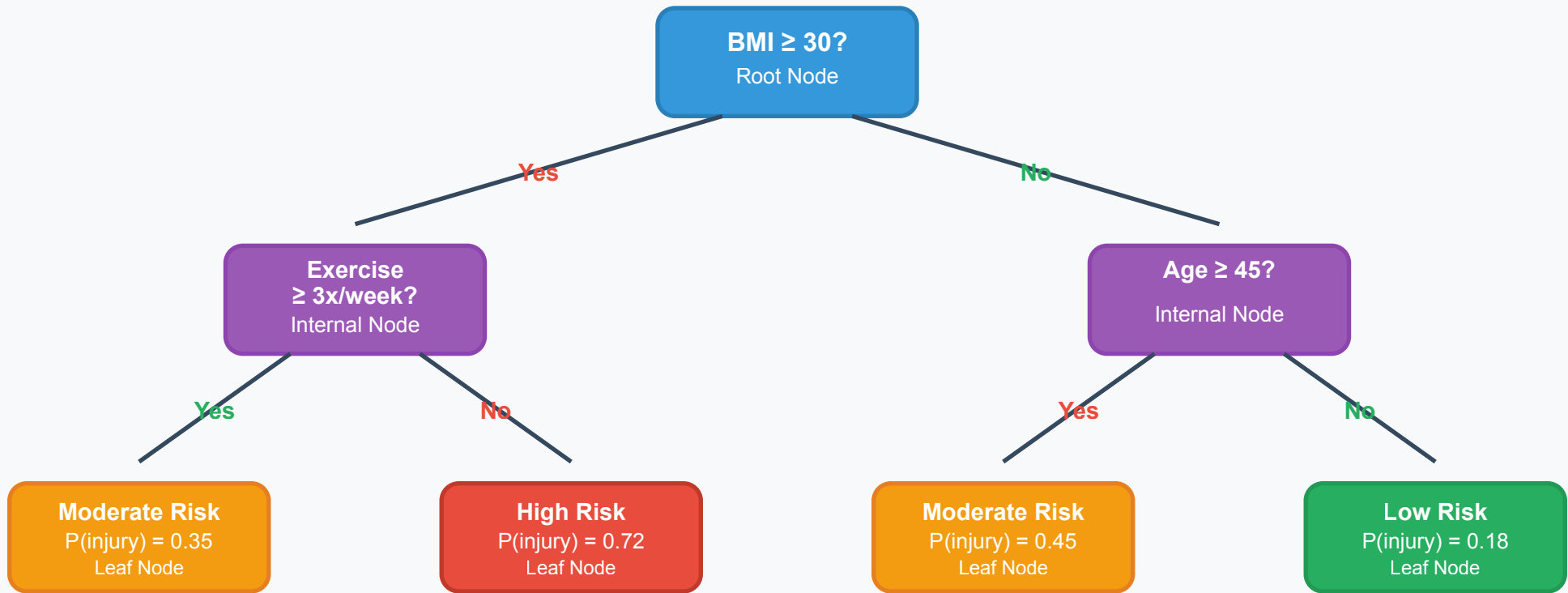


# Injury Risk Prediction - Decision Tree



## Bioengineering Decision Tree Legend

- Root Node: Primary risk factor assessment (BMI)
- Internal Node: Secondary factor evaluation
- Low Risk:  $P(\text{injury}) < 0.3$
- Moderate Risk:  $0.3 \leq P(\text{injury}) < 0.6$
- High Risk:  $P(\text{injury}) \geq 0.6$

### Example Decision Path:

BMI  $\geq 30$ ?  $\rightarrow$  No  $\rightarrow$  Age  $\geq 45$ ?  $\rightarrow$  No  $\rightarrow$  Low Risk  
(Normal BMI, younger age = 18% injury probability)

### Bioengineering Variables:

- BMI: Body mass index ( $\text{kg}/\text{m}^2$ )
- Exercise frequency: Physical activity level
- Age: Physiological aging factor
- Outcome: Probability of musculoskeletal injury