

# Actuarially-Based Assessment

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# Actuarially-Based Prediction

Statistical analyses that combine measures of offender characteristics to best predict future behavior.

Result of analyses is an actuarial assessment.

The Washington State DOC Static Risk Assessment is an example of an actuarial assessment.

# Six Domains of Offender Characteristics

## Washington State DOC Static Risk Assessment

- A. Demographics: age and gender
- B. Juvenile Felony Convictions & JRA Commitments
- C. DOC Commitments
- D. Felony Convictions (Sentencings)
- E. Misdemeanor Convictions (Sentencings)
- F. Sentence Violations

## A. Demographics

1. Age at time of assessment
2. Gender

# Each item has an value....

## 1. Age at Time of Current Sentence

60 or Older	(0)	20 to 29	(4)
50 to 59	(1)	18 to 19	(5)
40 to 49	(2)	13 to 17	(6)
30 to 39	(3)		

## 2. Gender

Female	(0)	Male	(1)
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# Future Behavior Predicted By Static Risk Assessment

Outcome being predicted is 3-year recidivism: commission of crime resulting in conviction.

Types of Recidivism:

- Misdemeanor or Felony
- Felony
- Felony Drug
- Felony Property
- Violent Felony

# Construction and Validation of Static Risk Assessment

**Construction:** Based on a statistical analysis of 308,423 felony offenders who were either released from prison or jail or placed on community supervision before 2001.

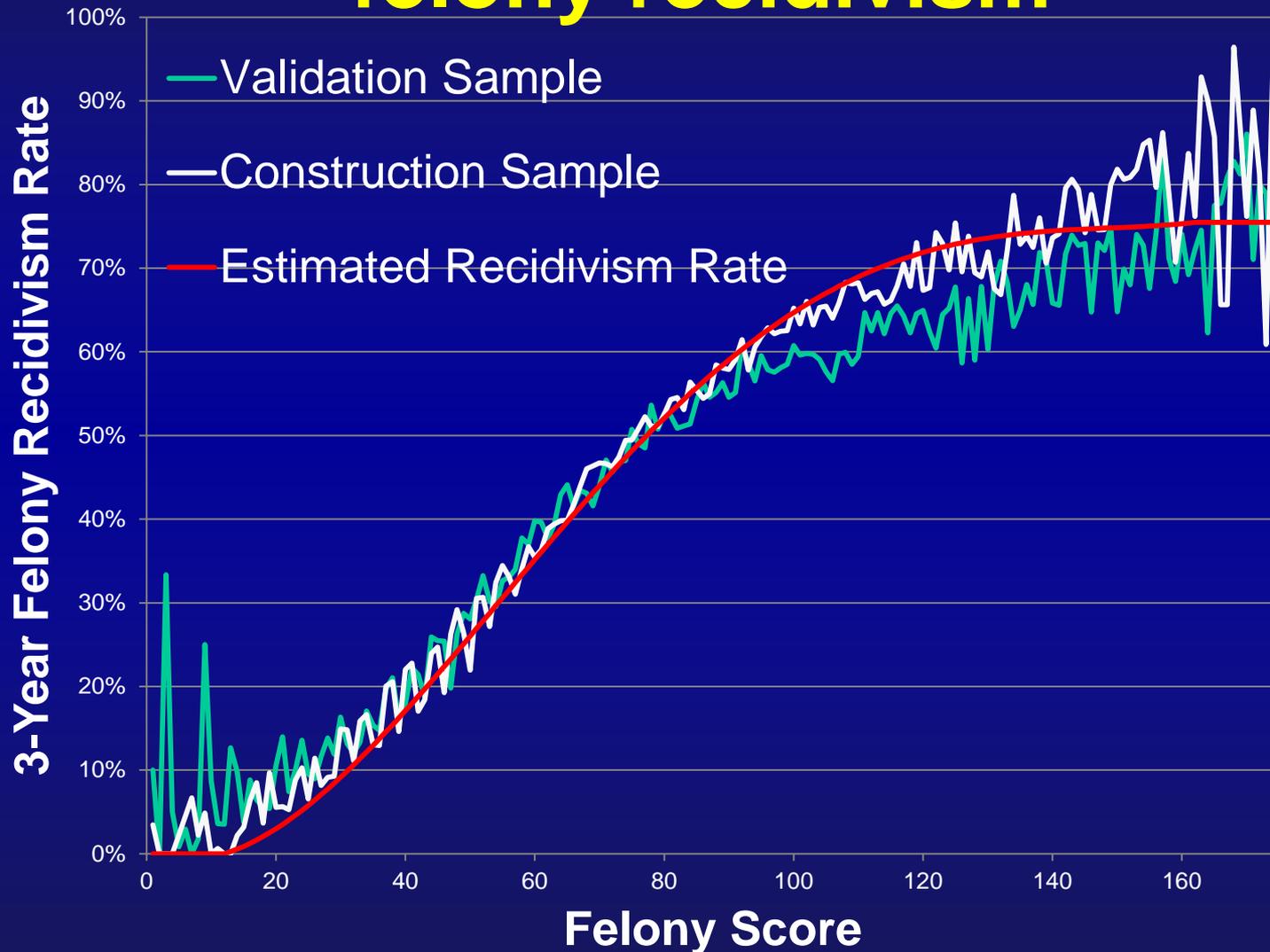
**Validation:** 51,648 felony offenders who were either released from prison or jail or placed on community supervision from 2001 to 2002.

# The item values are weighted and summed via statistical analysis to produce three risk scores that “best predict future behavior”

## Some examples:

<u>Item</u>	<u>Risk Scores</u>		
	<u>Felony</u>	<u>Property</u>	<u>Violent</u>
•Age at Time of Current Sentence	+5	+4	+2
•Gender	+5	+5	+4
•Prior Juvenile Non-Sex Violent Felonies	+2	+2	+5
•Felony Homicide	-5	-3	+1
•Felony Domestic Violence	+3	+6	+10
•Misdemeanor Domestic Violence	+2	+3	+3
•Other Misdemeanor Domestic Violence	-3	-1	+1

# Relationship between felony score and felony recidivism

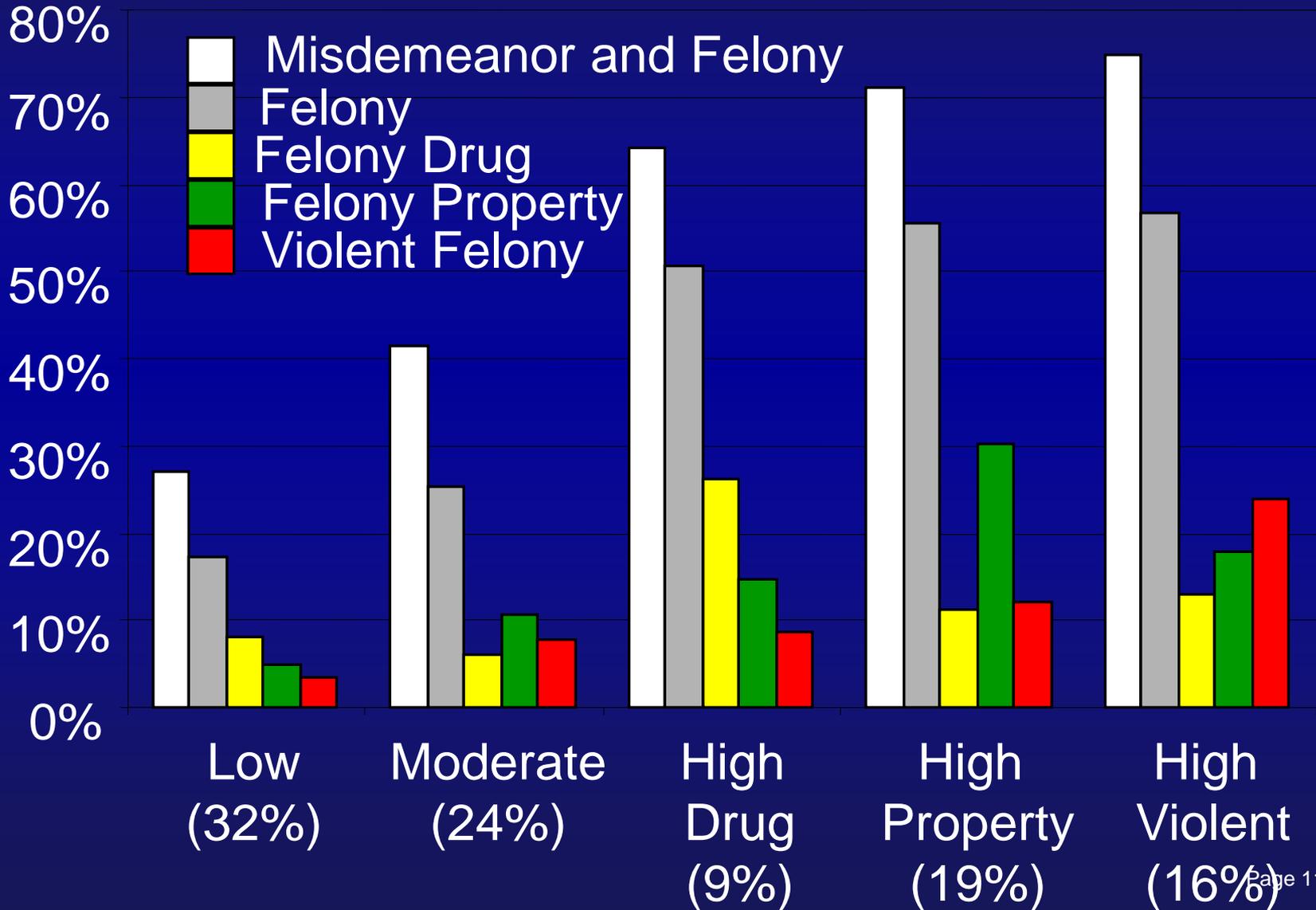


# The three risk scores are combined to produce five risk levels, which are somewhat arbitrary

1. Low Risk
2. Moderate Risk
3. High Felony Drug Risk
4. High Felony Property Risk
5. High Violent Felony Risk

# 3-Year Recidivism Rates for Each Risk Level

## Validation Sample N=51,648



# Accuracy of Prediction Equations\*

	<u>Construction</u>	<u>Cross-Validation</u>
Sample	308,423	51,648
Any Felony	0.756	0.742
Property/Violent	0.757	0.733
Violent	0.745	0.732

\*AUC varies from .500 to 1.00.

0.500s	No accuracy		0.600s	Weak
0.700s	Moderate		0.800s	Strong
0.900s	Incredible		1.000	Perfect

# Risk Level Percentage Distribution for Each Offense Group Sentenced to Prison: 2000 to 2005

<u>Offense</u>	<u>Low</u>	<u>Moderate</u>	<u>High Drug</u>	<u>High Property</u>	<u>High Violent</u>	<u>Total</u>
Total	22%	11%	12%	27%	30%	100%
Drug	60%	7%	26%	4%	4%	100%
Property	8%	10%	11%	56%	15%	100%
Assault	12%	11%	8%	16%	54%	100%
Robbery/Kidnap	10%	16%	6%	22%	45%	100%
Sex	45%	14%	5%	12%	24%	100%
Homicide	57%	13%	5%	8%	18%	100%

# How Well Does the Static Assessment Work for Sub-populations?

Works just as well for:

1. Females
2. Minorities
3. Dangerously Mentally Ill Offenders
4. Different types of offenders
5. Sex offenders, but predicts violent but not sexual re-offending.
6. District and municipal court criminal non-traffic cases, not DUIs.

**The End**



## B. Juvenile Record

3. Felony convictions
4. Non-sex violent felony convictions
5. Felony sex convictions
6. Commitments to state juvenile institution

## C. Commitment to the Department of Corrections

### 7. Number of commitments to the DOC

## D. Adult Felony Record

8. Homicide
9. Sex
10. Violent property
11. Assault offense—not domestic violence
12. Dom. viol. assault or protection order viol.
13. Weapon
14. Property
15. Drug
16. Escape

## E. Adult Misdemeanor Record

17. Assault—not domestic violence
18. Dom. viol. assault or protection order viol.
19. Sex
20. Other domestic violence
21. Weapon
22. Property
23. Drug
24. Escapes
25. Alcohol

## **F. Adult Sentence Violations**

### **26. Sentence/supervision violations**