

**DEVELOPMENT OF A TALENT IDENTIFICATION MODEL
TO DETERMINE THE PHYSICAL ATTRIBUTES OF
ATHLETES FOR THE LONG JUMP EVENT**

By

TAN KOK SIANG

**Thesis Submitted to the School of Graduate Studies, Universiti Putra Malaysia,
in Fulfilment of the Requirement for the Degree of Master of Science**

March 2006

Dedicated to my wife for her continuous support. She has utmost confidence that I will be able to complete my thesis even if it takes me more than ten years.

Dedicated to my son. It is my hope that this will spur him towards achieving academic excellence.

Abstract of thesis presented to the Senate of Universiti Putra Malaysia in fulfilment
of the requirement for the degree of Master of Science

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Chairman: Sheikh Kamaruddin bin Sheikh Ahmad

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The purpose of this study is to analyze and determine the physical attributes for use in a Malaysian talent identification model for the athletic long jump event. This is a predictive study that explores the relationship between the physical attributes and how these attributes can be used to predict long jump performance (LJUMP). By use of multiple regression analysis, the dependent variable, LJUMP, is predicted from the derived regression equation. The study populations are junior long jumpers consisting of 29 girls with mean age 14.06 years and 20 boys with mean age 14.60 years. Data were collected on their performance in LJUMP, and the physical attributes of anthropometry comprising height (HT), weight (WT), stage of growth and development (GTH), age (AGE), as well as their performance in the 30m Run (RUN), Sit-ups (SITUPS), Sargent Jump (SARG) Standing Long Jump (SLJ) and Sit and Reach (S&R). The predictive equation for the girls is

$LJUMP = 356.517 + 42.809(\text{z-score SLJ}) + 30.081(\text{z-score SARG})$. SLJ influences LJUMP more than SARG. The model explains 71.6% (R squared) of the variance in LJUMP. Collinearity was of concern and it was treated using z-scores in place of raw scores. The predictive equation for the boys is $LJUMP = 104.164 + 4.388(\text{SARG}) + 2.965(\text{S\&R})$. SARJ influences LJUMP more than S&R. The model explains 83.8% (R squared) of the variance in LJUMP. The data and statistical results presented support the idea that a practical and effective talent selection model can be formulated for the athletic long jump event. The model has immediate practical application and the theoretical framework and statistical procedures involved can be employed to construct talent selection models for other athletic or sports events.

Abstrak tesis yang dikemukakan kepada Senat Universiti Putra Malaysia sebagai memenuhi keperluan untuk ijazah Master Sains.

**MEMBINA MODEL PENGENALPASTIAN BAKAT UNTUK
MENENTUKAN CIRI-CIRI FIZIKAL ATLET BAGI ACARA
LOMPAT JAUH**

Oleh

TAN KOK SIANG

Mac 2006

Pengerusi: Sheikh Kamaruddin bin Sheikh Ahmad

Fakulti: Pengajian Pendidikan

Tujuan kajian ini adalah untuk menganalisis dan menentukan ciri-ciri fizikal untuk digunakan dalam model pengenalpastian bakat bagi acara lompat jauh. Kajian ini meramalkan perhubungan di antara ciri-ciri fizikal dan bagaimana ciri-ciri ini dapat digunakan dalam meramal prestasi lompat jauh (LJUMP). Pembolehubah bersandar LJUMP diramal melalui persamaan hasil regresi menggunakan teknik analisis regresi berganda. Subjek kajian adalah atlet lompat jauh yang terdiri dari 29 perempuan dengan min umur 14.06 tahun dan 20 lelaki dengan min umur 14.60 tahun. Data prestasi yang didapatkan ialah LJUMP, ciri-ciri fizikal dan anthropometri merangkumi tinggi (HT), berat (WT), tahap kematangan (GTH), umur (AGE), Larian 30m (RUN), Bangun Tubi (SITUPS), Lompat Sargent (SARG), Lompat Jauh Berdiri (SLJ), dan Duduk dan Jangkau (S&R). Hasil kajian menunjukkan ramalan hubungan bagi prestasi LJUMP perempuan ialah

$LJUMP = 356.517 + 42.809(\text{skor-z SLJ}) + 30.081(\text{skor-z SARG})$. SLJ mempengaruhi LJUMP lebih dari SARG. Model yang terhasil boleh menerangkan 71.6% varians dalam LJUMP. Kebimbangan dalam kollineariti dikawal melalui skor-z. Ramalan hubungan bagi prestasi LJUMP lelaki ialah

$LJUMP = 104.164 + 4.388(\text{SARG}) + 2.965(\text{S\&R})$. SARG mempengaruhi LJUMP lebih dari S&R. Model yang terhasil boleh menerangkan 83.8% varians dalam LJUMP. Dapatan kajian menyokong idea bahawa model pengenalpastian bakat yang praktikal dan berkesan boleh dibentuk bagi acara LJUMP. Model ini yang melalui rangka teori dan prosedur statistik yang terlibat dapat digunakan dalam pembentukan model pengenalpastian bakat bagi acara sukan lain.

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I certify that an Examination Committee has met on 27th.March 2006 to conduct the final examination of Tan Kok Siang on his Master of Science thesis entitled “Development of a Talent Identification Model to Determine the Physical Attributes of Athletes for the Long Jump Event” in accordance with Universiti Pertanian Malaysia (Higher Degree) Act 1980 and Universiti Pertanian Malaysia (Higher Degree) Regulations 1981. The Committee recommends that the candidate be awarded the relevant degree. Members of the Examination Committee are as follows:

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DECLARATION

I hereby declare that this thesis is based on my original work except for quotations and citations which have been duly acknowledged. I also declare that it has not been previously or concurrently submitted for any other degree at UPM or other institutions.

TAN KOK SIANG

Date:

TABLE OF CONTENTS

	Page
DEDICATION	ii
ABSTRACT	iii
ABSTRAK	v
ACKNOWLEDGEMENTS	vii
APPROVAL	viii
DECLARATION	x
LIST OF TABLES	xiii
LIST OF FIGURES	xiv
CHAPTER	
I	INTRODUCTION 1
	Statement of the Problem 3
	Objective 4
	Hypothesis 4
	Need for the Study 4
	Definition of Terms 5
	Talent 5
	Sport Talent 6
	Talent Identification 6
	Talent Selection 6
	Talent Detection 6
	Talent Identification Model 7
	Operational Definition 7
	Delimitations 8
	Limitations 8
	Talent Identification 9
	Talent Selection 9
	Physical Attributes 9
II	LITERATURE REVIEW
	Talent Identification 10
	Talent Identification and Sporting Success 16
	German Democratic Republic (GDR) 18
	China 18
	Bulgaria and Romania 20
	Soviet Union 20
	United States of America (USA) 21

	Federal Republic of Germany (FRG)	22
	Great Britain	22
	Spain	24
	Australia	25
	Differences between the Communist and Capitalist Nations	27
	The Need for Talent Identification and Research	28
	A Conceptual Model for Talent Identification	33
	The Detection Tool	35
	Using the Detection Tool	39
	Consideration of Fundamental Attributes and Capacities	40
	Talent Selection for the Long Jump	46
	Technical and Methodological Considerations in the Long Jump	46
	The Long Jump	47
	Fundamental Attributes and Capacities	52
	Talent Selection Field Test for the Long Jump	52
	A Conceptual Framework for the Study	55
	Summary	56
III	METHODOLOGY	
	Theoretical Perspective	59
	Research Design	60
	Hypothesis Tests	61
	Sample	62
	Instruments	63
	Dependent Variable	63
	Independent Variables	63
	Data Collection	68
IV	RESULTS	70
	Correlation Analysis	73
	Multiple Linear Regression Analysis: Girls	77
	Multiple Linear Regression Analysis: Boys	90
V	DISCUSSION AND CONCLUSION	
	Discussion	98
	Conclusion	113

REFERENCES	115
APPENDICES	119
BIODATA OF THE AUTHOR	125