

Proceeding

INTERNATIONAL CONFERENCE ON SPORT

GOR UNY, Saturday, 12th DECEMBER 2009

Theme

The Development Of Sport Culture
To be Indonesian Civilization



Faculty Of Sport Science
Yogyakarta State University



ISORI DIY



Ministry of Youth and Sport
Republic of Indonesia



Indonesian Sport
Deans Forum

	Sri Sumartiningih, Semarang State University.....	
14	<i>Form Child Healthy Living Behave</i> Sriawan, Yogyakarta State University.....	97
15	<i>Volleyball Game: Empowering The Civilization</i> Sujarwo, Yogyakarta State University.....	101
16	<i>Maintain Physical Fitness With Healthy Lifestyle</i> Sumintarsih, UPN Veteran Yogyakarta.....	106
17	<i>Development Of Social Skills Based Mini Basketball Game Model To Improve Social Skills Motor And Physical Fitness In Elementary School Age</i> Supriyadi, Malang State University.....	112
18	<i>Building Tourism And Balinese Culture Through The Development Of Sport Tourism</i> Suratmin, Ganesha University Of Education.....	121
19	<i>Guide For Sport Tourism</i> Syarif Hidayat, Ganesha University Of Education.....	125
20	<i>Strategies For The Development Of National Sports Industry</i> Tomoliyua, Yogyakarta State University.....	129
21	<i>Water Game Model To Increase Child Braving In Aquatik's Learning And Water Activity</i> Tri Winarti Rahayu, University Of Sebelas Maret.....	133
22	<i>Exercise To Reduce Stress In The Workplace</i> BM.Wara Kushartanti, Yogyakarta State University.....	137
23	<i>Creativity For Sports Manpower</i> Wasti Danardani, Ganesha University of Education.....	141
24	<i>Motivating Learning To Athletics Play Method For Basic School Student</i> Sriawan, Yogyakarta State University.....	145
25	<i>Teacher Creativity In Sport Using For Development Early Childhood Motor</i> Nofli Piri, Manado State University.....	149
26	<i>Taekwondo: A Practical Self Defense For Maintening And Empowering Socio Cultural Norms</i> Devi Tirtawirya, Yogyakarta State University.....	153
27	<i>Rise Of Novice Physical Educators Professionalism (The Emergence Of Lesson Study)</i> Herka Maya Jatmika, Yogyakarta State University.....	158
28	<i>Computer Base Learning In Pencak Silat (Comprehensif Learning Perspectives)</i> Nur Rohmah Muktiani, Yogyakarta State University.....	163
29	<i>Crushing Cultural Barriers: Experiencing With Social Sport</i> Herka Maya Jatmika, Yogyakarta State University.....	167
30	<i>The Efficiency Of "Tendangan Sabit" Technique In Pencak Silat Kategori Tanding (A Biomechanical Analysis)</i> Awan Hariono, Yogyakarta State University.....	171
31	<i>Students Investment Nationalism Through Physical Education And Sport</i> Banu Setyo Adi, Yogyakarta State University.....	177
32	<i>Nutrient Problems Related To Physical Endurance And Work Productivity</i> Cerika Rismayanthi, Yogyakarta State University.....	182
33	<i>Healthy By Practicing Hatha Yoga</i> Ch. Fajar Sriwahyuniati, Yogyakarta State University.....	186
34	<i>Factors In The Design And Implementation Of Programmes That Will Attract, Recruit, Retain And Develop Young Athletes</i> Cukup Pahalawidi, Yogyakarta State University.....	189
35	<i>Practical Strategies To Improve Character Building Through Sports</i> Dimiyati, Yogyakarta State University.....	194
36	<i>The Difference Of Influence Between Intermittent Exercise Type I And Intermittent Exercise Type II Toward The Speed, Time Of Reaction, And Anaerobic Threshold Of Basketball Athlete</i> Eka Novita Indra, Yogyakarta State University.....	198
37	<i>The Role Of Physical Education And Sport Health Science In Character Building</i> Endang Sri Hanani, Semarang State University.....	202
38	<i>Sport Nutrition For Athlete</i> Endang Sri Retno & Sri Sumartiningih, Semarang State University.....	208
39	<i>Traditional Game Can Increase Freshness Of Child Body</i> A. Erlina Listyurini, Yogyakarta State University.....	210
40	<i>Review On Warming Up And Cooling Down In Sport</i> Tri Ani Hastuti, Yogyakarta State University.....	214
41	<i>Doping In Sports: Old Problem, New Faces</i>	218

**THE EFFICIENCY OF “TENDANGAN SABIT” TECHNIQUE IN
PENCAK SILAT KATEGORI TANDING
(A BIOMECHANICAL ANALYSIS)**

By
Awan Hariono
Yogyakarta State University

ABSTRACT

Pencak silat is a branch of sport self defense (bela diri) which competed. To win the competition, fighter (pesilat) must be able to attack toward the rival using arm or leg. Attack in pencak silat can get score if doing by power and no obstacles. It is needed good ability technical movements so the attack technique which done by fighter (pesilat) can get the score. Attack technique in pencak silat can be done by using strike, kick and wiper. From the three techniques, kick is a dominant technique which is used during competition, especially “tendangan sabit” technique. In order to the “tendangan sabit” can be done perfectly, instructor (coach) and fighter (pesilat) have to know the phase to do “tendangan sabit” technique. There are some phases must be aware when doing “tendangan sabit” technique, among of them are: (1) Ready position phase is view, body position (togok) and leg attack flexy; (2) Implementation phase, is rotation of hip, leg swing to the object, and impact (view, the connection of leg with the object, head position and foothold position); and (3) Follow-trough phase

Keywords: Analyze, “Tendangan sabit”, Pencak silat

INTRODUCTION

Basic principle of *pencak silat* competition is getting score by doing attack and defense. Score in *pencak silat* competition is obtained if the fighter can do strike, kick and maybe get in the object and there is no defense from rival. In order to do attack and defense, the good and right mastering basic movement technique is really needed.

According Kotot (2003), basic technique in *pencak silat* can be categorized into: (1) *kuda-kuda*; (2) ready position; (3) step pattern; (4) defense technique (defense and avoid); (5) attack technique (strike, angle and kick); and (6) shock/ fall down technique. From the six categories, strike technique, kick technique, and shock/fall down technique are the techniques can be used to get score in *pencak silat* competition. For that, the mastering strike technique, kick technique and shock/fall down technique is really needed in order to the fighter can get the achievement optimally.

For the *pesilat* beginner, the three techniques are imposible to be taught equally, but taught in a series based on priority scale of purpose every technique. According to the Agung Nugroho (2001) basic technique which can be used to get score, approximately 47% which dominantly used in competition *pencak silat* category is kick technique. Because of kick is the dominant technique which is used along the competition, so the technique be the special attention in exercise process. Technique of kick in *pencak silat*, among of them are: “*tendangan depan*”, “*tendangan sabit*”, *tendangan “T”*, and “*tendangan belakang*”.

Kick technique is effort or process which done by leg in defense or attack to get score as much as possible. Kick technique is often bring about as the mainly weapon to attack or defense to get score in competition. Remembering the importance of it, so the implementation kick technique in competition must be effective and effecient.

A kick technique can be said having effectiveness and efficiency movement if can be done quickly and produce score as expected. Kick technique can get score if get in the object by using power and don't obstacle by defense or capture from the rival. But in reality, the differences perception and point of view of judge toward to the kick technique which using power often cause the differences scoring. For that, the strong sound from kick technique when touch the object can be brought about as indicator that the kick is used by power.

Based on observation, kick technique is a dominant technique which is used in competition *pencak silat* category. Because of *tendangan sabit* technique is considered having advantage in producing bigger sound when touch the object so exceptionally beneficial to get score along the competition. For that, *tendangan sabit* technique is very proper to be taught at first time to the beginner *pesilat*.

“TENDANGAN SABIT” TECHNIQUE

Learning “*tendangan sabit*” technique must be take attention carefully on it's implementation. Coach has important role to give the right technique to the student. In order to get effective and efficient result, it is needed guidance and evaluation about the fault that they have done, it is also told them how to do the right movement. So the students will always have description about the right

“*tendangan sabit*” technique in their mind. In fact, a coach seldom does the correction technique at the exercise. Most of coaches give matery through the demonstartion or only example, it makes the students have difficulties to develop every movement technique, especially “*tendangan sabit*” technique. This condition makes the student experiences the difficulty to reach achievement optimally.

The movement “*tendangan sabit*” technique is combination from the continuous movement series, it is started from ready position, hip rotation is continued with swinging leg to the object and follow through. For that, every “*tendangan sabit*” movement is needed special control so every fault can be seen soon and then give therapy for it.

To get to know and give therapy for every fault which is done by student, coach must be mastered and able to analize every movement. In the process of establishment technique, coach is not only relies on view but need support from science and technology. Because of every movement in “*pencak silat*” especially *tendangan sabit* is done by explosive, so it doesn’t appear clearly the faults when doing “*tendangan sabit*” technique if there is no support by technology. It means that beside about the branch, coach must be mastered science which able to support formation of technique, such as movement analysis through the kinesiology and sport biomechanics. So the coach can analize the movement of “*tendangan sabit*” movement, then the proper result of analysis can be used as contribution of achieve establishment especially movement efficiency, and it produces obstacle of technique “*tendangan sabit*” movement.

It is observed from the benefit, “*tendangan sabit*” can be differentiated as “*tendangan sabit*” for attacking and “*tendangan sabit*” for defending. “*Tendangan sabit*” for attacking is “*tendangan sabit*” which is used to give early attack to the rival object. Whereas the “*tendangan sabit*” for defending is a kick which is used to avenge or give attack after the rival gave the attack. “*Tendangan sabit*” technique for attacking can be done by back foot or front foot. Besides that, “*tendangan sabit*” technique also can be done by step or jump. “*Tendangan sabit*” which is used by back foot is the first technique for beginner. For that, in this discussion is focused to the “*tendangan sabit*” technique by back foot.

When using “*tendangan sabit*” technique, the possibility faults are togok position; hip, knee and foothold leg, which is because of the muscles power haven’t maximal yet especially stomach muscles and back. In order to be able doing *tendangan sabit* technique well is needed the power of muscles stomach and good back. It is seen from that condition, many pesilat do inefficient and ineffective movement technique in competition, so it prevents the reaching achievement. Suharno (1985) describes that achievement is affected by indogen factors such as physic and mental health, the perfect of technique mastering, the right of technique problem mastering, spiritual aspect and good personality and also stability champion maturity. This reality is needed to be followed up by doing science analysis about the way to do good and right kick. So the “*tendangan sabit*” technique can be done by *pesilat* effectively and efficiently.

So the coaches is expected be able to do movement technique analysis from sport biomechanics, it can be gave information about right technique and doing therapy toward to wrong to the student properly. In this time, there are not many coaches do analysis with that technique, it because of the limit equipment to analize.

THE ANALYSIS OF “TENDANGAN SABIT” TECHNIQUE

The movement of “*tendangan sabit*” techniques is divided into some phase: (1) ready position phase (2) implementation phase take-of attack leg, and follow- through phase. To give description about the phase of doing “*tendangan sabit*” by back foot, can be gave analysis below:

Table 1. The analysis of “*tendangan sabit*” technique

Stages	Analytical Keypoints
a. Ready Position Phase	<ul style="list-style-type: none"> • The placement of foothold on the “<i>tendangan sabit</i>” is not in the straight line, back foot tents to open a little • The distance of front foothold and back foot is appropriated to the target and the long of leg • The fleksi angle of front knee must bigger than the fleksi angle of back knee • Togok is upright position • The position of arm is in the middle of breast and little bit bent up • The view is focuss to the target
b. Implementation Phase	<ul style="list-style-type: none"> • The movement leg has a lash and the knee as the axis of down leg lash • The movement or the rotation of hip is in the same direction with leg • The position of head must not bow or the view is in target • The position of togok is upright • Kick line must be from down side

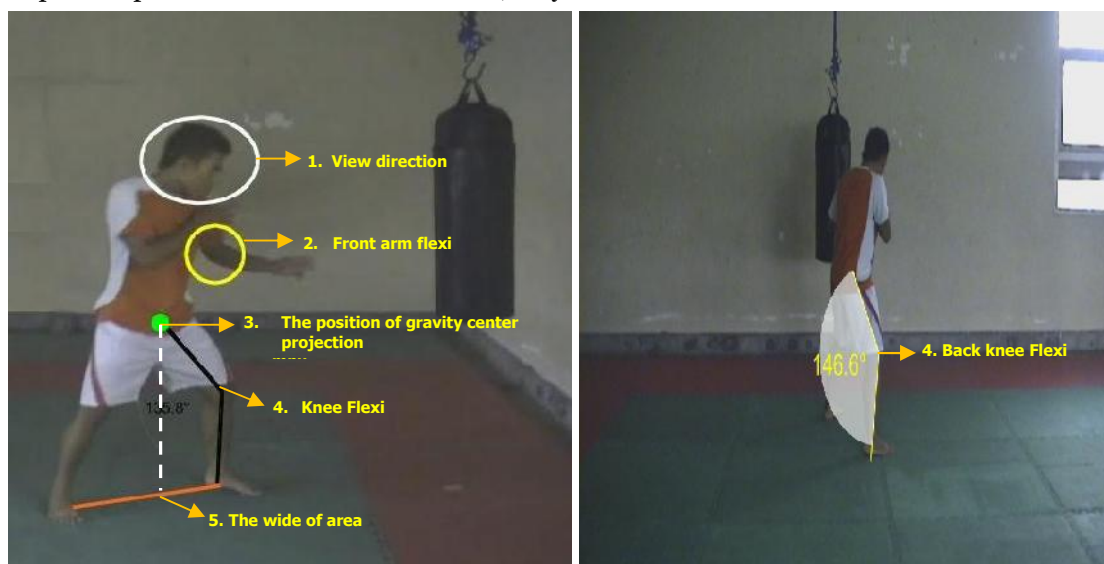
	<ul style="list-style-type: none"> • <i>Impact</i> is using back leg
c. Follow Through Phase	<ul style="list-style-type: none"> • The position of foothold is in ahead

Ready Position Phase (Picture 1)

Ready position is a basic movement for every technique in *pencak silat*. According to Agung Nugroho (2001) ready position is starting movement to defense or attack and it is done in the beginning and ending of movement series. Besides that, ready position is meant as tactics movement to face the attacking or accepting from rival (Johansyah, 2004). So, ready position is an important thing to be the basic of the next movement.

Ready position in *pencak silat* are various based on the institution (perguruan). That shows the riches of *pencak silat* technique in Indonesia as the owner of *pencak silat* culture. According to PB IPSI, ready position movement can be differentiated to 8 kinds: (1) ready position one; (2) ready position two; (3) ready position three; (4) ready position four; (5) ready position five; (6) ready position six; (7) ready position seven; (8) ready position eight. From these eight ready positions which is standardized by PB IPSI, ready position one is the most effective to be used to do *tendangan sabit*. Because of ready position one has shorter line distance and the position of foothold is not in line, so pesilat does faster kick technique (Andi Rafiandi, www.CIPSID.org and www.silatcenter.com).

To analyze ready position in doing "*tendangan sabit*" technique (using right leg), there are some important points should be took attention, they are:



Picture 1. Ready Position of Tendangan Sabit Technique

1. View Direction

In ready position, view direction is focused into the object of kick. The aim is in order to the kick has high level accurate.

2. Front arm flexi

Front arm flexi is strove for as close as 90 degree angle. So it will make the movement of leg faster to do the kick.

3. The position of gravity center projection toward to the footing area

In *tendangan sabit* technique using back leg, the position of gravity center projection will be more benefit if closer to the foothold leg (leg in front). So the force which is used to lift up back leg will be more efficient so the movement will be faster, because of that the balance level pesilat is in unstable balance position.

4. Front knee flexi and back knee flexi

Knee flexi is determined much to the kick result. Too small knee flexi will affect the position of gravity center projection closer to footing area. So earth gravity will give strong effect in movement starting. As the result, the movement is slower. For that, knee flexi should not too big or too small

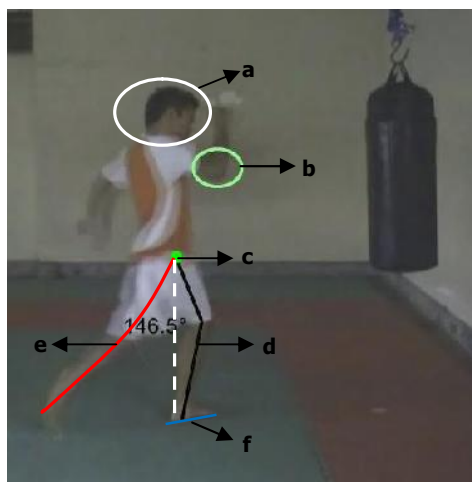
when doing ready position. In ready position, front knee flexi must smaller than back knee flexi so the gravity center projection will be aim at leg in front.

5. **Footing area / The wide of area**

The wider of footing makes the pesilat balance level more stable. As the result, pesilat must take out bigger force to do kick quickly. For that, in order to do the kick quickly, so readiness (kuda-kuda) by pesilat is better not too wide.

Implementation Phase

Two points of the implementation phase are when the legs out of mattress and at the impact.

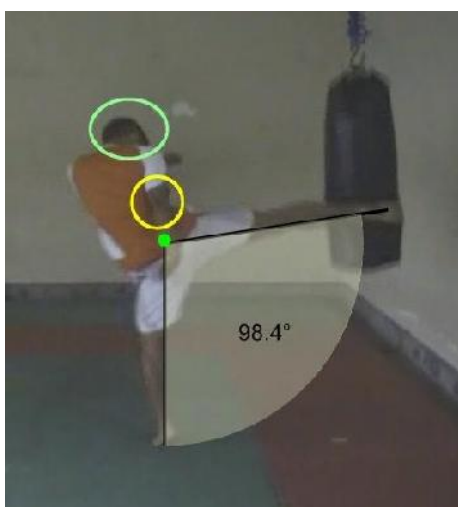


Picture 2. a moment before Take-Of

1. **A moment before Take Of (Picture 2)**

View direction in this phase still focuses to the object of kick in order to the kick has high accurate level. Left arm position is pull to the outside left to make rotation in shoulder, whereas right arm moves to up right to make movement attack leg faster.

In this phase happens the change of position gravity center projection to foothold leg (leg in front) and tents to taller than at ready position. The change of position gravity center projection is affected by the change of flexi knee, it because of the pulling of left arm. Most of faults in this phase are the position of foothold leg tent to step on mattress. This condition makes the movement of attack leg experienced obstacle so the movement becomes slower. For that, when the attack leg is in take-of position, foothold leg must be follow soon to make faster the movement of attack leg.



Picture 3. Impact

2. Impact (Picture3)

Impact is the phase where attack legs or kick legs touch the target. The success of tendangan sabit is affected from this phase. The movements of ideal phase impact in tendangan sabit technique are: head position appropriates the view of target, the movement right arm is not too much back and the left arm in front of breast, there is hip rotation, kick line is done from the down side to the up side, the position of central gravity projection is in stable balance condition, and the position of foothold leg moves out.

- a. View
The view is maintained to the target so the position of head tents to upright, so the level of pesilat balance at the impact is awakened
- b. Arm Positon
Too faster back swing of arm is affected the movement hip rotation inside too much so the outcome of energy will be larger. Whereas the arm swings down will affect togok movement bent over too much
- c. Hip Rotation
Hip rotation determines much in the *tendangan sabit*, it because of hip fungction as the axis of leg lash. For that, the process of *tendangan sabit* exercise, the movement of hip must be take attention.
- d. Togok Position
Togok position is maintained upright so the target leg attack is exact to the leg back.
- e. Foothold Position
The ideal foothold position is front outside so the movement others body segment is wider relatively.

Follow Through Phase “Tendangan Sabit” Technique (Picture 4)

Advance movement for the tendangan sabit serang technique is put the attack leg to the outside. So the balance of body is maintained and easier to make next movement.



Picture 4. Follow Through Phase

CONCLUSION

Movement in pencak silat include as complex movement, so it is needed good coordination. In pencak silat competition, there are many techniques which is used, one of it is kick technique. Kick technique is often being as the mainstay in competition, especially tendangan sabit. The implementation of tendangan sabit is not only needs good physic condition but also overripe technique as support.

The overripe of tendangan sabit technique is affected by doing the right of every movement series. There are some phase of tendangan sabit movement series, they are: (1) ready position phase, (2) implementation phase (a moment before take-of and at impact), and follow through phase. For that, beginning phase of tendangan sabit technique must be based on movement efficiency which done, not based on movement effectivity.

REFERENCES

- Agung Nugroho. 2001. *Diktat Pedoman Latihan Pencak Silat*. Yogyakarta: FIK UNY.
- Bambang Mujiono. 2008. Analisis Gerak Teknik Tendangan Sabit Pada Atlet Pencak Silat PPLM DIY (Sebuah Analisis Biomekanika). Skripsi. FIK-UNY
- Bompa, Tudor O. 1994. *Theory and Methodology of Training*. The Key to Athletic Performance, 3rd Edition. Dubuque. Iowa: Kendall/Hunt Publishing Company.
- Hay, James G. 1987. *The Biomechanics of sport techniques*. Englewood Cliffs, N. J. Prentice-Hall, Inc. <http://indonesia.silatcenter.com/html/serangan.html#TendanganLurusa>
- Imam Hidayat. 1999. *Biomekanika*. Bandung: FPOK IKIP Bandung
- Johansyah Lubis. 2004. *Pencak Silat Panduan Praktis*. Jakarta: PT. Rajagrafindo Persada.
- Kotot Slamet H. 2003. *Teknik Dasar Pencak Silat Tanding*. Jakarta: PT. Dian Rakyat.
- PB. IPSI. 1995. *Sejarah Organisasi Pencak Silat Indonesia*. Jakarta: PB. IPSI.
- , 2003. *Peraturan Pertandingan Pencak Silat Ikatan Pencak Silat Indonesia*. Jakarta: PB. IPSI.
- Suharno H.P. 1985. *Ilmu Kepelatihan Olahraga*. Yogyakarta: FPOK IKIP Yogyakarta.
- Sukadiyanto. 2005. *Pengantar Teori dan Metodologi Melatih Fisik*. Yogyakarta: FIK UNY.