


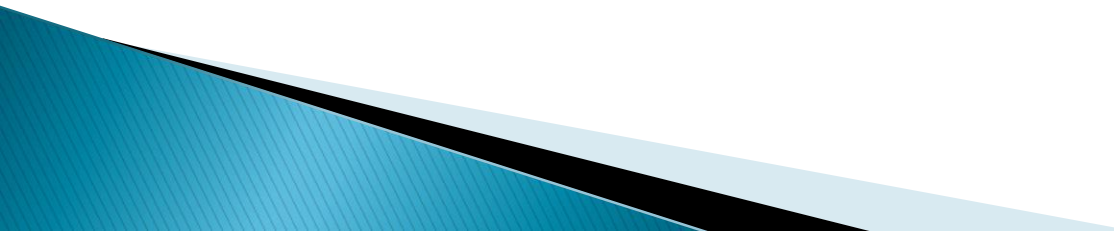
# Androgen Deprivation Therapy (ADT)

Angela Clark, RHIA  
July 2020  
Prostate Cancer Support Group

# Disclaimer

- ▶ The information shared in this talk is not meant to replace the advice given by your physician.
  - ▶ I am not a licensed healthcare provider.
  - ▶ Please consult with your physician before starting or stopping any treatment.
  - ▶ Reviewed slides with Dr. Fulgham
- 

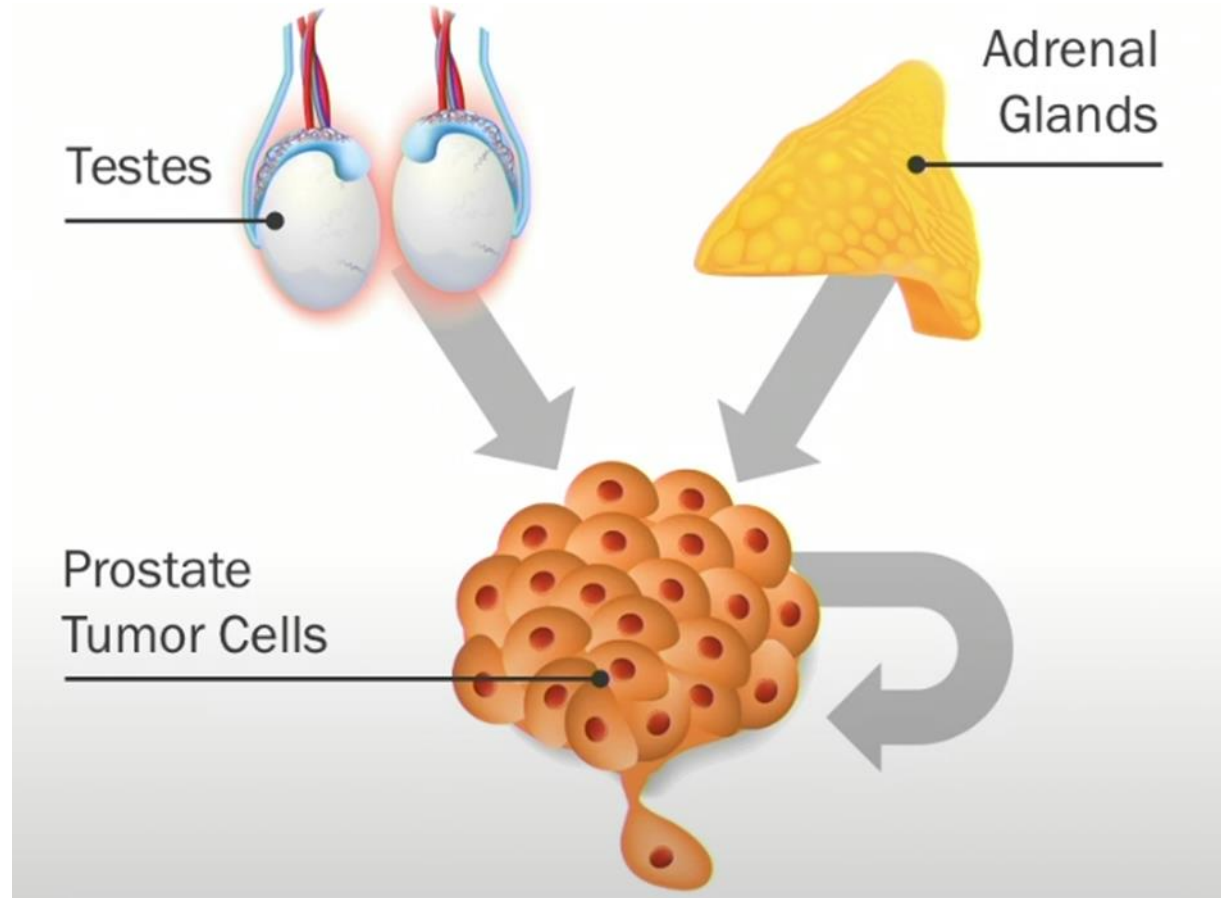
# Objectives

1. Obtain a basic understanding of how androgen deprivation therapy works and when it is used in treating prostate cancer.
  2. Understand the potential side effects of ADT.
  3. Gain a basic understanding of how to mitigate the potential side effects.
- 

# ADT Blocks Testosterone

Prostate cancer cells require testosterone

95% of testosterone is produced in the testes; 5% in the adrenal gland



# Leuprolide

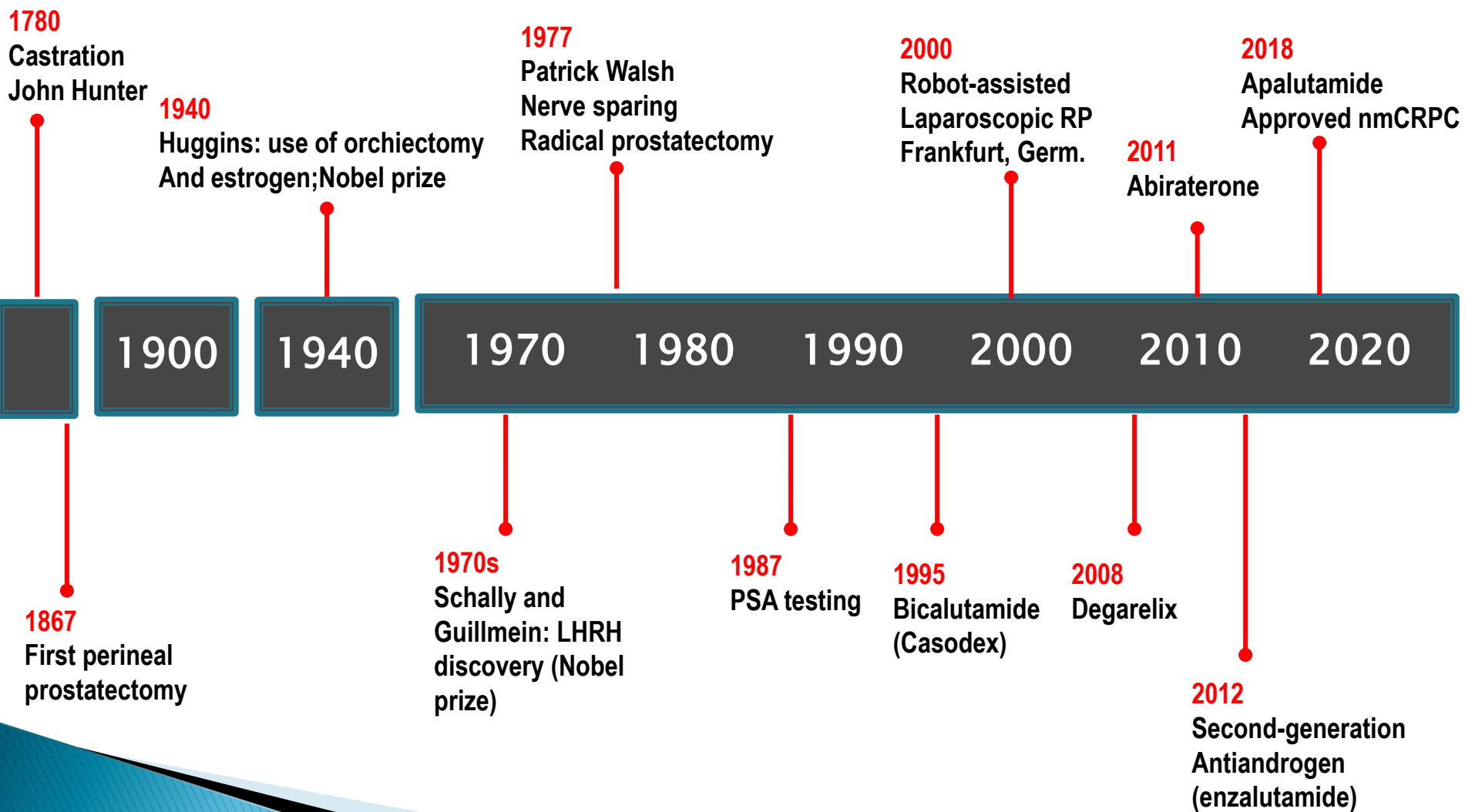
Leuprolide:

- ▶ Eligard – given subcutaneously
- ▶ Lupron – give intramuscularly
  
- ▶ Casodex (bicalutamine) given for 5 days prior to first injection to prevent “flare”
  
- ▶ Generally given every 3 months by urologist along with checking the PSA but comes in 1, 3 and 6 month doses

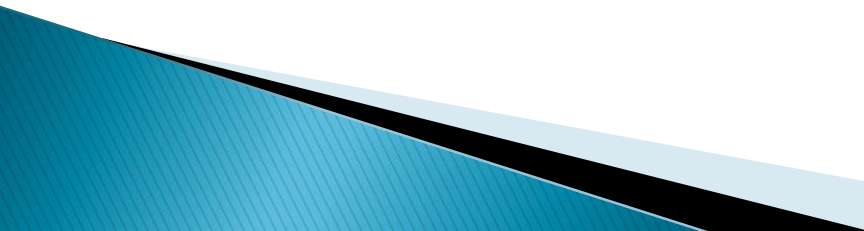
# ADT–When is it used?

- ▶ Initial treatment in combination with radiation therapy for patients with locally advanced, intermediate or high–risk disease
  - PSA 10–20 Gleason 7
  - PSA > 20 Gleason 8–10, T3b on surgery
- ▶ As monotherapy in patients with co–morbidities who can't undergo radiation or surgery
- ▶ PSA rising after initial treatment
- ▶ Intermittent androgen ablation – 6 mo to a year and then stop until PSA starts rising – to mitigate some of the side effects

# Historical Developments in Prostate Cancer



# Side Effects of ADT

- ▶ Sexual dysfunction
  - ▶ Gynecomastia
  - ▶ Cognitive defects
  - ▶ *Hot flashes*
  - ▶ *Osteoporosis*
  - ▶ *Reduced muscle mass*
  - ▶ *Increased fat mass (abdominal)*
  - ▶ *Increased incidence of cardiovascular disease*
  - ▶ *Increased incidence of diabetes*
- 



**Adverse Effects Reported with Androgen Deprivation Therapy (ADT)  
and Potential Lifestyle, Supplement and Prescription Medication Solutions**

Adverse Effect	Exercise	Diet	Drugs
Bone loss	Resistance exercises 2-3 times a week (preferably under supervision of a trainer)	1,000-2,000 mg calcium 800-1,000 IU vitamin D (food and/or supplements)	Prescription medication should be considered based on the duration of ADT and documented severity of bone loss
Sarcopenia (muscle wasting)	Resistance exercises 2-3 times per week	Calcium and vitamin D, same as for bone loss. Indirect evidence whey protein isolate (or other protein isolate) at 20-25 g per day could also assist with muscle protein synthesis.	
Weight gain (abdominal fat deposition)	Diet and aerobic and resistance exercise. 30 minutes endurance exercise daily ( $\geq 3$ hrs a week); risk for fracture with high impact activities; obtain clearance from PCP	Whey protein <i>isolate</i> may also assist with appetite suppression and insulin resistance. <i>Caloric control. Whey protein isolate contains less fat and cholesterol than whey protein.</i>	Metformin (850 mg twice a day) has preliminary data for weight loss with ADT
Fatigue	Resistance exercises	Caffeine from beverages (general stimulant) American ginseng root powder (2,000 mg/day at 3%-5% ginsenosides)	
Hot flashes	Maintaining a healthy weight may reduce the severity of vasomotor symptoms. Moderate aerobic exercise could also be beneficial	No dietary supplement has demonstrated a consistent benefit over placebo	For moderate to severe hot flashes prescription medication ( <u>Megace</u> (appetite suppressant synthetic female hormone) and <u>Effexor</u> (antidepressant). <i>May be effective but have side effects.</i>
Lipids and /or pre-diabetes (elevated cardiovascular risk)	ADT has controversial cardiovascular risk data. Diet and exercise. Abnormal glucose levels may respond to diet and exercise.	Omega-3 fatty acids (EPA/DHA 500 mg/dL or more) FDA-approved for hypertriglyceridemia only (although studies lack clinical endpoints)	When appropriate, low dose statin and/or <u>Zetia</u> prescription; low-dose aspirin for those who qualify based on over cardiovascular risk; when appropriate metformin has preliminary data with ADT

Table reproduced from Res Rep Urol. 2016; 8: 133–143. Published online 2016 Aug 16. <https://doi.org/10.2147/RRU.S107852>

Integrating diet and exercise into care of prostate cancer patients on androgen deprivation therapy.

Authors: Mark A Moyad, Robert U Newton, Ulf W Tunn, and Damian Gruca

Check with your primary care physician before starting a new medication or therapy.

# Muscle Wasting and Bone Loss

- ▶ Resistance exercises every other day for at least **15 minutes** (weights, body weight, bands)



# Muscle Wasting and Bone Loss

## Discuss the following with PCP

- ▶ Daily Supplements:
  - 1,000–2,000 mg calcium (divided doses 500 mg each)
  - 800–1,000 IU vitamin D (check vitamin D levels)
- ▶ Baseline bone density study (if going to be on ADT a yr), done at the time of initiation and at a year
- ▶ If develop osteoporosis may require medication
- ▶ There may be a risk for fracture with high impact activities with osteopenia or osteoporosis

# Muscle Wasting and Bone Loss

## Discuss the following with PCP

- ▶ Whey protein isolate 20–25 g a day could assist with muscle protein synthesis – may also help with appetite suppression. Isolate contains less fat and cholesterol than whey protein.
- ▶ Best taken with a meal at breakfast or lunch
- ▶ Taken 15 min before or during a meal may also decrease blood sugar after a meal

# Consumerlab.com Whey Isolate

- **Whey protein:** *MyProtein Impact Whey Isolate* is the least expensive whey protein among Approved products (52 cents per 20 grams of protein) and our **Top Pick** for whey. Being an isolate, it is very low in carbs (1 gram) and fats (virtually none), although, as a result, it produces a thin drink when mixed with liquid, having a slight powdered-milk taste. It's palatable but you might want to mix it into a liquid providing more flavor and/or texture. If you want whey protein that includes added flavor, our *Top Picks* is *ON [Optimum Nutrition] Gold Standard 100% Whey - Delicious Strawberry* (86 cents per 20 grams of protein). Less expensive is *EAS 100% Whey — Chocolate* (57 cents per 20 grams), but, EAS is apparently discontinuing it, along with all EAS products. *Note: If you are lactose intolerant, milk-based proteins (aside from isolates) may contain one or more grams of lactose per serving. Amounts found are shown in the 5th column. Some products include the enzyme lactase to*



**Make sure it is whey isolate**

# Impact of Exercise

- ▶ Reach out to enhance wellness study (RENEW)
  - 641 men (avg 73 yo) and included 94 CAP survivors)
  - *15 min strength training every other day*
  - *30 minutes endurance exercise daily*
  - Decrease in BMI compared to control group; decrease in physical function decline
- ▶ Kenfield et Study (2,705 male health care prof with prostate cancer)
  - Vigorous physical activity **MET  $\geq 6$  for  $\geq 3$  hours a week** demonstrated a 49% lower risk of all-cause mortality and 61% lower risk of death from prostate cancer compared to men who did  $< 1$  hour/week of vigorous activity.

# Weight Gain (abdominal fat)



- ▶ Diet – watching calories (keep a food diary)
- ▶ Aerobic and resistance exercise
- ▶ 30 minutes endurance exercise daily ( $\geq 3$  hrs a week)
- ▶ Obtain clearance from PCP before embarking on new exercise program
- ▶ Texas Health Dallas has the CARE program (16 week free exercise with nutritionist and trainer)

# Fatigue

- ▶ Resistance exercises 2–3 times a week
- ▶ Caffeine from beverages
- ▶ American ginseng root powder (discuss with PCP before taking)
  - Data support the benefit of American ginseng, 2000mg daily, on cancer related fatigue over an 8–week period. There were no discernible toxicities associated with the treatment.
  - People who take blood thinners should talk to their doctor. Ginseng may make them less effective.
  - Best if started at the beginning of treatment





# Ginseng (consumerlab.com)

## Dosages

1 gram 1 to 3 times daily

---

## What Research Shows

### Likely Effective

- **Cancer-induced nausea and vomiting**—likely to ease symptoms <sup>D1</sup>
- **Erectile dysfunction**—likely to ease symptoms <sup>H1, H2</sup>
- **High blood pressure**—likely to lower blood pressure <sup>J1, J2</sup>
- **Menopause**—likely to improve sex drive and ease hot flash discomfort <sup>K1, K2</sup>

### May Be Effective

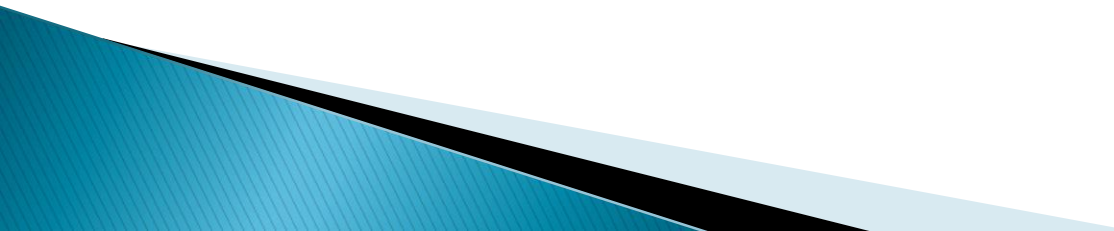
- **Acute respiratory infection**—may ease sore throat <sup>A1</sup>
- **Cancer fatigue**—may ease fatigue <sup>C1, C2</sup>
- **Chronic obstructive pulmonary disease (COPD)**—may improve lung function and quality of life <sup>E1, E2</sup>
- **Diabetes**—may improve glucose control and insulin sensitivity <sup>G1-G6</sup>

# Hot Flashes

- ▶ Increased warmth, usually upper body and face, often with sweating and may last a few seconds to a few minutes.
- ▶ Occurs in 2/3 of men on ADT, may decrease with time.
- ▶ May be triggered by changes in body position, ingestion of hot liquids or alterations in the environment temperature



# Hot Flashes

- ▶ Maintaining a healthy weight may reduce the severity of symptoms
  - ▶ Moderate aerobic exercise
  - ▶ Moderate to severe hot flashes prescription medications (megestrol acetate “Megace” or venlafaxine “Effexor”) may be effective but have side effects – talk to your PCP
- 

# Keep a Hot Flash Diary

## HOT FLASH RATINGS AND DIARY

### Hot Flash Rating Scale

Severity	Score	Length/Duration	Observations
Mild	1 point	Less than 1 minute	Warm & slightly uncomfortable, no perspiration
Moderate	2 points	Less than 5 minutes	Warmth involving more of the body, perspiration, taking off some layers of clothing.
Severe	3 points	Greater than 5 min.	Burning warmth, disruption of normal life activities such as sleep or work, excessive perspiration, frequent thermostat changes in your house.
Very severe	4 points	Time is not an issue	Complete disruption of normal activities to the point where it would make you consider discontinuing the androgen deprivation treatment.

Record the number and Severity of hot flash episodes to report to your physician.

### Hot Flash Diary

Date / Time	Severity Score (points)	Activity Before or During Hot Flash

# Cooling Towels



# Lipids and/or Pre-Diabetes

- ▶ Elevated cardiovascular risk with rise in cholesterol and glucose
- ▶ May respond to diet and exercise
- ▶ Low dose statin and/or ezetimibe (Zetia) for cholesterol management
- ▶ Low dose aspirin for those who qualify
- ▶ Metformin may be appropriate
- ▶ Omega-3 fatty acids (EPA/DHA 500 mg/dL or more) is FDA approved for hypertriglyceridemia only
- ▶ American ginseng may help with sugar control and insulin sensitivity

# Monitoring While on ADT

## Urologist

- ▶ PSA every 3 months (by urologist)
- ▶ Keep appt for ADT usually every 3 months

## PCP / Cardiologist

- ▶ Cardiovascular health
  - Cholesterol
  - Glucose
  - A1c (for diabetes)
- ▶ Blood pressure (home monitoring as well)
- ▶ Bone density annually while on ADT

# In Summary:

## CVD & ADT: Patient Management Guidelines



### Monitor

- Serum glucose
- Lipids
- Blood pressure
- Weight



### Lifestyle Changes

- Personalized aerobic exercise program (meta-analysis showed 30% reduction in CV mortality)
- Smoking cessation, dietary changes, moderation of alcohol consumption



### Medical Interventions, Co-care with Cardiologist

- Statins reduce CV mortality and reduce progression of coronary atherosclerosis
- Consider therapies for diabetes, hypertension and risk of thrombosis