and rehabilitation science. In the last few years in Indonesia there are still many unfamiliar masseurs and no certificates, because they are self-taught and hereditary. In the current development has begun to emerge expert therapists resulting from the process of spreading and training. In one example, the number of educated masseurs is not enough, while every event always needs masseur services to accompany the athletes. On the other hand in the community many people who encountered fatigue and injury, so the service has not been taken by many people.

In this case it can be exemplified that there is a person who initially does not have a job, and then follow the massage training with diligence and focus after a long practice that finally was said to have been able to do therapy. Such a person does not have a high education certificate, but has a knack for massage. Currently patients who come for an average injury therapy every day 20 people. The patients give an average service of 50 thousand, in a month work for 25 days. So the average income in a day of 20 people x 50 thousand = 1 million. If one month work 25 days then the income of 1 million x 25 days = 25 million rupiah per month. The result if

converted with the result of government employees is equivalent to the group IV carrier. Whereas to reach Group IV takes a long time and undergraduate degree. With this analogy, the business of therapeutic services and rehabilitation of the sport is very big opportunity to be developed in Indonesia.

CONCLUSION

The results of a pocket book media development study guiding the handling of injuries and rehabilitation of ankle joints are categorized as worthy of use as a medium of instruction to provide an understanding of how to deal with injuries and rehabilitation of ankle joints against sports actors. This can be seen from the results of the assessment of material experts 95% and media experts 85% and based on the results of small group trials 85.25% and large group trials 85.62%. The results of the review and observation that the service of rehabilitation therapy and rehabilitation is a very prospective opportunity for the development of entrepreneurship or sports business.

BIBLIOGRAPHY

- Ali Satia Graha. (2009). *Massase Terapi Cedera Olahraga Metode Ali Satia Graha (Therapy Massage Sport Injury)*. FIK UNY.
- Ali Satia Graha & Bambang Priyonoadi. (2012). *Terapi Massage Frirage Penatalaksanaan Cedera Pada Anggota Gerak Tubuh Bagian Bawah*. FIK UNY.
- Ali Satia Graha. (2005). *Kegunaan Rehabilitasi Dan Terapi Dalam Cedera Olahraga. Medikora*: (volume 1, no 1).
- Andun Sudijandoko. (2000). *Perawatan dan Pencegahan Cedera*. Jakarta: Depdiknas.
- A. W. S. Watson. Sports injuries: incidence, causes, prevention. *Journal Physical Therapy Reviews*. Volume 2, 1997 - Issue 3. <https://doi.org/10.1179/jptr.1997.2.3.135>
- Edi Santoso, Siswantoyo (2013). *Pengembangan Media Pembelajaran dan Latihan "Kartu Pintar Bermain Sepakbola" dalam Memperkenalkan Teknik dalam Permainan Sepakbola untuk Anak Usia Dini*. Skripsi. FIK UNY.
- Eko Ari Anto, Siswantoyo. (2015). *Pengembangan Media Pembelajaran Coloring Book Sepakbola Untuk Anak Usia Dini*. Skripsi. FIK UNY.
- Giam, C.K. dan Teh, K.C. (1992). *Ilmu Kedokteran Olahraga*. (Hartono Satmoko, Tejemahan). Jakarta: Binarupa Aksara.

- Giri Wiarto. (2013). *Fisiologi dan Olahraga*. Yogyakarta: Penerbit Graha Ilmu.
- Heri Purwanto. (2009). *Penatalaksanaan Pencegahan dan Terapi Cedera Pinggang Serta Anggota Gerak Tubuh*. Yogyakarta: FIK UNY.
- Iskandar Junaidi. (2011). *Yang harus dilakukan pertama kali saat gawat & darurat medis*. Yogyakarta: Penerbit Andi.
- Robert S. Gotlin, Do. (2008). *Sports Injuries Guidebook*. Usa: HumanKinetics.
- Konlian C (1999). Aquatic therapy: Making a wave in the treatment of low back injuries. *OrthopNurs* 18: 11-18.
- Mukhamad Ikhwan Zein. (2016). *Pencegahan dan perawatan Cedera*. FIK UNY.
- Novita Intan Arovah. (2009). *Diagnosis Dan Manajemen Cedera Olahraga*. FIK UNY.
- Novita Intan Arofah. (2009). Terapi Dingin {*Cold Therapy*} Dalam Penanganan Cedera Olahraga. *Medikora*: (Vol.V, no 1: 102-107).
- Pfeiffer, P. Ronald. *et al.* (2009). *Sport First Aid and Injury Prevention (Pertolongan pertama dan pencegahan cedera olahraga)*. Alih bahasa: dr. Huriawati Hartanto. Jakarta: Penerbit Erlangga.
- Roth AE, Miller MG, Richard M, Ritenour D, Chapman BL (2006). Comparisons of static and dynamic balance following training in aquatic and land environments *J S R* 15: 299-311.
- Sri Sumartiningsih. (2012). Cedera Keseleo pada Pergelangan Kaki (*Ankle Sprains*). *Jurnal Media Ilmu Keolahragaan Indonesia*: (volume 2 edisi 1).
- Sugiyono. (2012). *Metode Penelitian Pendidikan Pendekatan Kuantitatif Kualitatif dan R&D*. Bandung: Penerbit Alfabeta
- . (2013). *Metode Penelitian Kuantitatif, Kualitatif, dan Kombinasi (Mixed Methods)*. Bandung: Alfabeta.
- Susan J. Garrison. (2001). *Dasar-dasar Terapi & Rehabilitasi fisik*. Jakarta: Hipokrates.
- Taylor, M. Paul & Taylor, K. Diane. (1997). *Conquering Athletic Injuries (Mencegah Dan Mengatasi Cedera Olahraga)*. Penerjemah: Jamal Khabib. Jakarta. PT. Raja Grafindo Persada.
- Eunkuk Kim* and Hokyung Choi, (2015) Aquatic Physical Therapy in the Rehabilitation of Athletic Injuries: A Systematic Review of the Literatures. *Journal of Yoga & Physical Therapy*. **Published date**: August 05, 2015.